

Nexa

REGIONAL AGENCY FOR DEVELOPMENT
INVESTMENT AND INNOVATION

3 S

SMART
SPECIALISATION
STRATEGY

DIRECTORY OF Research Development AND Innovation IN REUNION

NOUONS
La Réunion



l'Europe
s'engage
à La Réunion
avec le FEDER





Deep in the heart of the Indian Ocean, Reunion's 2,500 km² form a focal point for the planet's major challenges on :

How should we best meet the needs of a fast-growing population, without endangering the ecosystems and biodiversity we all depend on?

How should we adapt to the effects of climate change and dwindling energy supplies and fossil-based materials?

How can we prevent and deal with the health risks accentuated by globalisation?

How can we build individual and collective capacity and foster shared prosperity?

Reunion's task is to transform these challenges into opportunities through its 3S smart specialisation strategy. More often than not, our island status is seen only as a handicap. In actual fact, it spurs us on to innovate by developing solutions that boost Reunion's resilience, coupled with our ability to foresee and cope with various impacts and changes. It also means that we are currently experiencing phenomena and constraints that will

affect other regions worldwide. Thus based on acquired know-how and experience, we will be able to share our expertise and guidance.

The smart specialisation strategy is aimed at transforming our economy by building a new ecological and social development model based on innovation. The strategy is developed via a highly dense and dynamic research and innovation ecosystem :

- fully-committed public institutions
- high-quality research platforms
- research centres or specialised laboratories that are members of major regional and international networks
- professional associations and clusters promoting innovation
- training organisations and innovative co-working spaces
- public or private development support tools geared to the knowledge economy

In all, over 100 organisations are working on a daily basis to build a future fit for Reunion. Together, let's innovate Reunion!

PART 1 PUBLIC BODIES



Public-sector organisations and local authorities

- 14 | DRRT - Regional Commission for Research and Technology
- 15 | REGIONAL COUNCIL
- 17 | DEPARTMENTAL COUNCIL

PART 2 R&D ORGANISATIONS



Research bodies and related organisations

- 22 | BRGM - Reunion branch of the French Geological Survey
- 23 | CBNM - Mascarin National Botanical Conservatory
- 24 | CHU REUNION - Reunion University Hospital
- 26 | CIRAD - French agricultural research centre for international development
- 28 | IFREMER - French Research Institute for the Use of Marine Resources
- 30 | IRD - French National Research Institute for Development
- 32 | REUNION NATIONAL PARK
- 34 | RNMR - Reunion Natural Marine Reserve
- 35 | UNIVERSITY OF REUNION ISLAND

Astrophysical, Earth and Environmental Sciences



- 40 | ENTROPIE - Pacific and Indian Ocean tropical marine ecology joint research centre
- 43 | ESPACE DEV - Development space
- 45 | LACY - Atmosphere and Cyclones Laboratory
- 47 | LGSR - Reunion Geosciences Laboratory
- 49 | OPAR - Reunion Island Observatory of Atmospheric Physics
- 51 | OSU-R - Reunion Island Observatory for Astrophysical Science
- 53 | OVPF - Piton de la Fournaise Volcanological Observatory
- 54 | SEAS OI - Satellite-Assisted Environmental Monitoring of the Indian Ocean

Bioeconomy



- 58 | 3P - Plant Protection Platform
- 60 | ANSES - French Food, Environmental and Occupational Health & Safety Agency
- 61 | ARMEFLHOR - Reunion association for modernising the fruit, vegetable and horticultural sectors
- 62 | DIADE - Diversity - Adaptation - Plant Development
- 64 | ERCANE - Sugar cane resource development centre
- 66 | MARBEC - Marine biodiversity, development and conservation
- 67 | PVBMT - Plant Populations and Bio-agressors in Tropical Environments Research Unit
- 70 | QUALISUD - Integrated approach to food quality
- 73 | RITA - French network of Technical Institutes for Agricultural Innovation and Technology Transfer



Chemistry, Biotechnology, Health

- | | |
|----|---|
| 78 | CEPOI - Indian Ocean Perinatal Research Centre |
| 80 | CYROI - Cyclotron Reunion Indian Ocean Biotechnology Platform |
| 82 | DETROI - Reunion, Indian Ocean Diabetic Atherothrombosis Therapies Unit |
| 84 | DSIMB - Dynamics of the Structure and Interaction of Biological Macromolecules Joint Research Unit |
| 85 | LCSNSA - Chemistry of Natural Substances and Food Sciences Laboratory |
| 88 | MIVEGEC - Infectious and Vector-Borne Diseases Laboratory : Ecology, Genetics, Evolution and Control |
| 89 | PIMIT - Infectious Processes in Tropical Island Environments Research Centre |



Energy, Mathematics, Information Technology, Engineering Sciences

- | | |
|----|---|
| 94 | LE2P - Electronics, Energetics and Procedures Laboratory |
| 97 | LIM - Computing and Mathematics Laboratory |
| 99 | PIMENT - Laboratory of Physics & Mathematical Engineering for Energy and the Environment |



The Arts, Humanities and Social Sciences

- | | |
|-----|---|
| 104 | CEMOI - Indian Ocean Centre of Economics and Management |
| 107 | CEPED - Population and development joint research centre |
| 108 | CRJ - Legal Research Centre |
| 110 | DIRE - Movement, identities, perspectives and writing |
| 112 | ICARE - Southern Hemisphere Cooperative Institute for Research and Education |
| 115 | IRISSE - Engineering, Research, Intervention, Sport, Health, Environment |
| 117 | LCF - Research laboratory in Creole and Francophone areas |
| 119 | OIES - Indian Ocean : Territories and Societies |

PART 3 FACILITATORS



Training organisations

- | | |
|-----|---|
| 126 | CAMPUS REUNION |
| 127 | ESA - Reunion School of Art |
| 128 | ILOI - Indian Ocean Image Institute |
| 129 | P2ER - Reunion Student Entrepreneurship Cluster |
| 130 | SIMPLON REUNION - Digital school |
| 131 | WEBCUP CAMPUS - Digital, innovation, entrepreneurship FAB LAB and Campus |



Professional networks

- 134 **ADIR** - Reunion industrial development association
- 135 **APLAMEDOM** - Reunion association for aromatic and medicinal plants
- 137 **CLUSTER GREEN** - Regional environmentally-responsible enterprise network
- 138 **CPME RÉUNION** - Reunion confederation of small and medium-sized businesses
- 139 **DIGITAL RÉUNION** - Reunion association of digital sector professionals
- 140 **EFOIR** - Reunion, Indian Ocean Women's Entrepreneur Network
- 141 **JCEF** - French Junior Economic Chamber
- 142 **REUNION FRENCH-TECH** - Health related technology
- 143 **LE CERCLE** - Reunion free-enterprise business circle
- 144 **MEDEF REUNION** - French business confederation
- 145 **SYNERGIES JEUNES** - Indian Ocean youth entrepreneur network
- 146 **TÉMERGIE** - Reunion Energy Cluster



Third places

- 150 **O'KARTIE FAB LAB** - FAB LAB in western Reunion
- 151 **H30** - FAB LAB in eastern Reunion
- 152 **IUT LAB** - University Institute of Technology of Reunion Island
- 153 **RUN FAB LAB** - FAB LAB assisting local stakeholders
- 154 **LA RAFFINERIE** - Economic-cultural centre
- 156 **LE CARÉ** - Business and Networking Hub
- 157 **LE TRANSFO** - Co-working space dedicated to the digital economy and innovation
- 158 **LE VILLAGE BY CA** - Open innovation ecosystem
- 159 **LIZINE BY CBO** - Network of spaces for co-working and exchange
- 160 **STUDIO EPERON** - Co-working space



Funders

- 164 **ACG MANAGEMENT** - Investment fund management company
- 165 **ADIE** - Association for the right to economic initiative
- 166 **FRANCE ACTIVE REUNION** - Movement for socially responsible entrepreneurs
- 167 **INITIATIVE REUNION ENTREPRENDRE** - Association financing company creation
- 168 **KAPOC** - Reunion investment fund for community benefit projects
- 169 **POCPOC** - Reunion crowdfunding website



Support Structures and Services

- 172 **AD2R** - Reunion Rural Development Association
- 173 **BOUTIQUE DE GESTION** - Support in business set-up
- 174 **CB TECH BY CYROI** - Life sciences business incubator
- 175 **CIRBAT** - Tropical construction, innovation and research centre
- 176 **CITEB** - Technical center for research and valorization of aquatic environment
- 177 **CRITT REUNION** - Regional Centre for Innovation and Technological Transfer
- 178 **E-SANTÉ TESIS** - Indian Ocean eHealth incubator network
- 179 **ILE DE LA RÉUNION TOURISME** - Regional Tourism Board
- 180 **MESS CAPAB** - Centre for the Social and Solidarity Economy
- 181 **NEXA** - Regional Agency for Development, Investment and Innovation
- 183 **QUALITROPIC** - Tropical bioeconomics competitiveness cluster
- 185 **REUSIT** - Business and project incubator
- 186 **REUNION TECHNOPOLE** - Regional science park

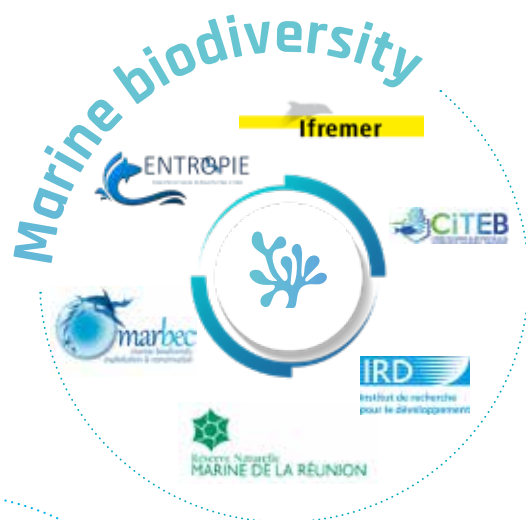


Private consultants

190	ANTIANE RÉUNION
191	ATIS
192	AVIA EXECUTIVE
193	CAIRN CONSULTANTS
194	CAMILLE ROY
195	CARDEA CONCEPT
196	DIX SEPTEMBRE
197	DROIT SUR TERRAIN
198	ENTREPRENATION INNOVATION ECOSYSTEM
199	GBO HOLDING
200	HUBEX
201	HUMAPRO
202	INNOVATECH CONSEIL
203	IO CONNECT
204	IP TRUST
205	ISODOM
206	OCÉAN STRATÉGIE
207	PARTNERS
208	RED SAMURAI
209	SEYES
211	SHEO TECHNOLOGY
212	SQUIRREL
213	VAKOM
214	VINN CONSULTING

PART 4 INDEX

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THIRD PLACES

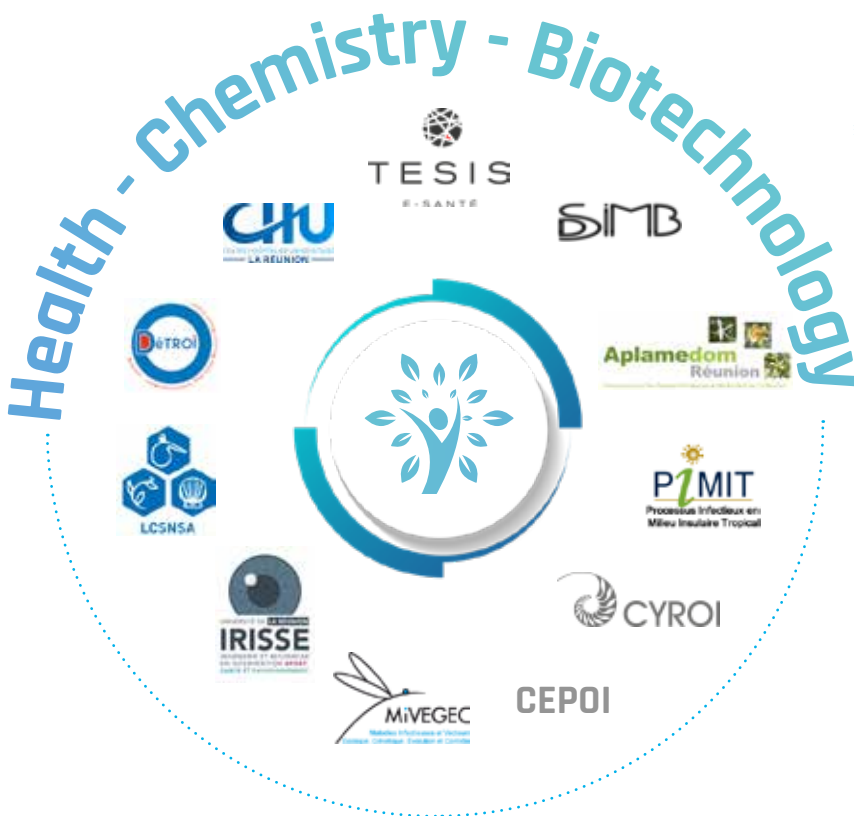
- ◊ O'Kartie Fab Lab
- ◊ H30
- ◊ IUT LAB
- ◊ La Raffinerie
- ◊ Le CaRé
- ◊ Le Transfo
- ◊ Le Village by CA
- ◊ Lizine by CBD
- ◊ Run Fab Lab
- ◊ studio eperon

PROFESSIONAL NETWORKS

- ◊ GREEN Cluster
- ◊ CPME Reunion
- ◊ EFOIR
- ◊ JCEF (member of JCI)
- ◊ Cercle
- ◊ MEDEF Reunion
- ◊ Synergies Jeunes

TRAINING ORGANISATIONS

- ◊ Campus reunion
- ◊ ESA
- ◊ ILOI
- ◊ P2ER
- ◊ simplon reunion
- ◊ Webcup campus



PRIVATE CONSULTANTS

- Antiane réunion
- ATIS
- AVIA EXECUTIVE
- Cairn consultants
- CAMILLE ROY
- CARDEA CONCEPT
- DIX SEPTEMBRE
- Droit sur terrain
- Innovation Ecosystem
- Entreprenation
- GBO HOLDING
- Hubex
- Humapro
- INNOVATECH CONSEIL
- IO CONNECT
- IP TRUST
- ISODOM
- OCÉAN STRATÉGIE
- PARTNERS
- RED Samurai
- SEYES
- SHEO TECHNOLOGY
- SQUIRREL
- VAKOM
- VINN CONSULTING

SUPPORT SERVICES ORGANISATIONS

- AD2R
- Boutique de gestion
- CB TECH BY CYROI
- CITEB
- Reunion Island Tourism Board
- MESS CAPAB
- NEXA
- REUSIT
- Reunion Technopole science park

FUNDERS

- ACG Management
- ADIE
- Initiative Reunion Entreprendre
- KAPOC
- POCPOC
- Reunion Active



PART 1

PUBLIC-SECTOR ORGANISATIONS



Public-sector organisations and local authorities





Public-sector organisations and local authorities



- 14 | DRRT - Regional commission for research and technology
- 15 | REGIONAL COUNCIL
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DRRT

Regional Commission for Research and Technology in Reunion and Mayotte

→ www.enseignementsup-recherche.gouv.fr/drrt-reunion

👤 Regional Director : **Abel HIOL**

✉ drrt.la-reunion@recherche.gouv.fr
drrt@univ-reunion.fr

☎ +262(0) 262 30 89 65
+262(0) 262 30 89 66

📍 **DAAF**
Boulevard de la Providence
97400 Saint-Denis

REGIONAL COMMISSION FOR RESEARCH AND TECHNOLOGY (DRRT)

The DRRT is an administration in charge of actions oriented by the state in the region, for research, technology and innovation, as well as promoting a scientific, technical and industrial sector, including the social-economic stakeholders and the general public.

The regional commission is appointed by the Ministry of Higher Education, Research and Innovation and reports to the Prefect of the Region and the General Secretary for Regional Affairs (SGAR). The regional commission advises the Chief Education Officer on subject related to research and technology transfer, together with an inter-ministerial role linking up with all decentralised state services.

CORE TASKS

To inform regional partners on national policy guidelines and the action plan of the Ministry of Higher Education, Research and Innovation's (MESRI) action programme agenda

To liaise with the Ministry of Regional Initiatives

To assist in the setting-up of the regional strategy in line with the national strategy

To coordinate the regional activities of public bodies and institutions which fall under the MESRI.

To support the development of competitiveness clusters and enterprises

To bring connection for research in the social-economical sector, and organise the transfer of technology in the field of research/industry

To support the dissemination of scientific, technical and industrial culture.

DUTIES OF THE STATE

Assessing requests from young innovative businesses (JEI) for research tax credit application (CIR)

Assessing the technical and economic aspects of CIFRE research funding requests

Overseeing CPER in projects related to research, transfer of technology and innovation

Developing and monitoring of ILAB initiatives

Setting-up and monitoring of the Science Festival

Following-up on the regional incubator for public research

Setting-up and monitoring of labels, CRT and PFT.

DEPARTMENT OF INNOVATION AND DEVELOPMENT OF DIGITAL TECHNOLOGY (DIDN)

Director : **Jean-Pierre POTHIER**
E-mail : jean-pierre.pothier@cr-reunion.fr
Telephone : +262(0) 692 92 24 01
Staff : **9**
Address : Centre d'affaires Cadjee
62 Boulevard du Chaudron | 97400 Saint-Denis

Duties

As part of the Deputy Directorate-General for Economy and Enterprise, the aim of the DIDN is to participate in the elaboration of public policies for economic development in audiovisual and numeric sector as well as in research and innovation.

Research and innovation services

Assist and monitor the implementation of the regional innovation strategy

Lead the innovative thematic committee for the SRDEII (regional scheme for economic, innovation and international development)

Provide Information to project applicants for the ERDF funding

Follow-up of innovative project submitted by enterprises and organisations, in line with the Research, Technological Development and Innovation (RDTI) regional office

Provide technical advise requested by the RDTI

Follow-up budgets related to funded projects and corresponding institutions (regional co-funding)

Monitor research projects, linked to the DIREED and the RDTI

Participate in the evaluation of public policies for research and innovation

RESEARCH, TECHNOLOGICAL DEVELOPMENT AND INNOVATION SERVICE (RDTI)

Director : **Shéhnaz UMMER**
E-mail : gurdti@cr-reunion.fr
Telephone : +262(0) 692 48 71 46
ERDF funding allocated to the RDTI : **€206.89M** (with €139.06M ring-fenced for OT1)
Staff : **13**

Duties

Reviewing funding requests for research, technological development and innovation projects eligible for the 2014-2020 ERDF OP.

Support services for project promoters

Information on grant support for research and innovation as part of the 2014-2020 ERDF with assistance from the ERDF support unit

Information for project applicants on key criteria of the financial instrument (selection criteria, procedures, etc.)

Launch of procedures namely on call for tenders on sectors and areas mentioned above

THE REGIONAL COUNCIL

→ www.regionreunion.com

👤 President : **Didier ROBERT**

✉ region.reunion@cr-reunion.fr

☎ +262(0) 262 48 70 00

📍 **Hôtel de Région Pierre LAGOURGUE**
Avenue René Cassin Moufia BP 67190
97801 SAINT-DENIS MESSAG CEDEX 9





EDUCATION DEPARTMENT (DIRED)

Director : **Séverine CHADELAUD**
 E-mail : **Severine.chadelaud@cr-reunion.fr**
 Telephone : +262(0) 692 **94 46 20**
 Staff : **4**

Duties

The DIREED contribute in the development of an ambitious and pro-active policies to support higher education, research programmes and scientific investment. This policy also support innovation and cooperation between research laboratories and private companies and also boost the potential in higher education.

Support services for project promoters

Introduction and monitoring of regional PhD grant schemes

Support for organising symposia, events or seminars to promote research

Analyse opportunity in assisting research project submitted by university laboratories to set-up regional funding

Follow-up on budgets associated with project funding (regional co-funding)

Monitoring research projects linked to the RDTI Assistance

Participate in the evaluation of public policies in research and innovation

THE SAV SCHEME : SUPPORT, ADVICE AND ADDED VALUE FOR BUSINESS ENTREPRENEURS

North

Contact : **Nathalie PEGOU / Rémy MALADIRA**
 E-mail : **nathalie.pegou@cr-reunion.fr**
remy.maladira@cr-reunion.fr
 Telephone : +262(0) 692 **81 81 66** / +262(0) 692 **81 81 67**
 Address : René Cassin | Moufia | Saint-Denis

West

Contact : **Catherine MOREL**
 E-mail : **catherine.morel@cr-reunion.fr**
 Telephone : +262(0) 692 **81 80 72**
 Address : 6 bis Route de Savanna | 97460 Saint-Paul

South

Contact : **Christine BEGUE / Jimmy HOARAU**
 E-mail : **christine.begue@cr-reunion.fr**
jimmy.hoarau@cr-reunion.fr
 Telephone : +262(0) 692 **48 73 96**
 Address : 65 Rue du Père Lafosse | 97410 Saint-Pierre

East

Contact : **Jean Max VELLAYOUDOM**
 E-mail : **jean-max.vellayoudom@cr-reunion.fr**
 Telephone : +262(0) 692 **58 21 00**
 Address : 92 Rue Lebon | 97440 Saint-André

Missions

The purpose of SAV scheme is to simplify procedures for entrepreneurs in the start-up phase or company managers with project development. The SAV scheme provides entrepreneur with quicker and easier access to information thus overcoming obstacles to growth.

Support services for project promoters

Initial face-to-face contact

Pinpointing needs

Provision of tailored information

Identify :

- ▶ key contact persons and support organisations
- ▶ optimum financial support

Provide with guidance, and create networking facilities between entrepreneurs and specialists in the creation/devise/

Setting-up of start-up or business developers

Tailored support for entrepreneurs



PRESENTATION OF THE DEPARTMENTAL COUNCIL

- **Fulfilling people's potential** : support family, assist and prevent less individual and vulnerable people toward preventing frailty and assist in employment integration.
- **Responsible investment** for balanced regional development

ADMINISTRATIVE SERVICES RELATED TO INNOVATION

The Development Centre gather all regional land-use planning and development departments and services under one roof :

- Building and Public Spaces Department
- Department of Agriculture, Water and the Environment
- Roads Department
- Department for Development Promoting Economic Activity and Mobility (DDIAEM) - Social Economy Unit
- Planning and Development duties
- Managing Authority (EAFRD) and European Affairs Department

SUPPORT SERVICES FOR PROJECT PROMOTERS

The Social Economy Unit

Contact : **Thierry LAW-YING**

E-mail : thierry.law-ying@cg974.fr

Telephone : +262(0) 692 97 43 26

Staff : 25

Duties

- ▶ Assessment of PREFACE /ADEN / TAJ grant applications
- ▶ Management outstanding debts (ADEN) liaising with ASP and the Finance Department
- ▶ Funding, facilitation and coordination of the «Points Chances» network
- ▶ Organisation of the Creators' Challenge

Support services for project promoters

Business start-up unit

Organise the «start-up creators challenge» competition for each innovative category

Developing the Social Economy network

Examine the grant application file

Analysing and processing of payment requests

Supervising workshops and initiatives

Associative project support unit



DEPARTMENTAL COUNCIL

→ www.cg974.fr

👤 President : **Cyrille MELCHIOR**

✉ accueil@cg974.fr

☎ +262(0) 262 90 30 30

📍 **2 Rue de la Source**
97488 Saint-Denis cedex

PART 2

R&D STRUCTURE



Research bodies and related organisations



Astrophysical, Earth and Environmental Sciences



Bioeconomy



Chemistry, Biotechnology, Health



Energy, Mathematics, Information Technology, Engineering Sciences



The Arts, Humanities and Social Sciences





Research bodies and related organisations



22	BRGM - French Geological Survey, research bureau, Reunion branch
23	CBNM - Mascarin National Botanical Conservancy
24	CHU REUNION - Reunion University Hospital
26	CIRAD - French agricultural research centre for international development
28	IFREMER - French Research Institute for the Use of Marine Resources
30	IRD - French National Research Institute for Development
32	REUNION NATIONAL PARK
34	RNMR - Reunion Natural Marine Reserve
35	UNIVERSITY OF REUNION ISLAND



BRGM

Reunion branch of the French Geological Survey research bureau

Status : Public industrial and commercial body

→ www.brgm.fr

👤 Regional Director : **Séverine BÈS DE BERG**

✉ s.besdeberc@brgm.fr

☎ +262(0) 262 21 22 14

📍 **5 Rue Sainte-Anne
CS 51016 - 97404 St-Denis Cedex**

Total staff :

12 (6 engineers)

PRESENTATION

In addition to scientific research, the BRGM undertakes local public policy support and appraisals. BRGM's regional and territorial directorate take part in various work areas.

Within its Reunion office in Saint Denis, the BRGM has an subsoil archive/ database that is open to the public, a lithotheca and a set of technical instruments.

It also provides guidance to several islands of the Indian Ocean.

RESEARCH ACTIVITIES

Research topics

- Hydrogeology (study and management of aquifers, analysis of pollutant, etc.)
- Soil contamination
- Natural Hazards (ground movement, flooding)
- Coasts (coastal erosion and flooding), environment, materials
- Technical guidance (ground movement, coastal line) in hydrologyrelated crisis

MAJOR RESEARCH AND INNOVATION PROJECTS

- ▶ **RenovRisk Erosion** - Issues arising from largescale ground movement in the Cirque of Salazie.
- ▶ **RenovRisk Transfert** - coastal problematics and climate change
- ▶ **The Spicy research programme** to develop an experimental early warning system to forecast coastal and river flooding related to cyclone for the French overseas departments and territories

PARTNERSHIPS

Regional Council, Departmental Council, Towns, State Services, Water Office, ADEME, AFB, University of Reunion Island, CIRAD, ONF, Météo-France, OVPF, Reunion Nature Park, ARS, EPCI, etc.

PRESENTATION

Ministerial approval as a "National Botanical Conservatory"

Flora and habitat monitoring - in relation to land-use planning

Flora and habitat conservation - related to the management of endangered and invasive species

Scientific and technical assistance for government authorities, public agencies, local authorities and interest group

Educational activities on flora and habitats for stakeholders from the public sector and the general public

Certification label for Permanent centres for Environmental Education initiatives (CPIE)

RESEARCH ACTIVITIES

Research topics

- Environment
- Biodiversity
- Network activities

PARTNERSHIPS

Institutional partners - associations - private companies
Scientific and technical partners



CBNM

Mascarin National Botanical Conservatory & CPIE

Status : French-registered non-profit association, established on 16 September 1986

→ www.cbnm.org

👤 President : Maximin ASSOUNE

✉ cbnm@cbnm.org

☎ +262(0) 262 24 27 25

📍 2 Rue du Père Georges

Colimaçons - 97436 Saint-Leu

Total staff : 16

Total annual budget : approx. 800,000€



CHU REUNION

Reunion University Hospital
Status : Public Health Care Facility

→ www.chu-reunion.fr

👤 Managing Director : **Lionel CALENGE**
👤 Director of Research, Innovation, Cooperation
and European Funding : **Manuella POTHIN**
✉ sec.dri@chu-reunion.fr
☎ +262(0) 262 35 95 20
📍 **CHU - Centre de recherche médicale et en
santé - PB 350 - 97448 Saint-Pierre Cedex**

Total staff in the region : 40
Total annual budget : approx. 2 million€

PRESENTATION

The university hospital mission is in line with regional public health priorities and since 2013 organised research activities on the territory's health based on three main topics featured below. These areas of clinical research all reflect the geographical, demographic, sociological and transitional specific characteristics of the Indian Ocean region.

Following five years of existence, Reunion University Hospital has a solid assessment in terms of research findings, with ambitious goals. This success is due to the collaboration of all stakeholders as well as researchers, medical teams, technical support, management and external partners) working closely together.

A coherent policy has been introduced to develop the hospital's clinical research.

To this end, the research teams carry out the following activities

Assistance to develop research, the implementation of internal promotion's rules and support to analysts (organisation, administration, management, control, technical and regulatory support for clinical trials).

Support for researchers on the qualitative and methodological aspects of projects, including data management, biostatistics (guidance to draft scientific texts, designing clinical trials and database management).

RESEARCH ACTIVITIES

► Institutional research

Topic 1 : Nutrition, diabetes and chronic illnesses
Topic 2 : Infectious, tropical and emerging diseases
Topic 3 : Genetics, perinatal care and birth

► Industrial research

Topic 1 : Type 2 diabetes
Topic 2 : Pulmonology (asthma, COPD, lung cancer)
Topic 3 : Haematology and oncology
Topic 4 : Cardiology

Research arrangements

The University Hospital provides researchers with several support structures to conduct their work :

1/ Delegation for Clinical Research and Innovation (DRCI)

Comprising five inter-disciplinary units, falling under the responsibility of a coordinator-manager and a medical coordinator :

A single desk ► providing an interface between the DRCI and researcher-clinicians, external partners and University Hospital research bodies

A University Hospital Promotion Unit ► that provides support to Reunion University Hospital analysts and manages various calls for projects

Analyst Support Unit ► to ensure management of research projects run smoothly in the hospital departments

Monitoring Unit ► to introduce and monitor quality control procedures and closing research projects

2/ USM - Methodology Support Unit / CIC-EC - Centre for Clinical Analysis - Clinical Trials

The structure focus on methodologies and statistics.

3/ CRB - Biological Resource Centre, NF S96-900 certified.

MAJOR RESEARCH AND INNOVATION PROJECTS

- ▶ **CURASMUR** - Comparison of succinylcholine and rocuronium used for intubation in emergency pre-hospital admission situations. Multi-centred, non-inferiority, random, controlled and blind studies
- ▶ **Accident & Emergency**
- ▶ **CHIKGène** - Genetic and immunity determinism in chronicity of Chikungunya virus
- ▶ **Infectious diseases**
- ▶ **RAMIR** Action-Research into Infant Mortality in Reunion
- ▶ **Perinatal care**

PARTNERSHIPS

University of Reunion Island | Reunion Laboratories |
CYROI | CRVOI | Qualitropic | University Hospital |
INSERM | Pasteur Institute | Curie Institute | IRD | Unicancer |
ANRS | Pharmaceutical industry | Countries in Indian Ocean area





CIRAD

French agricultural research centre for international development

Status : Public body with a commercial and industrial undertaking

→ www.reunion-mayotte.cirad.fr

👤 Regional Director : **Eric JEUFFRAULT**

✉ dir-reg.reunion@cirad.fr

☎ +262(0) 262 52 81 00

📍 **40 Chemin de Grand Canal
CS 12014 - 97743 SAINT-DENIS Cedex 9**

PRESENTATION

Cooperation through research using a regional agronomic research platform for development (PRERAD).

PRERAD is a scientific and technical platform designed to boost its visitors' research facilities to develop research excellence in agronomy by bringing together Reunion and other Indian Ocean island country partners in joint projects. This collaboration aims at fostering partnerships between CIRAD and research and higher education teams in the Indian Ocean region and work together in networks on common themes. The platform also hosts research and education teams (on varying lengths of stay). CIRAD assists groups of researchers and technicians through partnership by providing them with research activities or training, underpinned by collaborative arrangements with private enterprise.

RESEARCH ACTIVITIES

Research topics

The main topics focus on :

- Human and animal health in the Indian Ocean area (One Health-OI)
- Bioaggressors and plant health
- Co-designing high-quality agri-food systems
- Services and impacts of agricultural activities in tropical environments
- Forests and Biodiversity.

KEY RESEARCH PROGRAMMES

- ▶ **Preserving and enhancing biodiversity in island ecosystems** by fostering sustainable agriculture adapted to global changes
- ▶ **Safeguarding animal and human health in natural Indian Ocean ecosystems (nature)** and ensuring the development of sustainable agriculture adapted to the limitations of islands.
- ▶ **Designing more sustainable agri-food systems** in which quality of products and production methods are added values.
- ▶ **Assessing positive and negative effects and ecosystem services**, such as agricultural production and environmental services, farming practices on the island, to tailor agricultural systems to global changes.

Key publications

- MAQUART, M et al. Development of real-time RT-PCR for the detection of low concentrations of Rift Valley fever virus. 2014. Journal of virological methods, 195 : 92-99 ;
- CÉTRE-SOSSAH, C et al. Epizootic haemorrhagic disease virus in Reunion Island : Evidence for the circulation of a new serotype and associated risk factors. 2014. Veterinary microbiology, 170 (3-4) : 383-390 ;
- QUILICI, S et al. Evaluation of candidate systems for mass trapping against Ceratitis spp. on La Réunion island. 2014. Pest management science, 70 (3) : 448-453 ;
- PÉRÉFARRES, F et al. Frequency-dependent assistance as a way out of competitive exclusion between two strains of an emerging virus. 2014. Proceedings of the Royal Society, Biological Sciences, 281 (1781) : 9 p ;
- ADLER, S et al. Morphological and histological impacts of the laurina mutation on fructification and seed characteristics in Coffea arabica L. 2014. Trees - Structure and Function, 28 (2) : 585-595 ;
- NORDEY, T et al. Non-destructive prediction of color and pigment contents in mango peel. 2014. Scientia Horticulturae, 171 : 37-44 ;

- MATHIEU, A et al. Predicting the altitudinal distribution of an introduced phytophagous insect against an invasive alien plant from laboratory controlled experiments : case of *Cibdela janthina* (Hymenoptera : Argidae) and *Rubus alceifolius* (Rosaceae) in La Réunion. 2014. *Biocontrol*, 59 (4) : 461-471 ;
- JOËT, T et al. Regulation of galactomannan biosynthesis in coffee seeds. 2014. *Journal of Experimental Botany*, 65 (1) : 323-337 ;
- WASSENAAR, T et al. Returning Organic Residues to Agricultural Land (RORAL) - Fuelling the follow-the-technology approach. 2014. *Agricultural systems*, 124 : 60-69.

SCIENTIFIC EXPERTISE

CIRAD researchers in Reunion specialise in a range of disciplines, including general agronomy, genetics, geography, sociology and statistics. The expertise could be in the form of input through collaborative or consultancy assessments.

Cirad also provides agronomic analysis services.

CIRAD provides a wide range of services from basic plant material of European standards for seed companies and plant nurseries, detection methods to diagnose plant diseases for medical laboratories, food-processing equipment for food industry processes, as well as databases and software for the agricultural sector.

Technical support centre and cutting-edge equipment

The Plant Protection Platform (3P) covers over 3000m², with three main laboratories, a level-3 (NS3) quarantine facility, and a biological resource centre (CRB Vatel). 3P is associated with CIRAD-RUN field trial facilities on farmland (20 ha) and in a natural environment, together with the University of Reunion Island. The CIRAD agri-food laboratory in Saint Pierre conducts physical and chemical, chromatographic and microbiological analyses for agri-food research. The plant ecophysiology and biochemical laboratory, based at the Bassin Plat, CIRAD facility in Saint Pierre, works with the agri-food laboratory. CIRAD's agronomic analyses laboratory (located in La Bretagne), in Saint-Denis, analyses between 2,500 and 4,000 samples a year, comprising 30,000 to 40,000 analytical determinations, half of them focused on agronomic research.

PARTNERSHIPS

Many (150 partners in the Indian Ocean area).

Examples :

PUBLIC PARTNERS ►

in Reunion : University of Reunion Island (PVBMT, LCSNA mainly) | ANSES | ARMEFLHOR and FDGDON (UMT SPAT) | AROPFL | CRITT | Chamber of Agriculture | Reunion National Park | GDS | Reunion University Hospital | GDS 974 | LVD, DAAF, etc. ;

in France : INRA | IRD | SupAGRO | Montpellier 2 Univ. | CNRS (BGPI, CBGP, CEFE, AGAP, IEES Paris, IPME, LIPM, GAFL) | GEVES | ITSAP, etc. ;

international : FIFAMANOR | FOFIFA | University of Antananarivo (Madagascar) | INRAPE (Comoros) | SAA (Seychelles) | University of Mauritius and AREU (Mauritius) | Univ. of Cape Town (South Africa) | Veterinary and public health services in Indian Ocean countries | FOFIFA-DRZV (Madagascar) | Institut Pasteur in Madagascar | IITA (Tanzania) | Univ. of Ouagadougou | INERA (Burkina Faso) | Univ. of Bangui (Central African Republic) | Tervuren Museum (Belgium) | IFP and Indian Institute of Spices Research (India) | Izmir Institute of Technology (Turkey) | Univ. Wisconsin | Virginia Tech (USA), etc.

PRIVATE PARTNERS ►

Farmers | Avipôle | Sicalait | Sicarevia | CILAM | Crête d'Or Entreprise | Vivea | Tereos OI | Veolia Eau | CINOR | John Creag Venter Institute | ARYSTA Life Science | Fages | Cooperative Bourbon Pointu | Flhorys | Vitrorun | AB7 Industries | Qualiplante | Chatel | Provanille | Technisem (Cameroon) | East West Seeds (Thailand), etc.

New partnerships

We have a robust and unlimited commitment to new partnerships, especially with private enterprise (confidentiality agreements if required).

PATENTS AND LICENCES

CIRAD is an active member of the "Valorisation Sud" technology transfer consortium , combining the IRD, Institut Pasteur and French Overseas universities.





Ifremer

IFREMER

French Research Institute for the Use of Marine RESOURCES

Status : Public body with a commercial and industrial undertaking

→ www.ifremer.fr/lareunion

👤 Indian Ocean representative : **Magali DUVAL**

✉ delegation.reunion@ifremer.fr

☎ +262(0) 262 42 03 40

📍 **Ifremer, Indian Ocean delegation**

Station de La Réunion

9 Rue Jean Bertho, BP 60,

97822 Le Port CEDEX

Total staff in the region :

14 (1 researcher and 6 engineers)

Permanent staff : 7

PRESENTATION

IFREMER (French Research institute for the use of MARINE resources) provides its expertise to improve our knowledge of the oceans and their resources, monitoring of marine environments and fostering the development of sustainable marine activities.

Gathering data and knowledge about the sea and contributing to the development of observation and monitoring activities.

Managing and summarising data and knowledge to be widely accessible by developing or combining tools based on the mainstream standardisation frameworks, sharing and security.

Developing opinions, guidance or assistance in decision-making to help develop sustainable marine activities.

RESEARCH ACTIVITIES

Research topics

Areas of expertise :

- TOPIC A : Fisheries science | Environment and Biodiversity
- THEME B : Fish farming and marine energy with the support of the other Ifremer teams

Facilities

- 1 laboratory specialising in genetic analysis
- 1 laboratory for sample-processing (biometrics, sampling, etc.)
- 1 imaging laboratory specialising in otoliths
- 1 electronics and imaging laboratory

MAJOR RESEARCH AND INNOVATION PROJECTS

► Halieutic and Biodiversity

Halieutical information System (SIH), a long-term national monitoring network for fish stocks and related practices in place, in Reunion, since 2006

Population dynamics and connectivity : large pelagic species (IOSSS Espadon, GERMON and POPSTAR) and coastal resources (DMX, EPICURE, STAVIRO Mayotte and PECHTRAD projects)

Marine megafauna : Indian Ocean turtles (DYMITLE, Turtle action plan, TURTLE TAG and PIOT)

► Environment

Introduction of the Water Framework Directive in Reunion and Mayotte : classification and maps / Specifying the different monitoring programme networks / Situation updates (GOOD CONDITION - GOOD CONDITION II, as well as technical and scientific support in the catchment areas)

Benthic habitats map : hyperspectral imaging (SPECTRHABENT-01 and HYScores)

Hydrodynamic models : modelling platform for Reunion Island (HYDRORUN)
Managing and summarising data and knowledge and keeping them widely available by developing or combining tools based on the mainstream standardisation frameworks, sharing and security.

Fishing and Biodiversity

Longline fishing atlas : fishing records since the 1950s and number of swordfish caught ; annual changes since 1994 in the activity of Reunion fishing fleets

BD TORSOOI : Sea turtle database for the South-West Indian Ocean

A publication to raise public awareness : "Turtles and Islands"

Environment

Water Framework Directive (WFD) technical manuals : documents with instructions and methods for setting up WFD monitoring networks

Monitoring guide for urban emissions and guide to dredging marine sediments in Reunion

QUADRIGE information system : reference system for coastal waters with a range of associated tools, BD Récif for CORAIL data input and SURVAL for sharing data on the web

SEXTANT information system : geographic marine reference data for the POLMAR atlas, REMATA, etc.

Hyperspectral Atlas : findings of processing data on reef platforms in Reunion

PARTNERSHIPS

IFREMER

Mainland France teams : approx.1,400 people

Overseas territories teams : approx. 140 people working on common issues

GOVERNMENT SERVICES

Prefectures in Mayotte | Reunion | TAAF | ARS-OI | DEAL Reunion and Mayotte | DMSOI | ...

RESEARCH BODIES AND ORGANISATIONS REPRESENTING THE PROFESSION

National : AAMP | BRGM | IRD | ...

Local : CRPMEM | GLOBICE | KELONIA | CEDTM | PNMM | RNMR | Universities of Reunion Island and Mayotte |

PUBLIC BODES AND LOCAL AUTHORITIES

National : AFB |, etc.

Local : Regional Council | Reunion Water Office |, etc.

OVERSEAS PARTNERS

South Africa | Australia | Comoros | Madagascar | Mozambique | Oman | Seychelles |, etc.





IRD

French National Research Institute for Development

Status : French public institution specialising in science and technology, reporting to the Ministries of Research and Foreign Affairs

→ www.la-reunion.ird.fr

👤 Director : **Pascale CHABANET**

✉ la-reunion@ird.fr

☎ +262(0) 262 52 89 19

📍 **CS 41095 - Parc Technologique Universitaire
2 Rue Joseph Wetzell
97495 SAINTE-CLOTILDE Cedex**

Total staff in the region : 44

Total annual budget : €1M (not including payroll)

PRESENTATION

IRD is a French research body working on international development issues with collaborator in the Southern hemisphere. Improving sanitary conditions, understanding social changes and protecting the environment and resources are the cornerstones of IRD's activity to meet the development needs of the millennium.

IRD is a French public science and technology body jointly managed by the French Ministries of Research and Foreign Affairs. Its network and operations incorporate 50 countries with a unique approach to research, expertise, training and sharing knowledge for the benefit of regions and countries with science and innovation as one of their main drivers for development.

It operates in Africa, the Mediterranean, Asia, Latin American and French overseas territories. Joint projects are based on an interdisciplinary approach and address vital questions for the regions of the South, such as tropical and societal diseases, the link between health and the environment, climate change, water resources, food safety, tropical and Mediterranean ecosystems, natural hazards, poverty, vulnerability and social inequality, migration and labour market changes, etc.

See the IRD website : <http://www.ird.fr> and Réunion <http://www.la-reunion.ird.fr>

RESEARCH ACTIVITIES

Research topics

IRD's research is built around three major and closely-related global issues in line with the Strategic Orientation Plan 2016-2030 and the Report on the Scientific Situation and Outlooks produced in September 2015 by its scientific bodies :

- ▶ Climate change and environmental change which are directly or indirectly related ;
- ▶ imbalances linked an increase in social inequality in and between countries ;
- ▶ the need to develop sustainable forms of consumption and production to mitigate the crisis in natural resources worldwide.

Partnership programmes (PSIPs) are designed as tools to consider and assist the institute's strategic programme. By generating scientific knowledge, they critically and constructively measure expectations on the Sustainable Development Goals (SDGs). PSIPs require a wide range of scientific input using an interdisciplinary approach to the SDGs. (see. 2016-2020 goals and performance contract).

PSIPs contribute to generate the visibility and legibility of the institute's scientific policy. They also focus on major international challenges based on the three global issues mentioned above.

The aim of the projects is to give specific, but non-exclusive, support to the main existing bodies, such as IRD Young Associate Teams (JEAI), the Combined International Laboratories (LMI), International Research Groups and Observatories.

2017 was devoted to setting up PSIPs and defining their aims in line with methods geared to the national and international research context addressing these subjects. Each of the ten themes reflecting specific development issues will have their own PSIP. However, similar to the SDGs, the themes are closely tied, often demonstrating the need for links between the various partnership programmes.

Organisation of research (measures, teams, federations, etc.)

IRD is committed to sharing resources and helping to equip facilities with the latest technology, not only in mainland France, but also in French overseas territories.

A number of technological platforms provide cutting-edge research, such as ALYSES, for the study of tropical soils and sediments, or CapMédiTrop, for the genetic analysis of cultivated tropical plants.

In terms of health, several medical research laboratories, specialising in HIV in Thailand or malaria in Benin, help meet public health needs in the countries of the South. The French National Centre of Vector Research (Cnev) adds to measures taken to combat infectious diseases.

A large amount of resources are devoted to observing and studying

ecosystems : satellite antenna networks (SEAS), research observatories for the environment (ORE) and tropical plant habitats in Noumea and Cayenne.

IRD's main mission, including its French overseas territories network, is to produce research to develop , reinforce and make scientific communities and systems of higher education and research in the partner countries more independent. The Young Associate Teams (JEA) and Combined International Laboratories (LMI) provide support for researchers and programmes. They strengthen research teams through scientific partnerships with IRD research units.

IRD works with all participating public and private stakeholders on sustainable development issues by considering research work as part of a co-creation process, to transform lifestyles and economic models.

As such, the Institute acts as a driver for open and responsible innovation and as part of the ecosystems for innovation in developing countries, which can be seen, particularly in initiatives launched by the Innovation Campuses for the Planet.

IRD provides scientific input as systematically as possible in scientific expertise and practical initiatives.

As a supporter of "protecting for sharing", IRD seeks to match the practical, economic application of research with its vision of science. It seeks to apply research with a fair reward for all contributions and to ensure scientific communities and populations in emerging countries and French overseas territories have full access to research findings.

The French agricultural research centre for international development (Cirad), the Institut Pasteur, IRD and universities in French tropical regions (Reunion, West Indies, French Guiana, New Caledonia and French Polynesia) are working together to apply French scientific research for development in countries of the South by creating the technology transfer consortium "Valorisation Sud".

Valorisation Sud has been endorsed by the Investments for the Future initiative. With a budget of 9 million euros over a ten-year period, the consortium is the France's standard-bearer for technology transfer and skills tailored to inter-tropical regions and developing countries.

The Department for the Mobilisation of Research and Innovation provides support for three types of specialist input on request :

- ▶ collaborative scientific expertise (multi-disciplinary, with a wide range of subjects linked to public policy matters) ;
- ▶ institutional expert assessments or consulting, involving the liability of research institutions ;
- ▶ institutional expertise which require independence, neutrality and impartiality are not tied to the interests of the client. Consulting, by contrast, is different, since the interests of the client is a primacy with private consulting carried out in the client's name by the researcher.

The Department for the Mobilisation of Research and Innovation coordinates the development of its activities in relation to the departments and services of the Scientific Centre, the Development, Global Issues and Partnerships Centre, the Research and International Scientific Development Support Centre and the joint research units.

PARTNERSHIPS

International collaboration is an inherent part of research activities.

The main issues involved in research for development have a global reach (pandemics, climate, migrations, etc.). So research cannot be carried out alone, but only in partnership with other teams, to harness broad and varied skills, and combine the critical mass required to advance knowledge.

Furthermore, research for development aims to help boost the scientific capacities of the South as part of a partnership and

help apply research for the economic benefit of the South.

Lastly, international collaboration is necessary to be part of international scientific research competition. Co-publications with partners underpin the quality of research fundings.





NATIONAL PARK

Reunion National Park

Status : **Public Administrative Body**

→ www.reunion-parcnational.fr/fr

👤 Director : **Jean-Philippe DELORME**

✉ contact@reunion-parcnational.fr

☎ +262(0) 262 90 11 35

📍 **258 Rue de la République**

97438 La Plaine des Palmistes

Total staff in the region : **82.5 FTE**

Total annual budget : **6,750,000€**

PRESENTATION

Reunion National Park runs projects on the island in compliance with the decree of 14 April 2006 on French national parks.

Given their exceptional nature, French national parks main objective is to preserve local areas.

To achieve this goal, they must fulfil certain basic roles :

- ▶ To develop knowledge and scientific monitoring of heritage
- ▶ To conserve, manage and, when necessary, restore natural and cultural heritage and landscapes
- ▶ To promote practices that preserve heritage and foster sustainable development
- ▶ To make the national park status an asset for the local area,
- ▶ To raise awareness, organise activities and provide information on the conserving regional heritage
- ▶ To provide public access of quality in line with preserving heritage
- ▶ To involve local stakeholders in administering national parks
- ▶ To contribute to regional, national and international sustainable development and heritage protection policies

Reunion National Park manages the «Pitons, Cirques and Remparts» UNESCO World Heritage site. It also prioritises natural heritage activities' by controlling invasive species, in favour of the conservation and restoration of the well preserved ecosystems of the Mascarene Islands and protecting endangered species.

It also assists the island's economic development via its charter, and promotes Reunion's outstanding heritage.

RESEARCH ACTIVITIES

Research topics

The public in charge of national park are committed to scientific research, from basic research to applied research. They seek to inspire and support research for their benefit as well.

Reunion National Park is affiliated to the French Ministry of Ecology and isn't a research body but regularly contributes to research work.

Main subject area for participation in research

- ▶ Conservation biology

Research arrangements

The Studies and Heritage Department supports knowledge gathering and setting up conservation initiatives linked to the various research areas.

Field-based teams actively help collect data on natural heritage.

MAJOR RESEARCH AND INNOVATION PROJECTS

- ▶ **Improving knowledge to help restore habitats** (especially semi-arid habitats). Complementary european funds, such as LIFE+
.....
- ▶ **Improving knowledge to conserve species :**
 - **Animals**(especially endemic birds) - Specific funding from LIFE+ to conserve petrels and the Reunion Cuckooshrike ;
 - **Plants**(endangered species) - Specific funding from LIFE+ (LIFE+ Arid Forest) and ERDF.
.....
- ▶ **Improving knowledge** to monitor the impact of global changes
.....
- ▶ **Assisting habitat monitoring**

PARTNERSHIPS

UNIVERSITY OF REUNION ISLAND AND CIRAD REUNION : Several projects in ecology, natural heritage conservation and human and social sciences

MASCARIN NATIONAL BOTANIC CONSERVATORY : Knowledge and conservation of flora and habitats

UNIVERSITY OF TOULOUSE : Biogeography of birds

IRSTEA BORDEAUX : SHS

INDIAN OCEAN DEPARTMENT OF CULTURAL AFFAIRS / INRAP : Archaeology

CNRS CEBC CHIZÉ : "Early LIFE" programme to tag petrels with argos beacons

CEFE CNRS MONTPELLIER : Methodology for data gathering and analysis

SAFRAN ELECTRONICS & DEFENSE / MERCANTOUR NATIONAL PARK : Nighttime vision trials to observe petrels

SEABIRDS RECOVERY PROJECTS HAWAII

MUSEUM OF NEW ZEALAND TE PAPA TONGAREWA

ASSOCIATIONS : SEOR | NOI | GCOI , etc.





RNMR

Reunion Natural Marine Reserve

Status : **Private/public sector group**

→ www.reservemarinereunion.fr

👤 Director : **Karine POTHIN**

✉ info@reservemarinereunion.fr

☎ +262(0) 262 34 64 44

📍 **39 Rue du Lagon Lot Dayot 1
97434 La Saline Les Bains**

Total staff : **13 (2 researchers)**

Total annual budget : **950,282€**

PRESENTATION

The Reunion Natural Marine Reserve seeks to preserve coral reef heritage and the related ecosystems (sandy seabeds, sea-grasses meadows, rocky seabeds). To reconcile human activity and the preservation of coral reefs, the Marine Reserve has been requested to apply rules drawn-up by the state services (policing missions). The Reserve also gathers new data on the marine environment to improve its management (scientific mission) and to raise public awareness (educational mission).

RESEARCH ACTIVITIES

Research topics

- ▶ Coral reproduction
- ▶ Biodiversity inventory
- ▶ Monitoring fishing grounds
- ▶ Monitoring the condition of the coral reefs
- ▶ Monitoring visitor numbers

Research arrangements

Works jointly with local research bodies, member of WIOMSA, participation in PhD committees, scientific programmes, etc.

Scientific support : Our team comprises biologists with expertise in ichthyology of reef benthology and ecology and can supply knowledge and expertise in these fields. We are also in contact with a specialist networks on request.

Technical and logistical support : The Reserve has the human resources and equipment for intervention in the sea and on the coast that can also be made available to project leaders. The team consists of Class 1b professional divers who can carry out dives, provide technical assistance or on-board safety. The Reserve has its own boat and all the equipment needed for professional diving (diving equipment and safety equipment).

Project coordination and networking : As a private-public sector group (GIP), the Marine Reserve can coordinate scientific projects and manage European funding. It belongs to numerous scientific networks and provides networking for projects on a local, national or international level.

PARTNERSHIPS

WIOMSA network | IFRECOR | Invasive Exotic Species network | Network with local scientists | Network with academia | Tourism Club | IRT | CRESSM | French Natural Reserves | COI | PAREGO | Forum for French Protected Marine Areas | French Agency for Biodiversity



UR | UNIVERSITÉ
DE LA RÉUNION

UNIVERSITY OF REUNION ISLAND

A French higher education and research establishment at the heart of the Indian Ocean in one of Europe's Outermost Regions.

Status : Public scientific, cultural and professional body

→ www.univ-reunion.fr

👤 President : **Frédéric MIRANVILLE**

✉ cabinet@univ-reunion.fr

☎ +262(0) 262 93 80 18

📍 15 Avenue René Cassin - CS 92003
97744 Saint-Denis Cedex 9 LA RÉUNION

Total staff in the region :

15,000 students / 1,100 staff

(including researchers and lecturer-researchers : 400)

Total annual budget : 125,000,000€

PRESENTATION

The University of Reunion Island is a French higher education and research establishment at the heart of the Indian Ocean, in one of Europe's Outermost Regions. Its unusual geostrategic position, shows that it is the only European university in this part of the world.

Each year, the university welcomes more than 15,000 students in buildings of over 100.000 m² in Saint-Denis (Le Moufia, La Victoire, the University Technology Park and Bellepierre), as well as in sites in Le Tampon and Saint-Pierre (technology institute and university hospital training centre).

With its educational and research activities, international profile and student life, the University of Réunion Island has numerous advantages to fully perform its role as an interface between Europe and the Indian Ocean.

The university has **over 80 graduate and postgraduate degrees** in a wide range of high quality full-time and vocational courses :

- ▶ **Our Bachelor's, Master's and PhD degrees** meet European standards and are split into four main groups :
 - Arts, Literature and Languages
 - Law, Economics, Management
 - Humanities and Social Sciences
 - Sciences, Technologies, Health
- ▶ **Vocational training** (vocational degrees, technology degrees, etc.)
- ▶ **Engineering diplomas**

Research work underpins the quality of education. Research is conducted at the University's **21 laboratories** and based on three federations, reflecting Reunion's potential as a subject for study.

RESEARCH ACTIVITIES

Research topics

Very few regions in the world can host such a wide range of cultures, natural areas and problematics connected with the environment and society in such a small area. The tropical island has been created from two volcanoes with its highest point at 3070 metres above sea level. It was populated with a diverging range of origins. It has a world renowned unique natural environment related to one of the rare «hot spots» for both marine and terrestrial biodiversity.

This immense potential has given rise to three major research topics :

▶ **Topic 1 : OBSERVATORY OF INDIAN OCEAN SOCIETIES**

A group of research units entitled by the University of Reunion Island in Literature, Human and Social Sciences to study societies' knowledge in the Indian Ocean.

Aims : To establish a Human and Social Sciences observatory for Indian Ocean societies, to help apply and share research findings in the sector, as well as retrace changes in these societies and the links within and outside the region.

▶ **Topic 2 : OBSERVATION OF NATURAL ENVIRONMENTS AND GLOBAL CHANGES**

A group of four university research units, from the CNRS, CIRAD, the IRD, IPGP and Météo France, dedicated to the observation, dynamics and evolution of natural environments.

Aims : To expand the monitoring and analysis capacities of natural areas, and to develop information technologies and mathematical tools for environmental studies in order to better inform public authorities.

► Topic 3 : BIOSECURITY IN TROPICAL ENVIRONMENTS

A grouping of authorised research units from the University of Reunion Island, CIRAD, IRD, CNRS and Inserm are studying biodiversity and the environment in relation to human, animal and plant health, agr-production and the bioeconomy.

Goals : To promote exchange and cooperation between all researchers working on the subject of biodiversity and to act as a springboard for French and European funding requests, with co-funding from local authorities.

Research arrangements

The University's research capacity consist of three federations. Each federation focuses on a research area and are linked to 21 Ministry-recognised research units, including nine mixed-research centres working in partnership with national research bodies.

The lab teams receive approximately 400 researchers and lecturers/researchers. The University also has two multi-disciplinary graduate schools training 40 PhD students each year and issue almost 10 habilitation thesis to supervise research.

The University of Reunion Island has established outstanding facilities with its partners to develop research projects such as :

- **An Observatory for Astrophysical Science** with a range of international-standard equipment to combat climate change (in collaboration with the CNRS)
- **The SEAS OI unit for satellite-assisted environmental monitoring**, specialising in remote sensing and geomatics (jointly with Reunion Regional Council, the French government and the IRD)
- **The CYROI platform** to develop technical support services for researchers in microbiology, virology, biochemistry, lab animals, analytical chemistry (in collaboration with the University Hospital)
- **The Scientific Supercomputing Development Centre**, combining a range of resources (human, material and software) for high-performance computing

Lastly, the University has a support service, the Research Centre, to promote the development of research. It produces and manages research budgets, supports the three research federations, administers research bodies, assists researchers to develop research projects and promotes and develops the national strategy for scientific, technical and industrial problematic with a group of engineers at its disposal.

In 2013, the University of Reunion Island created a «Europe office» within in the Research Centre to link researchers to the major European research institutions by developing Horizon 2020 projects.

MAJOR RESEARCH AND INNOVATION PROJECTS

► STRUCTURAL PROJECTS :

FORWARD | BIOTROPHICS

► RESEARCH PROJECTS :

ARISE | TASC MAR | ECO POTENTIAL | PLATINOI-ZIK ALLIANCE | REACT

PARTNERSHIPS

The University of Reunion Island has forged a wide range of partnerships at local, regional, national, European and international levels.

These cover various levels and focus on training tasks, especially vocational training, research, development and innovation. **The University of Reunion Island creates close ties with public sector bodies** (Reunion Regional Council | Nexa | devolved government departments | CAF (family allowance service), etc.), private sector associations and professional organisations.

In terms of research and innovation, the University of Reunion Island has established successful partnerships with national organisations working, or represented, on the island (CIRAD | IRD | FREMER | CNRS | INSERM | IPGP | Météo France | and other French universities), as well as specialised private bodies, such as QUALITROPIC, Témergie and the Reunion Technopole science park association, etc.

The University of Reunion Island has signed numerous international partnership agreements with foreign universities, having student and researcher exchange schemes with Madagascar, Mauritius, South Africa, Australia, India, China and Quebec, etc.







Astrophysical, Earth and Environmental Sciences

- 40 **ENTROPIE** - Pacific and Indian Ocean tropical marine ecology joint research centre
- 43 **ESPACE DEV** - Spatial dynamics characterising ecological socio-ecosystems
- 45 **LACY** - Atmosphere and Cyclones Laboratory
- 47 **LGSR** - Reunion Geosciences Laboratory
- 49 **OPAR** - Reunion Island Observatory of Atmospheric Physics
- 51 **OSU-R** - Reunion Island Observatory for Astrophysical Science
- 53 **OVPF** - Piton de la Fournaise Volcanological Observatory
- 54 **SEAS OI** - Satellite-Assisted Environmental Monitoring of the Indian Ocean





ENTROPIE

Pacific and Indian Ocean tropical marine ecology joint research centre
Status : Joint Research Unit between the University of Reunion Island, IRD, CNRS-INEE, IFREMER

→ <http://umr-entropie.ird.nc/>

👤 Deputy Director : **Matthieu LE CORRE**

✉ matthieu.lecorre@univ-reunion.fr

☎ +262(0) 262 93 82 42

📍 **University of Reunion Island**
15 Avenue René Cassin - CS 92003
97744 SAINT-DENIS CEDEX 9

Total staff : 20

Permanent lecturers and researchers in Reunion : 9
(number of researchers in Reunion : 1)

Average number of PhD students : 5

Support staff : 5

RESEARCH ACTIVITIES

Research topics

The ENTROPIE research unit aimed at characterising biodiversity related to tropical coastal and ocean habitats using evolutionary ecological approaches (from the genes to communities) in order to understand processes influencing interactions between ecosystems and the environment in relation to human activity and climate change with regards to functional ecology approaches. In addition, the studies are undertaken to better understand the use of identified resources to protect and conserve biodiversity.

The research unit works on 3 topics :

- Diversity, evolutionary processes and life-history traits of organisms, including describing tropical marine biodiversity and understanding its origin by studying relevant evolutionary processes in a multi-scale framework. This also involves species dispersal studies (population connectivity) and phylogeographical and phylogenetic analyses to identify geographical and reproductive barriers.
- Ecosystem processes, vulnerability and resilience within 2 approaches : "Structure and dynamics of populations and communities" and "Environmental forcing and ecosystem vulnerability"
- Using, developing and managing tropical marine and island ecosystem resources, within 2 approaches : "Spatial management of coastal fisheries and conservation planning" and "Assessing and monitoring eco-social systems"

Key research projects

The list below describes the work carried out by the Reunion UMR research unit team. *For further information on our work, see the UMR research unit's website.*

OCEAN METISS : South-Western Indian Ocean Maritime Spatial Planning
Funding : ERDF - European Union
 2018 - 2020

LABEX CORAIL : 23 of the UMR research unit's projects have been funded by the Labex Corail programme
Funding : PIA3
 2010 - 2020

REMPOR : Aetiological research into diseases associated with mass fish mortality events on the western coast of Reunion
Funding : European Union (ERDF) | DEAL-Reunion | IRD
 2015 - 2018

ILES EPARSE (SCATTERED INDIAN OCEAN ISLANDS) CONSORTIUM :
 4 of the UMR research unit's projects are funded by the Iles Eparses consortium
Funding : Consortium : TAAF | IRD | CNRS | IFREMER | University of Reunion Island | AFB
 2018 - 2020

LIFE+ PETRELS :
 Reducing the decline of petrels native to Reunion
Funding : European Union | French government | Reunion Departmental Council
 2015 - 2020

Key publications

Over 280 articles in category A-rated publications (2015-2018) :

- Jaeger A, Feare C.J, Summers RW, Lebarbenchon C, Larose CS and Le Corre M (2017) Geolocation reveals year-round at-sea distribution and activity of a superabundant tropical seabird, the Sooty Tern *Onychoprion fuscatus*. 4 : 394. doi : 10.3389/fmars.2017.00394
- Gélin, P., Fauvelot, C., Bigot, L., Baly, J. and Magalon, H. (2017). From population connectivity to the art of striping Russian dolls : the lessons from *Pocillopora* corals. <https://doi.org/10.1002/ece3.3747>
- BOISSIN E., HOAREAU T.B., POSTAIRE B., GRAVIER-BONNET N, BOURMAUD C.A-F., 2018. Cryptic diversity, low connectivity and suspected human-mediated dispersal among 17 widespread Indo-Pacific hydroid species of the South-western Indian Ocean.

- Lagarde R., Borie G., Blob R., Schoenfuss H., Ponton D. 2018. Intra and inter-specific morphological diversity of amphidromous gobies influences waterfall-climbing performances.
- Trystram C., Roos D., Guyomard D., Jaquemet S. (2015) - Mechanisms of trophic partitioning within two fish communities associated with a tropical oceanic island. 14(1/2) : 93-111.

Major organised conferences and symposia

6TH WESTERN INDIAN OCEAN MARINE SCIENCE ASSOCIATION SYMPOSIUM

Funding : WIOMSA | Reunion Regional Council | European Union | and many others
24 to 29 August 2009

INTERNATIONAL CONFERENCE : BIODIVERSITY IN THE INDIAN OCEAN ISLANDS

Funding : European Union | French government | Regional Council
2 to 5 June 2015

LABEX CORAIL SCIENTIFIC COMMITTEE

10 to 14 September 2018

INTERNATIONAL CONFERENCE : "ISLAND BIOLOGY"

July 2019

Scientific networks

LABEX CORAIL / NATIONAL AND INTERNATIONAL NETWORK

Labex CORAIL includes almost all French scientific partners involved in research on coral reefs. ENTROPIE has been part of Labex Corail since its inception. It is part of the management and scientific committees. Labex Corail opens up numerous opportunities in collaborative research on the study of coral reefs.

WIOMSA / INTERNATIONAL NETWORK

An NGO based in Tanzania involved in studying, promoting and sustainably managing marine and coastal biodiversity in the western Indian Ocean. This proactive scientific network is a key partner for stakeholders in marine sciences in the Indian Ocean. The members of the ENTROPIE research unit are members of WIOMSA, and temporary board members, honorary members, national representatives, etc.

IFRECOR / NATIONAL NETWORK

Ifrecor is a French initiative supporting coral reefs, comprising a network of French coral reef specialists, including administrators, decision-makers, etc.

WIO IAS / INTERNATIONAL NETWORK

The Western Indian Ocean Network on Invasive Species is a French scheme to support coral reefs. Its members are involved in research and management of protected areas, as well as the study of terrestrial and marine invasive species.

IUCN FRANCE, FRENCH OVERSEAS TERRITORIES GROUP (GOM) / NATIONAL AND INTERNATIONAL NETWORK

The IUCN GOM includes biodiversity and nature conservation experts working in French overseas territories. Several members of the research unit are members of the GOM (overseas territory group). The French overseas territories network helps maintain an image and profile while sharing information and skills, etc.

Main technical support centres, facilities and databases

Related to Reunion-based technical support centres only. *For a more detailed description of our facilities, please see our website.*

- ▶ Molecular biology laboratory (DNA extraction, amplification, etc.)
- ▶ Marine chemistry laboratory (nutrient dosage, chlorophyll, pH, CO₂, etc.)
- ▶ Database specialising in reef ecosystems in the Indo-Pacific region, internationally accessible

- ▶ Biology laboratory (preparation of samples, dissection, analysis, etc.)

- ▶ Optical chamber, autonomous scuba-diving equipment, field station (Saint Gilles), etc.

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Molecular biology | trophic ecology | behavioural ecology | genetics | fisheries science | population dynamics | marine chemistry | animal telemetry | spatial analysis | invasive species | ecological restoration on islands.

A wide range of biological expertise : loose benthos substrates | hard benthos | coral | invertebrates | fish | sharks | sea birds | sea mammals

Current services

Expertise in study areas included here-under (fauna and flora monitoring, water quality, etc.)

Training missions in the above fields of investigation and aimed at environmental stakeholders, protected area managers, etc.

Assessment of the valorisation of research

(over the past 3 years)

Number of projects undertaken 4

Number of joint projects undertaken : 84, with 35 in Reunion

Number of CIFRE-supported PhD theses 4 (3 in Reunion)

Number of intellectual-property requests made by the team : 1

List of intellectual-property requests Registration of MARECO brand for the coral reef educational briefcase (MARECO project, IRD title-holder, registration date : 11/05/2017, registration no. 17/4360754).

Key collaborative projects

The list below refers to the work carried out by the Reunion research unit team (UMR). *For further information on our work, see the UMR research unit's website.*

BIOTOPE

CIFRE-supported PhD thesis / Fundamental and applied research to produce an updated and spatially-aware tool to assess and control the effects of development and infrastructure on sea bird populations in Reunion

Funding : BIOTOPE | Reunion Region Council | ANRT
2013 - 2016

NORTEK MED

CIFRE-supported PhD thesis / Development of eco-acoustic indicators to assess and monitor the health of coral reefs

Funding : NORTEK-MED | ANRT
2016 - 2020

CREOCEAN

CIFRE-supported PhD thesis / Development of new quantitative indicators to describe and monitor benthic communities in the coral reefs using photogrammetry-generated 3D modeling

Funding : CREOCEAN | ANRT
2017 - 2020

ADEME + BIOTOPE

Thesis / Classification of acoustic signals and three-dimensional radar signatures applied to understanding the effect of energy or transport infrastructure on outstanding wildlife (birds or amphibians)

2014 - 2015



Outreach activities for the general public

Documentary : MARINE MEGAFUNA IN THE INDIAN OCEAN : STUDIES, PROTECTION, PROMOTION

Partners : European Union | French government | Reunion Regional Council | University of Reunion Island
June 2015

Documentary : TAILLE VENT, LE PÉTREL DES MONTAGNES (SAILING INTO THE WIND, THE MOUNTAIN PETREL)

Partners : Reunion National Park | University of Reunion Island
2013

Documentary : SEA CUCUMBERS, A LITTLE-KNOWN RESOURCE
2009

Documentary : PROTECTED MARINE AREAS
2014

Documentary : A PROJECT FOR A POLE

Partners : European Union | IRD | University of Reunion Island
2011

PARTNERSHIPS

The ENTROPIE research unit administers the Master's degree in Biodiversity, Ecology Evolution, Biodiversity and Tropical Ecosystems. It specialises in aquatic, coastal and island ecosystems (BEST ALI Master's degree) at the University of Reunion Island.

Entropie's researcher-lecturers also teach the Life Sciences degree course at the University of Reunion Island.





ESPACE DEV

Development Space

Status : Joint research unit with IRD - Universities of Montpellier, Reunion Island, French Guiana, Antilles

→ <http://www.espace-dev.fr/>

👤 Director : **Frédérique SEYLER**

✉ frederique.seyler@ird.fr

☎ +262(0) 262 29 93 15

📍 **Maison de la Télédétection**

500 Rue Jean-François Breton
34093 Montpellier cedex 05

📍 **University of Reunion Island**

15 Avenue René Cassin
CS 92003 - 97744 SAINT-DENIS Cedex 9

Total staff : **134**

Permanent lecturers and researchers in Reunion : 4

Average number of PhD students : 8, 2 post-doctoral researchers (in Réunion)

Support staff : 2

RESEARCH ACTIVITIES

Research areas

The ESPACE-DEV is a multi-disciplinary research unit. The unit conducts research on the spatial dynamics of social-ecological systems, using models based on data and / or digitalised models, including remote-sensing data. The interdisciplinary nature of the unit's work is based on multi-disciplinary research topics :

- Ontology or formal modelling of knowledge
- Observatories of changes and connection to environment/society
- Environment, Society and Health Risks
- Co-viability

Key research projects

OCEAN METISS : Contribution to South-Western Indian Ocean Maritime Spatial Planning

Funding : EMFF

2018 - 2020

MOVE : Facilitating MAES to support regional policy in Overseas Europe mobilizing stakeholders and pooling resources

Funding : H2020

2018 - 2021

RENOVRISK-IMPACT : Innovative research into natural hazards : the economic impact of cyclones

Funding : INTERREG

2018 - 2020

TOSCA S2-MALARIA :

Sentinel-2 for Malaria surveillance

Funding : CNES

2016 - 2019

CRABMADA :

Devise spatialised tools to assist in the management of *S. serrata* mangrove crab numbers in Madagascar

Funding : COI

2017 - 2018

Key publications

Over 280 articles in category A-rated publications (2015-2018) :

- Erwann Lagabrielle, Agathe Allibert, Jeremy J. Kiszka, Nicolas Loiseau, James P. Kilfoil et al. Environmental and anthropogenic factors affecting the increasing occurrence of shark-human interactions around a fast-developing Indian Ocean island. *Scientific Reports*, Nature Publishing Group, 2018, 8, <10.1038/s41598-018-21553-0>. <hal-01826719>
- Anne Lemahieu, Antonin Blaison, Estelle Crochelet, Geoffrey Bertrand, Gwenaëlle Pennober et al. Human-shark interactions : The case study of Reunion island in the south-west Indian Ocean. *Ocean & Coastal Management*, 2017, 136, pp.73 - 82. <10.1016/j.ocecoaman.2016.11.020>. <hal-01412900>
- Marie-Myriam Mahabot, Gwenaëlle Pennober, Serge Suanez, Roland Troadec, Christophe Delacourt. Effect of Tropical Cyclones on Short-Term Evolution of Carbonate Sandy Beaches on Reunion Island, Indian Ocean. *Journal of Coastal Research*, Coastal Education and Research Foundation, 2017, 33 (4), pp.839-853. <10.2112/JCOASTRES-D-16-00031.1>. <hal-01398914>
- Aline Peltier, Jean-Luc Froger, Nicolas Villeneuve, Thibault Catry. Assessing the reliability and consistency of InSAR and GNSS data for retrieving 3D-displacement rapid changes, the example of the 2015 Piton de la Fournaise eruptions. *Journal of Volcanology and Geothermal Research*, Elsevier, 2017, 344, pp.106 - 120. <10.1016/j.jvolgeores.2017.03.027>. <hal-01646494>
- F. Ithantamalala, V. Herbreteau, F. Rakotoarimanana, J. M. Rakotondramanga, S. Cauchemez, B. Rahoilijaona, G. Pennober, C. Buckee, C. Rogier, C. Metcalf, and A. Wesolowski (2018) Estimating sources and sinks of malaria parasites in Madagascar. *Nature Communication*. [Paper #NCOMMS-17-33881C]

Major organised conferences and symposia

KALIDEOS REUNION CONFERENCES - SATELLITE OBSERVATION DATA OF THE EARTH AND R&D IN REUNION

Funding : SEAS-OI | IPGP | CNES
7 December 2017

GEOMATICS MEETINGS IN RÉUNION

Funding : Agorah | GEOLAB | Reunion Region Council | Reunion Technopole | Technisud | University of Reunion Island
16 November 2017

SEMINAR : SOCIAL AND ECOLOGICAL CORAL SYSTEMS CONFRONTED WITH CLIMATE CHANGE

Funding : BIOECOTROP
5 February 2018

Scientific networks

GEOSUD / NATIONAL NETWORK

GEOSUD brings together 13 institutional partners working in research, higher education and public administration of the environment and regions. It seeks to develop a free-to-access national infrastructure of satellite data for the scientific community and public stakeholders.

Today, the approach is being strengthened by inclusion in the THEIA Centre (Continental Surface Thematic Centre) and the creation of a Spot 6/7 image-reception station directly connected to the GEOSUD data facility, with results available for download to members almost in real time.

COASTAL STATION-OSU : SNO DYNALIT / NATIONAL NETWORK

DYNALIT is an observation network with the long-term aim of gathering, collecting and sorting high-quality meteorological data on changes to coastal areas.

The University of Reunion Island is a partner of this network, along with 10 Science of the Universe Observatories, 22 Universities and 20 national laboratories. Since 2015, DYNALIT has also been in partnership with other elementary observation networks to help constitute the ILICO research facility.

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Remote-sensing, geomatics, infrastructure of spatial data

Coastal environment and geomorphology

Society : Environmental sociology and law

Health, well-being in tropical environments

The co-viability of systems, social behaviour and practices in tropical island environments

Management and conservation of coastal and sea areas

Practical outcomes of research(over the past 3 years)

Number of joint projects undertaken : 3

Number of CIFRE-supported PhD theses : 1

Key collaborative projects

CRABMADA

Partners : Ocea-Consult

Funding : COI
2007 - 2017

BECOMING (monitoring of coral bleaching)

Partners : GIE MAREX

Funding : Osu-Reunion | AAMP | RNMR
2016 - 2018

RESEARCH ACTIVITIES

Research topics

LACy works on the following research areas :

- Tropical Meteorology
- Tropical Cyclones
- Atmospheric observation
- Atmospheric chemistry
- Eruption columns
- UV health

Key research projects

RENOVRISK C3 + CP : Innovative research into the risks associated with of western tropical cyclones

Funding : CPER | ERDF | INTERREG | CNRS | Météo France
September 2017 - August 2020

STRAP : Trans-disciplinary synergy to react to hazards linked to eruption columns

Funding : ANR
2015 - March 2019

CONCIERTO : Convections, Cirus and Tropical Tropopause layer over the Indian Ocean

Funding : ANR
2017 - 2020

INDIAN UV :

Study of UV light on health in the western Indian Ocean

Funding : INTERREG V
November 2018 - 2021

BIO MAÏDO :

Study of the biology and volatile organic compounds in aqueous phases on the Planeze of Maïdo

Funding : ANR
January 2019 - 2022

Key publications

- Pianezze, J.C. Barthe, S. Bielli, P. Tulet, S. Jullien, G. Cambon, M.-N. Bouin, O. Bousquet, M. Claeys and E. Cordier, 2018 : A new coupled ocean-waves-atmosphere model designed for tropical storm studies : example of Tropical Cyclone Bejisa (2013-2014) in the south-west Indian ocean. Journal of Advances in Modeling Earth Systems, doi : 10.1002/2017MS001177, 2018.
- Pierre Tulet, Andrea Di Muro, Aurélie Colomb, Cyrielle Denjean, Valentin Dufflot, Santiago Arellano, Brice Foucart, Jérôme Brioude, Karine Sellegri, Aline Peltier, Alessandro Aiuppa, Christelle Barthe, Chatrapatty Bhugwant, Soline Bielli, Patrice Boissier, Guillaume Boudoire, Thierry Bourrienne, Christophe Brunet, Frédéric Burnet, Jean-Pierre Cammas, Franck Gabarrot, Bo Galle, Gaetano Giudice, Christian Guadagno, Frédéric Jeamblu, Philippe Kowalski, Jimmy Leclair de Bellevue, Nicolas Marquestaut, Dominique Mékies, Jean Metzger, Joris Pianezze, Thierry Portafaix, Jean Sciare, Arnaud Tournigand, Nicolas Villeneuve. First results of the Piton de la Fournaise STRAP 2015 experiment : multidisciplinary tracking of a volcanic gas and aerosol plume, Atmospheric Chemistry and Physics, European Geosciences Union, 2017, 17 (8), pp.5355-5378.
- Jean-Luc Baray, Yann Courcoux, Philippe Keckhut, Thierry Portafaix, Pierre Tulet, Jean-Pierre Cammas, Alain Hauchecorne, Sophie Godin-Beekmann, M. De Mazière, C. Hermans, F. Desmet, K. Sellegri, Aurélie Colomb, M. Ramonet, J. Sciare, C. Vuillemin, Christophe Hoareau, Davide Dionisi, Valentin Dufflot, Hélène Vêrèmes, Jacques Porteneuve, Franck Gabarrot, T. Gauda, Jean-Marc Metzger, Guillaume Payen, Jimmy Leclair de Bellevue, Christelle Barthe, Françoise Posny, P. Ricaud, A. Abchiche, Robert Delmas. Maïdo observatory : a new high-altitude station facility at Reunion Island (21° S, 55° E) for long-term atmospheric remote sensing and in situ measurements, Atmospheric Measurement Techniques, European Geosciences Union, 2013, 6 (10), pp.2865-2877

LACY

Atmosphere and cyclones research lab

Status : **Joint Research Unit between the University of Reunion Island, CNRS, Météo France**

→ www.lacy.univ-reunion.fr

👤 Director : **Pierre TULET**

✉ pierre.tulet@univ-reunion.fr

☎ +262(0) 262 93 82 65

📍 **University of Reunion Island**
Faculté des Sciences et Technologie
15 Avenue René Cassin CS 92003
97744 SAINT-DENIS CEDEX 9

Total staff : 29

Permanent Lecturers-Researchers in Reunion : 16
including researchers : 7

Average no. of PhD students : 9

Support staff : 4

■ Hélène Vèrèmes, Jean-Pierre Cammas, Jean-Luc Baray, Philippe Keckhut, Christelle Barthe, Françoise Posny, Pierre Tulet. Multiple subtropical stratospheric intrusions over Reunion Island : Observational, Lagrangian, and Eulerian numerical modeling approaches, *Journal of Geophysical Research : Atmospheres*, American Geophysical Union, 2016, 121 (24), pp.14, 414-14, 432.

■ Nelson Bègue, Pierre Tulet, Jacques Pelon, B. Aouizerats, A. Berger et al. Aerosol processing and CCN formation of an intense Saharan dust plume during the EUCAARI 2008 campaign. *Atmospheric Chemistry and Physics*, European Geosciences Union, 2015, 15, pp.3497-3516, <10.5194/acp-15-3497-2015>

Major organised conferences and symposia

SUMMER SCHOOL : MOSS
2016

GRIF INTERNATIONAL FORUM (Geophysical Research Infrastructures Forum)
Partners : NEXA | OSU-R
from 2 to 6 October 2017

KOUDVAN WORKSHOP
Partners : CRC | CNRS

MIST WORKSHOP
July 2015

Scientific networks

NDACC / INTERNATIONAL NETWORK
Monitoring climate change developments

ARSAIO / INTERNATIONAL NETWORK
Bilateral cooperation between France / South African in atmospheric chemistry

MIST / INTERNATIONAL NETWORK
Interdisciplinary network for the study of eruption columns

ACTRIS / NATIONAL AND EUROPEAN NETWORK
Research infrastructures for the observation of the atmosphere

SPARC / INTERNATIONAL NETWORK
Stratosphere research

Main technical support centres, facilities and databases

► **OPAR (Atmospheric Observation)** : 58 instruments / 12 researchers and research engineers. €64,000 from CNRS + €80,000 from the University through OSUR + €5,000 from Météo France. Research agreements and scientific partnerships. Instrument-calibration service (UV spectrometer) ; satellite-calibration partnerships

- MESO-Centre MétéoFrance Clément ADER (Toulouse)
- Access to GENCI (Research Ministry calculation centres)

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Meteorological observations
Calibrations
Atmosphere and atmospheric chemistry modelling

Current services

Calibration of UV sensors or Satellites (TOSCA / CNES / Reuniwatt)

Practical outcomes of research (over the past 3 years)

Number of projects undertaken 4

Number of collaborative projects undertaken : 6 ANR | 1 ANR Belgium | 3 ERDF | 2 CPER | 3 INTERREG V | 5 LEFE | 12 OMNCG | 2 MOM | 3 TOSCA | 1 GDRI

Outreach activities for the general public

Appearances in local television programmes

Regular specialist contributions in the press

Films online :

2 about eruption columns
1 about LIDAR Mado, 1 about Renovrisk, 1 about BIOMAIDO

Production of the UVED MOOC (viewed by 20,000 people in 44 countries)

"causes and challenges of climate change"

Partners : GIEC | CNRS | CEA | UPMC | UVSQ
2016 (Cop 21)

Workshops chaired by researchers & Mado reception teams - OPAR

Science Festival / school-group visits

3 or 4 groups a year



GéoSciences
Réunion
www.geosciencesreunion.fr

LGSR

Reunion GeoSciences Laboratory

Status : Joint Research Unit between the
University of Réunion Island, IPGP

→ www.geosciences.univ-reunion.fr

👤 Director : Laurent MICHON

✉ lmichon@univ-reunion.fr

☎ +262(0) 262 93 86 82

📍 University of Reunion Island
Faculté des Sciences et Technologie
15 Avenue René Cassin CS 92003
97744 Saint-Denis - Cedex 9

Total staff : 13

Permanent lecturers and researchers in Reunion : 8

Average number of PhD students : 4

Support staff : 2.5

RESEARCH ACTIVITIES

Research topics

LGSR (GeoSciences Laboratory Réunion) works on the following research topics :

- Volcanology
- Magmatology and petrology
- Hydrothermal circulation
- Dynamics of lava flows
- Regional tectonic interactions - volcanism
- Tectonics of volcanic systems
- Hydrogeology & hydrogeochemistry
- Destabilisation - erosion - sedimentation of island
- Dynamic and deformation in hot spots and mountain chains
- Seismology applied to the study of ocean waves
- Seismological images of hot spots and analysis of local earthquakes
- Microfracturation and magma propagation

The Laboratory of Earth Sciences at the University of Reunion Island was set up in 1984, since the foundation of the University. Its work areas were initially restricted to sedimentology in coastal areas (origins, evolution, dynamics, protection of coral reefs and associated sediments). The laboratory extended its activities to two new research areas, which are now predominant : volcanology (structure, history, processes, risks and dismantlement of shield volcanoes), imaging and the deep dynamics of the Earth and the Reunion hot spot (seismology) and hydrogeology (water cycle in the volcanic, island, tropical environment, instrumentation of watershed in a tropical climate).

In July 2005, the research unit was renamed the Reunion GeoSciences Laboratory and its members joined the «Volcanic Systems» team in the joint research unit 7154 IPGP | Paris Diderot | University of Reunion Island.

Key research projects

RENOVRISK EROSION : Gravitational and erosive phenomena at drainage basin level

Funding : ERDF 2014-2020
2018 - 2021

RENOVRISK C3 : Integrated and innovative research into natural risks

Funding : INTERREG
2017 - 2020

GEOHERMAL ENERGY : Internal structure of a basalt volcano to assess its geothermal potential

Funding : ANRT | AKUO Indian Ocean
2018 - 2021

Key publications

Publication of 79 articles in international journals between 2015 and 2018 :

- Scholz, J.-R., Barrual, G., Fontaine, F.R., Mazzullo, A., Montagner, J.-P., Stutzmann, E., Michon, L., Sigloch, K. (2018). SKS splitting, upper mantle seismic anisotropy, the Reunion hotspot, Central Indian Ridge, Southwest Indian Ridge, plume-ridge connection, Earth Planet. Sci. Lett., 498, 169-184
- Chaput, M., Famin, V., Michon, L. (2017). Sheet intrusions and deformation of Piton des Neiges, and their implication for the volcano-tectonics of La Réunion. Tectonophysics, 717, 531-546, 10.1016/j.tecto.2017.08.039
- Dewandel, B., Jeanpert, J., Ladouche, B., Join, J.-L., Maréchal, Ch. (2017). Inferring the heterogeneity, transmissivity and hydraulic conductivity of crystalline aquifers from a detailed water-table map. J. Hydrol., 550, 118 - 129. doi : 10.1016/j.jhydrol.2017.03.075.
- Ricci T., Finizola A., Barde-Cabusson S., Delcher E., Alparone S., Gambino S., Miluzzo V., (2015). Hydrothermal fluid flow disruptions evidenced by subsurface changes in heat transfer modality : the La Fossa cone of Vulcano (Italy) case study. Geology, 43, 11, 959-962. doi : 10.1130/G37015.1
- Harris, A.J.L., Villeneuve, N. (2018). Newspaper reporting of the April 2007 eruption of Piton de la Fournaise part 1 : useful information or tabloid sensationalism? J. Applied Volcanology, 7 : 4, doi : 0.1186/s13617-018-0073-1

Major organised conferences and symposia

SCIENTIFIC CONFERENCE : REGIONAL CONFERENCE STUDYING NATURAL RISKS

Partners : Prefecture of Reunion | DEAL | Regional Council | SDIS | Agorah | BRGM | PIROI | IRT | Météo France | OVPF | Cité du Volcan | Local Education Authority
1st June 2017

RHUM-RUM WORKSHOP

Partner : Cité du Volcan
29 August 2016 to 2 September 2016

Technical support centres and facilities

► Wide-band seismic stations

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Geophysical prospecting | Geological mapping | Analyses of alkaline levels in the water | Petro-graphical expert assessments | Manufacture of thin and polished sections

Contacts with the BRGM and companies on subjects prior to energy exploration :

- quantifying ocean waves,
- specialist appraisals in geothermal energy (project with Austral Energy) on the Piton des Neiges.

Current services

Petro-graphical specialist appraisals

Practical outcomes of research(over the past 3 years)

Number of projects carried out : 3

Number of joint projects undertaken : 16

Number of CIFRE-supported PhD theses : 1

Key collaborative projects

INTERNAL STRUCTURE OF A BASALT VOLCANO TO ASSESS ITS GEOTHERMAL POTENTIAL

Partners : ANRT | AKUO Indian Ocean

Funding : AKUO Indian Ocean

2018 - 2021

SUMMARISED GEOLOGICAL RECORDS

Inventory of the geological heritage in Reunion

Partners : DEAL | University of Reunion Island

2016 - 2017

PARTNERSHIPS

Indian Ocean : University of Canberra (Australia) | IOGA (Madagascar) | MOI (Mauritius) | Piton de la Fournaise Volcanic Observatory (OVPF)

Europe : Istituto Nazionale di Geofisica e Vulcanologia, (Italy) | University of Munich (Germany) | Alfred Wegener Institut (Germany) | University of Frankfurt (Germany) | Göttingen University (Germany),

Others : Jamstec (Japan) | IGP (Peru)

RESEARCH ACTIVITIES

Research topics

OPAR is the Observatory for Atmospheric Physics in Reunion, and includes :

- the Maïdo atmospheric observatory at an altitude of 2160m
- observation rooms on the Maïdo university campus, the Gillot meteorological station and the Météo-France site.

OPAR is part of OSU-Reunion and is administered by an agreement between the University of Reunion Island and INSU-CNRS. A number of research laboratories take part in OPAR activities. In Reunion, the laboratories are the OSU-R Combined Service Unit (UMS 3365) and LACy (Atmosphere and cyclones research lab). In mainland France, the laboratories are : LATMOS (Atmospheres, Environments and Spatial Observations Laboratory), LOA (Atmospheric Optics Laboratory, Lille), LaMP (Physical Meteorology Laboratory, Clermont-Ferrand), LA (Atmospheric Sounding Laboratory, Toulouse), and LSCE (Laboratory of Sciences of the Climate and the Environment).

OPAR's research topics are linked to the study of atmospheric processes, climate and climate change. All the characteristics of OPAR's geographic situation (southern hemisphere, subtropical zone, in the west of the Indian Ocean basin, altitude of 2160m, on the leeward side of the island) are assets, making OPAR a strategic and internationally-important atmospheric observatory.

- OPAR's main mission is to **contribute to the work of several international networks monitoring the atmospheric system and climate** : NDACC (Network for the Detection of Atmospheric Composition Changes) | SHADOZ (Southern Hemisphere Additional OZonesondes) | AERONET (Aerosols Robotic Network) | ICOS (Integrated Carbon Observing System) | TCCON (Total Column Carbon Observing Network) | ICOS (Integrated Carbon Observation System) | and GAW/WMO (Global Atmospheric Watching / World Meteorological Organization). In this context, its mission is to conduct long-term observations of atmospheric and climatic parameters recommended by these networks. The observations are officially certified and comply with specific criteria on their frequency, accuracy and duration. They are added to the international networks' databases, which can be freely accessed by research communities working on the atmosphere and climate.

- OPAR's second mission involves **research on atmospheric and climatic processes specific to the south-western Indian Ocean**. To fulfil this mission, OPAR organises experimental campaigns through national and international partnerships with phases of intensive observation devoted to studying one or more atmospheric processes. The aims of these campaigns might vary and include interface interactions (ocean-atmosphere, biosphere-atmosphere, troposphere-stratosphere), the dynamics and composition of the UTLS (Upper Troposphere Lower Stratosphere) zone, the study of deep atmospheric convection, large-scale movements of atmospheric pollutants, the processes associated with restoring the stratospheric ozone layer, etc.

- OPAR's third mission is **to take part in European action for transnational access to research facilities**. As such, OPAR takes part in European projects : H2020 ACTRIS2 (Aerosols, Clouds, and Trace gases Research InfraStructure) and ENVRIplus (Environmental Research Infrastructures Providing Shared Solutions for Science and Society), TNA (TransNational Access) aspects of these two projects enables international researchers (based outside of France) to answer permanent calls for projects to access the Maïdo atmospheric observatory and to conduct research projects and observation campaigns in collaboration with OPAR laboratories. Financial support is provided to co-fund the scientists' missions (flights, per diem costs) and transport of their equipment if required.

Key research projects

OPAR's partners work on several major research programmes to improve our understanding of tropical atmospheric processes and climate change :

- **stratospheric ozone layer** : tracking patterns and restoring the ozone layer in the tropics and meridian transfer processes
- **stratospheric aerosols** : origins, radiation and chemical impacts, monitoring trends
- **composition and dynamics of the UTLS (Upper Troposphere Lower Stratosphere) zone** : roles of ozone, water vapour and species with short lifespans
- **large-scale movements of atmospheric pollutants into the troposphere** : origins, radiation and chemical impacts, monitoring of patterns
- **atmospheric convection and tropical cyclogenesis processes**
- **ocean-atmosphere and biosphere-atmosphere interactions** : roles of marine and biogenic aerosols

Key publications

- Hoareau, C., P. Keckhut, J.-L. Baray, L. Robert, Y. Courcoux, J. Porteneuve, H. Vömel, and B. Morel, A Raman lidar at la reunion (20.8°S, 55.5°E) for monitoring



OPAR

OPAR

Observatory of Atmospheric Physics in Reunion, participating in OSUR

→ <http://osur.univ-reunion.fr/observations/opar/>

→ <http://lacy.univ-reunion.fr/activites/station-du-maido-opar/>

👤 Director : Jean-Pierre CAMMAS

✉ jean-pierre.cammas@univ-reunion.fr

☎ +262(0) 262 93 82 18

📍 University of Reunion Island
15 Avenue René Cassin CS 92003
97744 SAINT-DENIS CEDEX 9

Total annual budget (including payroll) :

1,400k€ (900k€)

Permanent lecturers and researchers in Reunion : 30

water vapor and cirrus distributions in the subtropical upper troposphere : preliminary analyses and description of a future system, *Atmos. Meas. Tech.*, 5(6), 1333-1348, 2012, doi : 10.5194/amt-5-1333-2012.

- Baray, J.-L., Courcoux, Y., Keckhut, P., Portafaix, T., Tulet, P., Cammas, J.-P., Hauchecorne, A., Godin Beekmann, S., De Mazière, M., Hermans, C., Desmet, F., Sellegrì, K., Colomb, A., Ramonet, M., Sciare, J., Vuillemin, C., Hoareau, C., Dionisi, D., Duflot, V., Vèrèmes, H., Porteneuve, J., Gabarrot, F., Gaudò, T., Metzger, J.-M., Payen, G., Leclair de Bellevue, J., Barthe, C., Posny, F., Ricaud, P., Abchiche, A., and Delmas, R. : Maïdo observatory : a new high-altitude station facility at Reunion Island (21° S, 55° E) for long-term atmospheric remote sensing and in situ measurements, *Atmos. Meas. Tech.*, 6, 2865-2877, <10.5194/amt-6-2865-2013, 2013
- Dionisi, D., Keckhut, P., Courcoux, Y., Hauchecorne, A., Porteneuve, J., Baray, J. L., Leclair de Bellevue, J., Vèrèmes, H., Gabarrot, F., Payen, G., Decoupes, R., and Cammas, J. P. : Water vapor observations up to the lower stratosphere through the Raman lidar during the Maïdo Lidar Calibration Campaign, *Atmos. Meas. Tech.*, 8, 1425-1445, doi : 10.5194/amt-8-1425-2015, 2015.
- Keckhut P., Y. Courcoux, J.-L. Baray, J. Porteneuve, J.-P. Cammas, A. Hauchecorne, D. Dionisi, H. Vèrèmes, F. Posny, T. Gaudò, F. Gabarrot, Ph. Ricaud, A. Achiche, J. Lecler-de-Bellevue, V. Duflot, G. Payen, S. Khaykin, G. Clain, Inter-comparison of the thermodynamic upper air observations at La Réunion during MALICCA-1. Accepted at *Journal of Applied Remote Sensing*, March 2015

Technical platform and state of the art equipment

OPAR is made up of a number of technical support centres.

The Moufia atmospheric station on the university campus host a number of instruments for monitoring atmospheric composition : two spectrometers in the IR and UV solar radiation ranges | a radiometer for the total ozone column | a photometer and a lidar for atmospheric aerosol profiles | an instrument for in-situ greenhouse gas measurements (CO₂, CH₄, H₂O).

Collaboration with Météo-France, we were granted the opportunity to use the Gillot station being used to carry out weekly radio probes of ozone and meteorological parameters.

Lastly, since late 2012, the Maïdo atmospheric observatory, which sits at an altitude of 2160 m, has hosted a wide-ranging collection of instruments.

A series of 6 lidars are used to measure the vertical profiles of meteorological parameters (temperature, wind) and atmospheric species (stratospheric and tropospheric ozone, water vapour, aerosols). The lidars have high-powered lasers (class IV), wide-diameter telescopes (up to 120 cm) and spectrometers, being state-of-the-art instruments for atmospheric and climate research. The Doppler lidar, for wind, is part of a network of ground-based instruments used to validate measurements from an on-board analogue lidar on the ADM-AEOLUS satellite. Radiometers working in different wave ranges (infra-red, microwaves) are used to analyse the composition of the troposphere and stratosphere with trace gas produced by biomass fires or human activity. A GPS station is used to observe the total column water vapour in the atmosphere and to calibrate the water vapour lidar. The Maïdo observatory has a wide range of instruments used to measure the surrounding air on-site. The instruments are used to analyse the composition of the air in trace gases (reacting to the greenhouse effect) and in aerosols of various origins (marine, earth, biogenic, human).

Other instruments provide data on electric cloud activity in the Indian Ocean basin : a VHF antenna is part of a global network to detect and localise lightning, while an ultra-rapid and sensitive camera detects transitory light events between the summits of convective clouds and the upper atmosphere.

PARTNERSHIPS

Public or private partnerships (local, regional, national, international) :

- **Pierre Simon Laplace Institute (Paris)** : LATMOS (atmosphere, environments, spatial observation) | LSCE (Laboratory of Climate and Environmental Sciences) | LMD (Dynamic Meteorology Laboratory) | SIRTa (Instrumental research by atmospheric remote-sensing site)

- **Midi Pyrénées Observatory, Toulouse** (<http://www.omp.obs-mip.fr>) : Atmospheric sounding laboratory <http://www.aero.obs-mip.fr> | National Centre for Meteorological Research (CNRM, Toulouse)

- **Laboratory of Atmospheric Optics (LOA, Lille)**

- **Royal Belgian Institute for Space Aeronomy (Brussels)**

- **Institute of Applied Physics, University of Bern, Switzerland,**

- **National Administration for Space and Aeronautics, Goddard Space Flight Center, NASA GSFC**

- **National Oceanographic and Atmospheric Administration**

- **Council for Scientific and Industrial Research (CSIR, Pretoria, South Africa)**

New partnerships

- WMO GCOS GRUAN (World Meteorological Organization, Global Climate Observing System, GCOS Reference Upper-Air Network)

- WMO GAW (Global Atmospheric Watching)

PATENTS AND LICENCES

OMER7-A Patent : DIGITAL TOOLS FOR THE STUDY OF ENVIRONMENTAL EARTH SCIENCES ATMOSPHERIC POLLUTION : CAUSES AND CONSEQUENCES

Authors :

- Robert DELMAS is a professor at the University of Toulouse III, currently working at the CNRS. He is the director of the Atmosphere and Cyclones Laboratory at the University of Reunion Island (UMR CNRS 8105) and the Reunion Sciences of the Universe Observatory (OSU-R). He is also the president of the users' committee at the ETHER centre

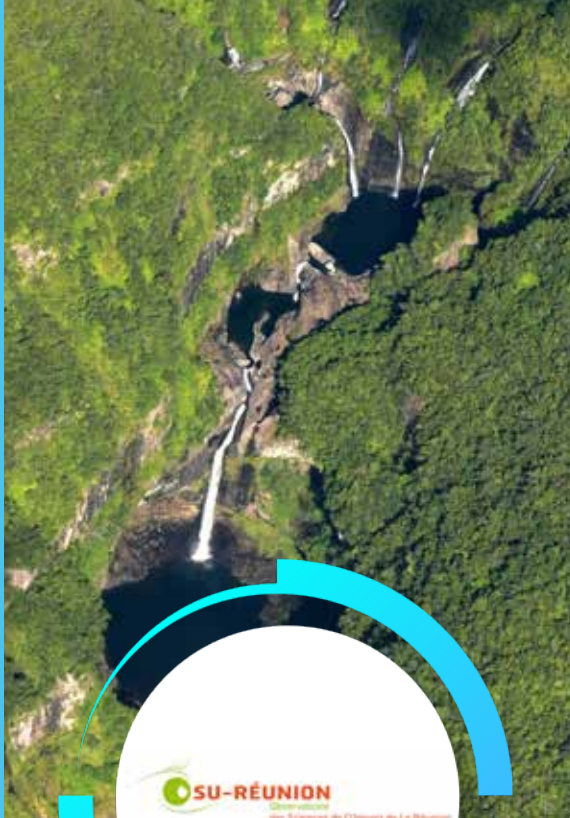
- Mireille PAULIN is an engineer at the National Centre for Space Studies (CNES) in Toulouse. She is a project manager at the ETHER centre.

- Pascale PUPPO is a physics and chemistry teacher at the Léon Blum school in Colomiers (31)

- Dominique SERCA is a lecturer at the University of Toulouse III. He is the deputy director at the Atmospheric Sounding Laboratory (UMR CNRS 5560).

<http://omer7a.obs-mip.fr/>

Patent n° 1051258 registered on 22/02/2010



OSU-R

Reunion Observatory for Astrophysical Science

Status : **Combined Services Unit (CNRS and University of Reunion Island)**

→ <http://osur.univ-reunion.fr>

👤 Director : **Dr. Jean-Pierre CAMMAS**
✉ jean-pierre.cammas@univ-reunion.fr
☎ +262(0) 262 93 82 18
📍 **University of Reunion Island**
15 Avenue René Cassin CS 92003
97744 SAINT-DENIS CEDEX 9

Total staff : **82**

Permanent lecturers and researchers in Reunion : **33**

Number of PhD students : **9**

Number of engineers : **13**

Number of technical staff : **9**

RESEARCH ACTIVITIES

Research topics

The research topics of the laboratories belonging to the OSU-R are :

- **Atmosphere** : Monitoring of atmospheric composition (reactive trace and greenhouse gases, aerosols, stratospheric ozone layer), analysis of climate patterns and effects | Study of atmospheric processes (atmospheric water cycle, stratosphere-troposphere interactions, large-scale movements of atmospheric pollutants, etc.) and analysis of how they appear in digital forecast models | Studies of tropical cyclones (intensification processes and trajectories).
- **Lithosphere** : Hydrology of catchments in volcanic ranges | Seismology (volcanology applications, detection of cyclonic and southern ocean waves) | Internal geophysics of volcanic ranges (landslide, erosion, magma transfer applications, etc.).
- **Biosphere** : forestry ecology | Classification | ecophysiology and climate monitoring | Invasive exotic species.
- **Tropical marine ecology** : Tropical migratory marine megafauna | Regional reef biodiversity | monitoring of habitats in the Indian Ocean area and modification due to climate change.
- **Coasts** : Monitoring of coastlines | study of erosion processes back reef lagoon coastlines.

Key research projects

In multidisciplinary topics :

ERUPTION COLUMNS : STRAP PROJECT / (Trans-disciplinary synergy to face risks from eruption columns, ANR project 2015-2018),

CYCLONIC RISKS : RENOVRIK-TRANSFER PROJECT / Integrated and innovative research into the natural risks associated with tropical cyclones. Cyclonic hazards in the "Maïdo mountains - Coast - Lagoon" workshop zone. Subject to the ERDF call for proposals 2015-2019.

OCEAN-ATMOSPHERE : PROJECT TO STUDY THE PHYSICAL PROCESSES OF OCEAN-ATMOSPHERE INTERACTIONS IN THE SOUTH-WESTERN INDIAN OCEAN (SOOI) / using models and observations. Project by the OMNCG Research Federation (Observations of Natural Environments and Global Changes) of the OSU-R.

VOLCANOLOGY AND MARINE BIODIVERSITY : CLEM PROJECT / Consequences of lava flows on the marine environment : focus on the 2007 lava flow. Project managed by the OMNCG Federation of the OSU-R.

BIOSPHERE-ATMOSPHERE : FARCE PROJECT / Forest AeRosols Clouds intEractions at Reunion Island. Project managed by the OMNCG Federation of the OSU-R.

Key publications

Review panel publications between 2010 and 2014 :

- Tulet, P. and Villeneuve, N., Large scale modeling of the transport, chemical transformation and mass budget of the sulfur emitted during the April 2007 eruption of Piton de la Fournaise, Atmos. Chem. Phys., 11, 4533-4546, doi : 10.5194/acp-11-4533-2011.
- Durand et al., Modeling the lava heat flux during severe effusive volcanic eruption : an important impact on surface air quality. J. Geophys. Res., 119, 20,11729-11742, 2014.
- Falter, J., Lowe, R., Atkinson, M., Cuet, P., 2012 - Seasonal coupling and decoupling of net calcification rates from coral reef metabolism and carbonate chemistry at Ningaloo Reef, Western Australia. Journal of Geophysical Research, 117, C05003, doi : 10.1029/2011JC007268.
- Baray et al., Maïdo observatory : a new high-altitude station facility at Reunion Island (21° S, 55° E) for long-term atmospheric remote sensing and in situ measurements. Atmospheric Measurement Techniques, 2013, 6 (10), pp.2865-2877.
- Comte J.-C., Join J.-L., Banton O., Nicolini E., 2014 "Modelling the response of fresh groundwater to climate and vegetation changes in coral islands". Hydrogeol J. 20 July 2014. Vol. 22, n°8, p. 1905-1920.

SPECIALIST APPRAISALS

OSU-Reunion seeks to [play a unifying role in research between the different laboratories, teams and observation stations](#). It includes one of the three multidisciplinary research federations at the University of Reunion Island, the OMNCG Federation (Observatory of Natural Environments and Global Changes).

Its second mission is to manage the [observations stations](#). With the support of UMS3365, it ensures the proper functioning of the OPAR (Observatory for the Atmospheric Physics in Reunion) and helps to manage the stations for tropical forests, marine reefs in the Rivière des Pluies river basin.

The OSU-R [supports SNOs](#) (National Observation Services), certified by the INSU-CNRS, with few having acquired an international reputation. Among them are the following SNOs or international networks : NDACC (Network of Detection of Atmospheric Composition Changes), AERONET (Aerosols Robotic Network), CLAP (Climate relevant Aerosols Properties from near surface observations), ICOS (Integrated Carbon Observation System), GAW/WMO (Global Atmospheric Watching / World Meteorological Observations) and DyLiTC (Coastal dynamics observation service).

OSU-R [operates in line with the national strategy for the construction of research facilities, the Allenvi Alliance](#) (Research Ministry) and provides support for three long-term observation and experimentation systems in environmental research (SOERE) : "ATMO", "River Basin Network" and "Coastline". The SNO and the SOERE form the building blocks for national research facilities (e.g. INFRA ATMO for the atmosphere) and are also candidates for the European ESFRI (European Strategy Forum for Research Infrastructures) roadmap through their participation in European H2020 projects (e.g. ACTRIS, Aerosols, Clouds and Trace Gases Research InfraStructure).

Technical support centre and state-of-the-art equipment

- ▶ [Maïdo Atmospheric Observatory. Instruments](#) : lidars (vertical profiles for temperature, wind, water vapour and ozone) | radiometers and spectrometers (partial and total atmospheric reactive trace gas columns and greenhouse gas columns) | on-site analysers of atmospheric air mass (optical and chemical properties of aerosols, reactive gases and greenhouse gases) | detectors of atmospheric electric activity | GPS station | cameras for cloud cover.
- ▶ [ERORUN hydrological station in the Rivière des Pluies drainage basin](#). Three stations to measure hydrological flow and 3 weather stations.
- ▶ [Saint-Gilles marine reef station](#). Monitoring geophysical and biological parameters in the lagoon.
- ▶ [Mare-Longue forestry station in Saint-Philippe](#). Observation facility for forestry ecology, classification, ecophysiology and climate parameters.

PARTNERSHIPS

Several INSU-CNRS laboratories :
LATMOS (Atmospheres, Environments and Spatial Observations Laboratory)

.....
LSCE (Laboratory of Climate and Environmental Sciences)

.....
LMD (Dynamic Meteorology Laboratory)

.....
LISA (Inter-University Laboratory of Atmospheric Systems)

.....
SIRTA (Instrumental research by atmospheric remote-sensing site)

.....
Atmospheric Sounding Laboratory

.....
National Centre of Meteorological Research (CNRM, Toulouse)

.....
Laboratory of Atmospheric Optics (LOA, Lille)

.....
Royal Belgian Institute for Space Aeronomy (Brussels)

Oceanic Domain Laboratories (University of Western Brittany, Council for Scientific and Industrial Research (CSIR, Pretoria, South Africa)

The OSU-R is a partner of the European H2020 ENVRIplus project (Environmental Research Infrastructures Providing Shared Solutions for Sciences and Society). The OSU-R observation stations are open to international access for multi-disciplinary research to be carried out with other European teams with an interest in the University of Reunion Island research facilities.

PATENTS AND LICENCES

[OMER7-A patent](#) : digital education tool to study atmospheric pollution, its causes and effects (CNES and CNRS, Robert Delmas)

RESEARCH ACTIVITIES

Research topics

- Surveillance and monitoring of eruptions as part of civil protection
- Creation and testing of eruption surveillance and monitoring tools
- Research into eruptive phenomena
- Eruption early warning-sign studies
- Monitoring geochemical and petrochemical substances of eruptive products

EXPERTISE OFFER

Services

Monitoring and information for civil protection

Raising awareness in schools and for the general public



OVPF

*Piton de la Fournaise Volcanological
Observatory*

→ [http://www.ipgp.fr/fr/ovpf/
observatoire-volcanologique-piton-de-
fournaise](http://www.ipgp.fr/fr/ovpf/observatoire-volcanologique-piton-de-fournaise)

→ [http://www.ipgp.fr/fr/ovpf/
actualites-ovpf](http://www.ipgp.fr/fr/ovpf/actualites-ovpf)

👤 Director : **Aline PELTIER**

✉ peltier@ipgp.fr

☎ +262(0) 262 27 52 92

☎ +262(0) 262 27 58 72

📍 14 RN3 - km27

97418 La Plaine des Cafres

La Reunion

Total staff : 10





SEAS - OI

Satellite-Assisted Environmental Monitoring of the Indian Ocean

Status : University of Reunion Island research team

→ www.seas-oi.org

👤 Director : Pierre TESSIER

✉ contact@seas-oi.org

☎ +262(0) 262 96 69 60

📱 @seasoi.org

📍 40 Avenue de Soweto
97410 Saint-Pierre

Total staff : 15

PRESENTATION

Nature : Observation of the Earth | remote-sensing | signal processing

Sectors : Urban planning | Land management | Coastal area management | Agriculture | Forestry management | Marine and coastal environment management (transport, fishing, pollution) | Monitoring of natural risks, biodiversity, health, climate change

The SEAS-OI research centre is an [operational facility for data-reception](#) and a [remote-sensing centre of expertise](#), conducting research activities and providing support for operational users.

SUPPORT SERVICES FOR PROJECT PROMOTERS

- ▶ Optical satellite images provided to public partners in the Indian Ocean area.
- ▶ Private sector partnership (the CLS companies) : development of operational services based on data produced by the station.

NETWORKS AND PARTNERSHIPS

Over 70 public partners in the Indian Ocean area use the satellite data from the SEAS-OI programme.

Over 2,300 images have been distributed in support of 90 projects.

A number of international programmes and projects, such as RISQUE, MESA, SMART FISH and ISLANDS by the Indian Ocean Commission.

Two regional cooperation programmes with Madagascar in 2013-2015 : ORTHOBASE (reference map) and GRIMA (Flood Risk and Landslide Management in Antananarivo).

BOARD STRUCTURE

SEAS-OI is a partnership between :

the French government | Reunion Regional Council | French National Research Institute for Development | University of Reunion Island.

The partnership has a governance agreement and managed by a Strategic Steering Committee with an annual meeting.



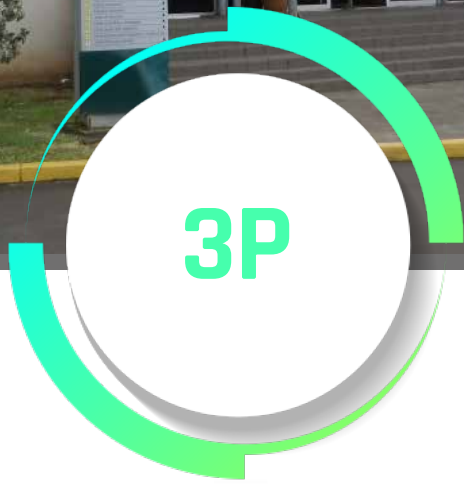




Bioeconomy

58	3P - Plant Protection Platform
60	ANSES - French Food, Environmental and Occupational Health & Safety Agency
61	ARMEFLHOR - Reunion association for modernising the fruit, vegetable and horticultural sectors
62	DIADE - Diversity - Adaptation - Plant Development
64	ERCANE - Sugar cane resource development centre
66	MARBEC - Marine biodiversity, development and conservation
67	PVBMT - Plant Populations and Bio-agressors in Tropical Environments Research Unit
70	QUALISUD - Integrated approach to food quality
73	RITA - French network of Technical Institutes for Agricultural Innovation and Technology Transfer





3P

Plant Protection Platform

→ <http://3p.cirad.fr/>

👤 Director : **Bernard REYNAUD**

✉ **3p-contact@cirad.fr**

☎ +262(0) 262 29 27 00

📍 **Plant Protection Platform**
7 Chemin de l'IRAT - Ligne Paradis
97410 Saint-Pierre

*Annual total budget (including payroll) :
626 k€, operating a shared platform,
excluding including staff, research and
investment projects*

PRESENTATION

- ▶ Experimentation platform
- ▶ Plant health, plant biotechnology and biodiversity

The Plant Protection Platform (3P) is an experimental plant unit managed by CIRAD, along with the founding partners (University of Reunion Island, ANSES, FDGDON Reunion). It was launched in 2002 and today hosts :

- ▶ scientists from CIRAD, University of Reunion Island (UMR PVBMT), and a range of national and international research centres
- ▶ the Plant Health Laboratory (ANSES), tropical pests and pathogens unit
- ▶ the Plant Clinic (FDGDON Reunion) for diagnosing plant diseases for the general public and farmers
- ▶ professional associations and private companies (e.g. FARRE, eRcane), including two Reunion start-ups (VitroRun and eKoal).

The group combines resources and facilitates transfer of technology.

3P was awarded GIS-IBISA national certification in 2009. Its activities are part of an ISO 9001 and ISO 17025 quality approach.

RESEARCH ACTIVITIES

3P works in 4 main areas :

- **Plant health** : crop disease and pest diagnosis and prevention (CIRAD, ANSES, FDGDON)
- **Pathology and molecular genetics** : development of genome innovations for selecting varieties adapted to tropical production (CIRAD, INRA, IRD, University of Reunion Island)
- **Ecology** : improving knowledge of interactions in cultivated and natural ecosystems to control invasive species and maintain biodiversity (CIRAD, University of Reunion Island, MNHN)
- **Biological Resources** : conservation, dissemination and use of genetic resources of vanilla, tropical garlic and under-used vegetables and improve their accessibility (CRB Vatel)

SCIENTIFIC NETWORKS

Network of naturalist COLlections (RECOLNAT) with the Reunion Herbarium

Innovation and Agricultural Technology Transfer Network (RITA)

TEAM network (Tephritides of Europe, Africa and Middle East)

ERAfrica network

TECHNICAL SUPPORT CENTRES AND FACILITIES

The 3P platform has 1,500m² of laboratories (NS2 and NS3 quarantine levels), 1500m² of offices, 15 ha of trial plots (with 1,950m² of insect-proof shade houses and 2300m² of NS1 and NS2 greenhouses). The NS2 laboratories include :

- a shared scientific space (automated preparation of growing mediums, waste decontamination by autoclaving and freeze-drying machines)
- a pathology and molecular genetics laboratory : **molecular biology unit** (thermo-cyclers, Quantitative PCR, 16-capillary DNA sequencer, 1 high-density DNA chip scanner, centrifuges, electrophoresis systems and DNA quantification system, tele-monitored -30°C freezers) | **microbiology centre** (microbiology safety centre, incubators, Spiral seeder, secure -80°C freezers, bacterial growth monitoring equipment) | **mycology unit** (PSM, incubators, microscope, environmental chamber) | temperature-regulated environmental chamber centre (6 rotoplans)
- a laboratory for terrestrial ecology and integrated pest management : **imaging unit** (1 ultramicroscope and 1 Z-axis motorised microscope, 1 epi-fluorescence microscope, binocular and optical microscopes) | **ethology, electrophysiology and chemical ecology centre** (gas chromatography, mass spectrometry, thermal desorber, electroantennography, electropenetrography, wind tunnel and olfactometers) | **insect-breeding unit under controlled conditions** (7 incubators and 6 breeding rooms) | **conservation and micro-**

propagation unit for biological plant resources (3 cultivation chambers, 4 rotoplans, 2 chillers, cryopreservation equipment, seed-analysis equipment)

- An NS3-standard laboratory (3 rotoplans and 3 phytoplans)
- a document resource centre

EXPERTISE OFFER

3P contributes to vocational training and university courses (on an international and national level) in plant health, plant biotechnology and biodiversity.

PARTNERSHIPS

"Agronomic Resources for Research" (RARE) | "National Centre for Biodiversity Data" (PNDB) with the regional centre for Insects and Arachnids, SINP Reunion | Regional Programme for Indian Ocean plants (PRPV) | Arimnet2 | Invaziles | European Cooperation in Science and Technology CAMo Interactions, etc.





ANSES

French food, environmental and occupational health & safety agency employment

→ www.anses.fr

-  Unit Manager : **Bruno HOSTACHY**
-  Assistant Manager : **Aude CHABIRAND**
-  **bruno.hostachy@anses.fr**
aude.chabirand@anses.fr
-  **+262(0) 262 38 39 07**
+262(0) 262 38 26 42
-  **Plant protection platform**
7 Chemin de l'IRAT
97410 Saint-Pierre

Total staff : 6

PRESENTATION

ANSES' mission comply with the following decree no. 2010-18 of 7 January 2010, with regards to food, environmental and occupational risk assessments, providing information to the public authorities for health policies. ANSES is a public, administrative body that reports to the Ministers of Health, Agriculture, the Environment, Employment and Consumption.

In Reunion, the French food, environmental and occupational health & safety agency is represented by the Plant Health Laboratory, ►**tropical pests and pathogens unit**

RESEARCH ACTIVITIES

Research topics

The research activities include :

- research applied to developing analytical methods to detect harmful quarantine organisms
- undertaking confirmatory analyses
- facilitation of the network of certified laboratories through the Inter-laboratory proficiency test (EILA) and training
- and specialist analysis conducted by ANSES.

Facilities

Specialist COFRAC-certified laboratory complying with standard 17025, part of the 3P Plant Protection Platform and with access to all 3P facilities and services, including an NS3 level quarantine greenhouse.

MAJOR RESEARCH AND INNOVATION PROJECTS

Developing detection methods :

- Serology used to analyse the banana tree virus (ELISA), molecular biology techniques (PCR, qPCR) : banana bunchy top virus, banana streak virus
- Banana tree bacteria : *Ralstonia solanacearum* (Moko strains)
- Anthurium bacteria : *Xanthomonas axonopodis* pv *dieffenbachiae*
- Bacteria causing citrus greening disease (*Candidatus Liberibacter asiaticus*)

PARTNERSHIPS

<https://www.anses.fr/fr/content/les-relations-européennes-et-internationales-par-domaines-de-compétence-de-l'anses>



armeflhor

ARMEFLHOR

Reunion association for modernising the fruit, vegetable and horticultural sectors

→ www.armeflhor.fr

👤 President : **Alain DAMBREVILLE**

✉ info@armeflhor.fr

☎ +262(0) 262 96 22 60

📍 1 Chemin de l'Irfa - Bassin Martin
97410 SAINT-PIERRE

Staff : 28

Members : 265

PRESENTATION

ARMEFLHOR, an agricultural technical institute carry out research work, as well as modernising or diversifying plant production sectors (except sugar cane). ARMEFLHOR has been granted the Agricultural Technical Institute (ITA) certification on the 8th February 2018 following a decree by the Ministry of Agriculture and Food.

ACTIVITIES

The association seeks to :

- ▶ **Conduct experiments** to find solutions to the technical, economic and human challenges linked to development and progress in Reunion's fruit, vegetable and horticultural sector
- ▶ **Produce basic, healthy** plant material (young plants and seeds)
- ▶ **Provide expert guidance** in the production of fruit, vegetables and horticultural products in tropical conditions
- ▶ **Transfer and share** findings and solutions
- ▶ **Provide vocational training** for farmers, agricultural workers and technicians
- ▶ **Coordinate research**, development and transfer body activities (RITA horticultural network coordination)
- ▶ **Develop** regional, national and international cooperation

PARTNERSHIPS

Acpel | Acta | Adpapam | Anses | Aplamedom | Apn | Arifel | Aprlfat | Aropfl | Astredhor | Atelier Paysan | Caheb | Reunion Chamber of Agriculture | Alpes Maritimes Chamber of Agriculture | Ctifl | Cirad | Ciref | Mascarin Botanical Conservatory | Copobois | Daaf 974 | Dgal | Ddr Province Sud New Caledonia | Ekoal | Agricultural education | Ercane | Fdgdon | Fn3pt | Gab | Inra | Iquae | It² | Itab | Iteipmai | La Coccinelle | Lca | Pépinières du Théâtre | Provanille | Royal Bourbon Industries | Saphir | Sca Fruits de La Réunion | Sca Terre Bourbon | Scea Multiplantes | Société Horticole de Bassin Plat | Union des Horticulteurs et des Pépiniéristes de La Réunion | Union Nationale des Entreprises du Paysage | University of Reunion Island | University of Rennes | Vivea

BOARD STRUCTURE

Board of directors chaired by Alain DAMBREVILLE, and involving the following institutions :

- 8 representatives from product groups
- 1 representative from Arop-fl
- 1 representative from Arifel
- 1 representative from the Union of Reunion Horticulturalists and Nursery Owners
- 1 representative from the Reunion Chamber of Agriculture
- 1 representative from the Departmental Council

Members are split into three groups :

- A producers' group
- Processing, distribution and marketing group
- An institutions group





diade

DIADE

Diversity, Adaptation and Development of plants

Status : **Joint Research Unit between the IRD and the University of Montpellier**

→ <http://diade.ird.fr/>

👤 Unit Director : **Alain GHESQUIÈRE**

✉ alain.ghesquiere@ird.fr

✉ webmaster.diade@ird.fr

📍 **911 Avenue Agropolis,
34090 Montpellier**

Total staff : **69**

Number of researchers : **40**

Average number of PhD students : **6**

RESEARCH ACTIVITIES

Research topics

It is crucial to understand the diversification of tropical plants within the pool of species for biodiversity. Conservation, management and the utilisation of plants are major challenges in sustainable development.

The ADvENS team is based in the DIADE research unit and works on research topics by studying changes to the genomes and transcriptomes in tropical trees, in relation to environmental constraints, adaptive divergence and methods to regulate specialised metabolisms. Wild and domesticated coffee plants are used as references. The team also works to preserve biodiversity and manages the Biological Resource Centre for wild coffee plant species in Saint Pierre at the Bassin Martin experimental station (<http://florilege.arcad-project.org/fr/collections/collection-coffee>)

Key research projects

CAFEDIV

Characterization and valorisation of an endemic species in Reunion : caféier marron (*Coffea mauritiana* Lam).

Funding : ERDF (EU, Region, French govt.), measure 1.02 (observation and promotion of biodiversity)
2017 - 2020

COFFEESEEDNET

Genome study seed sensitivity to desiccation

Funding : EMBO | IRD

MATURA

Functional plasticity associated with polyploidy. Genome study of the ripening process in an amphipolyploid plant species (*Coffea arabica*).

Funding : IRD

2018 - 2020

Key publications

144 international PRP publications in 3 years :

- Dussert S, Serret J, Bastos-Siqueira A, Morcillo F, Déchamp E, Rafidal V, Lashermes P, Etienne H, Joët T (2018) Integrative analysis of the late maturation programme and desiccation tolerance mechanisms in intermediate coffee seeds. *Journal of Experimental Botany*, 69, 1583-1597 (DOI : 10.1093/jxb/erx492)
- Lashermes P, ed. (2018) Achieving sustainable cultivation of coffee, breeding and quality traits, Burleigh Dodds Science Publishing, Cambridge, UK, 400pp, ISBN-13 : 9781786761521
- Combes MC, Joët T, Lashermes P (2018) Development of a rapid and efficient DNA-based method to detect and quantify adulterations in coffee (*Arabica* versus *Robusta*). *Food Control*, 88, 198-206 (DOI : 10.1016/j.foodcont.2018.01.01)
- Lashermes P, Hueber Y, Combes MC, Severac D, Dereeper A (2016) Inter-genomic DNA exchanges and homeologous gene silencing shaped the nascent allopolyploid coffee genome (*Coffea arabica* L.). *G3 (Bethesda)*, 6(9) : 2937-48. (DOI : 10.1534/g3.116.030858)
- Garot E, Joët T, Combes MC, Lashermes P. Genetic diversity and population divergences of an endemic tree (*Coffea mauritiana*) in Reunion Island : Role of climatic and geographical factors.

Major organised conferences and symposia

► Conference link : <https://expo-plantescultivees.ird.fr/>

Scientific networks

INTER-TROP / NATIONAL NETWORK

The French portal for tropical plant gene resources.

Main technical support centres, facilities and databases

- ▶ The DIADE research team is based at the PVBMT research unit and the 3P Plant Protection Platform

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

- Tropical plants genomic research
- Biology and metabolism of tropical seeds
- Cryopreservation of tropical seeds

Key collaborative projects

CAFEDIV

Description and use of endemic Reunion forest plant species such as caféier marron (*Coffea mauritiana* Lam).

Partners : CYROI | PVBMT

2017 - 2020





Valoriser la ressource canne
eRcane

ERCANE

Sugar cane resource development centre

Status : Economic sector group (GIE)

→ www.ercane.re

👤 Director : **Bernard SIEGMUND**

✉ siegmund@ercane.re

☎ +262(0) 262 28 21 29

📍 **29 Rue d'Emmerz de Charmoy**
BP 60315
97494 Sainte-Clotilde cedex

RESEARCH ACTIVITIES

Research topics

- **Plant breeding** : Study of adaptation to diverse agri-climatic conditions
- **Industrial automated systems** : Setting up and maintaining digital control and command systems
- **Sugar production** : Process optimisation
- **Green chemistry** : New ways to use by-products from the sugar industry
- **Cultivation techniques** : Development of methods for adaptation to local conditions

Key publications

- Susie Guilly, Thomas Dumont, Audrey Thong-Chane, Laurent Barau, Jean-Yves Hoarau (2017). Analysis of multienvironment trials (MET) in the sugarcane breeding program of Reunion Island. *Euphytica* 213 : 213 First Online : 28 August 2017
- Angélique D'Hont, Phillip Jackson, Audrey Thong-Chane, Laurent Barau, Jean-Yves Hoarau (2016). Pushing the frontiers of sugarcane improvement : a summary of the joint ISSCT 11th Germplasm and Breeding and 8th Molecular Biology workshops. Chiang Mai. *Proceedings Int. Soc. Sugar Cane Technol.* 29 : 1937-1944
- Jean-Yves Hoarau, Danièle Roques, Jean-Claude Efile, Nadia Adjano-Lubin, Sarah Debibakas, Jean Daugrois (2016). Narrow-sense heritability estimates of resistance of sugarcane to Sugarane Yellow Leaf Virus. Chiang Mai. *Proceedings Int. Soc. Sugar Cane Technol.* 29 : 1756-1763
- Matthieu Gouy, Delphine Luquet, Laurianne Rouan, Jean-François Martiné, Audrey Thong-Chane, Laurent Costet, Samuel Nibouche, Eric Gozé (2015). Site and *Saccharum spontaneum* introgression level drive sugarcane yield component traits and their impact on sucrose yield in contrasted radiation and thermal conditions in La Reunion. *Field Crops Research* 171 : 99-108

Major organised conferences and symposia

INTERNATIONAL WORKSHOP

Germplasm & Breeding and Molecular Biology ISSCT Workshops

Partners : ISSCT (International Society of Sugar Cane Technologists)
1 to 5 June 2015

INTERNATIONAL WORKSHOP

3rd Agricultural Engineering, Agronomy and Extension Workshop

Partners : ISSCT (International Society of Sugar Cane Technologists)
23 to 28 September 2018

Technical support centres and facilities

- ▶ **Industrial processes and innovations** : equipment generally found in industrial laboratories (polarimeter, refractometer, etc.). Plus : HPIC Dionex ICS 3000 (high-performance ion chromatography) | HPLC Waters Alliance (high-performance liquid chromatography) | NIRS Foss (near-infra-red spectrophotometer) | Image analysis | Aw-meter, laminar flow cabinet
- ▶ **For the bio-refining** : green chemistry and microbiology laboratory | Laminar-flow industrial automation laboratory for microbiological analyses, the Sorbonne for organic chemistry
- ▶ **Hybridisation and plant breeding** : two hybridisation greenhouses equipped with timer and micro-spraying systems, complete chain-analysis of cane sugar
- ▶ 7 plant breeding stations
- ▶ micro-caterpillar tractor and adapted tools
- ▶ glyphomulch, swath aerator

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

- ▶ Sugar cane plant breeding
- ▶ Quantitative genetics
- ▶ Molecular biology
- ▶ Agronomic trials
- ▶ Best practices for trials
- ▶ Sugar cane fertilisers (organic and mineral)
- ▶ Sugar manufacturing process
- ▶ Biorefinery
- ▶ Automated systems

List of existing services

Brand : R Variety

Crystallisation methods, research monitoring, specialist systems produced by the CERF

New analytical methods (elimination of chemical products, use of simpler methods)

Automated sugar production, distillation and energy generation processes

Production of specific sensors

Drafting guidance and technical data sheets for producers

Training

Exporting know-how and international partnerships

Automated industrial processes laboratory : test bench to develop process-automation programmes and undertake test prior to launching (potentiometer sensors, switches and an AC800F central unit linked to the control positions).

Key collaborative projects

RITA-CANNE

Partners : Cirad, Chamber of Agriculture, TSOI, Artas

TERO

Partners : Cirad, Chamber of Agriculture, TSOI, Arvalis
2014-2032
EAFRD





MARBEC

Marine Biodiversity, Exploitation and Conservation

Status : Joint research unit between the IRD, CNRS, IFREMER and the University of Montpellier II. Main site in Sète (34 - Hérault)

→ <http://www.umd-marbec.fr/fr/>

👤 Director : **Laurent DAGORN**

✉ pascal.bach@ird.fr

📍 1 site on the Moufia campus in St Clotilde
1 site at Hydro-Réunion in Le Port

Total staff : 230

Permanent lecturer-researchers : 80

RESEARCH ACTIVITIES

Research topics

MARBEC joint research unit (MARine Biodiversity, Exploitation and Conservation - UMR), was set up on 1st January 2015. It is supervised by the IRD, Ifremer, the University of Montpellier and the CNRS.

MARBEC is one of the leading laboratories working on marine biodiversity and its applications in France, with 230 staff, including 80 researchers and researcher-lecturers.

The unit has facilities in Sète, Montpellier and Palavas-les-Flots and in the Indian Ocean, in Reunion, as well as Asia, Africa and South America.

It studies the marine biodiversity in lagoon, coastal and deep-sea ecosystems, mainly in Mediterranean and tropical areas. Research focuses on different levels of integration : molecular, individual, population and community dimensions, and human uses of marine biodiversity.

The three main goals are :

- to describe marine biodiversity, understand its processes and how marine ecosystems work
- to analyse the impact of human-induced pressures on these ecosystems and to develop scenarios to respond to global changes
- to reconcile activities mainly fishing and fish farming with conservation and to meet social needs (guidance, innovation, remedial work)

Research activities are based on 8 scientific topics :

- Evolutionary ecology and adaptation
- Individuals, populations and habitats
- The dynamics and functions of communities
- Micro-organisms and interactions with macro-organisms
- Contaminants : future changes and responses
- Sustainable aquaculture
- Coastal systems with multiple uses
- Eco-systemic approaches to fishing

Further information at : <http://www.umd-marbec.fr/fr/>

Main activities or projects in Reunion : SWIOFP, FP7-MADE, PROSPER, ASCLME, MESOBIO, CHARC, BIOREQ, RSS...

PARTNERSHIPS

Centres outside mainland France

Seychelles Fishing Authority (SFA), Victoria, Seychelles

Instituto del Mar del Perú (IMARPE), Lima, Peru

University of Reunion Island, Moufia campus, Saint-Denis, Reunion

Hydro-Reunion, Le Port, Reunion

University of Cape Town (UCT), South Africa

Centre of Oceanological Research (CRO) - Abidjan - Ivory Coast

Institute of Biotechnology - Vietnam Academy of Science and Technology (IBT) - Hanoi - Nha Trang - Vietnam

Labep-Ao-Ifan - Ucad - Dakar - Senegal

Bizerte Sciences Faculty - Tunis - Tunisia

Central Research Institute for Aquaculture (CRIA) - Jakarta - Indonesia



PVBMT

Plant Populations and Bioaggressors in Tropical Environments

Status : *Joint research unit between the University of Reunion Island and CIRAD*

→ umr-pvbmt.cirad.fr

👤 Director : **Bernard REYNAUD**

✉ bernard.reynaud@univ-reunion.fr

☎ +262(0) 262 49 27 01

📍 **University of Reunion Island**
Faculté des Sciences et Technologie
15 Avenue René Cassin CS 92003
97744 SAINT-DENIS CEDEX 9

Total staff : 95

Permanent lecturers and researchers in Reunion : 33
including researchers : 23

Average number of PhD students : 20

RESEARCH ACTIVITIES

Research topics

The PVBMT joint research unit (UMR) focus on plant health and studies the diversity of bioaggressors, how they adapt to their host plants and their interactions in tropical island land ecosystems. The UMR PVBMT gives structure to 3 research areas :

- Genomics and epidemiology of emerging pathogens
- Diversity and sustainable use of genetic plant resources in tropical environments
- Ecological processes in island environments

Study models include : 2 bacterial species (Xanthomonas and Ralstonia) | 1 virus family (begomovirus) | 2 insect families (Tephritidae and Aleurodidae) | 3 cultivated plant species (Vanilla, Coffea, Solanum)

Key research projects

Call for proposals research DEPHY EXPE PLAN ECOPHY " Experimenting in agricultural-ecological systems using pesticides only as a last resort"
2018

Call for proposal in research and innovation projects FOR THE ÉCOPHYTO II PLAN, "Improving knowledge, future tools and fostering research and innovation"
2017

Call for proposal in "RESISTANCE AND PESTICIDES" PROJECTS FOR THE "ASSESSMENT AND REDUCTION OF RISKS ON PESTICIDE USE" PROGRAMME
2014

Call for Full Research Proposals

Funding : Sugarcane Research Australia Ltd.
2017

BARD - RESEARCH GRANTS

Funding : the United States | Israel Binational Agricultural Research and Development Fund
2016

Key publications

332 articles, 284 PRP with IF

- Honeybee biomarkers as promising tools to monitor environmental quality. Environment International. Badiou-Bénéteau A., Benneveau A., Gêret F., Delatte H., Becker N., Brunet J.L., Reynaud B., Belzunces L. 2013
- A combined field survey and molecular identification protocol for comparing forest arthropod biodiversity across spatial scales. Molecular Ecology Resources. Emerson B.C., Casquet J., López H., Cardoso P., Borges P.A.V., Mollaret N., Oromí P., Strasberg D., Thébaud C. 2016
- Prioritising surveillance for alien organisms transported as stowaways on ships travelling to South Africa. PLoS One. Faulkner K.T., Robertson M.P., Rouget M., Wilson J.R. 2017
- Molecular characterization of trophic ecology within an island radiation of insect herbivores (Curculionidae : Entiminae : Cratopus). Molecular Ecology. Kitson J.J.N., Warren B.H., Florens F.B.V., Baider C., Strasberg D., Emerson B.C. 2013. 22 (21) : 5441-5455
- Relatedness defies biogeography : the tale of two island endemics (Acacia heterophylla and A. koa). New Phytologist. Le Roux J.J., Strasberg D., Rouget M., Morden C.W., Koordom M., Richardson D.M. 2014



Major organised conferences and symposia

TEAM (Working Group on Tephritids of Europe, Africa and the Middle East)

2016

INTERNATIONAL WORKSHOP ON THE SURVEILLANCE AND CONTROL OF CASSAVA DISEASES IN AFRICA

10 to 13 June 2014

INTERNATIONAL ORCHID CONSERVATION CONGRESS 5 : IOCC5

2 to 6 December 2013

<https://iocc5.sciencesconf.org/>

18TH EOCCE INTERNATIONAL SYMPOSIUM (European Orchid Council Conference and Exhibition)

23 to 25 March 2018

Scientific networks

AGRICULTURAL INNOVATION AND TRANSFER NETWORKS (RITA) / NATIONAL NETWORK

To promote the work of the PVBMT beyond Reunion and Mayotte

FAO/IAEA PROGRAMME ON FRUIT FLIES / INTERNATIONAL NETWORK

2016 - 2020

PUBLIC HEALTH SURVEILLANCE NETWORKS IN THE INDIAN OCEAN / REGIONAL NETWORK

VATEL BIOLOGICAL RESOURCE CENTRE / NATIONAL NETWORK

The Vatel resource centre conserves and studies collections within three groups of the following species : flat-leaved vanilla and ancient vegetables. Vatel has 700 vanilla accessions, 40 varieties of tropical garlic and 170 varieties of food crops (mainly endemic, ancient vegetables from Reunion). The centre has the world's biggest and best-documented collection of vanilla plants (over 35 species and hybrids from three continents derived from the Vanilla species). Its activities also encompasses heritage, especially under-used vegetable varieties, which are strongly linked to communities and agriculture in the south-western Indian Ocean.

COST / INTERNATIONAL NETWORK

- Participation in collaborative projects
- Joint project with universities in French overseas territories to develop a biodiversity monitoring network to assess biodiversity in the outlying European tropical islands and the impact of global changes

Main technical support centres, facilities and databases

The UMR PVBMT uses the 3P Plant Protection Platform as a research tool and operates the platform independently. The platform secured GIS IBISA certification in 2009 and is still the only IBISA platform overseas.

- ▶ PRPV database : Harmful organisms in agriculture in the islands of the south-western Indian Ocean.
- ▶ Vatel Biological Resource Centre database (flat-leaved vanilla, tropical garlic and under-used species) uploaded to the Intertrop portal.
- ▶ Participation in developing the Arthemis ARTHropod Ecology, Molecular Identification and Systematics database.

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Plant sciences | Ecology | Evolutionary and Genetic Biology | Conservation Biology | Agronomics | Microbiology | Virology and Entomology

Services

- ▶ **Conservation and use** of genetic resources
- ▶ **Consulting activities**
- ▶ **Technical specialised appraisals** for standardisation bodies
- ▶ **Continuing professional education** - courses for researchers, engineers and technicians from Indian Ocean countries. Courses in managing genetic plant resource collections ; managing aquatic plant habitats (Brahms software) ; producing high-quality seeds and plants ; epidemio-surveillance ; tools for diagnosing plant diseases ; insect recognition ; using databases and R statistical programme
- ▶ **Digital courses** through the development of a virtual module, IGAR (Invasive insects and agroecological management : the case of vegetable flies in Reunion). This is based on close ties with the MNHN, PVBMT and the DSUIN (Information System and Digital Practices Department) at the University of Reunion Island
- ▶ **GASCON module** "Agroecological Management of Health of Crops and Harmful Organisms", funded by UVED (Virtual University for the Environment and Sustainable Development)

Review of the practical applications of research (over the past 3 years)

Number of CIFRE-supported PhD theses : 6

List of intellectual property patents pending : 1 registered application

Key collaborative projects

SUSTAINABLE MANAGEMENT OF GENETIC RESISTANCE IN R. SOLANACEARUM IN AUBERGINES (SOLANUM MELONGENA)

Partners : PVBMT | INRA Avignon | CIRAD-UPR 106 Bioagressors - French Guiana | ARMEFLHOR Reunion | TECHNISEM | LIPM Toulouse : Laboratory of Plant / Micro-organism interactions
23 October 2015 - 31 December 2016

EROSION AND VEGETATION IN REUNION (EROVEG) : INTERACTIONS IN A TROPICAL ISLAND ENVIRONMENT AND THE EFFECTS OF GLOBAL CHANGES

Partners : PVBMT | LGSR | LACY | Institut de Physique du Globe de Paris | Météo France
4 January 2016 - 1 January 2018

IMPROVEMENTS IN VIRAL DIAGNOSIS TO SAFEGUARD GENETIC PLANT RESOURCES - SAFEPGR

Partners : PVBMT | Tahiti Vanilla Establishment | National Scientific Research Centre | Institute of Plant Biology | University of the French West Indies | Mascarin Botanic Conservatory | Guadeloupe National Park
22 March 2013 - 1st September 2015

PRE-TEST REPORT ON INTER-LABORATORY VALIDATION TRAIL N°RF-PJ/XAA01-V1-FR. DETECTION OF XANTHOMONAS AXONOPODIS PV. ALLII ON ALLIACEAE SEEDS USING CONVENTIONAL NESTED-PCR AND REAL-TIME PCR

Partners : ANSES/CIRAD (GEVES Angers, LDA Mâcon, LDA Martinique, Cirad Reunion, LSV Reunion)
December 2013

IBAR "INVASIVE INSECTS AND AGRO-ECOLOGICAL MANAGEMENT : THE CASE OF VEGETABLE FLIES IN REUNION"

Partners : PVBMT | MNHN | DSIUN (Information System and Digital Practices Department at the University of Reunion Island)
2012 - 2014

Outreach activities for the general public

Blog : VABIOME - CHARACTERISATION, PROTECTION, SUSTAINABLE USE AND VALORISATION OF VANILLA BIODIVERSITY IN TROPICAL EU

2011
<http://vabiome.blogspot.com/>

Television programmes : LES DOCS DU DIMANCHE 2018 - "VANILLA" THE SECRETS OF AN AROMA

2018

Television programmes TERRES D'ICI - GROWING LOCAL GARLIC

2015

Press (paper and the internet) : THE LAND OF BLACK GOLD. VANILLA, A BIG FAMILY

2013

YouTube video - Biophyto : SUSTAINABLE PRODUCTION OF MANGOES WITHOUT INSECTICIDES AND HERBICIDES

2017





QUALISUD

Status : Joint research unit (created in 2007) between Cirad, Persyst Department, Montpellier SupAgro, Institute of Warm Regions, University of Montpellier, University of Avignon, University of Reunion Island

→ www.umar-qualisud.cirad.fr

👤 Deputy Director : Hippolyte KODJA

✉ hippolyte.kodja@univ-reunion.fr

📍 University of Reunion Island

15 Avenue René Cassin

97490 Saint-Denis Cedex 09

Total staff : 17

Permanent lecturers and researchers in Reunion : 5

Average number of PhD students : 2

RESEARCH ACTIVITIES

Research topics

QualiSud seeks to develop an integrated approach to the production and preservation of products and food with high organoleptic, health and nutritional qualities.

QualiSud's research activities are based on six scientific activities :

Activity 1 : Impact of methods on matrix relations and sensory quality

- Analysis of the (bio) chemical composition of foods (macro and micro-nutriments).
- Structural analysis of matrices on different scales (micro and macro structure), the use of different overarching approaches (microscopy, spectral analyses, image processing, etc.).
- Modelling mechanical and physical changes along with chemical, textural transformations.
- Characterising products through sensory analysis.
- Correlations between experimental and model data in structural and sensory composition.

Activity 2 : Limiting post-harvest losses of plant products using tailored treatments

Assessing the performance of conservation, decontamination or insect control techniques based on improved understanding of fruit physiology :

- The impact of traditional techniques or new methods on fruit physiology (antioxidant balance, hormonal balances, physical-chemical measurements).
- Performance of traditional techniques or new methods on regulating flora alteration, insect disinfestation (in vitro, in vivo)
- Impact of physiological stage on the performance of technologies used.
- Variations in heterogeneous batches and post-harvest sorting.

Activity 3 : Bio-guiding of methods to optimise the functional properties of food

- Defining the relevant biomarkers (biological effects) expressing the functions of food.
- Providing a model and optimising transformation methods based on the functional quality of food.
- Developing methods to better express the bio-activity of micro-nutrients and the functions of food.

Activity 4 : Controlling microbial flows to prevent mycotoxins in the food industry

- Determining the prevalence of mycotoxins and the identification of biotic and abiotic factors which are critical for their production and for fungal growth throughout the food production sector.
- Determining the occurrence, biodiversity and dynamics of toxigenic mould throughout the food production sector, as well as the conditions for their growth, metabolism and toxinogenesis.
- Development and validation of technological post-harvest treatments (drying, roasting, fermentation, etc.) to prevent and decontaminate mycotoxins.
- Determining the impact and improving understanding of mode of action (applied pre and post-harvest), from alternative treatments to chemical treatments, on the reaction of the host plant (in the fields), the fungal ecosystem and the production of mycotoxins. Selection and testing of biocontrol agents in the laboratory and on a larger scale (in field plots and in a pilot reactor) : active molecules (anti-microbial molecules and natural elicitors), enzyme systems or microbial agents that are endogenous to the ecosystems.

Studies are conducted on different food models (coffee, cocoa, cereals, peanuts, nuts, grapes) that are the matrices and central to various ecosystems. Studies involve different treatment or processing methods and often the fermentation stages.

Activity 5 : Study of transfers and reaction kinetics during the fermentation of solid food

- Creation of a fermentation facility dedicated to solid food matrices.
- Defining the reaction pattern of the product/method pairing.
- Modelling microbial activities in the differing conditions of the reaction environment.
- Modelling of main transfers.
- A single, combined model approach applied to traditional staple products (cereals, fermented meat-based products) and cash crops (cocoa).
- Integration of interactions between flora (mainly lactic bacteria and yeast) for higher quality control.

Activity 6 : Analysis and multi-criteria design to help with decision-making in the food industry

- Development of a nutritional indicator.
- Method design.
- Development of an integrated approach to the various factors in the food system (from the field to the plate) and applied to the Mediterranean legume sector, leading to a comparison between the various scenarios and identification of the best adapted scenarios (in partnership with UMR QualiSud, UMR System, UMR MISTEA, Chaire AgroSYS).
- Assessing the suitability of tools and methods used in multi-criteria analysis for the plant breeding improvements to Guadeloupe bananas. Current plant breeding practices will be included in preference and aggregation models, while taking into account agronomic criteria and product quality (Master's degree internship 2018).

Key research projects

COFFEE PROJECT AND OTHERS

Coffee Project and other High Added Value Perennial Crops

Funding : European Agricultural Fund for Rural Development (EAFRD)

QIPA

Integrated Animal Product Quality Management

Funding : Reunion Regional Council

Project period 2008-2013

COSAQ

Co-construction of a Quality Food-Industry System

Project period 2014-2020

VAR2M

Bourbon vanilla cultivation in Reunion, Mauritius and Madagascar : characterising regional production in search of typical qualities

Funding : ERDF-INTERREG

Project period 2019-2023

Key publications

- Fessard A., Kapoor A., Pathe J., Assemat S., Hoarau M., Bourdon E., Bahorun T., Remize F., 2017. Lactic fermentation as an efficient tool to enhance antioxidant activity of tropical fruit juices and teas. *Microorganisms*, 5, 23.
- Barral, B., Chillet, M., Minier, J., Léchaudel, M., & Schorrgalindo, S. (2017). Evaluating the response to *Fusarium ananatum* inoculation and antifungal activity of phenolic acids in pineapple. *Fungal Biology*. <https://doi.org/10.1016/j.funbio.2017.09.002>
- Phytochemical Composition and Antioxidant Activity of Fermented *Moringa oleifera* Leaf Powder. *European Journal of Nutrition & Food Safety*. Harimalala Andriambelo Nirina, Rasoarinanahary Miora, Porphyre Vincent, Hial Abel, Remize Fabienne, et al. 2017, 7 (1),(10.9734/EJNFS/2017/29627). (hal-01690372)
- KHOYRATTY S., DUPONT J., LACOSTE S., PALAMAT. L., CHOI Y. H.,

KIM H. K., PAYET B., GRISONI M., FOUILLAUD M., VERPOORTE R., KODJA H.-2015- Fungal endophytes of *Vanilla planifolia* across Reunion Island : isolation, distribution and biotransformation, *BMC Plant Biology*. 15 : 142

- Servent A., Boulanger R., Davrieux F., Pinot M.N., Tardan E., Forestier N., Hue C., 2018. Assessment of cocoa (*Theobroma cacao* L.) butter content and composition throughout fermentations. *Food Research International*, 107, 675-682.

Major organised conferences and symposia

QUALISUD DAYS

Partners : CIRAD

INDIAN OCEAN FOOD-INDUSTRY MEETING QUALIREG 2017

Partners : CIRAD | Europe | Reunion Regional Council | University of Mauritius | Food Technology Laboratory | Qualitropic
20-24 November 2017

INDIAN OCEAN FOOD INDUSTRY MEETING QUALIREG 2016

Partners : CIRAD | Europe | Reunion Regional Council | University of Reunion Island | Qualitropic | CRITT Reunion
28 November - 2 December 2016

INDIAN OCEAN FOOD INDUSTRY MEETING QUALIREG 2018

Partners : CIRAD | Europe | Reunion Regional Council | Moroni Alliance Française
19-23 November 2018

Scientific networks

In reunion : IUT GB | ARVAM | APLAMEDOM | ESIROI | CIRAD (PVBMT, QUALISUD) | DETROI | LE2P | CYROI

Indian Ocean area : University of Antananarivo | CIRAD Madagascar | Institute of Fishing and Sciences of Toliara - IHSM (Madagascar) | Department of Chemistry and Science Faculty of Mauritius | New Caledonian Agronomics Institute | Agriculture Faculty of the University of Mauritius

In France : Institute of Natural Substance Chemistry in Gif-sur-Yvette | UMR 7138 Oceanic Island Ecosystems, IRD, French Polynesia | Engineering of Biological Systems and Methods Lab, INSA, Toulouse | Food Industry Chemical Lab, ENSIACET, Toulouse, Métatoul Platform, INRA, Toulouse | Oenology Unit EA4577 INRA Bordeaux, Microbial Ecology Unit, University of Lyon 1 | ISYEB Unit 7205 MNHN, Paris.

In Europe : APARAH-Rega Institute - Department of Virology Chemotherapy- Catholic University of Leuven - Belgium | Laboratory of Pharmacognosy at the Inter-Faculty Centre of Research in Medicine at the University of Liège - Belgium | School of Pharmaceutical Sciences at the University of Geneva - Switzerland | Netherlands ((1)) Department of Marine Zoology, Netherlands Centre for Biodiversity Naturalis (NCBN) | ((2)) Division of Pharmacognosy, Metabolomics Section, Biology Institute, University of Leiden

International : Israel (School of Chemistry, Sackler Faculty of Exact Science, School of Marine Biology, Sackler Faculty of Medicine) | South Korea (Division of Biotechnology, Advanced Institute of Environmental and Bio-Science, College of Environmental and Bio-Resource Sciences, Chonbuk National University, Iksan, Jeonju) | India (Department of Environmental Sciences, Bharathiar University, Coimbatore, Tamil Nadu) | Malaysia (Department of Chemistry & Institute of Bioproduct Development, Universiti Teknologi Malaysia, Johor)

Main technical support centres, facilities and databases

►Physico-chemical and chromatographic analyses

- a physico-chemical room equipped with an Aw meter, chloruremeter, spectrophotometer, colorimeters, texture



analyser, viscometer, titrator, sterilisers, extraction equipment, -80°C freezers, etc.

- chromatography room with an HPLC (diode-strip detectors, AES, fluorometer) and two CPG systems.

►Microbiological analyses

A safety level 2 microbiology unit (at the Cirad La Bretagne station), where flora are listed (Salmonella, Listeria, total flora, lactic flora, yeast), strains are cultivated and challenge tests carried out.

►Food technology equipment

Pilot food processing equipment at the Cirad La Bretagne station laboratories, the Biological Engineering school and in the ESIDAI Industrial Food Engineering unit :

- Controlled temperature and humidity cabinet.
- Fat fractionation trial facility.
- Osmotic dehydration pilot facility using immersion and spraying.
- Hot fumigation pilot facility.
- Maturing and conservation rooms.
- Data-acquisition units.

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Scientific and technical assessments

- Fruit and vegetable technology
- Coffee and cocoa processing
- Root and tuber crop processing (cassava, yam and other tropical tubers)
- Post-harvest technology for tropical cereals : rice (small-scale unit and semi-industrial machining), dry cereals (mechanised processing of fonio, millet and sorghum)
- Drying processed agricultural products (fruit crisps, rolled cereal products, etc.)
- Meat-based product processing
- Use of coconut tree products
- Quality management in the industry
- Food safety

Specialist assessments of green and/or roasted coffee

- Chemical analyses : caffeine, sugar, fat, Ochratoxine A content, etc.
- Quality control analyses : organoleptic tests, plant breeding research, etc.

Chemical analysis of mycotoxins

- Laboratory analysis of mycotoxins, providing services for manufacturers, in particular ;
- Courses examining the reference methods and rapid detection of mycotoxins with partners in the South.

Technical support centre and cutting-edge equipment

Specialised activities in food processing engineering, with results made available for regional research projects and centres, as well as to food companies

Key collaborative projects

NUTRIVOL : Improving the nutritional quality of poultry meat

Partners : Crête d'Or Entreprise | Avi-pole Réunion | Urcoopa | Sanders (France) | Cirad
2010 - 2013

Funding : Single Inter-ministerial Fund | Reunion Regional Council

Outreach activities for the general public

QualiSud participation in the Paris International Agricultural Show 2013

QualiSud celebrates Science

DOCTORAMA DAY QUALISUD 2018



RITA
Réseau d'innovation et
de transfert agricole dans les DOM

RITA

Innovation and Agricultural Technology Transfer Network

→ <https://coatis.rita-dom.fr/reunion/?PresentationDetaillee>

👤 RITA Regional Horticultural network coordinator
AROP FL - ARMEFLHOR : **Guillaume INSA**

✉ insaguillaume@armeflhor.fr

☎ +262(0) 262 87 63 08

👤 RITA Regional Livestock network coordinator : **Pascale ACHARD**

✉ p.achard.frca@orange.fr

☎ +262(0) 262 62 41 31

👤 RITA Regional Sugar Cane network coordinator : **Daniel MARION**

✉ marion@ercane.re

☎ +262(0) 262 61 82 76

☎ +262(0) 692 68 33 35

PRESENTATION

The **Innovation and Agricultural Technology Transfer Networks (RITA)** were set up in late 2011 on the request of the Overseas Inter-Ministerial Council (CIOM) in 2009. RITA seeks to boost the local development of diversified animal and plant production in the French overseas departments (DOM). The networks include stakeholders involved in the DOM Research-Training-Development project with the aim of co-constructing and conducting research and development, experiments, demonstrations and transfer activities to meet locally expressed needs of the farming community.

- ▶ RITA in practice
- ▶ Organisation of participants : experiment centres, operations, technicians, network partners, R&D bodies
- ▶ Testing solutions
- ▶ Transfer (training, teaching)
- ▶ Needs on the ground
- ▶ Delivering initiatives
- ▶ Identifying solutions

SERVICES PROVIDED

For the sugar-cane sector : RITA, together with eRcane, organises initiatives in four working groups :

- ▶ organic fertilisers using residual fertiliser substances
- ▶ and by sub-dividing fertilisation

Weed-control by developing pre-emergent treatments ;

- ▶ sugar cane irrigation ;
- ▶ planting and mechanisation.

For horticultural sector : RITA caters for various crops except sugar cane. It includes eight operational groups working on the following themes :

- ▶ Monitoring and diagnosis of bioaggressors and auxiliary insects
- ▶ Development of crop management varieties and techniques
- ▶ Design of innovative crop systems

These first three groups are coordinated by the plant health and agro-ecological production combined technological unit for the tropical environment (Cirad, Armelfhor, Fdgdon and Anses).

- ▶ Pollination
- ▶ Endemic species for agricultural use
- ▶ Reference networks to diversify plant production
- ▶ Formal approval of minor uses
- ▶ Skills transfer and training (organised by the Chamber of Agriculture and the DAAF training department)

For the livestock sector : RITA, together with the FRCA unit, focuses on two main subjects : health and fodder. The health subject area comprises five initiatives

- ▶ limiting salmonella contamination risks in poultry farming
- ▶ improving water quality used in livestock farming
- ▶ introducing an epidemio-surveillance network
- ▶ improving animal welfare by limiting risks from the "bavites" virus and hemoparasites
- ▶ cutting calve mortality rates and improving the cow fertility

PARTNERSHIPS

- ▶ **National** : MAA | MOM | ODEADOM
ACTA | CIRAD | APCA | INRA
- ▶ **Regional** : FRCA | CPCS | Qualitropic | FDGDON | GDS Réunion | local participants in agricultural development (Chamber of Agriculture | UHPR | GAB | ARIFEL | ARP | SICA REVIA | ANSES | AROPFL | AVIPOLE | ERCANE | URCOOPA | VIVEA | SICALAIT | EPL St-Paul | Tereos | organisations of producers, inter-professional bodies)

BOARD STRUCTURE

- ▶ The CPR (Regional Steering Committee) is the regional network supervisory body. The CPR co-chaired by the French government and the managing authority.
- ▶ In Reunion, ex-officio members include the DAAF | the Departmental Council (managing authority) | the Regional Council | the Chamber of Agriculture and the FRCA (for livestock) | l'AROP-FL (for horticulture) | the CPCS (for sugar cane).

POSITIONING IN THE INNOVATION CHAIN

- **Nature** RITA Horticultural network in 2011
RITA Livestock and Sugar Cane networks in 2015
- **Agroecology** Sector





Chemistry, Biotechnology, Health



- 78 **CEPOI** - Indian Ocean Perinatal Research Centre
- 80 **CYROI** - Cyclotron Reunion Indian Ocean Biotechnology Platform
- 82 **DETROI** - Reunion, Indian Ocean Diabetic Atherothrombosis Therapies Unit
- 84 **DSIMB** - Dynamics of the Structure and Interaction of Biological Macromolecules Joint Research Unit
- 85 **LCSNSA** - Chemistry of Natural Substances and Food Sciences Laboratory
- 88 **MIVEGEC** - Infectious and Vector-Borne Diseases Laboratory : Ecology, Genetics, Evolution and Control
- 89 **PIMIT** - Infectious Processes in Tropical Island Environments Research Centre





CEPOI

CEPOI

Indian Ocean Perinatal Research Centre (set up in 2012)
Status : **University of Reunion Island research team with Reunion University Hospital**

→ <http://ufr-sante.univ-reunion.fr/recherche/ea-cepoi/>

👤 Director : **Jean-Bernard GOUYON**

✉ jean-bernard.gouyon@chu-reunion.fr

☎ +262(0) 262 35 97 82

📍 **CEPOI - EA 7388**

CHU de La Réunion - Site Sud

BP 350 - 97448 SAINT-PIERRE Cedex

Permanent lecturers and researchers in Reunion : 4

Average number of PhD students : 2

RESEARCH ACTIVITIES

Research topics

CEPOI works on 3 research topics :

- **Neonatal epidemiology and clinical research**

Pre-eclampsia in the Indian Ocean area, extremely premature births, parenteral nutrition of newborn babies, foetal and neonatal effects from exposure to medication

- **Healthcare simulation**

Neurobehavioural approach to situational awareness in cases of neonatal emergency

New methods for acquiring knowledge, technical and non-technical skills

- **Benchmarking of prescribed healthcare in neonatology and neonatal pharmacoepidemiology**

Key research projects

RAMIR : Action-Research into Infant Mortality in Reunion

Funding : ARS OI

ETOMEG : Toxicity of drugs during pregnancy : evaluation of statistical models and perinatal health indicators

Funding : ANR

October 2015 - 36 months

SIMULRUN : Research programme focused on teaching resuscitation in delivery rooms using the high-fidelity "simulrun" technique

Funding : ERDF, | Reunion Regional Council, | French government

2013 - 2015

B-PEN : Database operations on neonatology healthcare recommendations in hospitals using logipren

Funding : ERDF | Regional Council | French government

2016 - 2018

Major organised conferences and symposia

BIENNIAL INTERNATIONAL WORKSHOP

Tenth international Workshop on Reproductive Immunology, Immunological Tolerance and Immunology of Pre-eclampsia 2017

Scientific networks

B-PEN, 35 UNITS / NATIONAL NETWORK

Supported by Reunion University Hospital

THE EUROPEAN SOCIETY FOR PAEDIATRIC GASTROENTEROLOGY HEPATOLOGY AND NUTRITION (ESPGHAN) / INTERNATIONAL NETWORK

Member of one of the expert committees working on nutrition

EUROPEAN SOCIETY FOR PAEDIATRIC RESEARCH / EUROPEAN NETWORK

Leading the "Neonatology and nutrition" working group

Main technical support centres, facilities and databases

- ▶ South Reunion database
- ▶ Database focusing on clinical neonatal variables since 2001
- ▶ B-PEN database
- ▶ A comprehensive and reliable database listing recommended healthcare practices for newborn babies in 35 member hospitals, with differentiated treatments available.
- ▶ New collaboration opportunities : benchmarking, pharmacoepidemiology, pharmacovigilance studies possible
- ▶ Simulation tools for managing emergency situations and learning techniques used in neonatology
- ▶ High-fidelity simulation methods, measurement systems, protocols and analysis of eye-tracking (fixed and portable devices), serious-game tools, protocol for assessing stress based on multi-modal data, especially behavioural imaging

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

- ▶ Clinical and epidemiological study in neonatology (pre-eclampsia, nutrition in newborn babies, infant mortality)
- ▶ Understanding neuro-behavioural mechanisms to manage emergency situations and learning techniques used in neonatology
- ▶ Neonatal pharmacoepidemiology

Current services

Consulting in clinical research and epidemiological protocols in neonatology

Practical outcomes of research (over the past 3 years)

Number of CIFRE-supported PhD theses : 1

Major collaborative ventures

Benchmarking of prescribed healthcare in neonatology and neonatal pharmacoepidemiology

Partner : LOGIPREM-F

Number and list of spin-offs resulting from research work
LogipremF

www.logipren.com

OUTREACH ACTIVITIES FOR THE GENERAL PUBLIC

Format : Network (since 2001)

Title : Created in 2001 in Reunion, Repère is a perinatal health care network, is a body coordinating, supporting and assessing perinatal health. It reports to the ARS. Repère seeks to improve and strengthen the quality and safety of perinatal care. It helps to implement national and regional perinatal healthcare policy, while applying initiatives arising from the analysis of perinatal indicators (training staff, informing the general public, auditing, assessing professional practice).

Partners : ARS, midwives, obstetricians/gynaecologists, medical gynaecologists, anaesthetists, SMUR and SAMU emergency services, emergency doctors, paediatricians, GPs, radiologists, ultrasound technicians, biologists, geneticists, foetal pathologists, paediatric nurses and childcare workers, physiotherapists, speech-language pathologists, nutritionists, psychiatrists, psychologists, child psychologists, consultants in addiction, nurses, social workers, etc.

Project details : <https://www.repere.re/le-reseau/lequipe.html>





CYROI

**Cyclotron Reunion Indian Ocean
biotechnology platform**

Status : **Public Interest group (GIP)**

→ www.cyroi.re

👤 Director : **Christian MERIAU**

👤 Scientific Director : **Dr Maya CESARI**

✉ c.meriau@cyroi.fr / m.cesari@cyroi.fr

☎ +262(0) 262 93 88 00

📍 **Technopole**

**2 Rue Maxime Rivière
97490 Sainte-Clotilde**

PRESENTATION

CYROI is a public interest group managed by the University Hospital, the University of Reunion Island and the Northern Inter-Municipal Association (CINOR). It manages a 4,500 m² biotechnology technical support platform, funded by Europe, the Regional Council, the French government, Departmental Council and CINOR.

CYROI is based in Saint Denis at the Technopole science park, close to Roland Garros international airport. It has a pharmaceutical unit, academic research teams and associations working on specific topics (emerging infectious diseases, metabolic diseases and promotion of biodiversity). It also provides services to public and private clients and conducts research and innovation projects with its partners.

The CYROI is divided into three units with combined services :

INNOVATION UNIT : cb-tech by Cyroi, private services

RESEARCH UNIT : research teams, public services, R & I partnerships

ISOTOPE UNIT : radio-pharmaceutical and radio-chemistry production, small animal imaging

RESEARCH ACTIVITIES

Research topics

Research topics focusing on :

- Emerging infectious diseases
- Metabolic diseases (diabetes, obesity, hypertension, etc.)
- Promotion of biodiversity

Pharmaceutical production

CYROI has secured National Medicine Safety Agency approval as an official pharmaceutical body. The radio-pharmaceutical production unit produces radio-pharmaceuticals used in cancer imaging through positron emission tomography. Fludeoxyglucose (18FDG) is issued daily to the university hospital's nuclear medicine department and covers public health needs in the region of Reunion and Mayotte.

Small animal radio chemistry and imaging

Radio chemistry is used to insert a radionuclide in a study molecule. After the radio-identification phase, these radioactive molecules are validated in vitro, before being injected in vivo into small animals, after approval of the experimentation protocol has been approved by the Ethics Committee. CYROI has a cutting-edge pre-clinical imaging tool using positron emission tomography and single-photon emission tomography.

Research arrangements

The CYROI group (GIP) hosts research teams :

- **based on priority topics set by the Scientific Committee** : infectious diseases, metabolic diseases and promotion of marine and terrestrial biodiversity ;
- **as part of the annual or three-yearly hosting arrangements** with academic or public bodies, which define the hosting conditions.

All the resident research teams are on www.cyroi.re :

PIMIT | DÉTROIT | ASTRE (CIRAD) | MIVEGEC-TIS (IRD) | APLAMEDOM

The CYROI Group (GIP) provides public and private services. Its strength lies in its ability to understand customer needs, to employ the means required and to adapt to changes during the project.

The analytical unit can define compounds of interest or carry out physical-chemical analyses to extract, detect, identify and quantify organic molecules in complex matrices, etc.

Activities provided by the BIOR unit include :

bibliographic studies, scientific and technological monitoring | characterisation of extracts (sensorial and physico-chemical analyses) | phytochemical, spectroscopic and chromatographic analyses (equipment is available and the methods approved on our platform) for profiling and characterisation of samples (composition and active content) | toxicological analyses to determine cytotoxic effects | in vitro biological activity tests (cytotoxicity, anti-microbial effects, antioxidant, anti-inflammatory, anti-enzymatic effects) on acellular or cellular models | microbiological analyses, study of the stability and conservation of cosmetics products (listing and detection of non-specified and pathogenic micro-organisms on finished products or on raw materials, test for accelerated ageing, challenge-tests), | etc.

The fields of activity for animal research projects conducted in the animal facility with wide-ranging : trials to test the efficacy or toxicity of medicines and other biological or chemical substances | quality controls on food | pre-clinical and medical research into chronic metabolic diseases (diabetes, atherosclerosis/atherothrombosis, strokes, chronic kidney failure) | human medical research into infectious diseases (without using pathogens) | research into diagnosing illness using medical imaging.

PLEASE NOTE : *the CYROI is a public interest group (GIP) approved by the Ministry of Research, allowing companies requesting services from CYROI can benefit from research tax credit at a higher rate.*

PARTNERSHIPS

CYROI responds to scientific partnership requests in Reunion, or internationally, based on suitable research projects. These projects involve CYROI support teams. Projects are subject to research and innovation partnership agreements.





DETROI

Reunion, Indian Ocean diabetic atherothrombosis therapies
Status : Joint research unit between INSERM, the University Hospital and the University of Reunion Island

→ <http://blog.univ-reunion.fr/detroi/>

👤 Director : **Olivier MEILHAC**

✉ olivier.meilhac@inserm.fr

☎ +262(0) 262 93 88 11

📍 **University of Reunion Island**
2 Rue Maxime Rivière
97490 Sainte-Clotilde

Total staff : 44

Permanent lecturers and researchers in Reunion : 15 (3 researchers)

Average number of PhD students : 12

RESEARCH ACTIVITIES

Research topics

DéTROi is a single team research unit focusing on 2 interconnected and complementary research topics, related to specific conditions in Reunion :

- Aetiological factors and biomarkers potentially giving rise to diabetes and related complications in Reunion
- Innovative therapies (plant biodiversity and vectorisation)

Our research seeks to be translational, using human biological samples to study biomarkers with therapeutic potential. We collect biological samples from patients with diabetes, obesity and stroke or from the general population (participation in developing a clinical-biological cohort from the general population aged 35-70). The cellular models we use are adipocytes, endothelial cells and pancreatic beta cells. We use pre-clinical murine models for diabetes, dyslipidemia and strokes to validate our hypothesis and provide innovative therapies. Lastly, we develop therapeutic approaches based on plant biodiversity in the Indian Ocean region (for nutrition or research into medical molecules).

Key research projects

BIOMARKERS : Biomarkers and innovative therapies for diabetes-related vascular complications in Reunion. Etiological factors and biomarkers of susceptibility to diabetes and its complications in Reunion.

Funding : ERDF - Europe | Regional Council | French government
February 2018 - February 2021

COHORTE RÉUNION : This is a cohort study of Reunion's overall population, combined with a unique clinical-biological data collection method

Funding : ERDF - Europe | Regional Council | French government
January 2019 - January 2021

CHOPIN : RHU CHOPIN : Cholesterol Personalised Innovation

Funding : ANR
2018 - 2020

Key publications

> 100 international PRP publications in 4 years (40 in 2017 and 11 in 2018) :

- Diabetes-induced hepatic oxidative stress : a new pathogenic role for glycated albumin. *Free Radic Biol Med.* 16. J. Patche, D. Girard, A. Catan, F. Boyer, A. Dobi, C. Planesse, N. Diotel, A. Guerin-Dubourg, P. Baret, S.B. Bravo, B. Parabela-Dobarro, E. Alvarez, M.F. Essop, O. Meilhac, E. Bourdon and P. Rondeau. 102 (2017) 133-148
- Evaluation of nutritional and antioxidant properties of the tropical fruits banana, lychee, mango, papaya, passion fruit and pineapple cultivated in Reunion French Island. *Food Chem. A.* Septembre-Malaterre, G. Stanislas, E. Douraguia and M.P. Gonthier. 212 (2016) 225-33.
- Ultrasound-assisted extraction and structural characterization by NMR of alginates and carrageenans from seaweeds. *Carbohydr Polym.* L. Youssouf, L. Lallemand, P. Giraud, F. Soule, A. Bhaw-Luximon, O. Meilhac, C.L. D'Hellencourt, D. Jhurry and J. Couprie. 166 (2017) 55-63.
- Homozygous Familial Hypercholesterolemia Patients With Identical Mutations Variably Express the LDLR (Low-Density Lipoprotein Receptor) : Implications for the Efficacy of Evolocumab. *Arterioscler Thromb Vasc Biol.* Thedrez, D.J. Blom, S. Ramin-Mangata, V. Blanchard, M. Croyal, K. Chemello, B. Nativel, M. Pichelin, B. Cariou, S. Bourane, L. Tang, M. Farnier, F.J. Raal and G. Lambert. 38 (2018) 592-598.
- A hemorrhagic transformation model of mechanical stroke therapy with acute hyperglycemia in mice. *J Comp Neurol.* D. Couret, S. Bourane, A. Catan, B. Nativel, C. Planesse, A.C. Dorsemans, I. Ait-Arsa, M. Cournot, P. Rondeau, J. Patche, A. Tran-Dinh, G. Lambert, N. Diotel and O. Meilhac. 526 (2018) 1006-1016

Major organised conferences and congresses

INTERNATIONAL CONFERENCE BIOHEALF

Partners : UMR PIMIT | FED BioST | CYROI | Qualitropic | Nexa
December 2017

ACTVOI CONGRESS : INDIAN OCEAN ASSOCIATION FOR THORACIC AND VASCULAR SURGERY

Partner : Mauritius
2016 to 2018

NSFA CONFERENCE : NEW FRENCH ATHEROSCLEROSIS SOCIETY 2015 - 2018

WORLD CONGRESS OF CLINICAL LIPIDOLOGY

Partner : Brisbane, Australia
2017

CONFERENCE : OMAN SOCIETY OF LIPIDS AND ATHEROSCLEROSIS

Partner : Oman
2017 to 2018

Technical support centres and facilities

CYROI technical support centre with nationally and internationally shared resources (university equipment) : access to an RMN, radio-imagery, an authorised small animal facility (mice, rats, hamsters) as well as a micro-surgery theatre. Access and services are invoiced and financed from the research unit's own funds.

Shared regional facilities and platforms :

Microcalorimeter | Cytometer | Histology platform (Microtome / Cryotome / Automaton impregnation / Slide scanner) | Detection systems (UV platforms / Luminescence / Scanner) | Centrifuges and Ultracentrifuges | Plate readers

Research unit facilities and platform :

- a zebra fish aquarium and incubator for behavioural analysis, as well as gene-delivery and micro-injection equipment for fish
- imaging equipment (microscopes, small animal imager, etc.)
- analytical devices (flow cytometer, ektacytometer, spectrofluorometer, etc.)
- systems producing proteins in microalgae
- LC/MS MS mass spectrometer

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

- ▶ Histology, rodents models for diabetes and strokes, zebra fish
- ▶ Family hypercholesterolemia (FH) and dyslipidemia
- ▶ Oxidative stress and AGEs

Services

- ▶ Expert scientific guidance in various subjects for private companies
- ▶ Training missions

Practical results of research (over the past 3 years)

Number of joint projects undertaken : 17

Number of CIFRE-supported PhD theses : 3

Number of intellectual-property requests made by the team :
2 patents

Outreach activities for the general public

France Inter radio station : "GRAND BIEN VOUS FASSE"

A radio programme presented by Ali Rebeih, on Monday 5 March 2018 : When dental problems lead to remote illnesses, with Olivier Meilhac and Alain Amzalag

France 2 : TÉLÉMATIN

Health feature presented by Christelle Ballestrero, "Treating my teeth to prevent oesophagus cancer" with Olivier Meilhac

Newspaper article : LE QUOTIDIEN

15 October 2016 : "Bacteria to the rescue of diabetes sufferers" by Olivier Meilhac

Newspaper article : JIR (REUNION ISLAND JOURNAL)

22 July 2016 : "Reunion on the cutting edge of research into bacterial flora" by Olivier Meilhac and Patrick Mavingui

PARTNERSHIPS

Local : RIPA Group (Radio Imaging of Small Animals), Association for Aromatic and Medicinal Plants in Reunion (APLAMEDOM), CYROI | Laboratory for the chemistry of natural substances and food sciences (LCSNSA), University of Reunion Island | UMR PIMIT (infectious processes in a tropical island environment) U1187 Inserm-CNRS-IRD- University of Reunion Island | Reunion University Hospital, Reunion Clinical Investigation Centre | Reunion centre of biological resources- Sainte-Clotilde Clinic

National : UMR 858 Institute of Metabolic and Cardiovascular Diseases (IM2C), Toulouse | UMR 1019 - Human Nutrition unit ; INRA centre in Clermont-Ferrand | UMR 5095 - Laboratory for cellular energy metabolism, Institute of biochemistry and cellular genetics, University of Bordeaux | UMR 1148 - Laboratory for Vascular Translational Science, Paris | UMR S 1166 Research Unit for cardiovascular diseases, metabolism and nutrition (Paris) | EA 2496, orofacial pathologies, imaging and biotherapies, Montrouge Dental Faculty, Periodontology department at the Rothschild Hospital (Paris)

Indian Ocean region : Centre for Biomedical and Biomaterials research (CBBR) University of Mauritius (Dr T. Bahorun/ Dr D. Jhurry) | Cardio-Metabolic Research Group, Department of Physiological Sciences (CMRG), Stellenbosch University, South Africa (Dr F. Essop)

International : Laboratory for Neurotoxicology - National institute of Health (NIEHS NIH), Durham, North Carolina, United States (Dr. J. Harry) | ERG-Endocannabinoid Research Group, Institute of Biomolecular Chemistry, CNR in Naples, Italy (Dr V. Di Marzo) | Istituto di Chimica Biomolecolare Pozzuoli (Naples, Italy) | Fundacion Jimenez Diaz, Madrid, Spain (Dr JL Martin-Ventura, Pr J Egado) | Erasmus MC, Department of Cardiology, Rotterdam, the Netherlands (Dr I Kardys) | Institute of Dentistry, University of Helsinki, Finland (Pr P. Pussinen)





DSIMB

Dynamics of Systems and Interactions of Biological Macromolecules

Status : Joint research unit between Paris Diderot University, the University of Reunion Island, INSERM, INTS and Antilles University

→ www.dsimb.inserm.fr

👤 Reunion Unit Director : **Fabrice GARDEBIEN**

✉ fabrice.gardebien@univ-reunion.fr

☎ +262(0) 262 93 86 49

📍 **University of Reunion Island**
Faculté des Sciences et Technologie
15 Avenue René Cassin CS 92003
97744 SAINT-DENIS CEDEX 9

Total staff : 8

Permanent lecturers and researchers in Reunion : 3

Average number of PhD students : 4

RESEARCH ACTIVITIES

Research topics

The joint research unit for dynamics of the structure and interaction of biological macromolecules organises research on the following themes :

- Analysis of protein structure and comparisons using structural alphabets
- Understanding molecular recognition mechanisms between proteins and ligands using molecular dynamics simulations and quantum calculations
- Genome analysis and applications
- In silico approaches and controlled evolution of proteins
- Molecular modelling of small proteins and peptides
- Analysis and 3D structural modelling of high disulfide content proteins
- Data analysis and practical applications to biological data and systems.

Key publications

An average of 5 publications each year :

- Knowledge-based prediction of protein backbone conformation using a structural alphabet. PLoS One. Vetrivel I, Mahajan S, Tyagi M, Hoffmann L, Sanejouand YH, Srinivasan N, de Brevern AG, Cadet F, Offmann B. 2017 ;12(11) : e0186215. <https://doi.org/10.1371/journal.pone.0186215>
- Antioxidant and Membrane Binding Properties of Serotonin Protect Lipids from Oxidation. Biophysical Journal. Azouzi, S., Santuz, H., Morandat, S., Pereira, C., Cote, F., Hermine, D., El Kirat, K., Colin, Y., Le Van Kim, C., Etchebest, C. Amireault, P. (2017) 112, 1863-1873. 10.1016/j.bpj.2017.03.037

Scientific networks

G-REX / INTERNATIONAL NETWORK

A research group including 32 teams specialising in physiology, erythropoiesis-related pathologies, red blood cells and iron metabolism

French joint ventures : LE2P, University of Reunion Island, France | Enzymology Laboratory for Supramolecular Complexes, BIP (Bioenergetics and Protein Engineering), CNRS, Marseille | UFIP, Faculty of Sciences & Techniques, Nantes, France | Inserm 1130 Teams, University Paris Diderot & INTS, Paris, France | MEDCHEM Team, Joseph Fourier University, Grenoble, France

International joint ventures : Indian Institute of Science, National Centre for Biological Sciences, Bangalore, India | Institute of Applied Biotechnology and Bioinformatics, Bangalore, India | National Center for Biological Research, Bangalore, India | University of Valencia, "Solutions and Innovations in Analytical Chemistry" Group, Burjassot, Spain

Technical support centres and facilities

SCIENTIFIC calculator : cluster with 16 cores

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Expertise in the sector of biotechnologies, bioinformatics, biological data analysis, modelling, optimisation.

Practical results of research (over the past 3 years)

Number of joint projects undertaken : 3

Number of intellectual-property requests made by the team : 2 patents (pending at European Patent Office)

RESEARCH ACTIVITIES

Research topics

LCSNSA's main topic explores tropical biodiversity in the south-western Indian Ocean and agri-industrial systems by studying their properties as part of sustainable, innovative chemistry, linked to the tropical bioeconomy. Its main objectives are :

- Identifying and promoting natural resources derived from marine and terrestrial biodiversity (plants, marine invertebrates and micro organisms).
- The search for useful molecules to use and produce in the fields (1) of pharmacology and cosmetics, (2) colourings, pigments and flavouring, (3) the environment and bioenergy, and (4) chemical ecology.

Key research projects

TASCMAR

Tools And Strategies to access to original bioactive compounds from Cultivation of MARine invertebrates and associated symbionts.

Funding : Europe | H2020

15/04/2014 to 15/04/2019

PATZERBAZ

Fostering the use of indigenous and exotic flora in Reunion to identify plant molecules with high added value in the cosmetics, pharmaceuticals and agrochemicals sectors.

Funding : European Union - ERDF | Reunion Regional Council

01/10/2018 to 30/09/2021

BIOPIPER

Sustainable production of natural biocide extracts from two Piperaceae species in Reunion.

Funding : CASDAR

01/01/2015 to 30/06/2018

COLORMAR

Natural colouring molecules from fungal marine biodiversity in Reunion : Optimisation of production and extraction of pigments produced by biotechnology.

Funding : Reunion Regional Council

20/05/2015 to 31/12/2018

BIOPROCAN

Food and non-food bioproducts derived from sugar cane.

Funding : Reunion Regional Council

20/05/2015 to 31/12/2018

Key publications

- Unguiculin A and Ptilomycalins E-H, antimalarial guanidine alkaloids from the marine sponge *Monanchora unguiculata*. P.-E. CAMPOS, J.-L. WOLFENDER, E. QUEIROZ, L. MARCOURT, A. AL-MOURABIT, M. FREDERICH, A. BORDIGNON, N. DE VOOGD, B. ILLIEN, A. GAUVIN-BIALECKI. *Journal of Natural Products*, 2017, 80 (5), 1404-1410.
- Contribution of trans-aconic acid to DPPH scavenging ability in different media. W. PIANG-SIONG, P. DE CARO, A. MARVILLIERS, X. CHASSERAY, B. PAYET, A. SHUM CHÉONG SING, B. ILLIEN. *Food Chemistry*, 2017, 214, 447-452.
- Anthraquinones and derivatives from marine and marine-derived fungi : structural diversity and selected biological activities. M. FOUILLAUD, M. VENKATACHALAM, E. GIRARD-VALENCIENNES, Y. CARO, L. DUFOSSÉ. *Marine Drugs*, 2016, 14 (4), 64.
- The genus *Psiadia* : Review of traditional uses, phytochemistry and pharmacology. K. MAHADEO, I. GRONDIN, H. KODJA, J. SOULANGE GOVINDEN, S. JHAUMEER LAULLOO, M. FREDERICH, A. GAUVIN-BIALECKI. *Journal of Ethnopharmacology*, 2018, 210, 48-68.



LCSNSA

Laboratory for the chemistry of natural substances and food sciences (created in 1998)

Status : *University of Reunion Island research team*

→ <https://lcsnsa.univ-reunion.fr>

👤 Director : **Anne BIALECKI**

✉ anne.bialecki@univ-reunion.fr

☎ +262(0) 262 93 81 97

📍 University of Reunion Island

15 Avenue René Cassin CS 92003

97744 SAINT-DENIS CEDEX 9

Total staff : 22

Permanent lecturers and researchers in Reunion : 13

Average number of PhD students : 6

- Current perspective of yellowish-orange pigments from micro organisms - a review. C.A. ARULDASS, L. DUFOSSE, W.A. AHMAD. Journal of Cleaner Production, 2018, 180, 168-182.

Major organised conferences and symposia

INTERNATIONAL CONFERENCE ON PURE AND APPLIED CHEMISTRY (ICPAC 2018) / Chemistry for a Clean and Healthy Planet / Mauritius.

Member of the International Advisory Committee : participation in the scientific or organisation committee
02-06 July 2018

INTERNATIONAL CONFERENCE ON BIODIVERSITY HEALTH AND FOOD (IC-BIOHEALF) / University of Reunion Island.

Scientific Committee Member
14-16 December 2017

INTERNATIONAL FESTIVAL OF PLANTS, ECOLOGY AND COLOURS CONGRESS / Antananarivo, Madagascar.

Scientific Committee Member
15 - 21 May 2017

5TH INDIAN OCEAN FOOD INDUSTRY MEETINGS / QualiREG,

Saint-Pierre technical college, Reunion.
Organisation committee member
28 November 2016 - 2 December 2016

INTERNATIONAL CONFERENCE ON PURE AND APPLIED CHEMISTRY (ICPAC 2016), Emerging Trends in Chemical

Sciences, Mauritius.
International Advisory Committee Member
18-22 July 2016

Scientific networks

GDR 3658 MEDIATEC : CHEMICAL MEDIATION IN THE ENVIRONMENT - CHEMICAL ECOLOGY / NATIONAL

This research group (GDR) seeks to promote chemical ecology in France, to foster a scientific community of biologists, ecologists and chemists with an interest in marine and continental environments, microorganisms, plants, invertebrates, insects and mammals. It also addresses current scientific challenges through global and transversal "omic"-type approaches, from genomics to environmental metabolomics.

QUALIREG / REGIONAL AND INTERNATIONAL

Regional food industry cooperation network (50 partners) to improve product quality and promote co-development in the Indian Ocean area. Participation in continuing professional education.

Technical support centres and facilities

NORTH CAMPUS

- ▶ 1 laboratory grinder
- ▶ 1 lyophilizer
- ▶ Medium-Pressure Liquid Chromatography/UV (CLMP-UV)
- ▶ 1 High-Performance Liquid Chromatography/UV/ Fluorometer/ Corona (HPLC),
- ▶ 1 Semi-preparative and preparative High Performance Liquid Chromatography coupled to DAD / Corona detectors
- ▶ 1 Gas chromatography used with a flame ionisation detector (GC-FID),
- ▶ 1 ultra high performance liquid chromatography coupled with mass spectrometry gas chromatography used with TCD/FID/ katharometerdetectors, gas chromatography used with a mass spectrometer (GC-MS)
- ▶ Extractor ASE 300
- ▶ Freeze-drying machine
- ▶ Infrared spectroscopy
- ▶ Spectrofluorometer linked to a microplate reader / Ultraviolet Spectrophotometry (UV)
- ▶ DryDist microwave oven
- ▶ Ultrasound tanks and probes
- ▶ Laminar flow extractor hood

- ▶ Bioreactors
- ▶ Colorimeter spectrometer
- ▶ Sphygmomanometer, Micro-Osmometer, Texturometer, Viscometer
- ▶ CO2 tank, Incubator
- ▶ Molecular modelling station and software (Gaussian, etc.)

SOUTH CAMPUS

- ▶ Pilot platform for the production of "Raceway" microalgae
- ▶ 1 hydrogen generator
- ▶ INFORS orbital incubation shaker
- ▶ 2 Incubators with thermostats
- ▶ 2 bioreactors for anaerobic digestion with CH4 mass flow sensor
- ▶ 2 GM300 micro mills and grinder
- ▶ Orbital shaker with thermostat
- ▶ 2 methane potential analysis tools (AMPTS II system)
- ▶ chiller
- ▶ freezer (-18°C)

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

- ▶ **Secondary metabolite analysis** from plants, marine organisms and micro-organisms, including :

Extraction, bio-guided sub-division and isolation of molecules using chromatographic techniques (TLC, CLMP, HPLC) ;

Identification and structural characterisation of molecules using spectroscopy techniques (NMR mono- and bi-dimensional, SMHR, GC-MS, HPLC-MS, UV, IR) and quantum chemical methods (molecular modelling).

- ▶ **Exploration** of production of colourings, flavouring and bio-active products using microbial methods. Development of micro-organisms.

Services

- ▶ Extraction, purification and structural determination of natural molecules of interest
- ▶ Antioxidant, antibacterial and anti-fungal activity tests
- ▶ Isolation and production of micro-organisms

Practical results of research (over the past 3 years)

Number of projects carried out : 3

Number of joint projects undertaken : 19

Number of CIFRE-supported PhD theses : 3

Number of intellectual property requests made by the team : participation in 2

Key collaborative projects

LIPIDS

Development of formulas for ecological emulsion paint, including new lipid matrices and other plant-based ingredients.

Funding : DERIVERY COMPANY

01/01/2016 to 31/12/2018

VINASSE

Biological treatment of vinasse to produce energy molecules of interest.

Funding : Island authorities

01/01/2011 to 31/08/2014

PHARMACOPOEIA

Analytical monographs of two medicinal plants from Reunion listed in the French Pharmacopoeia.

Funding : APLAMEDOM

01/01/2014 to 31/12/2015 (24 months)

Outreach activities for the general public

Scientific expedition on board the Antsiva as part of the BIOMOL TCN PROJECT (2012-2014).

December 2012

TV news - NEWS OF THE DAY : INSECTICIDES, LOCAL PLANTS TO COMBAT HARMFUL INSECTS.

29 November 2017

Web press : MICROALGAE ARRIVE IN THE TECHNICAL COLLEGE

6 December 2014

Web press : GRAZIELLA CHUPPA TOSTAIN WAS AWARDED A PHD IN ENVIRONMENTAL BIOTECHNOLOGY

2 December 2016

Web press : THE UNIVERSITY OF REUNION ISLAND AT THE FOREFRONT OF RESEARCH. PRESENTATION OF THE TASCAR PROJECT

15 July 2015





MIVEGEC

Infectious Diseases and Vectors : Ecology, Genetics, Evolution and Control (created in 2011)
Status : Joint research unit between the IRD, CNRS and the University of Montpellier

→ www.mivegec.ird.fr/fr/

👤 Unit Director : SIMARD Frédéric
✉ frederic.simard@ird.fr
☎ +33 467 41 19 24
📍 IRD/MIVEGEC, 911 Avenue Agropolis,
BP 64501, 34394 Montpellier Cedex 5,
France

Total staff : 105

Average number of PhD students : 21

Support staff : 5

RESEARCH ACTIVITIES

Research topics

Ecology and evolution of infectious systems shared between 5 research teams :

- BioGEPPE : Biology, genetics and pathology of eukaryote pathogens
- EEPI : Ecology and Evolution of Parasitic Interactions
- ESV : Evolution of Vectorial Systems
- SEE : Health, Ecology & Evolution
- GENESYS : Biodiversity of Infectious Systems of the Genes in the Ecosystem

Key research projects

INFRAVEC 2

Research infrastructures for the control of vector-borne diseases
EU H2020 INFRAIA
2017-2021

SIT

Sterile Insect Technique to combat the Asian tiger mosquito in Reunion
CPER/ERDF
2009-2019

WIN

Worldwide Insecticide Resistance Network
WHO/IRD
2017-2021

EVOLPROOF

Are HPV vaccines 'evolution-proof'?
EU H2020 ERC
2017-2021

Key publications

See : <https://mivegec.ird.fr/fr/publications-2/articles>

Main technical support centres, facilities and databases

Vectopole : Confined insectariums (I1-I3) to study vector-pathogen interactions, Montpellier

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

The scientists' of the unit provide national or international expertise in their respective fields, such as vectors, entomological and parasite reference collections, surveillance and control of vectors : assessments of products, structure, strategy, risk, resistance to insecticides : studies and recommendations.

Review of the practical applications of research (over the past 3 years)

Number of projects carried out : 20

Number of joint projects undertaken : 15



PIMIT

Infectious Processes in Tropical Island Environments (founded in 2015)
Status : **Joint research unit between the University of Reunion Island, CNRS, INSERM, IRD**

→ pimit.univ-reunion.fr

👤 Director : **Patrick MAVINGUI**
✉ patrick.mavingui@univ-reunion.fr
📍 **University of Reunion Island**
2 Rue Maxime Rivière
97490 Sainte-Clotilde

Total staff : **30**

Permanent lecturers and researchers in Reunion : **17**
including researchers : **3**

Average number of PhD students : **8**

RESEARCH ACTIVITIES

Research topics

Research activities on tropical infectious diseases in South West Indian Ocean islands. Activities focus on studying eco-systemic determinism in the transmission of infectious agents and physio-pathological consequences in human beings.

- **Dynamic of Island Infectious Systems (DySIIs) :** The team conducts research into profiling infectious agents and how they are carried by wild fauna, as well as vectors and the exploration of the phenomena of transgression of species barrier.
- **Infectious immunopathology in tropical areas (I2T) :** investigations on the biology of pathogens and the mechanisms for the interaction with hosts to understand physiopathological effects.

PIMIT promotes two transversal themes involving two key medical pathologies in the South West Indian Ocean : emerging arboviruses and a bacterium (leptospirosis), as well as developing detection tools and innovative therapies based on Reunion's endemic biodiversity.

Key research projects

Period 2017-2020

ZIKALLIANCE

A Global Alliance For Zika Virus Control And Prevention
Partners : EU | H2020

ECOSPIR

Eco-Health of leptospira endemic to the Indian Ocean : bacteria presenting a risk to human populations
Partners : ERDF | INTERREG

VECTOBIOMES

Vectors and microbiota : a combination of harmful agents threatening the health of people in the Indian Ocean regions
Partners : ERDF | INTERREG

ZIKALERT

Research excellence programme on the emerging Zika virus using innovative nanotechnology
Partners : ERDF | OP

CHIKGEN

Study of links between the entire genome, genetic factors and immunological determinism in the continuing effects of the chikungunya virus
Partner : ANR

Key publications

144 international PRP publications in 3 years :

- Clain E, Sinigaglia L, Koishi AC, Gorgette O, Gadea G, Viranaicken W, Krejbich-Trotot P, Mavingui P, Desprès P, Duarte dos Santos CN, Guiraud P, Jouvenet N, El-Kalamouni C. (2018). Aphloia theiformis extract, an edible indigenous plant from Reunion island, impairs Zika virus attachment to the host cell surface. *Sci. Reports*, 8 : 10856. DOI : 10.1038/s41598-018-29183-2
- Gadea G, Bos S, Krejbich-Trotot P, Clain E, Viranaicken W, El-Kalamouni C, Mavingui P, Desprès P (2016). A robust method for the rapid generation of recombinant Zika virus expressing the GFP reporter gene. *Virology* 497 : 157-62. <https://doi.org/10.1016/j.virol.2016.07.015>.
- Lagadec, E., Gomard, Y., Minter, G. L., Cordonin, C., Cardinale, E., Ramasindrazana, B., Dietrich, M., Tortosa, P. & Dellagi, K. (2016). Identification of Tenrec ecaudatus, a Wild Mammal Introduced to Mayotte Island, as a Reservoir of the Newly Identified Human Pathogenic Leptospira mayottensis. *PLoS Negl Trop Dis*, 10(8), e0004933. <https://doi.org/10.1371/journal.pntd.0004933>



- Lebarbenchon, C., Jaeger, A., Feare, C., Bastien, M., Dietrich, M., Larose, C., Lagadec, E., Rocamora, G., Shah, N.J., Pascalis, H., Boulinier, T., Le Corre, M., Stallknecht, DE. & Dellagi, K. (2015). Influenza A Virus on Oceanic Islands : Host and Viral Diversity in Seabirds in the Western Indian Ocean. PLoS Pathogens, 11(5), e1004925. <https://doi.org/10.1371/journal.ppat.1004925>.
- Gérardin, P., Couderc, T., Bintner, M., Renouil, M., Tournèze, P., Lémant, J., Boisson, V., Borgherini, G., Staikowsky, F., Schramm, F., Lecuit, M., Michault, A. (2016). Chikungunya virus-associated encephalitis : a cohort study on Reunion island, 2005-2009. Neurology 86 : 94-102.

Major organised conferences and symposia

INTERNATIONAL BIOHEALTH CONFERENCE (BIODIVERSITY HEALTH AND FOOD)

Partners : UR, BioST Federation, CYROI, Nexa, Qualitropic
16-17 December 2017 in Saint Denis, Reunion

BIOSECURITY IN TROPICAL ENVIRONMENTS (BIOST - JOINT RESEARCH UNIT) OPEN-DAY

Partners : ENTROPIE, DSIMB, DÉTROI, LCSNSA, CEPDI, ESPACE-Dev, PVBMT, QUALISUD, CYROI, 3P, CIC-EC, PIMIT
27 Dec. 2017

Scientific networks

ONE HEALTH OI

Regional Indian Ocean research network of over 20 institutions in 8 south-western Indian Ocean countries. ONE HEALTH OI seeks to improve the prevention and control of infectious diseases in animals and humans using a regional, integrated, inter-sectoral and interdisciplinary approach.

Technical support centres and facilities

- ▶ Access to CYROI technological platform (Cyclotron Reunion Indian Ocean) support facilities
- ▶ The 180m² PLATIN-OI support platform (Indian Ocean Infectology Platform) comprising three linked level-3 laboratories (virology laboratory, rodent facility, insectarium) connected to a double-door autoclave, and a level-2 insectarium for breeding insects.

PIMIT's permanent members operate PLATIN-OI. H. PASCALIS (IR, UR) is the scientific head of PLATIN-OI and also manages 3P. C. ATYAMÉ NTE (MCU, UR/IRD) is in responsible for insectarium laboratories I2 and I3. M. ROCHE (MCU UR) is responsible for animal laboratory A3.

PLATIN-OI is managed by the PIMIT research centre Director. PIMIT research work focuses on the heart of the south-western Indian Ocean area. Our aim is to provide regional partners with open access to the PLATIN-OI platform to conduct their experimental infection studies. PLATIN-OI is one of the few research centres in France where a complete infection life-cycle of an arbovirus can be reproduced using experimental infections.

ACTIVITIES PROMOTING RESEARCH TO THE PUBLIC, ACADEMICS AND COMPANIES

Areas of expertise

- ▶ virology | bacteriology | ecology and evolution | infectious diseases | chemistry | biochemistry | molecular biology | cellular biology | arbovirology | areas of experimental infections and physiopathological analyses in human beings and animal reservoirs.
- ▶ **Arbovirus issues** (ZIKV, DENV, CHIKV) orientation of studies mainly towards evolution and ecology of interactions between

the host and the pathogen, production of detection tools and the development of vaccine candidates.

- ▶ **Technology of reverse genetics to produce recombinant arboviruses** (Zika, Dengue). Incompatible insect technology (through infection Wolbachia) to control the Asian tiger mosquito
- Specialist appraisals of microbiological risk and developing cohort studies
- Guidance in handling level-3 pathogens

Services

The PIMIT unit has an outstanding biobank (tissue, blood, plasma, urines, nucleic acids) from endemic or recently introduced wild animals, enabling investigations on the presence of potentially pathogenic infectious agents for humans and epidemic risk assessment.

Practical results of research (over the past 3 years)

Number of projects carried out 1

Number of collaborative projects carried out 24

Number of companies set up through research work 1
startup symbioTIC

Number of intellectual-property requests made by the team
3 (patents)

List of intellectual property requests

OEB 16305764 "Vaccine compositions comprising an attenuated mutant Zika virus". Registered 07/2016 • OEB 16305863 "Genomic sequences encoding for an attenuated mutant Zika virus". Registered 07/2017 • OEB 18305340 "Use of quercetin-3-glucoside for the treatment of flavivirus infections". Registered 03/2018.

Key collaborative projects

ZIKALLIANCE : A Global Alliance For Zika Virus Control And Prevention

Partners : 17 European countries, including France
2017-2020

Funding : EU H2020

ECOSPIR : Eco-Health of leptospira endemic to the Indian Ocean : bacteria presenting a risk to human populations

Partners : Mayotte, Comoros, Seychelles
2017-2020

Funding : ERDF INTERREG

VECTOBIOMES : Vectors and microbiota : a combination of harmful agents threatening the health of people in the Indian Ocean regions

Partners : Vectors and microbiota : a combination of harmful agents threatening the health of people in the Indian Ocean regions
2017-2020

Funding : ERDF INTERREG

ZIKAPAMIRE : Use of extracts from medicinal plants from Reunion to combat the emerging ZIKA virus

Partners : PIMIT, Extraits de Bourbon (EDB) company
2016

Funding : BioST joint research unit at the University of Reunion Island

DORTOIR : Sea bird population dynamics and the transmission of bird-flu viruses

Partners : PIMIT, ENTROPIE
2017

Funding : BioST joint research unit at the University of Reunion Island

Outreach activities for the general public

TV programme : WORK IN THE RACE AGAINST THE ZIKA VIRUS

Partners : Antenne Réunion | PIMIT

23 February 2016

Report : DENGUE VIRUS AND MOSQUITO CONTROL USING THE STERILE INSECT TECHNIQUE

Partners : Antenne Réunion | Start-up Symbiotic | MIVEGEC | PIMIT

14 March 2018

Report : 5,000 REUNION CITIZENS AT THEIR MICROSCOPES

Partners : JIR | DÉTROI | PIMIT

November 2015

Article : LEPTOSPIROSIS, TENRECS IN THE FRONT LINE

Partners : Le Quotidien Reunion Island newspaper | PIMIT

September 2016

Report : THE RISK OF A DENGUE EPIDEMIC IN REUNION

Partner : JIR Reunion Island

28 April 2016





Energy, Mathematics, Information Technology, Engineering Sciences



- 94 | LE2P - Energy Systems, Electronics and Processes Laboratory
- 97 | LIM - Computing and Mathematics Laboratory
- 99 | PIMENT - Physics and Mathematical Engineering Laboratory for Energy, Environment and Building





LE²P ENERGY-LAB

*Energy, Electronics and Processes
Laboratory*

Status : University of Reunion Island

→ le2p.univ-reunion.fr

👤 Director : **Jean-Pierre CHABRIAT**

✉ Jean-pierre.chabriat@univ-reunion.fr

☎ +262(0) 262 93 82 50

📍 **LE2P ENERGY-lab - UFR Sciences et
Technologies**

**University of Reunion Island
15, Avenue René Cassin CS 92003
97744 SAINT-DENIS CEDEX 9**

Total staff : 34

Permanent lecturers and researchers in Reunion : 13

Average number of PhD students : 12

RESEARCH ACTIVITIES

Research topics

LE²P ENERGY-lab main research focus on the optimisation of electrical energy in critical ecosystems

Science operations include :

- ▶ Sunlight resources : variability in Reunion and in tropical areas, metrology and modelling
- ▶ Energy storage and conversion : fuel-cell systems and hybridisation
- ▶ Energy optimisation of sensor networks

How to characterise variability in sunlight and the climate in the South West Indian Ocean?

How to extract information and predict energy flows based on the aggregation of massive, multi-scale data

How best to allocate the energy supply and management between source and multi-storage systems for urban micro-networks

How to improve reliability, increase performance, lifespan and reduce the cost of fuel-cell systems and membrane electrolysis?

How to optimise topology and network-communication protocols of wireless actuators and sensors to manage information and energy in urban micro-networks

How to best capture surrounding energy to supply multi-scale wireless actuators and sensor networks

Key research projects

REACT : Renewable energy for self-sustainable island communities

Partner : Horizon2020

2019 - 2020

GYSMATE : Dynamic management, supervision and optimisation of micro-networks for regional self-sufficiency in electrical energy

Partner : ERDF

2017 - 2020

SWIO-IOS-NET : Virtual real-time solar and meteorological sensor network

Partner : ADEME | Reunion Regional Council | COI | Europe (ERDF)

2017 - 2020

CARERC : Electromagnetic mapping using sensor networks

Partner : Reunion Regional Council - Europe (ERDF)

2014 - 2020

SYSPACREVERS : An innovative concept with reversible fuel cells to generate and convert electrical solar energy for storage using a Hydrogen vector

Partner : Reunion Regional Council - Europe (ERDF)

Key publications

- Bessafi M., Lollchund M.R., Chabriat J.-P., Lan Sun Luk J.-D., Jeanty P. (2017). Climatology in Mauritius 1983 - 2005 (2017) ; potential solar radiation modulation by Quasi-Biennial oscillation and El Niño-Southern oscillation. Progress in Industrial Ecology, An International Journal, Inderscience, 2017, 11 (1), pp.97-103. DOI 10.1504/PIE.2017.086160.
- Damour C., Benne M., Alicalapa F., Grondin-Perez B., Chabriat J.-P. (2017). Economic Performance Optimization of a PV-BESS Power Generator : A Case Study in Reunion Island. Smart Grid and Renewable Energy, 8(4) : 114-128.
- Dijoux E., Steiner N., Benne M., Pera M.-C., Grondin-Perez B. (2017). A review of fault tolerant control strategies applied to proton exchange membrane fuel cell systems. Journal of Power Sources, 359 : 119-133.
- Aubras F., Deseure J., Kadjo A.-J., Dedigama I., Majasan J., Grondin-Perez B., Chabriat J.-P., Brett D. (2017). Two-dimensional model of low-pressure PEM electrolyser : Two-phase flow regime, electrochemical modelling and experimental validation. International Journal of Hydrogen Energy, 42(42) : 26203-26216.
- Rivière J., Douyère A., Oree S., Lan Sun Luk J.-D. (2017). A 2.45 GHz ISM Band CPW Rectenna for Low Power Levels. Progress In Electromagnetics Research C, 77 : 101-110.

Major organised conferences and symposia

2016 IEEE RADIO INTERNATIONAL CONFERENCE

Partner : 14th BSRN Scientific Review and Workshop in Canberra, Australia
13 October 2016

HYDROGEN ENERGY WORKSHOP IN REUNION ORGANISED AT THE LE2P

2014

Scientific networks

GDR HYSPÀC / NATIONAL NETWORK WITH AN INTERNATIONAL REACH

The aim of the "Hydrogen, systems and fuel cells" (HySPàC) 3652 CNRS research group (GDR) is to bring researchers and manufacturers together in the hydrogen storage, production, fuel cells and systems sectors. LE2P participates in GDR's research activities.

GDR SEEDS / NATIONAL NETWORK WITH AN INTERNATIONAL REACH

The SEEDS (Electrical Energy Systems in their Social Dimension) research group, based at the CNRS, groups together electrical engineering laboratories and academic teams. The research group works in close collaboration with the scientific communities with research work related to generating, distributing, transforming and using electrical energy. It also focuses on equipment, methods and technology contributing in providing effective, safe and environmentally-friendly electrical systems. The unit contributes to the research group's activities, especially the micro-networks group

GDR ONDES / NATIONAL NETWORK WITH AN INTERNATIONAL REACH

The ONDES 2451 research group organises and develops the ONDES ("WAVES") community, as a whole. It covers the areas of acoustics and electromagnetism in a broad sense, ranging from microwave to optical frequencies. It participates in the group's research activities.

SAURAN / INTERNATIONAL NETWORK

Southern African Universities Radiometric Network - LE2P has been a member of the observation network since 2015, providing scientific collaboration.

BSRN / INTERNATIONAL NETWORK

The Baseline Surface Radiation Network is part of the international World Climate Research Programme (WCRP) and reports to the World Meteorological Organization (WMO). LE2P is a network member, takes part in scientific partnerships and provides high-quality equipment and data certification.

Main technical support centres, facilities and databases

- ▶ Network of radiometric stations (18) between islands (collaboration with Mauritius and Rodrigues, the city of Durban in South Africa and soon the Comoros islands, Madagascar, Seychelles), including 1 world-standard facility with sun-tracker and high-quality radiometers, 1 reference meteorological station, calibration centre for pyranometers in line with ISO 9847 (Oriel artificial sun, Kipp & Zonen calibration equipment).
- ▶ Climate and energy Data Warehouse (internal usage)
- ▶ Real-time simulation of electrical systems (Opal RT)
- ▶ Renewable energy site - PV conversion and solar energy storage (16.5kWc installed) - climate chamber 108l (Memmert), thermal camera
- ▶ Fuel-cell system and PEM electrolysis tests, gas storage (N₂, H₂, etc.) - DAQ NI (4)
- ▶ Simulation, design and testing environment for wireless sensor networks
- ▶ Profiling HF systems & prototyping (vector analysers, 100MHz

digital oscilloscope, signal generator, spectrum analyser)

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Solar metrology | thermal metrology | RF and HF metrology | National Instruments DAQ | Campbell Sci DAQ | Multi-physical modelling | Optimisation | Distributed Control | Data Warehousing | connected wireless sensor networks

Services

Physical measurements, production of measurement data, data analysis, especially in the following fields :

- ▶ solar metrology on-site in Reunion and on other islands (Comoros, Mauritius, Madagascar, Seychelles)
- ▶ laboratory fuel cell testing
- ▶ wireless sensor networks in the laboratory and in outdoor environments in Reunion
- ▶ laboratory rectenna, development of CMOS integrated circuits with GIP CNFM/CMP
- ▶ the Internet of Things and low bandwidth (Lora platform)

Mobile stations available on request or for projects, based on one 2-in-1 pyranometer SPN1 (Delta-T Devices) and 1 WXT520 meteorological multi-sensor (Vaisala)

Specialist appraisals (assistance to contracting authority)

Existing collaborative ventures with businesses : EDF | IRT | SIDR | SODETREL | Corex Solar | TEEO | Dijoux group

Review of the practical applications of research (over the past 3 years)

No. of collaborative projects undertaken : 12 (one project a year per OS) / 2 research contracts

Number of PhD theses : 2 PhD thesis grants a year on average (total 2013-2017 : 9 PhD theses completed)

No. of businesses started through research work : 2 start-ups (including XPRIM)

List of intellectual property requests : request to backdate a patent application (Q-URFC, Feb. 2018) ; 2 databases, including a database platform using the CASSANDRA technology working on 4 servers / Regarding software (2 owned by the lab), the unit has acquired specialised software : CADENCE, ADS, COMSOL, MATLAB & Simulink, R, SOLIDWORKS, LabVIEW (the researcher-lecturers at the OS3 unit take part in CLAD certification), and all potentially on the GitHub platform.

Data acquisition is generally carried out using two basic systems : the National Instruments environment in the lab (SCXI modules, CompactRIO), Campbell Scientific dataloggers outside.

Key collaborative projects

AXISOI EUROPEAN PROJECT

Installation of sensors on 2 remote sites (Durban, South Africa and Le Port, Reunion)

Partners : University of KwaZulu-Natal | town of Le Port

Funding : ERDF

2014 -2015

REGIONAL SCOPE OF THE EFFECTS OF CLIMATE CHANGE ON SOLAR ENERGY IN THE SOUTH-WEST INDIAN OCEAN

Partners : CRC | University of Burgundy in Dijon | ICTP | Trieste (Italy)

Funding : Reunion Regional Council call for projects

2013 - 2015

DISPÀC BIO H2

Online testing of 50W fuel cells, fault-tolerant command strategies

Partners : LIM | FEMTO-ST (FC Lab in Belfort) | Corex Solar | TEEO | Dijoux Group



Funding : Reunion Regional Council call for projects
2013 - 2016

.....
SCIENTIFIC COOPERATION ON WSNS (WIRELESS SENSOR NETWORKS) IN THE INDIAN OCEAN REGION

Partners : Reunion Regional Council | Indian Ocean researchers
Funding : Reunion Regional Council call for projects
2015 - 2017

.....
SUNNY MOUV PROJECT

Smart research for electric vehicles
Partners : EDF | SODETREL
Ongoing

Outreach activities for the general public

Monthly climate mapping of global solar radiation in Reunion at a 250m resolution, using CMSAF satellite data

.....
Newsletter : Kipp & Zonen, world leaders in measuring solar radiation

.....
Wiki web application (SODETEL - ADEME) for the Sunny Mouv project and green charging for electric vehicles using information signals on the island electricity production

.....
Tool development : GEOSUN APPLICATION, Appstore smartphone application for the GEOSUN product (network of solar and meteorological sensors in near real time) / Real-time simulation platform / communication campaign with EDF

.....
Exhibitions and posters to popularise science on the laboratory's themes at the SCIENCE FESTIVAL, for example : "Hydrogen gas used to store energy"

.....
Regular joint projects with CSTI associations, such as the "Petits Débrouillards" educational site



RESEARCH ACTIVITIES

Research topics

LIM focuses on 3 research themes :

- ▶ **EDIM (Epistemology and Teaching of Computer Science and Mathematics)** : History of mathematics (history of numerical and written calculation, mathematics for engineers, nomographs, ethnomathematics) | Teaching mathematics (teaching interactive geometry, interactive geometry and mobility, interactive geometry and coding, investigation approach) | Learning Analytics (digital tablets, Educational Data Mining, Computer-supported cooperative work)
- ▶ **ITA (I.T. and Applications)** : Data-Knowledge-Decision (DCoD) (keywords : classification and extraction of patterns, knowledge engineering, human-machine interaction) | Mobile and Communicating I.T. (IMC) (keywords : software checking, collaborative group systems, communication networks)
- ▶ **MATHS (Mathematics)** : Discrete mathematics (work on arithmetic and combinatorics, relations theory and algorithmics) | Foundations of Mathematics and Analysis (philosophy of mathematics, game theory and analytic number theory, set theory)

Key research programmes

Regional call for proposals 2015-2018

CLUSTOVERLAP : Development of overlapping classification systems

SMA3 (SMA Cube) : Multi-Agent System for the Synergy of an Automated Mobile in the Land-Sea-Air environment

METROLOGY : Metrology and web-traffic analysis in Reunion

ETTML : Experiments with Touchscreen Tablets for Maths in Secondary Schools

ICARO : Combined /Analysis/Operational Research interface

Key publications

53 publications in reviews (PRP), 21 chapters in scientific works

- Christian Delhommé & Maurice Pouzet, Length of an intersection, *Mathematical Logic Quarterly*, 63, 3-4, pp. 243-255, 2017.
- Patrice Bertrand & Jean Diatta, Multilevel clustering models and interval convexities, *Discrete Applied Mathematics*, 222, pp. 54 - 66, 2017.
- Marianne Morillon, Linear extenders and the Axiom of Choice, *Commentationes Mathematicae Universitatis Carolinae*, 58, 4, pp. 419-434, 2017.
- Dominique Tournès, Models and visual thinking in physical applications of differential equation theory : three case studies during the period 1850-1950 (Bashforth, Størmer, Lemaître), *Oberwolfach Reports*, 12, 4, pp. 2846-2849, 2015.
- Frédéric Mesnard, Étienne Payet & Germán Vidal, Concolic testing in logic programming, *Theory and Practice of Logic Programming*, 15, 4-5, pp. 711-725, July 2015.

Major organised conferences and symposia

SPECIAL SESSION "CLUSTERING AND RECOMMENDATIONS SYSTEMS"

as part of the biennial conference of the International Association of Classification Societies (IACS), Tokyo

Partners : Société Francophone de Classification | IFCS
08-10 August 2017

GLOBAL INFORMATION INFRASTRUCTURE AND NETWORKING SYMPOSIUM (GIIS'2017)

Partners : IEEE | Reunion technical school | University of Reunion Island | University of Upper Alsace | University Paris East Marne la Vallée | Indonesia | Greece

25-27 October 2017, St Pierre

EGC CHALLENGE (INTERNATIONAL FRANCOPHONE ASSOCIATION FOR THE EXTRACTION AND MANAGEMENT OF KNOWLEDGE) 2018

Partners : EGC | LE2P
25/01/2017 - 26/01/2018



LIM

I.T. and Mathematics Laboratory

Status : **Host team at the University of Reunion Island**

→ lim.univ-reunion.fr

👤 Director : **Jean DIATTA**

✉ jean.diatta@univ-reunion.fr

☎ +262(0) 262 48 33 95

📍 Parc Technologique Universitaire,
Bâtiment 2 - 2 rue Joseph Wetzell,
97490 SAINTE-CLOTILDE

Total staff :

32 (including 12 PhD students and 6 fellows)

Permanent lecturers and researchers in Reunion : 27

Average number of PhD students : 14



"MATHEMATICAL INSTRUMENTS BETWEEN MATERIAL ARTIFACTS AND IDEAL MACHINES : THEIR SCIENTIFIC AND SOCIAL ROLE BEFORE 1950"

Workshop / 17-23 Dec. 2017

STUDY DAY "I.T. AND DIGITAL SCIENCE"

Partner : Reunion Education Authority
14 April 2017

Scientific networks

ANR CIRMATH / NATIONAL NETWORK

Promotion of mathematics in and through newspapers : history, regions and publics

GIS ADIREM / NATIONAL NETWORK

IREM (Institutes for research on mathematics teaching) scientific interest group

GDR DEMIPS / NATIONAL NETWORK

Research group working on teaching methods and epistemology in mathematics, links with computer science and physics in higher education

GDR HISTORY MATHS / NATIONAL NETWORK

The aim is to promote the continuous development and quality of the history of mathematics by focusing on a unified approach to activities on the theme in France.

Main technical support centres, facilities and databases

- ▶ SKUAD (Software Kit for Ubiquitous Agent Development) experimental platform
- ▶ Rundroid (Android programme analyser) and NTI (non-completion analyser) platforms
- ▶ Ten Linux servers

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Mathematics teaching methods and computer-supported cooperative work | foundations of mathematics and | data-mining | history of mathematics and ethnomathematics | fundamental computer science | knowledge engineering and human-machine interactions | discrete mathematics and algebra | networks | multi-agent simulation | checking.

Review of the practical applications of research (over the past 3 years)

Number of projects carried out : 12

Number of joint projects undertaken : 12

Number of CIFRE-supported PhD theses : 3 (one co-supervised)

Key collaborative projects

CIFRE-SUPPORTED THESIS ON THE IMPORT AND EXPORT OF KNOWLEDGE REPRESENTATION (KR) ON THE BASIS OF KR IN ANY LANGUAGE

Partner : GTH (Global Technologies Holding)
2013-2017

PANO (AUTOMATIC PRESENTATION OF NUMBERS AND ORDERS) ON THE HIERARCHY OF GRAPHS, COMPETITION AND AUTOMATICITY

Partners : IMSc (Institute of Mathematical Sciences) in Chennai | INDIA and the Gaspard-Monge Institute at Marne-la-Vallée University | Camille Jordan Institute in Lyon
2016 - 2017

GABIR PROJECT (SCIENTIFIC PARTNER IN THE MODELLING

PHASE)

Partner : CIRAD
2016 - 2019

SMARTCITIES & SMARTISLAND

Partner : ICL (Imperial College London)
2014 - 2018

RUNDRROID - PROGRAMME ANALYSIS

Partners : University of Parma | University of Pisa | University of Eindhoven
2015 - 2017

Outreach activities for the general public

Courses : MATHSC2+, "GIRLS AND MATHS", CORDÉES DE LA RÉUSSITE PROGRAMME, MATHS WEEK

Partner : education authority
2014 - 2018

Publication : BLOCKY AND THE DYNAMIC TURTLE

Partners : DGPd | IREM Reunion

Mooc : MASTERING SHELL BASH

Partner : FUN
05/02/2018 - 18/04/2018

EXHIBITIONS AND CONTRIBUTIONS FOR THE SCIENCE FESTIVAL

Partners : IREM | Sciences Reunion (CCSTI)
2000 - 2018

HISTORY (ORIGINS) OF PROBABILITIES, COUNTING (FROM PEBBLES TO EXOTIC METHODS, VIA THE INDIAN COUNTING SYSTEM)

Partner : MATH.en.JEANS association
2014 - 2018

RESEARCH ACTIVITIES

Research topics

PIMENT works on 3 major research topics :

► Topic 1 : Energy-efficient buildings in districts and towns

Positive-energy buildings and districts : design, use, thermal performance, user behaviour, | building physics | building envelopes for energy storage, ventilated walls, green roofs, | air quality and comfort, including thermal and fluid mechanics, thermal, visual, acoustic and olfactory heating comfort, | real-time control and optimisation for smart buildings, | sustainable and bio-sourced materials such as waste re-purposing and biological or non-biological materials, | scientific breakthroughs in heating, thermodynamics, shape optimisation, model analysis, mechanics, fluid mechanics, urban engineering, thermal and energy engineering

► Topic 2 : Sustainable forms of energy

Resources potential : wind, temperature, sunlight | Systems behaviour / optimisation of components : SWAC (seawater air conditioning), OTEC (ocean thermal energy conversion), solar air-conditioning, photovoltaics (heat), air-conditioning and cooling systems | Bioenergies : production of biogas from waste | Forecasting, real-time control, control from the resource to injection into a smart network | energy storage | transfer intensification | Addressing irregularities

► Topic 3 : Mathematics and Applications

Sensitivity, | optimisation | finished elements | contact mechanics and lubrication

Key publications

- Alain Bastide, Pierre-Henri Cocquet and Delphine Ramalingom. Penalization model for Navier-Stokes-Darcy equation with application to porosity-oriented topology optimization. *Mathematical Models and Methods in Applied Sciences*, August 2018. doi : 10.1142/S0218202518500409.
- Hugo T.C. Pedro, Carlos F.M. Coimbra, Mathieu David and Philippe Lauret. Assessment of machine learning techniques for deterministic and probabilistic intra-hour solar forecasts. *Renewable Energy*, 123 : 191 - 203, August 2018. doi : 10.1016/j.renene.2018.02.006.
- Bruno Malet-Damour, Stéphane Guichard, Aurelien P. Jean, Frederic Miranville and Harry Boyer. SHADECO : a low-cost shadow-ring for diffuse measures : State of the art, principles, design and application. *Renewable Energy*, September 2017a. doi : 10.1016/j.renene.2017.09.083.
- Hamza Semmari, Amandine LeDenn, François Boud'ehenn, Jean-Philippe Praene, Franck Lucas and Olivier Marc Marc. Case study for experimental validation of a new presizing tool for solar heating, cooling and domestic hot water closed systems. *Case Studies in Thermal Engineering*, 10 : 272 -282, September 2017. doi : 10.1016/j.csite.2017.07.007.
- Qian Shao, A A Younes, M Fahs and Thierry A. Mara. Bayesian sparse polynomial chaos expansion for global sensitivity analysis. *Computer Methods in Applied Mechanics and Engineering*, 318 : 474-496,2017. doi : 10.1016/j.cma.2017.01.033.

Major organised conferences and symposia

SAMO CONFERENCE 2016, "EIGHTH INTERNATIONAL CONFERENCE ON SENSITIVITY ANALYSIS OF MODEL OUTPUT"

This international conference was organised by T. Mara in collaboration with GDR-Mascot-Num and the "Econometrics and Applied Statistics Unit, European Commission - Joint Research Centre, Ispra, Italy". The laboratory ran two special sessions itself on the topics of "Energy and Buildings in partnership with the International Building Performance Simulation Association (IBPSA) France" and "Water Resources". November 2016

OTEC 2017 [OCEAN THERMAL ENERGY CONVERSION]

showcased the laboratory, its experiments and work on ocean thermal energy conversion. 2017

THE 5TH TASK 46 MEETING "SOLAR RESOURCE ASSESSMENT AND FORECASTING" OF THE INTERNATIONAL ENERGY AGENCY WAS HELD IN REUNION

in partnership with 20 international researchers
15 to 16 April 2014



PIMENT

Laboratory of Physics and Mathematical Engineering for ENERGY, the ENVIRONMENT and BUILDINGS

Status : **University of Reunion Island**

→ piment.univ-reunion.fr

👤 Director : **Alain BASTIDE**

✉ alain.bastide@univ-reunion.fr

☎ +262(0) 262 57 95 98

📍 117 Rue du Général Ailleret
97430 LE TAMPON

Total staff : **63**

Permanent lecturers and researchers in Reunion : **31**

Average number of PhD students : **28**

SYMPOSIUM : "REVIEWING THE SOLAR RESOURCE IN ISLAND ENVIRONMENTS"

25 to 28 March 2013

SYMPOSIUM : "SOLAR ENERGY IN URBAN PLANNING, MEET THE EXPERTS", MOUFIA BIOCLIMATIC AMPHITHEATRE, SAINT DENIS, REUNION,

In collaboration with ADEME Reunion. The seminar was attended by 200 local and international participants.
2 October 2015

6TH EXPERTS MEETING OF THE INTERNATIONAL ENERGY AGENCY TASK 51 "SOLAR ENERGY IN URBAN PLANNING", REUNION ISLAND

28 September to 2 October 2015

INTERNATIONAL WORKSHOP "SOLAR ENERGY IN URBAN PLANNING PARAMETRIC MODELING DESIGN URBAN DAYLIGHT ANALYSIS, OUTDOOR ENVIRONMENTAL ANALYSIS"

The workshop was jointly organised with the Norwegian University of Science and Technology in Trondheim and designed for 5th year engineering students, PhD students and professionals
5 to 9 October 2015

SYMPOSIUM : "TRANSEETER", ENERGY TRANSITION PUT TO THE TEST IN THE REGIONS. HELD IN LE TAMPON, REUNION AND ORGANISED IN PARTNERSHIP WITH CEMOI

on 26 and 27 October 2017

Scientific networks

DATA NETWORKS : OSU REUNION AERONET

ACADEMIC SOCIETY : INTERNATIONAL BUILDING PERFORMANCE SIMULATION ASSOCIATION, FRANCE

Main technical support centres, facilities and databases

- ▶ RAFSOL : Solar air-conditioning
- ▶ Enerpos : benchmark building for energy demand management and positive energy research in French overseas departments and territories
- ▶ Pat - ETM (trial) : experiment to simulate ocean thermal energy conversion
- ▶ LGI Unit : a demonstration building in Reunion fitted with flow sensors, thermocouples and light meters
- ▶ ISOTEST : four reduced scale (1/3) buildings fitted with flow sensors, thermocouples and light meters
- ▶ Weather station (fixed) : thermohygrometers, anemometers, weather vanes, pluviometer, albedometer and a pyrgeometer
- ▶ Weather station (mobile)
- ▶ Outdoor light source (measurement of solar light flows)
- ▶ Blue box (calorimeter) : Measuring the thermal and physical properties of materials
- ▶ Solar tracker : Pinpointing diffuse sunlight, both direct and overall
- ▶ Green roof : A building heat study
- ▶ Durasol : Study of the behaviour (ageing, optimisation, yield, etc.) of a photovoltaic panel in a humid tropical environment.
- ▶ STATRON : Climate chamber in a controlled environment
- ▶ Biogas reactor : Model of a Reunion habitat
- ▶ Gas generator : producing electricity from biomass (green waste)
- ▶ Biogas reactor : processing sludge from a wastewater treatment plant
- ▶ P.I.V. (Particle Image Velocimetry) : acquisition of velocity fields in a fluid using non-intrusive measurement

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

We are experts for national organizations :

ANR (BLANC, HABISOL, Générique, Méthodes Numériques, Villes Durables, etc.) | OSEO | CEA.

Contributions in the fields of applications, including :

- ▶ Heat transfer | Optimisation | Thermodynamic Systems | Analysis, Mechanics | Fluid mechanics | Digital Methods | Sensitivity analysis | techniques for forecasting, predicting and optimising systems.

Services

- ▶ National and international research project assessments
- ▶ PhD thesis assessment and supervision
- ▶ Interaction with social-economic stakeholders (private companies, local authorities)
- ▶ Assessment of scientific articles and publications
- ▶ Organisation of symposia and congresses (x 8)
- ▶ Hosting foreign post-doctoral graduates and researchers

Review of the practical applications of research (over the past 3 years)

Services provided : Publication of 4 software programmes (CODYRUN, ISOLAB, PVBAT, MCPBAT) | 1 label awarded (ECODOM) | Release of an energy performance tool (PERENE)

Number of collaborative projects undertaken : Over 15

Number of CIFRE-supported PhD theses : 8

Number of businesses started from applied research : 1

List of registered intellectual property patents : A patent, based on the work of laboratory researcher, Aurélien JEAN, about green roofs was registered on 06/06/2016.

Key collaborative projects

NATURAL VENTILATION

Partners : CEA | Intégrale Ingénierie | PIMENT
2015 - 2018

ANR EQUIPEX DURASOL

2012 - 2019

SUNNY SHARK

Partners : Technopole | CIR | PIMENT
2012 - 2019

TK BOIS

Determining the heat performance of wood shavings
Partners : TK BOIS | PIMENT
2016 - 2018

LETCHI PROJECT

Platform for expert appraisals of low-energy buildings in tropical environments
Partners : ADEME | IMAGEEN | PIMENT

Outreach activities for the general public

Television programme :

Philippe Lauret took part in a television programme following the International Energy Agency's 5th Task 46 meeting (solar resource assessment and forecasting)
15 to 16 April 2014

Internet conference on SOLAR ENERGY FORECASTING.

As a member of ISES (International Solar Energy Society), Philippe Lauret gave an internet conference (webinar with 567 registrations and 269 online participants) focusing on solar energy forecasting.

Outreach : ARTICLES, INTERVIEWS, PUBLICATIONS AND VIDEOS, ETC.

D. Goeleven, on the spider that spits the solution of a non-smooth oscillator, Atlas of Science (online)
8 September 2017

Insulation Guide project

In partnership with CIRBAT (Reunion tropical construction, innovation and research centre), since 2015. A guide for insulating buildings in Reunion for the construction industry (contractors, project managers, home-owners and especially independent builders)
2015 - 2017

ISOBIODOM project : BIOINSULATION IN FRENCH OVERSEAS DEPARTMENTS

In partnership with CIRBAT since 2017. The aim of the project is to define the thermal-physical properties of several biomaterials made from plants in Reunion and to assess their feasibility for use as insulation material in buildings. There is a specific focus on issues linked to high humidity (fungus, mould, etc.). A guide is being published.
Ongoing since 2017







Arts, Humanities and social sciences

- 104 | CEMOI - Indian Ocean Centre of Economics and Management
- 107 | CEPED - Population and development joint research centre
- 108 | CRJ - Legal Research Centre
- 110 | DIRE - Movement, identities, perspectives and writing
- 112 | ICARE - Southern Hemisphere Cooperative Institute for Research and Education
- 115 | IRISSE - Engineering, Research, Intervention, Sport, Health, Environment
- 117 | LCF - Research laboratory in Creole and Francophone areas
- 119 | OIES - Indian Ocean : Territories and Societies





CEMOI
Université de La Réunion

CEMOI

Indian Ocean Centre of Economics and Management

Status : **Host team**

→ cemoi.univ-reunion.fr

👤 Director : **Jean-François Hoarau**

✉ jean-francois.hoarau@univ-reunion.fr

☎ +262(0) 262 93 84 45

📍 **University of Reunion Island**

15 Avenue René Cassin

CS 92003

97744 SAINT DENIS CEDEX 9

Total staff : **58**

Permanent lecturers and researchers in Reunion : **41**

Average number of PhD students : **15**

RESEARCH ACTIVITIES

Research topics

CEMOI works on research topics in the 3 areas below :

► **Area 1 : Sustainable development in an island context**

Topic 1 : Macroeconomic analysis of island development

Topic 2 : Sector-specific analysis of island development

► **Area 2 - Assessment of public policy**

Topic 1 : Employment

Topic 2 : Education

Topic 3 : The environment

Topic 4 : Social Economy

► **Area 3 - Strategies and decisions**

Topic 1 : Strategies and management

Topic 2 : Social choices and voting theory, individual and collective decisions

Key research projects

RENOVRISK IMPACTS : Economic vulnerability and potential cost of damage linked to natural hazards resulting from tropical cyclones in the south-west Indian Ocean basin, using analytical mapping and digital tools

Funding : ERDF

2018 - 2021

IMMIDEV PROJECT : This research project focuses on the links between migrations, health and work, while examining the specific situation of physicians

Funding : ERDF

2018 - 2021

NEWTS : Nudges for Economics of Water Tariffs

2019 - 2021

"VULNERABILITY, RESILIENCE AND ISLAND DEVELOPMENT"

Funding : AFD

2018 - 2021

Key publications

- Blancard S. & Hoarau J.F (2016) "Are Small Island Developing States more Economically Vulnerable than Other Developing Countries?", *Revue Economique*, 67(1), pp. 117-142.
- Binet M-E., Carlevaro F. & Paul M. (2014), Estimation of Residential Water Demand with Imperfect Price Perception, *Environmental and Resource Economics*, 59(4), 561-581.
- Legendre, B., Ricci, O (2015), "Measuring fuel poverty in France : Which households are the most fuel vulnerable?", *Energy Economics*, 49, 620-628.
- Moreau N. & Stancanelli E. (2015), "Household Consumption at Retirement : A Regression Discontinuity Study on French Data", *Annals of Economics and Statistics*, 117/118, 253-276.
- Valéau P. & Paillé P. (2017), "The management of professional employees : linking progressive HRM practices, cognitive orientations and organizational citizenship behavior", *International Journal of Human Resource Management*, DOI : 10.1080/09585192.2017.1332671.

Major organised conferences and symposia

SYMPOSIUM : "ECONOMIC LAW AND WATER MANAGEMENT IN THE INDIAN OCEAN (DEGEZOI)"

Funding : Water Office | Cise | Véolia Reunion

30 and 31 October 2014 / Saint Denis (Reunion)

SYMPOSIUM : "70 YEARS OF DEPARTEMENTALISATION : WHAT ARE THE LESSONS FOR THE FUTURE?"

Funding : AFD | CESER | Department Council | IEDOM | INSEE

5-6 October 2016 / Saint Denis (Reunion)

INTERNATIONAL CONFERENCE : "TOURISM SPECIALIZATION AND VULNERABILITY. EVIDENCES AND CHALLENGES FOR SUSTAINABLE DEVELOPMENT IN SMALL ISLAND TERRITORIES"

Funding : IRT | Reunion Regional Council | AFD

4 to 6 December 2014 / University of Reunion Island

INTERNATIONAL CONFERENCE : "ADAPTING TO CLIMATE CHANGE. ISLANDS AS PLACES OF INNOVATIVE SOLUTIONS FOR ALL REGIONS"

Funding : Reunion Regional Council | Network of Regional Governments for Sustainable Development (nrg4SD)
5 to 6 October 2017 / Saint Denis (Reunion)

CONFERENCE : 13TH ANNUAL TEPP CONFERENCE

Funding : TEPP | Reunion Regional Council | Prefecture Reunion | CNFPT
October 2016 / Saint Denis, Reunion

Scientific networks

WORK, EMPLOYMENT AND PUBLIC POLICY FEDERATION / NATIONAL NETWORK

The CNRS Research Federation no. 3435, Work, Employment and Public Policy is the biggest multi-disciplinary research federation for work and employment, and one of the main contributors in assessing public policy in France. It comprises 190 researchers and lecturer-researchers, 140 PhD students, mainly economists, sociologists and administrators in 9 laboratories of 9 universities of Ile de France and its province. There are up to 40 external researchers working with partner laboratories, who are also members of the federation.

The aim is to meet the need for assessing the impact of social programmes using advanced technology combining theoretical and econometric models, qualitative research techniques and controlled experiments.

ATOM, OVERSEAS REGIONS WORKSHOP / NATIONAL NETWORK

ATOM brings together researchers from overseas territories, mainland France and Canada, studying economic issues faced by outermost regions.

The laboratory has been a member of the ATOM association since 2016.

QUALIREG / REGIONAL NETWORK

This network is supported by the CIRAD and is aimed at bringing together participants/innovators in the Indian Ocean area to improve and highlight the quality of regional food production. The goal is to gain a better understanding of the role of digital technology by working in a network, with participants located in remote regions, separated by oceans.

ARCHE_NET / INTERNATIONAL NETWORK

The network includes Australian, South African, Malagasy, inhabitant of the Comoros, Indian and Mozambican partners, and studies the adaptation of livestock system strategies to agro-ecological and social-economic challenges in the south-western Indian Ocean.

CEMOI has been a member of the international "ARCHE_net" network, organised by CIRAD Reunion since 2012.

Technical support centres and facilities

► **CELESTE** - Centre of Localised Economic and Statistical Studies in Regions and Employment : a platform for experimental data engineering in the social sciences (centre for testing and setting up RCTs) / TEPP equipment (FR CNRS 3435)

► 1 SD-Box leased to the secure data access centre (CASD)

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

► Consulting and training activities in support of companies, I.T. systems, public-private partnerships in the electricity sector, on economic questions, on questions of policy and contemporary economic strategies and on market funding for a range of financial institutions, local authorities, professional bodies and companies in the Indian Ocean area.

► Legal and economic expertise in a wide range of areas : energy dependency, energy transition and poverty, food dependency and agricultural transition.

Services

► Consulting activities

► Participation through scientific expertise (e.g. Anses) or standards bodies

► Legal and economic guidance. E.g. : setting of wages and prices, innovation, Economic valuation of land by a law firm.

Review of the practical applications of research (over the past 3 years)

Number of CIFRE-supported PhD theses : 3

Boyer P.Y. : Cifre grant from 1 February 2013 to 31 August 2016 | Cornélia Sandulache : Cifre grant from 24 November 2014 | Alexandre Thevenot : Cifre grant from 29 March 2011 to 23 April 2014.

Number of intellectual-property requests made by the team : 9

List of intellectual property requests : Software

Croissant Y. (2017), plm : linear models for panel data | Croissant Y. (2017) mlogit : multinomial logit models | Croissant Y. (2017), Formula : extended model formula | Croissant Y. (2017), mhurdle : multiple hurdles models with R | Moreau N. (2017), An SAS macro to perform Dong and Lewbel's "Simple Estimator for Binary Choice Models" (2015), CEMOI working document | Moreau N. (2017), An SAS macro for estimation and inference in differences-in-differences applications with only a few treated groups, CEMOI working document | Moreau N. (2017), An SAS macro for estimation and inference in differences-in-differences applications with inner cluster correlation and cluster-corrections for a few clusters, CEMOI working document | Moreau N. (2016), An SAS macro to estimate Average Treatment Effects with Propensity Score Matching, CEMOI working document | Moreau N. (2016), An SAS macro to estimate Average Treatment Effects with Matching Estimators, CEMOI working document.

Key collaborative projects

GREER (Creativity and innovation in industry events and meetings),

Partners : Angers TourismLab
2015

NEW BUSINESS MODELS FOR THE SOCIAL ECONOMY

Funding : Reunion Regional Council | ERDF
2015 - 2017

THE ROLE OF CLUSTERS IN ENVIRONMENTAL INNOVATION PROCESSES

Funding : Reunion Regional Council call for projects
2015 - 2017

ASSESSMENT OF A FUTURE / YOUTH INVESTMENT PROJECT. "REUNION : A REGION OF THE FUTURE FOR AND BY YOUNG PEOPLE". (awaiting official launch)
2015 - 2019

LOCAL PUBLIC SERVICES, COMPETITION AND PERFORMANCE

Funding : Reunion Regional Council | DIREC
2015 - 2018



Outreach activities for the general public

CEMOI newsletter

The aim is to provide a concise scientific analysis of news item related to Reunion and the Indian Ocean basin, while making related teaching accessible to a non-specialised public. As a result, the newsletter is tailored to a wide audience (researchers, professionals, politicians, students, journalists, etc.).

Coordinator : Pr Jean-François HOARAU (Deputy Director of CEMOI)

Contributions to local TV news as an economics expert :

Hoarau J.F., A range of contributions to TV news on the local channel, Antenne Réunion, about economic news.

Jean-Pierre Ph., wide range of appearances on TV news on the local channel, Antenne Réunion, about economic news.

Book : THE ECONOMY IN 500 QUESTIONS AND ANSWERS, EDITIONS ELLIPSES.

2015

E-learning, MOOCs, multimedia lessons, etc. :

Narassiguin P. (2015), Economic Policy, 24 September 2015, Editions Bookelis (ebook) | Narassiguin P. (2015), The European Central Bank, 24 September 2015, Editions Bookelis (ebook)

| Narassiguin P. (2015), The Balance of Payments, 10 August 2015, Editions Bookelis (ebook) | Narassiguin P. (2015), Tax, 31 August 2015, Editions Bookelis (ebook) | Narassiguin P. (2015),

World Trade and International Negotiations, 13 October 2015, Editions Bookelis (ebook) | Narassiguin P. (2015), Banking Crises, 27 October 2015, Editions Bookelis (ebook).

Narassiguin P. (2015), The International Monetary Fund, 2 November 2015, Editions Bookelis (ebook) | Teaching team 05/06 : wide range of lessons, exercises and multi-choice questions online on the Moodle site (moodle.univ-reunion.fr).



CEPED

Population and development research

Status : **Joint research unit between IRD and the University of Paris Descartes**

→ ceped.org

👤 Director : **Gérard ETIENNE**

✉ etienne.gerard@ird.fr

☎ +33 (0)1 76 53 34 53

📍 **Paris-Descartes University**

**45 Rue des Saints-Pères
75006 Paris**

Total staff : **87**

Permanent lecturers and researchers in Reunion : **1**

Average number of PhD students : **1**

RESEARCH ACTIVITIES

Research topics

The research programme of the unit in Reunion is related to : **Population, health, regions - DYSTER (social and regional dynamics in Reunion)**

- ▶ Health and Gender
- ▶ Migrations, Movement, Route
- ▶ Education and Knowledge in the South
- ▶ Resources, Populations, Inequalities

AMP | Sterility and the use of medically-assisted reproductive technology in the context of globalisation (Douala, Paris, Pretoria) - Male demographic predominance in the world. International comparisons. - JOURNEYS | Life journeys, HIV / AIDS and hepatitis B in migrants from Sub-Saharan Africa living in the Paris region - Dynamics of migratory movements and cross-border mobility between French Guiana, Brazil, Guyana, Haiti, Suriname - Observatory of the growing density of populations in southern and south-eastern Asia - DySTeR - social and regional dynamics in Reunion. Bekonal | Building and Exchanging Knowledge(s) on Natural Resources in Latin America. Academic mobility : public policy, individual experience and knowledge-production

Key research projects

5P : individual, participative prevention service

Funding : CGSS Reunion | ARS OI | Fonds Muta Reunion | Idex USPC
2016 - 2020

G-RUN : economic assessment and social acceptability of gerontechnology in Reunion

Funding : Call for research projects by the Ministry for Overseas Territories
2014 - 2016

Key publications

- Sandron F. (ed.), 2017, Ageing and gerontechnology in Reunion, University of Reunion Island, Saint-Denis, Reunion, 122 p.
- Klein A., 2017, Knowledge, practices and acceptability of gerontechnology in Reunion, PhD thesis, University of Reunion Island

Conferences

CONFERENCE : G-RUN

Partners : IRTS Reunion | Pour Etre Bien Chez Soi
2 June 2016

VALORISATION, TRANSFER AND DISSEMINATION

Review of the practical applications of research (over the past 3 years)

Number of collaborative projects carried out : 2

Number of CIFRE-supported PhD theses : 1

Partnerships

Public and private partnerships in around 40 countries, mainly in Africa, Latin America and Asia, plus partnerships with international and national bodies : FNUAP - UNICEF - ANRS - ANR, etc.





CRJ

Centre of Legal Research
Status : Research team

→ crj.univ-reunion.fr

👤 Director : **Cathy POMART**
✉ cathy.pomart@univ-reunion.fr
☎ +262(0) 262 93 84 05
📍 **University of Reunion Island**
15 Avenue René Cassin
CS 92003
97744 SAINT-DENIS CEDEX 9

Total staff : 70

Permanent lecturers and researchers in Reunion : 39

Average number of PhD students : 31

RESEARCH ACTIVITIES

Research topics

The CRJ works on **4 research topics** :

- ▶ COMPANY LAW AND BUSINESS CONTRACTS
- ▶ PROPERTY AND LEGAL ENTITY LAW
- ▶ OVERSEAS TERRITORIES AND INDIAN OCEAN LAW
- ▶ LAW AND TRANSNATIONAL PHENOMENA

The CRJ also works on cross-cutting and collaborative subjects such as health law and medical responsibility ; environmental law (public and private aspects) and biodiversity, use of natural resources and risk management in island environments ; diversity of culture and worship / secularism / positive regional discrimination ; constitutional reforms and decentralisation in countries in the Indian Ocean area.

Key research projects

OCEAN METISS

South-Western Indian Ocean Maritime Spatial Planning

Funding : EASME European Agency

February 2018 - January 2020

OMERAD

Adaptation to climate change in overseas territories : an integrated approach to the Reunion Regional Council

Funding : Ministry of ecological transition and solidarity

December 2015 - April 2018

CHINA, THE SEA AND THE LAW

Funding : Reunion Regional Council

June 2014 - December 2018

Key publications

Journals : **859** / Publications : **102**

Major organised conferences and symposia

SYMPOSIUM : VULNERABILITY AND BASIC RIGHTS

Partners : Centre for Legal Research (CRJ) | Law and Economics faculty | University of Reunion Island | Prefecture of Reunion | Reunion Region Council | IRTS in Reunion | Secular Association for Education | Training | Prevention and Autonomy (ALEFPA)

Thursday 19 and Friday 20 April 2018

SYMPOSIUM : PRIVATE LAW AND THE ENVIRONMENT

Partner : University of Paris 13

Tuesday 20 February 2018

CONFERENCE : "REGULATIONS IN MOZAMBIQUE ON INVESTMENTS IN THE MINING SECTOR"

Partners : National Federation of Assets Law (FNDP) ; French Embassy in Mozambique ; University of Cape Town

Tuesday 12 September 2017

STUDY DAY : HEALTH SAFETY AND DRUG RISKS

Partner : Lex OI

Monday 26 June 2017

SEMINAR "CONSTRUCTING, DE-CONSTRUCTING AND RECONSTRUCTING THE INDIVIDUAL AND COLLECTIVE MEMORY : THE EXAMPLE OF CHILDREN IN THE CREUSE REGION"

Partner : Jean Moulin University (Lyon III)

Monday 29 May 2017

Scientific networks

LEX OI / REGIONAL (REUNION), NATIONAL AND INTERNATIONAL REACH (Indian Ocean basin : Mauritius, Madagascar, South Africa, etc.)

The association promotes law in the Indian Ocean and Indian Ocean law in all its forms. The "Revue Juridique de l'Océan Indien" (RJOI) is its scientific journal :

the RJOI is listed in the major French legal databases : Légifrance, Doctrinal Plus, as well as many other sites.

AUF - UNIVERSITY AGENCY FOR FRANCOPHONIE / INTERNATIONAL REACH

The AUF is an international association of French-language higher-education and research establishments with 884 schools on all continents, in 111 countries. CRJ researchers are members of the board of directors.

HENRI CAPITANT ASSOCIATION / NATIONAL AND INTERNATIONAL REACH

The Henri Capitant Association of Friends of French Legal Culture was founded in Paris in 1935. It seeks to :

- establish regular personal contacts between lawyers wanting to promote French legal culture and, more widely, Roman legal culture of any nationality ;
- organise regular national and international congresses to study legal matters and highlight the value of these approaches.

SOCIETY OF COMPARATIVE LEGISLATION / NATIONAL AND INTERNATIONAL REACH

The Society of Comparative Legislation is an association that promotes the public interest. It was founded in 1869 and includes academics, magistrates, lawyers, solicitors and company lawyers from France and abroad.

The International Review of Comparative Law (RIDC) is the only general, comparative law review in France. First published in 1949, it provides lawyers in all specialities and in all countries, with information about changes to legal science in France and abroad, both from a theoretical and practical point of view.

NETWORK OF REGIONAL GOVERNMENTS FOR SUSTAINABLE DEVELOPMENT (NRG4SD) / INTERNATIONAL REACH

The Network of Regional Governments for Sustainable Development (nrg4SD) is an international association representing regional governments in the fields of climate change, biodiversity and sustainable development. Established in 2002 it currently has over 50 members in 26 countries, on 4 continents.

The OMERAD project resulted in a partnership with the Regional Council and the transnational NRG4SD network. This was marked by the international conference on adaptation to climate change ; in Saint-Denis, on 5th and 6th October 2017. Proposals made by OMERAD members during the event were passed on by the Reunion Regional Council delegation in a parallel event at the COP 23 in Bonn, in November 2017.

Technical support centres and facilities

- **CRIJ** - CRIJ resource centre, including a collection of documents on Indian Ocean law

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Company law and business contracts | Property and legal entity law | Overseas territory and Indian Ocean law | Transnational law

Review of the practical applications of research (over the past 3 years)

Number of CIFRE-supported PhD theses : 2

Number of businesses started from applied research 1 association created

Name of companies set up through research work :

- Elise RALSER
- LexOI (Law in the Indian Ocean) is an independent research association that promotes law in all its forms in the Indian Ocean (www.lexoi.fr)

List of intellectual property requests : Indian Ocean Legal Review (RJOI). In addition to regular updates on the CRJ website, a newsletter | "L'Echo du CRJ" is published quarterly. | 1st issue released in December 2017. The 2nd issue was scheduled for release in June 2018.





DIRE

Movement, Identity, Viewpoints, Writings
Status : Research team in collaboration with the University of Reunion Island

→ dire.univ-reunion.fr

👤 Director : **Corinne DUBOIN**

✉ corinne.duboin@univ-reunion.fr

📍 **University of Reunion Island**
15 Avenue René Cassin - CS 92003
97744 SAINT-DENIS CEDEX 9

Total staff : 75 (39 members / 36 associates)
Permanent lecturers-researchers in Reunion : 26 permanent staff and 4 emeritus professors
Average no. of PhD students : 8 and 1 temporary PhD lecturer and research assistant

RESEARCH ACTIVITIES

Research topics

DIRE is a multidisciplinary body covering several different themes and geographic areas (Indian Ocean, Europe, Americas, Caribbean) : French and relative themes | literature, foreign literature, cultures and civilisations, linguistics, language-learning methods | social sciences (sociology and anthropology). There are 4 research areas :

- ▶ **Theme 1** Imaginary, travel and utopia
- ▶ **Theme 2** Images, perspectives and bodies in motion
- ▶ **Theme 3** Plural contexts in contact
- ▶ **Theme 4** Thoughts, knowledge, (re)writing and (counter-)discourses
- ▶ and a **cross-cutting theme** : Actions combining themes to compare viewpoints through a broader approach or a global and comparative approach. There are also specific cross-cutting activities linked to the OSOI (Observatory of Indian Ocean Societies) Federation and in partnership with other OSOI federation members.

Key research projects

"ECOTONES" INTERNATIONAL PROGRAMME : ENCOUNTERS, CROSSINGS, COMMUNITIES"
2015 - 2020

"OCEANIC HUMANITIES FOR THE GLOBAL SOUTH" INTERNATIONAL PROGRAMME
Andrew Mellon Foundation, the South African National Research Foundation, National Institute for the Humanities and Social Sciences (NIHSS), WISER, University of Witwatersrand (South Africa),
2018 - 2020

"DIASPORA, CULTURES OF MOBILITIES AND 'RACE" LONG-TERM INTERNATIONAL PROJECT
2012 - 2016

INTERNATIONAL PARTNERSHIP PROJECT - CRITICAL EDITION OF THE COMPLETE WORKS OF BERNARDIN DE SAINT-PIERRE
2014-2020

PATREC (INTERNATIONAL HERITAGE AND EXCHANGES PROGRAMME)
2014-2016

Key publications

- Scientific article : ARMAND Guilhem, "The Guilty Mother or the Twilight of the Enlightenment", *Méthode!*, n° 25, 2015, 95-101.
- Scientific article in English : LETELLIER Bénédicte, "The poetic Conjunction of the Worlds : a New Grammar of Thought", *Journal of Comparative Literature and Culture*, "Languages of Science and Literature", edited by Hitoshi Oshima, Purdue University Press, 20.2, June 2018.
- Editors of collective works in English : DUBOIN Corinne and Claudine RAYNAUD (Eds.), *Diasporas, Cultures of Mobilities, 'Race' 3. African Americans and the Black Diaspora*. Montpellier : Presses Universitaires de La Méditerranée (PULM), PoCoPages, 2016.
- J.M. Racault et al., *Edition critique des Œuvres Complètes de Bernardin de Saint-Pierre*, Vol 1, 2014 (Classiques Garnier)
- Editors and online publishers of scientific articles, *TrOPICS journal* (created in 2013 and managed by DIRE). Online journal : <http://tropics.univ-reunion.fr>

Major organised conferences and symposia

ILES/ ELLES SYMPOSIUM. WOMEN'S RESISTANCE AND SOCIAL DEMANDS IN THE CARIBBEAN ISLANDS AND INDIAN OCEAN (18TH -21ST CENTURIES)
Partner : LCF (University of Reunion Island)
28 - 29 November 2014

SYMPOSIUM : HAPPINESS AND SENTIMENTALITY - "THE SONGS OF DESPAIR ARE THE MOST BEAUTIFUL ONES" - EXPRESSING HAPPINESS : A LITERARY CHALLENGE?
Partner : Tohoku University (Japan)
October 2016 and November 2016

INTERNATIONAL SYMPOSIUM "ECOTONES 3 - INDIAN OCEAN : ECOTONES, CONTACT ZONES, AND THIRD SPACES"

Partners : Univ. of Montpellier | CNRS-U. in Poitiers | Coastal Carolina U.

14 to 16 June 2018, Saint-Denis

INTERNATIONAL SYMPOSIUM "THE PORTER IN THE COLONIAL ERA"

Partner : University of Rouen

2 to 4 May 2016

SYMPOSIUM : IMAGE AND KNOWLEDGE

Partner : Reunion School of Arts

December 2016

Scientific networks

INTERNATIONAL INSTITUTE FOR ASIAN STUDIES / INTERNATIONAL REACH

IISA has adopted a thematic approach to Asian studies, promoting research that transcends disciplinary and regional boundaries. Visibility and development of international partnerships.

INTERNATIONAL CONVENTION OF ASIA SCHOLARS / INTERNATIONAL REACH

The organisation aims to promote interdisciplinary and intercultural exchanges in Asian studies and to foster international collaboration.

Visibility and development of international partnerships.

LIBRARY OF GLISSANT STUDIES / REGIONAL, NATIONAL AND INTERNATIONAL REACH

Glissant studies : creation of an online library, university networking (researcher-lecturers, PhD students). An open-access, international collaborative project.

Main technical support centres, facilities and databases

- ▶ BTCR/Transversal Bureau for Symposia, Research and publications
- ▶ The shared resource service (law-literature library, University of Reunion Island) manages online databases (JStar, etc.), as well as a collection of online reviews and inter-library loans (EA DIRE budget managed directly by the shared resource service)
- ▶ HAL, University of Reunion Island portal (managed by the University shared resource service) : open-access archive : <https://hal.univ-reunion.fr/DIRE>

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Languages (French, English, German, Spanish), texts, arts and cultures, Literature, Cinema | language teaching and learning methods, as well as multilingualism in a multicultural environment | Social norms, institutions and behaviour (sociological, anthropological/ethnological) | Post-colonial societies

Services

Consulting activities

Review of the practical applications of research (over the past 3 years)

Number of projects carried out : 4

Number of joint projects undertaken : 4

Number of CIFRE-supported PhD theses : 1

Key joint projects

"DIASPORA, CULTURES OF MOBILITIES AND 'RACE" LONG-TERM INTERNATIONAL PROJECT

Partners : MMA/Montpellier 3 | Wake Forest University (USA) |

Wesleyan University (USA)

2015 - 2016

"WAR MEMORIES"

Partners : Paris-Diderot University | Aix - Marseille University | Rennes 2 University | Maine University (Le Mans) | Royal Military College of Canada

2014 - 2016

PATREC

Partners : LACES laboratory at the University of Bordeaux 2 and 4 | Australex laboratory at the University of Adelaide

2014

"ECOTONES : ENCOUNTERS, CROSSINGS, COMMUNITIES",

Partners : EMMA (Paul Valéry Montpellier 3 University) | MIGRINTER (CNRS-University of Poitiers)

2015 - 2020

OCEANIC HUMANITIES FOR THE GLOBAL SOUTH

Partner : University of the Witwatersrand (S. Africa)

Funding : Andrew Mellon Foundation | the South African National Research Foundation | National Institute for the Humanities and Social Sciences (NIHSS)

2018 - 2020

Outreach activities for the general public

Radio programme : "A LIFE, A WORK : JEAN RACINE, THE CHAMELEON (1639-1699)"

20 April 2016

"GENERAL PUBLIC" conferences

AT the Reunion Departmental Library (Saint-Denis).

Partners : DEAL Reunion Departmental Library

Partnership since 2013

Blog "WOMEN IN MOVEMENT : HISTORIES, CONFLICTS AND WRITING"

2015

podcast episode "EUROPEAN SOCIETY OF ENVIRONMENTAL HISTORY"

2011 - 2018

Website "ANTHROPOLOGY ON-LINE"

Since 2003





ICARE

Austral Cooperative Institute for Research and Education

Status : **Research team in conjunction with the University of Reunion Island**

→ icare.univ-reunion.fr

👤 Director : **Frédéric TUPIN**

✉ frederic.tupin@univ-reunion.fr

☎ +262(0) 262 90 43 57

☎ +262(0) 262 41 28 18

📍 **Allée des Aigues Marines
Bellepierre - 97487 SAINT-DENIS Cedex**

Total staff : **37**

Permanent lecturers and researchers in Reunion : **23**

Average number of PhD students : **14**

RESEARCH ACTIVITIES

Research topics

The work of the ICARE research unit focuses on 2 topics :

►Topic 1

Multilingualism and interculturalism

Interculturalism

Learning in a multilingual context and education in multilingualism

Interface programme : schools and inclusive society

►Topic 2

Teaching-learning, knowledge and mediation in context :

Relations between knowledge and information literacy (languages, health, digital technology)

Teaching methods and vocational training

Key research projects

EVAL-IC : SKILLS ASSESSMENT IN INTER-UNDERSTANDING : MULTILINGUAL RECEPTION AND INTERACTION

Funding : Erasmus+ | Strategic partnership in higher education

1 September 2016 - 31 August 2019

OPTIRICE : OPTIMISING THE NUTRITIONAL QUALITIES OF RICE AND PROMOTING CONSUMPTION THROUGH EDUCATION IN THE GENERAL POPULATION AND AMONG PEOPLE WITH CHRONIC ILLNESSES

Funding : ARS | DAAF | Mutualité | IREN

January 2017 - December 2018

E-LANG : TOWARDS DIGITAL LITERACY IN TEACHING AND LEARNING LANGUAGES

Funding : CELV (European Centre for Modern Languages) at the European Council as part of the 2016-2019 programme "Languages at the Heart of Learning"

2016 - 2018

E.S.I : EDUCATION AND INCLUSIVE SOCIETY

Funding : University of Quebec in Montreal (UQUAM) | Interdisciplinary Sciences Innovation Society Laboratory (LISIS) University Paris-East | University of Reunion Island | University Centre of Training and Research in Mayotte

2018 - 2022

Key publications

- Journal : Supervision and coordination of scientific works / publications "Intercultural issues and the construction of a culture of recognition". Quebec : Groupéditions, Éditions Cursus Universitaire. Alaoui, D. Lenoir, A. (dir.). 2014
- Publication : From the therapeutic education of the patient to health literacy. Socio-anthropological issues in contextualised teaching objects. Paris : Editions des Archives Contemporaines. Balcou-Debussche, M. 2016
- Scientific publication : Critical views on school/family relations. Éditions des Archives Contemporaines. Pelletier, L. and Lenoir, A. (dir). 2018
- Scientific publication : Action, interaction, intervention : at the crossroads of language, practice and knowledge. Bern : Peter Lang (Coll. Transversales). Wallian, N., Poggi, MP. & Chauvin-Vileno, A. (Eds). 2014
- Scientific publication : The learning crisis in French-speaking Sub-Saharan Africa : situation, perspectives, proposals. Brussels : Peter Lang, "Champs Didactiques Plurilingues" collection. Puren, L. and Maurer B. (Eds). 2018

Major organised conferences and symposia

6TH INTERNATIONAL UNIRÉS SYMPOSIUM, PARIS : EDUCATION, HEALTH, CITIZENSHIP... WHICH PREVENTIVE MEASURES, WHICH FORMS OF SOLIDARITY?

11 - 12 October 2018

SYMPOSIUM : CONTRIBUTIONS TO THE DEVELOPMENT OF MULTILINGUAL PERSPECTIVES IN EDUCATION AND TRAINING

Partners : University of Nantes | University of Maine | DGLFLF

12 and 13 June 2014

INTERNATIONAL SYMPOSIUM "SPRACHEN UND KULTUREN : VERMITTELN UND VERNETZEN"

Partner : Universität Salzburg. "Vernetzer Spracherwerb" section.
20 and 21 November 2015

INTERNATIONAL SYMPOSIUM : "TEACHING FRENCH AS A FOREIGN LANGUAGE IN THE DIGITAL ERA : RESULTS AND PERSPECTIVES"

Partners : University of Tours | University of Cape Town | CIEP
4 and 7 November 2013

INTERNATIONAL SYMPOSIUM - TOWARDS AN INCLUSIVE SOCIETY : DIVERSITY IN TRAINING AND INNOVATIVE PRACTICE

Partner : UQUAM (Quebec) | Grhapes EA 7287 University of Paris Lumière | Cérep EA 4692 University of Champagne Ardennes | ACTé Laboratory at the University of Clermont Auvergne | LISIS University of Montreal | University of Reunion Island, Icare Team, ESPE
22 - 23 - 24 October 2018

Scientific networks

AIESEP - INTERNATIONAL ASSOCIATION OF PHYSICAL EDUCATION SCHOOLS/ INTERNATIONAL REACH

REFLIS - FRENCH HEALTH LITERACY NETWORK / INTERNATIONAL REACH (FRANCOPHONE)

ARIS - ASSOCIATION FOR RESEARCH INTO INTERVENTION IN SPORT / NATIONAL REACH

Main technical support centres, facilities and databases

Review **EDUCATION, SANTÉ, SOCIÉTÉS** (officially listed in 70th section)
First published in October 2014, "Éducation, Santé, Sociétés" is a bi-annual scientific review with an international review panel. It has been officially listed by the HCERES assessment body and the National Council of Universities (CNU) since 2016 as an approved educational science publication.

While continuing to publish fundamental research, the review also highlights applied research geared towards changing professional practices, and/or with the potential to influence public policy. For this reason, special attention is paid to :

- ▶ research on vocational training practices (full-time and continuing education, lifelong learning, etc.) and contributions made in different contexts
- ▶ research helping to understand how practices contribute to providing a structure to the social field
- ▶ research addressing " essential questions "
- ▶ research to help assess measures and their impact
- ▶ research initiatives, interventional research, etc.

The review will be published twice yearly and feature 5 to 10 articles.

Review **EJRIEPS** (electronic research journal in physical education, officially listed in the 70th section).

EJRIEPS is an electronic research journal published on the website of the University Institute for Teacher Training at the University of Franche-Comté. It was launched by the University Institute for Teacher Training at the University of Franche-Comté, in partnership with the Sciences and Techniques in Physical and Sports Activities Faculty in Besançon and the LaSeLDI (Laboratory of Semiotics, linguistics, Teaching Methods, I.T., EA 2281) at the Sciences of Language, Mankind and Society research and training centre.

The review's seeks to bring scientific work to a wider audience in the field of teaching methods and technology in physical education and sport. Its goal is to be a focal point for sharing knowledge, exchanges and debate between the various players in the scientific community.

Review **LANGUAGE LEARNING AND INFORMATION AND COMMUNICATION SYSTEMS (ALSIC)**

ALSIC publishes texts in French and English, as well as in other languages, particularly German, with the aim of reaching as wide an audience as possible. In that spirit, each article is

published with a summary in another language. Alsic is listed in the European Reference Index for the Humanities (ERIH) and in library databases :

- MLA International Bibliography
 - BASE (Bielefeld Academic Search Engine)
- Open to new collaborations.

Areas of expertise

Studying social and contemporary issues through the prism of Reunion and neighbouring islands, with their linguistic and cultural diversity | Challenges and main fields : social inequalities and achievement at school, public health issues, relations to otherness, identity construction and intercultural phenomena, the multilingual context.

Main fields : Full-time and continuous education | Analysis of practices and activities in the field of educational intervention | "Research-intervention" with a social goal : fields of education and learning, help for decision-making in public policy in linguistic and cultural areas, development of full-time and continuing education, optimisation of preventive health and health education, the dynamics of social work, teaching resources for teachers/instructors. Examples : learning among pupils in the Indian Ocean area | The situation of French in secondary education | Educational Success Project (PRE) | Analysis of educational paths among diabetes sufferers in differentiated contexts | Analyses of school drop-out phenomena and learning difficulties in primary and secondary schools | Training in educational intervention professions | Course design at master's degree level | School/family relations in a context of cultural and linguistic plurality | Cardiac coherence

Services

- ▶ Consulting activities focused on assessing and applying teaching methods in the French-speaking Sub-Saharan Indian Ocean area for participants in education
- ▶ Audit on the position of French in secondary education (e.g. : in Botswana)
- ▶ Organisation of seminars examining the feasibility of establishing a framework document for skills in French and about French (Moroni-Comoros)
- ▶ Promotion of an "educational briefcase" (primary school teachers in Madagascar) | Expert assessment for developing master's degree courses (Yr 1 MSc in French teaching methods at the University of Comoros : creation of a model, lesson description, course design and practical application) | Assistance in developing a Project for Educational Success (PRE) | Education in Digital Media (development of modules for online courses : E-learning, MOOCs, multimedia lessons) | Preparation for French public service entrance exams (CAPES, CAPET, CRPE, CAPEPS, Agrégation) | Revision of school programmes (Uganda, Lebanon)

International : Public Health France, Research Chair in Canada on educational interventions, UQAM (University of Quebec in Montreal) | Mayotte : Vice-Chancellorship, CUFR | Comoros University | Madagascar | Mauritius | Metropolitan France : Brittany and Loire regions

Reunion : ESPE | Academy, Education Authority | MGEN | Mutualité de la Réunion | University Hospital | ARS | ORS | IREN | RTS (Regional Institute of Social Work) | School for Social Care Professions (EMAP) | Local authorities | Southern Assessment Bureau (Saint-André) for the development of the Educational Success Project (PRE)

Review of the practical applications of research (over the past 3 years)

Help to establish the regional doctoral school, co-funded by the AUF

Major collaborative ventures

Creation of a 100m² facility for diabetes prevention and interpretation of academic knowledge for the general public (opened in May 2018) open to managers, secondary school pupils, instructors, health staff, etc.



VALORISATION, TRANSFER AND DISSEMINATION

Outreach activities for the general public

Mutualité de La Réunion

Declaration of inventions in the field of digital practices and health literacy - in partnership with Deakin University, Melbourne, and Reunion University Hospital.

Translation (1st time in French) of the "Health Literacy Questionnaire", in partnership with Deakin University, Melbourne, and Reunion University Hospital.

The aim of the document is to investigate and train chronically ill patients in actively managing their health (social support, health assessment, finding their way through the health system, finding the information they need).

Balcou-Debussche, M., Ballet, D., Caroupin, J. (203-2015, partnership). **DIABETIC**. Development of a smartphone application for diabetes patients. Multi-partner approach. Funding as part of the Investments for the Future project.

Creation of a **resource centre and collaborative platform relevant to data on inclusive education in Reunion**.

Radio, TV programmes, written press, publications, e-learning, MOOCs, multimedia lessons, etc. :

100 m² Interactive exhibition looking at the major scientific projects **undertaken to combat diabetes in Reunion**.

Articles, interviews, publications, videos, etc. Scientific mediation : in 2017, launch of the "ETP in 180 seconds" challenge. Ollivier, C. (coord.), Gaillat, T. & Puren, L. (2014-16) | **AFORDENS project**. Design and production of nine online training modules in research methodologies in the social sciences | **Master's degree in French as a foreign language and online "language engineering" course** | **OPTIRICE project** : creation of 4 video 'capsules' (in progress). Science and society debates.



IRISSE

Engineering and Research in Intervention in Sport, Health and Environment

Status : **University of Reunion Island research team**

→ irisse.univ-reunion.fr

👤 Director : **Nicolas PEYROT**

👤 Deputy Director : **Teddy CADERBY**

✉ nicolas.peyrot@univ-reunion.fr

☎ +262(0) 262 48 33 95

📍 **University of Reunion Island**
117 Rue du Général Ailleret
97430 LE TAMPON

Total staff : **13**

Permanent lecturers and researchers in Reunion : **12**

Average number of PhD students : **17**

RESEARCH ACTIVITIES

Research topics

The research team works on 2 major topics :

- ▶ **TOPIC 1** : "Well-being, education and environment" combining three sub-topics : "training engineering", "physical risks and environment" and "physical norms" ;
- ▶ **TOPIC 2** : "Sport and health engineering" with two sub-topics : "muscular function and movement" and "empowerment and motivation".

Key research projects

BIOSYNCHRO : Development of an embedded sensor to improve empowerment and care through physical activity for cancer patients
Funding : Internal call for proposals from the University of Reunion Island 2017

DIABETIC : Estimation of energy expenditure using a smart sensor in type 2 diabetes patients
Funding : French Ministry of Health | University of Reunion Island 2012 -2016

FVRR : Reinforced Shark Observation Training
Funding : DJSCS | CRA 2017

APACCHE : Adapted physical activity and cardiac coherence in patients with malignant hematology
Funding : Internal call for proposals from the Reunion University Hospital | DJSCS | Reunion Regional Council 2017 - 2019

POSTURAL BALANCE, AGEING AND THE RISK OF FALLING : Design of innovative methods and approaches to assess and prevent elderly people at risk of falling
Funding : University of Reunion Island | Reunion Regional Council (ARR) Since 2017

Key publications

- Article : Validation of a method for estimating energy expenditure during walking in middle-aged adults. *European Journal of Applied Physiology* 118 (2) : 381-388, Caron N, Caderby T, Peyrot N, Verkindt C, Dalleau G (2018),
- Zhang L, Turpin NA, Feldman AG (2017). Threshold position control of anticipation in humans : a possible role of corticospinal influences. *J Physiol.* 1 ;595(15) : 5359-5374.
- Article : Detection of swing heel-off event in gait initiation using force-plate data, *Gait and Posture*, Caderby T, Yiou E, Peyrot N, Bonazzi B, Dalleau G (2013),
- Article, Effects of an approach of the co-teaching type on the professional development of new teachers : case studies in university teaching, Michel L, Bertone S (2017),
- Article : Cardiac rehabilitation in chronic heart failure : effect of 8-week high-intensity interval training vs continuous training. *Archives of Physical Medicine and Rehabilitation*, Freysson C, Verkindt C, Prieur F, Benaich P, Maunier S, Blanc P (2012),

Major organised conferences and symposia

SYMPOSIUM : WHAT'S NEW IN ULTRA-TRAIL RACING?

Partners : University of Lausanne | University of Evry-Val d'Essonne | UR | internationally renowned speakers (Grégoire Millet, Blaise Dubois, etc.) October 2014

SYMPOSIUM : ULTRA-TRAIL, PERFORMANCE AND HEALTH

Partners : University of Lausanne | University of Evry-Val d'Essonne | UR | internationally renowned speakers (Nicolas Peyrot, Véronique Billat, etc.) October 2015



CONFERENCE : ANALYSIS OF THE RESPONSES OF ATHLETES DURING MONITORING OF ACTIVITY AND DECISION-MAKING

Partners : University of Reunion Island | University of Besançon 2017

Scientific networks

SOCIETY OF BIOMECHANICS / NATIONAL AND INTERNATIONAL NETWORK

Academic society aiming to promote research in the field of biomechanics. Cooperation between researchers and sharing knowledge more widely. Several members of the team are also members of this society.

IBTN (INTERNATIONAL BEHAVIORAL TRIALS NETWORKS) / NATIONAL AND INTERNATIONAL NETWORK

International researcher network to improve the quality of clinical trials and behavioural intervention :

- Help improve behavioural trials on an international scale
- Set up a network to boost the ability to undertake higher-quality trials
- Develop a list of recommendations, tools and methodological articles on behavioural trials and the development of non-medical interventions

Technical support centres and facilities

Technical support centre (165m²) for analysing movement and posture, and equipped on a permanent basis with 3 reaction force platforms synchronised with an optronic movement-detection system (12 cameras). This technical support centre has additional devices to assess motor and muscular functions : 1 portable electromyography system | 12 inertial measurement units | 2 equipped ergocycles | 1 leg-extensor ergometer | 1 myoton Pro | Actigraphs | 1 OptoJump system.

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

Analysis of human movement and sports performance | Design of innovative methods and approaches to assessing movement | Design of adapted physical activity programmes | Assessment of the muscular function | Posture assessment | Training for adults

Services

- ▶ Assessment of human movement (3D analysis of walking, assessment of physical and sports qualities, etc.)
- ▶ Designing of physical activity programmes adapted to health
- ▶ Training for teachers and instructors

Review of the practical applications of research (over the past 3 years)

Number of joint projects undertaken : 7

Number of CIFRE-supported PhD theses : 1

Key joint projects

BYOSINCHRO PROJECT

Development of an embedded sensor to take care of physical activity of cancer patients

Partners : University of Reunion Island | University hospital | APPS Attractive company 2017

DIABETIC

Development of a method to estimate energy expenditure in type 2 diabetes patients using an embedded sensor

Partners : University of Reunion Island | Runware company

Funding : Ministry of Health 2012 - 2016

OBELIX

Development of an innovative programme to strengthen muscles in people suffering from obesity

Partners : University of Reunion Island | University hospital | Oscadi company

Funding : Ministry of Health 2013 - 2015

REINFORCED SHARK OBSERVATION (VRR)

Support and professional training in shark monitoring

Partners : University of Reunion Island | DJSCS | CRA 2017 - 2018

TECAP - AF

Tolerance to exercise in patients suffering from Friedreich's ataxia

Partners : Reunion University Hospital | University of Reunion Island

2014 - 2015

Outreach activities for the general public

Symposium : WHAT'S NEW IN ULTRA-TRAIL RACING?

2014

Symposium : ULTRA-TRAIL, PERFORMANCE AND HEALTH

2015

MATHS AND SPORT WEEK

2016

PARTNERSHIPS

ERASMUS agreement with : University of Lausanne (Switzerland) | Reunion University Hospital | Laboratory of Simulation and Movement Modelling (Canada) | LAAS (Toulouse) | etc.



LCF

Research laboratory in Creole and Francophone areas

Status : **Research team**

→ www.lcf-reunion.fr

👤 Director : **Jean-Philippe WATBLED**
✉ jean-philippe.watbled@univ-reunion.fr
☎ +262(0) 262 93 85 70
📍 University of Reunion Island
15 Avenue René Cassin - CS 92003
97744 SAINT-DENIS CEDEX 9

Total staff : 11

Permanent lecturers and researchers in Reunion : 10

Average number of PhD students : 25

RESEARCH ACTIVITIES

Research topics

The LCF is an inter-disciplinary unit that coordinates and undertakes research activities in the following areas :

- ▶ language sciences with a special focus on Creole languages and sociolinguistics, as well as language contacts and hybrid phenomena (2 themes : "Linguistic and cultural practices in Creole-speaking environments" and "Language acquisition in Creole-speaking environments")
- ▶ information and communication sciences with a focus on local and regional public spaces, recognition of heritage, knowledge and society
- ▶ literature, with a focus on Creole, Francophone and English-language literature.

Key research projects

SOCIAL PRACTICES, OBJECTS, REPRESENTATIONS AND DISCOURSE FOCUSING ON THE HERITAGE DYNAMIC : THE DISUSED OLD SUGAR FACTORY OF THE QUARTIER FRANCAIS

Funding : CINOR

THE UBUNTU CONCEPT

Funding : Reunion Regional Council call for projects
2012 - 2017

"INDIAN OCEANISM" IN TEXTS AND DISCOURSE : POWER, VIOLENCE ; GENDERED, POST-COLONIAL, SUBALTERN OR DECOLONIAL APPROACHES

Funding : Self-financed, in partnership with the University of Mauritius, several universities in South Africa, Indian and continental France.
2019 - 2023

FAMILY AND SCHOOL CULTURES : COMPARATIVE VIEWPOINTS OF CHILDREN AND TEENAGERS FROM THE SOUTH-WEST INDIAN OCEAN

Funding : AUF | 4 years

INNOFAM : INNOVATIONS, WOMEN, PROGRESS

Funding : Call for proposals from the Reunion Regional Council
2012 - 2017

Key publications

- Mylène Lebon-Eyquem, 2015, "Specific Linguistic Profiles in a Creole-Speaking Area : Children's Speech on Reunion Island" in *First Language*, Vol. 35(4-5), p. 327-340.
- Jean-Philippe Watbled, 2015, "Morphosyntactic particularities in Reunion Creole", *Études Créoles*, vol. XXXIII n°2 2015
- B. Idelson, *Life of Journalists. Sociobiographies*, Paris, L'Harmattan, Communication et Civilisation collection, 2014, 318 p.
- Sophie Geoffroy and Amanda Gagel. *Selected Letters of Vernon Lee, 1856-1935. Volume II. London & New York : Routledge, "The Pickering Masters", 2018. Upcoming.*
- B. Idelson, B. Croisier B., G. Géraud-Legros, Paul Vergès in stories. *Comparative analyses from a political life*, Paris, L'Harmattan, *Espaces discursifs*, 2018, 230 p.

Major organised conferences and symposia

INTERNATIONAL SYMPOSIUM "ÎLES/ELLES (ISLANDS/WOMEN) : WOMEN FROM CREOLE WORLDS AND THE EMERGENCE OF WOMEN'S DEMANDS IN THE CARIBBEAN AND INDIAN OCEAN ISLANDS IN THE 17TH-21ST CENTURIES"

Partners : AUF | fed. OSOI | DIRE laboratory
November 2014

INTERNATIONAL SYMPOSIUM "LANGUAGES, CULTURES AND TRANSMISSION : CREOLE DYNAMICS"

Partners : AUF | Reunion Regional Council
26 and 28 October 2016

INTERNATIONAL SYMPOSIUM "READING LIVES. THE BIOGRAPHICAL APPROACH IN SOCIAL SCIENCES"

Partners : Federation for observatory research in Indian Ocean societies | CREM (University of Lorraine/University of Upper Alsace) |



University of Reunion Island
22 to 24 February 2017

INTERNATIONAL SYMPOSIUM : THE WORDS OF CHILDREN, TEENAGERS AND ADULTS ABOUT THE FAMILY AND SCHOOL SPACE IN THE INDIAN OCEAN : TOWARDS AN INTEGRATED APPROACH TO CONTRASTING POINTS OF VIEW?

Partner : University of Reunion Island
October 2016

SEMINAR "FROM HOLOGRAPH TO DATABASE : WORKING ON PRIMARY SOURCES, STUDY DAY AND WORKSHOP"

Partners : INNOVANT Programme (Innovation-Women-Progress)
Funding : Reunion Regional Council | University of Reunion Island
19 October 2017

Scientific networks

OSOI RESEARCH FEDERATION (OBSERVATORY OF INDIAN OCEAN SOCIETIES) / REGIONAL REACH

LOFIS LA LANG KRÉOL LA RÉNYON / LOCAL REACH

Institution to highlight research on the Creole language and to work with specialists in organising events around the Creole language and creolistics. Monitoring, understanding and enhancing the image of the Creole language.

Main technical support centres, facilities and databases

- ▶ Observation of cultural practices in Reunion (OPC RUN) : database on cultural practices in different cultural sectors in Reunion.
- ▶ Holographic-Lee (HoL), presentation to the Steering Committee for the eMan platform.

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

- ▶ Theoretical linguistics and creolistics
- ▶ Expert assessments on Indian Ocean societies (studies and analyses)
- ▶ Expert assessments on work (human sciences, cultures, etc.) linked to municipal, departmental or regional projects.
- ▶ Expert assessments on children's language in multi-lingual school environments
- ▶ Expert assessments in cultural organisations

Review of the practical applications of research (over the past 3 years)

Number of joint projects undertaken : 4

Number of CIFRE-supported PhD theses : 1

Key collaborative projects

"SOCIAL PRACTICE, OBJECTS, REPRESENTATIONS AND DISCOURSE FOCUSING ON THE PUBLIC APPROPRIATION PROCESSES. THE DISUSED SUGAR PLANT IN THE FRENCH QUARTER"

Partners : LCF | CINOR Inter-municipal association
Funding : CINOR Inter-communal community
2015 - 2016

VIRAGE DOM (GENDER-RELATED VIOLENCE)

Partners : LCF/ INED
Funding : INED
Upcoming

EVENTS ON THEMES LINKED TO THE CREOLE LANGUAGE AND CREOLISTICS

Partners : LCF | Lofis la lang kréol La Rényon
Funding : Lofis la lang kréol La Rényon

GERONTECHNOLOGY KNOWLEDGE AND PRACTICE IN REUNION

Partners : UR | IRD | Reunion Hospital | "Pour Être Bien Chez Soi"
Funding : ANRT
2014 - 2017

Outreach activities for the general public

Website HOLOGRAPHIC - LEE (HOL)

The life and work of Vernon Lee (Violet Paget, 1856-1935), a British writer who was born in France and died in Italy. A committed internationalist and pacifist.

Partners : LCF | ITEM (CNRS-ENS)
2018



OIES

OIES

Indian Ocean : Territories and Societies
Status : Research team

→ <http://new-oies.univ-reunion.fr/>

👤 Director : **Yvan COMBEAU**

✉ yvan.combeau@univ-reunion.fr

☎ +262(0) 262 57 95 98

📍 **University of Reunion Island**
15, Avenue René Cassin CS 92003
97744 SAINT-DENIS CEDEX 9

Total staff : 63

Permanent lecturers and researchers in Reunion : 31

Average number of PhD students : 28

RESEARCH ACTIVITIES

Research topics

Indian Ocean Research Unit : Spaces and Societies (OIES) brings together two teams of lecturer-researchers :

- Geographers from CREGUR - Centre for Geographical Research at the University of Reunion Island
- Historians from CRESOI - Centre for Research in Indian Ocean Societies.

This research unit is supported by the Applied Cartography Laboratory.

The work of OIES focuses on two subject areas :

- ▶ Heritage, Tourism, Territorial Management
- ▶ Power : Territories and Societies

Interdisciplinary programmes and projects are organised around these major themes. Highlighting the work accomplished by all the members of the research unit and bringing it to a wider audience, involving regular publication of works and articles, organising annual seminars, symposia, PhD courses and a large number of international partnerships.

Key research projects

HERITAGE AND TOURISM IN REUNION AND THE INDIAN OCEAN AREA
2014 - 2018

ENVIRONMENT MAPS AND SOCIAL-ECONOMIC ACTIVITIES IN THE INDIAN OCEAN

REUNION, INDIAN OCEAN AREA AND THE COI
2014

ICT AND HISTORY
2014

Key publications

- Jauze J.M., "The Indian Ocean area, crossroad of civilisations", Shared heritage - Shared features in the Indian Ocean area", COI - Epica Edition, 2016.
- Géraud J-F, with Le Terrier X., Making Sugar in Reunion. The epitome of a Creole technology. 1783-1914. St-André : Graphica/CRESOI, 2016, 450 p.
- Tagliani F. ; Cartoux, M. ; Dellagi, K. ; Dalban, C. ; Fianu, A. ; Carrat, F. ; Favier, F., 2013. "The influenza A (H1N1) Pandemic in Reunion Island : Knowledge, Perceived Risk and Precautionary Behaviour". BMC Infectious Diseases, vol 13 : 34.
- Folio F., 2017, "Crime, state and civil society responses in Maputo (Mozambique), Between privatisation and civilisation", Journal African Studies Volume 76, 2017 - Issue 2 : Opening-up Mozambique : Histories of the present.
- Y. Combeau, T. Gaillat, Y. Rolland (dir.), 2017. Speaking the Indian Ocean. BTCR-O.S.O.I, University of Reunion Island, 2017, 2 volumes, 650 p.

Major organised conferences and symposia

MAJOR INDIAN OCEAN SEMINAR

Partners : OIES | local partners
Annually in September

INDIAN OCEAN HISTORY WEEK

Partners : AHIOI | Indian Ocean researchers
Annually in November

INTERNATIONAL CONFERENCE OF THE OSOI

Partners : OSOI members
23 and 24 November 2017

SYMPOSIUM "ON ISSUES AND CHALLENGES IN MOZAMBIQUE"

Partner : OSOI
2018

SYMPOSIUM "DEFINE THE INDIAN OCEAN REGION FOR ME"

Partners : OSOI | Indian Ocean universities
October 2018



Scientific networks

CNRS RESEARCH GROUP ON SOCIO-ECONOMIC AND AGROSYSTEM FACTORS in Madagascar University of Lyon 3 (in progress) Grenoble and OIES / INTERNATIONAL REACH

The scientific network, International Economy for Development (IDE), brings together researchers from some of the major European institutions on the subject, with funding provided by the CNRS.

CFSH / NATIONAL REACH

The aim of the CFSH (French Committee for Historic Sciences) is to create links between French historians involved in teaching and research.

CISH / INTERNATIONAL REACH

The International Committee of Historical Sciences (CISH) comprises 50 countries to promote historical sciences through international cooperation.

INDIAN OCEAN INTERNATIONAL CONSORTIUM / INTERNATIONAL REACH

Collaboration with countries on the Indian Ocean rim : Mozambique (AFRAMO), S. Africa (IFAS), India (University of Pondichery), Tanzania (University of Dar es Salaam), with the south-western Indian Ocean : Universities of Comoros, Madagascar (Antananarivo), Mauritius (Univ. of Mascareignes)

Main technical support centres, facilities and databases

The Cartography Laboratory supports research by designing and producing illustrations and maps for the publications and research work of researchers-lecturers at the Faculty (geographers, historians, anthropologists, literature teachers, etc.).

Ongoing : Document on election results in Reunion (1945-1981).

The Transversal Bureau for Symposia, Research and Publications (formerly the Higher Education, Research and Publications Bureau) aims to :

- ▶ promote research and make it more widely available
- ▶ provide logistical support to research centres at the Literature and Social Sciences research unit

VALORISATION, TRANSFER AND DISSEMINATION

Areas of expertise

- ▶ **History and geography on the themes of the "Indian Ocean : Heritage and Tourism" | and "Reunion, the Indian Ocean area and the I.O.C."**
- ▶ **Expert assessments on Indian Ocean societies** (studies and analyses)
- ▶ **Expert assessments** on municipal, departmental or regional projects (humanities, cultures, etc.).

Services

- ▶ **Consulting activities** (e.g. companies, local authorities, cultural or sports associations)
- ▶ **Evelyne Combeau**, an expert working with the Reunion Tourism Committee, the Saint-Denis Tourist Office, the Reunion Tourism Observatory, the departmental office for youth and sports, the Reunion football, basketball and handball leagues, and the Indian Ocean Games organising committee.
- ▶ **Prosper Eve**, member of the Reunion National Park Scientific Council, member of the TAAF Scientific Council, member of the National Children's Commission ("La Creuse") and member of the Saint-Paul Reserve Scientific Council.

Review of the practical applications of research (over the past 3 years)

Number of joint projects undertaken : 2

Number of CIFRE-supported PhD theses : 2

Key collaborative projects

REALITIES AND EFFICACY OF THE REUNION "GREEN AND BLUE FRAMEWORK"

The landscape as a mediation tool to analyse social representations of ecological frameworks

Partner : AGORAH

COMPARATIVE STUDY OF THE MATERIAL CULTURE ON ARCHAEOLOGICAL SITES IN SAINT-PAUL.

Development of a method for modern and contemporary periods.

Partner : Saint-Paul Town Hall (cultural heritage unit/city of art and history label)

Outreach activities for the general public

Magazine : HISTOIRE O.I.

Documentary : THE HISTORY OF DEPARTMENTALISATION IN REUNION, CONTEXTS AND DEBATES (52 mins)

Digital magazine : CARNETS DE RECHERCHES DE L'Océan INDIEN

Online resource centre : SOURCES, DOCUMENTS AND LESSON PLANS FOR SECONDARY SCHOOL TEACHERS



PART 3

FACILITATORS



Training organisations



Professional networks



Third places



Funders



Support Structures and Services



Private consultants





Training organisations

- 126 | **CAMPUS REUNION**
- 127 | **ESA - Reunion School of Art**
- 128 | **ILOI - Indian Ocean Image Institute**
- 129 | **P2ER - Reunion Student Entrepreneurship Cluster**
- 130 | **SIMPLON REUNION - Digital school**
- 131 | **WEBCUP CAMPUS - Digital, Innovation, Entrepreneurship FAB LAB and Campus**





CAMPUS REUNION

→ www.ifag.com/campus/campus-de-la-reunion/

👤 Director : **Karine KALIFA BLIGNY**

✉ contact@campus-reunion.com

☎ +262(0) 262 61 00 00

☎ +262(0) 692 01 22 14

📍 **1, Rue Francis Sautron
97420 LE PORT**

.....
Total staff : 7

PRESENTATION

Campus Reunion was founded in 2014 as a private vocational college. This unique site fosters encounters between talents, support for local start-ups and companies, and the exchange of "inter-skills", to become a breeding ground for creative ideas. Seven higher education schools have been set up in an innovative campus in Le Port.

Campus Reunion has developed courses leading to vocational diplomas in partnership with local economic sectors.

Campus Reunion helps to improve the regional outlook, providing skills, high-level qualifications and job opportunities for young people in Reunion. Covering 500m², **Campus Reunion** can accommodate 260 students. Students work in teams on real projects supported by local companies. The companies also assess the projects.

We develop attractive, educational and innovative content and tools to sustain student motivation, involvement and enthusiasm in a friendly and welcoming atmosphere.

SERVICES PROVIDED

Private vocational training college :

- ▶ Seven higher education schools (IPI, IFAG, ESCP, SUP DE VINCI, etc.)

Full-time or block-release training organisation :

- ▶ Tetranergy Group

PARTNERSHIPS

As a partner of Technopole science park, **Campus Reunion** organises common events :

- ▶ job-dating
- ▶ speed-dating for all school years and also between schools
- ▶ conferences
- ▶ exhibitions
- ▶ international hackathons



ESA

Reunion School of Art
Status : Public Establishment for Cultural Cooperation

→ www.esareunion.com

👤 Director : **Patricia DE BOLLIVIER**
✉ contact@esareunion.com
☎ +262(0) 262 43 08 01
📍 102, Ave. du 20 Décembre 1948
B.P. 246 - 97826 Le Port cedex

Total staff : 179 (34 employees and 145 interns)

PRESENTATION

Reunion School of Art is the only French-speaking art school in the Indian Ocean. It is administered by the educational authority for the Ministry of Culture and Communication, and authorised by the Ministry of Higher Education and Research.

APILAB is ESA Reunion's research platform. It focuses on art and its relations with the island. (APILAB - Research laboratory "Arts, Landscapes and Insularities").

The **APILAB** laboratory has reviewed existing issues in the programme "Art & Science on the landscape" which was launched at the Reunion School of Art. The laboratory seeks to examine ideas and materials formed by local landscapes and island character in direct contact with the tangible or imaginary fabric of their immediate environment. They are wide-ranging fields of study and experiment for artists and researchers from all disciplines.

Key research programmes :

RESEARCH THEME 1 : Lands & Territory

Examines the relationship between art and spaces (geographic, cultural, political, social)

- ▶ Topic "Phenomenology of the island"
- ▶ Topic "Ecosphere"
- ▶ Topic "Image, anthropology, interculturalism"

RESEARCH THEME 2 : Tools & Territory

Examines the techniques, methods and practices of artists in relation to territories.

- ▶ **Experimental programme** : digital collaborative platform focusing on performance practices.

SERVICES PROVIDED

ESA Reunion has adopted the European Credit Transfer system (E.C.T.S.), which harmonises higher education qualifications Europe-wide, thereby giving students access to greater options in terms of training and continuing their studies.

THE ESA is authorised to deliver the following national qualifications :

National Art Diploma (DNA) | duration : 3 years | 3 years after baccalaureate - option : Art (focusing on creation, experiment, research)

National Higher Diploma in Artistic Expression (DNSEP) | duration : 2 years | 5 years after baccalaureate - option : Art (specialising in landscapes)

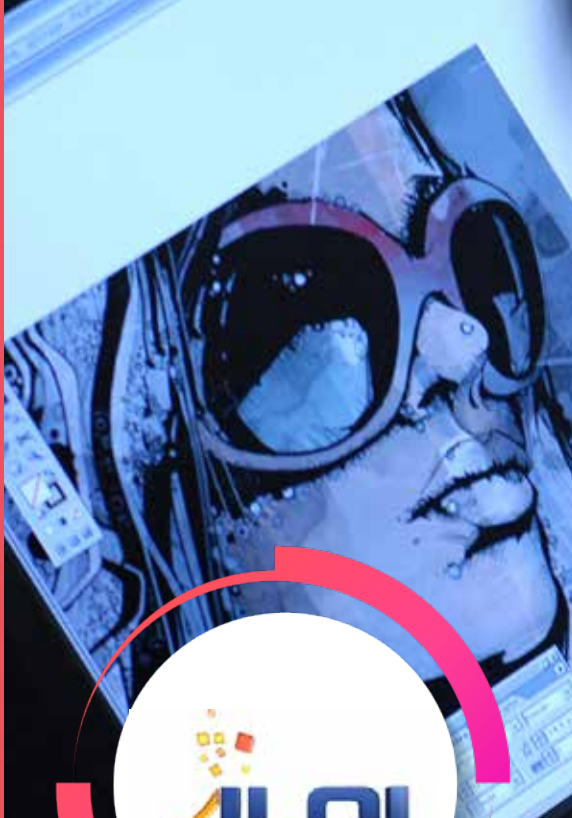
National Diploma in Arts and Techniques (DNAT) | subject to validation of prior professional experience

ESA Reunion is also a centre for "validation of acquired professional experience (VAE)" for the diplomas issued, as well as for the National Art Diploma (DNA), which is open to job-seekers, artists registered at the Maison des Artistes or any salaried.

PARTNERSHIPS

ESA Le 75 | Brussels (Belgium) | London South Bank University (UK) | Musée Kélonia Saint-Leu (La Réunion) | Ecole d'Architecture de La Réunion | University of Reunion Island | Durban University of Technology (South Africa) | Instituto Superior de Arte e Cultura | Maputo (Mozambique) | FRAC Réunion | Cité des Arts (Saint-Denis, Reunion) | University of Cape Town (South Africa)





ILOI

Indian Ocean Image Institute

→ www.iloi.fr

👤 President : **Alain SÉRAPHINE**

👤 Administration - HR :

Emmanuelle JACQUEMARD

✉ iloi@wanadoo.fr / info@iloi.fr

☎ +262(0) 262 43 08 81

📍 **Rue du 8 Mars - Parc de l'Oasis
FAC Pierre Ayma BP 232
97 826 LE PORT Cedex**

*Annual budget : funding from Region /
ESF : 1,600,000€*

*Total staff : 91 (11 permanent employees
80 service providers)*

PRESENTATION

- ▶ **1993** - Alain Séraphine, President of the association, lays the foundations for the ILOI, with the help of Pierre Ayma, founder of the animation department at the Gobelins School, in Paris.
- ▶ **1994** - Launch of courses for animators, decorators, storyboarders and colourists with the aim of launching "Pipangaï", an animation studio in Reunion.
- ▶ **1997** - ILOI introduces the "Multimedia Designer and Developer" course in partnership with the Multimedia department at the Gobelins School in Paris.
- ▶ **1999** - The skills and support of Georges Lacroix, a French pioneer in 3D animation helps the Iloi to launch its computer graphics / 3D animator course.
- ▶ **2000** - ILOI focuses on sound and audio-visual occupations.

In partnership with EJCAM, ILOI now offers university diplomas and a degree in "Communication and media", as well as a Master's degree in "Communications and new media". Together with Paris VIII University, ILOI has introduced a Master's degree course in "Digital Design and Publishing".

- ▶ **ILOI is approved by the Ministry of Employment since 2015** as a centre for its Level III professional qualification, "Computer Graphics and Multimedia", which was renamed "Web Designer" in 2016.
- ▶ **In 2017**, ILOI obtained the Datadock listing and the Quality Label after meeting standards outlined in Decree no. 2015-790 of 30 June 2015, relating to the quality of further education courses. The school is now included in the Reunion Regional Council's training reference catalogue.

SERVICES PROVIDED

ILOI henceforth use the "Recover 3D" prototype in Reunion. The studio is equipped with an internationally unique 3D scanner of actors in movement. The professional version is currently with the French cinema studios in Bry-sur-Marne.

The tool promotes the scanning of actors (people, animals, machines) as they move and is used in films and advertising, as well as in multimedia products, cultural interpretation, museum staging or education.

ILOI will soon introduce a vocational course on realistic production techniques, in Reunion, as well as in Paris, for young graduated 3D computer graphics designers who have graduated from the main animation schools in France.

REFERENCES

- ▶ RECOVER 3D Project in association with XD Production
- ▶ Help in setting up the first real-time 3D scan of actors in movement
- ▶ The PIPANGAÏ company regularly welcomes animation professionals in its premises, within which, two films have been created and received nominations for a César and for the Annecy Festival : ADAMA and ZOMBILENIUM
- ▶ Help in creating micro-companies launched by former ILOI students in the fields of video games and 3D.
- ▶ ILOI is a member of the RECA network of cinema animation schools.



P2ER

Reunion Student Entrepreneurship Cluster

→ <http://p2er.univ-reunion.fr/>

✉ pepите.p2er@univ-reunion.fr

☎ +262(0) 262 93 83 31

☎ +262(0) 692 01 22 14

📍 UNIVERSITY OF REUNION ISLAND

Campus du Moufia, E3

15 Avenue René Cassin

CS 92003 - 97744 Saint-Denis Cédex

Staff : 5

No. of students trained per year :

340 on average

PRESENTATION

The Reunion Student Entrepreneurship Centre (P2ER) is based at the University of Reunion Island. Its main aim is to promote entrepreneurship in the region. The Centre was awarded the PEPITE (Student Centre for Innovation, Skills Transfer and Entrepreneurship) label in 2014. It promotes innovative activities and new businesses launched by students and graduates in the region, as well as high-school graduates. P2ER is open to the social-economic ecosystem in Reunion and is an important interface between the academic world and the world of business. As a project promoter, the centre also provides support for students or graduates seeking to set up or take over a company.

SERVICES PROVIDED

P2ER provides a number of tools for the general public, interested in entrepreneurship adapted to a given profile. Courses are provided during the year, helping students with a business idea to acquire skills.

P2ER has introduced a one-year Student Entrepreneur University Diploma (D2E). The D2E programme includes two courses :

- ▶ **The Cré'Acteur** course which is part of the "Teaching Continuum Bac-3/ Bac+3 and entrepreneurial spirit" project. This is aimed at students with a vocational baccalaureate. The course's goal is to develop a sense of initiative, as well as self-knowledge and self-confidence.
- ▶ **The Innov'Acteur** course is designed for students willing to acquire entrepreneurial skills to set up or taking over a company. The course includes contributions from external professionals from a diverging range of sectors.

Specific modules (Life Designing, Business Model Canvas, Pitches, etc.) have been introduced, so that tomorrow's entrepreneurs can plan and develop project creatively and productively. This course will allow students to understand the social-economic issues in their region.

Students are in addition familiarized with the business world, particularly during the "Entrepreneurship Happy Hour" organised in collaboration with by P2ER and its partners. The events underpin several business creation-related subjects, such as CSR, the social economy or the liberated company. "Happy Hours" are opportunities for students to meet business professional, to build networks and boost their entrepreneurship skills.

P2ER also administers the National Student Entrepreneur Scheme (SNEE), which is an excellent springboard for project promoters. All students or graduates can apply to the scheme with no age limit. The SNEE has several advantages and is a chance to combine studies and business.

Students develop their business project with the help of an academic and professional supervisor. They can also adapt their studies and receive project validation during their academic course and obtain ECTS credits. They have access to the P2ER co-working space, and with the support and networks of private or institutional partners.

NETWORKS

P2ER has secured PEPITE accreditation and is now part of the PEPITE France network, which has a total of 30 PEPITE centres in France.

The centre also has a network of local partners, including ARML | Boutique de Gestion | La Caisse des Dépôts et Consignations | the Reunion Chamber of Commerce and Industry | the Reunion Chamber of Professions and Trades | the TÉMERGIE Cluster | the CPME | the Departmental Council | the Regional Council | the REUSIT incubator | the Regional Chamber for the Social Economy and Solidarity in Reunion | CRITT Reunion | DIECCTE | DJSCS de La Réunion | Dynamiques Services | EFOIR | Initiative Reunion | the Reunion Youth Economics Chamber | the northern Reunion Job Centre | MEDEF Reunion | NEXA | the NRJ ALTERNATIVES cooperative | the Order of Chartered Accountants in Reunion | the Reunion-Mayotte Employment Centre | the Sciences Reunion association | Reunion Technopole | the Reunion Education Authority | the Green Cluster | the Regional Delegation for Research and Technology and | the Management and Business School.



SIMPLON
réunion

SIMPLON REUNION

Digital school

→ <http://simplonreunion.co/>

👤 Director : **Farid HUMBLLOT**

✉ **farid@simplon.co**

☎ +262(0) 693 06 25 01

📍 **14 Rue de la Guadeloupe
ZA Foucherolles
97490 Sainte-Clotilde**

Staff : **8**

Number of clients : **250**

PRESENTATION

SIMPLON REUNION : INCLUSIVE DIGITAL STUDIO

Our aim is to support the digital transformation process of regions, organisations and communities. We are convinced that three key skills are needed for digital transformation and to develop and create value : training, business and production.

We are a team of creative people, web developers, business analysts, entrepreneurs and digital tech experts, all determined to make digital technology a tool for creating value and for inclusion in the Reunion 's economy.

SERVICES PROVIDED

What we do

Our aim is create services and products with a positive impact for your organisation and for society as a whole. As innovators, we deploy solutions adapted to your needs and to the requirements of your ecosystem.

▶ Training

We **provide solutions** for inclusive digital transformation by giving employees support, helping them to update or improve skills and raise awareness, whether they are switching careers or continuing in their present jobs.

▶ Development

Simplon Prod Reunion is a **social and solidarity workshop**. We provide tailored support by seeking to be as inclusive as possible, right from the design phase of a project.

Who better than the final user to test the practical experience of a solution?

We believe that both **good communication and collaboration between the members** of the project team and the client **are essential**.

In doing so, and to promote continual improvements throughout the project, we use agile methods.

Our production centre focuses on **machine learning, chatbot and artificial intelligence technology**.

▶ Digital Workplace

Creating an environment where your teams can work more effectively and in a more responsive way. To create an organisation based on the human factor, we can train your teams in agile methods and collaborative solutions. We can also develop business solutions through our **Simplon Prod** production unit.

▶ Simplon Corp

We organise **collaborative creative events** - hackathons, datathons, design thinking workshops, etc. - to stimulate innovation in your company or community.

Simplon Corp organises introductory **workshops for digital practices and tools**. They include an introduction to programming, coding culture, agile management methods or electronic prototyping. The idea is not to train experts but to spark curiosity and provide the keys to grasp I.T. thinking.

CUSTOMERS

Derichbourg | SFR Reunion | Ubisoft | CINOR | City of Saint-Denis | City of Saint-André | Reunion Regional Council | Opclia Reunion | AGEFOS PME Reunion



WEBCUP ASSOCIATION

*Digital, Innovation, entrepreneurship
FAB LAB and Campus*

→ www.webcup.fr

👤 President : **Fabien DEGIEUX**

✉ contact@webcup.fr

☎ +262(0) 262 71 33 51

☎ +262(0) 692 01 22 14

📍 **WEBCUP ASSOCIATION**

4 Impasse Richemond Terre Rouge
97410 SAINT PIERRE

📍 **WEBCUP CAMPUS ST PIERRE**

Résidence SHLMR Chevalier Bank
2 Rue Bory St Vincent

📍 **WEBCUP CAMPUS ST DENIS**

Résidence SHLMR Montreuil Angle
Rue Maréchal Leclerc - Rue Montreuil

Turnover : 142,201€ (team members)

Total staff : 10 (5 employees, 5 MSc volunteers)

Members : 100

Active volunteers : 35

PRESENTATION

The **Webcup association** was set up by an entrepreneur, a geek and a developer in 2009 with the aim to :

- Boost and promote the profile and excellence of the ICT sector and its stakeholders
- Boost and promote the spirit of innovation and entrepreneurship.
- Encourage young people to work in the industry, contribute to teaching and learning in ICT, entrepreneurship and innovation.
- Promote regional and international cooperation in the ICT sector, entrepreneurship and innovation, encourage digital solidarity and support cultural and economic exchanges between the various players.

WEBCUP CAMPUSES are tailored to all the Webcup association's modular training programmes. They feature digital and multimedia resources, interactive digital environments as well as face-to-face tuition needed for learning and validating knowledge in the various subject areas covered by the association. Open from Monday to Friday, 9am to 8 pm, for daily coding lessons, robotics, as well as a Fab Lab for children, young people, adults and seniors!

Socially inclusive Fab Labs not only provide a place to meet, but also offer information, training and support focusing on digital technology and innovation for targeted audiences. They are, however, open to anyone interested in the digital sector, innovation and entrepreneurship.

SERVICES PROVIDED

Association-run events are designed for stakeholders involved in digital technology, innovation and entrepreneurship.

Themes / Target Audiences

Training workshops are open to all, but are mainly geared to target audiences such as young people, | women, | seniors, | disadvantaged districts and | priority schools

- ▶ Various workshops for **children and young people** : school holiday courses and after-school clubs (coding, games, robotics, photos, videos, smart devices)
- ▶ Workshops providing help for administrative procedures (tax declarations, payments) and 173 courses introducing digital tools to **adults and seniors**.
- ▶ Training courses for **young people** on a range of subjects, including creating web and mobile applications, robotics, 3D and smart devices, programming, photography and film editing.
- ▶ A university course at St Pierre (IUT) Technical College in development and web professions

Indicative cost

€90 per person for a semester of workshops or a school holiday course.

CUSTOMERS

Webcup Event : web developer contest, since 9 years :

STARTUP WEEKEND : 10 Startup Weekends have been organised since 2011 and are proving to be increasingly popular.

WORKSHOPS, LESSONS AND TRAINING COURSES :

- Web elite workshop
- Code elite workshop
- Silver elite workshop
- A university course in development and web professions with St Pierre Technical College







Professional networks

- 134 **ADIR** - Reunion industrial development association
- 135 **APLAMEDOM** - Reunion association for aromatic and medicinal plants
- 137 **GREEN CLUSTER** - Regional environmentally-responsible enterprise network
- 138 **CPME REUNION** - Reunion confederation of small and medium-sized businesses
- 139 **DIGITAL REUNION** - Reunion association of digital sector professionals
- 140 **EFOIR** - Reunion, Indian Ocean Women's Entrepreneur Network
- 141 **JCEF** - French Junior Economic Chamber
- 142 **REUNION FRENCH-TECH HEALTH-TECH** - Health related technology
- 143 **LE CERCLE** - Reunion free-enterprise business circle
- 144 **MEDEF RÉUNION** - French business confederation
- 145 **SYNERGIES JEUNES** - Indian Ocean youth entrepreneur network
- 146 **TÉMERGIE** - Reunion Energy Cluster





ADIR
Association pour le Développement Industriel de La Réunion

ADIR

ADIR (Reunion industrial development association)

→ www.adir.re

👤 President : **Daniel MOREAU**

👤 General Secretary :

Hyacinthe LEGRAND

✉ adir@adir.info

☎ +262(0) 262 94 43 00

📍 **30 Rue Léon de Lepervanche
97420 LE PORT**

Staff : **8**

No. of members : **183**

PRESENTATION

This non-profit association was founded on 9 August 1975.

All sectors of industrial activity, including :

- Agri-food
- Public works, materials and components
- Capital equipment and consumer goods

ACTIVITIES

- ▶ Promotion of local industries, their products and the people working in the field
- ▶ Maintaining an ongoing dialogue with the public authorities to create an optimum environment to development
- ▶ Defending collective interests in negotiations with the various business players
- ▶ Commitment of research and development resources to industrial development

Technical support

- ▶ COMPANY assessments or audits (overall performance, life cycle, all company positions)
- ▶ Improved working conditions
- ▶ Introduction of a tool or label : GEOCERT, ACERBAT
- ▶ Developing sectors (fruits and vegetables, tropical building, waste recycling)
- ▶ "Nou la fé" brand

PARTICIPANTS

ADIR is managed by a Board of Directors of 18 people and has a team of 8 permanent staff to support its 149 manufacturer members.

Board members :

President : Daniel MOREAU
Royal Bourbon Industries (food industry)

Vice-Presidents : Jérôme ISAUTIER - Isautier Group
(food and diverse industries)

Abdéali I. GOULAMALY - Océinde Group (food and building products)

Michel DIJOUX, Cofer (equipment)

Secretary : Thierry TAYE - Bioalgastral

Deputy secretary : Johnny LAW-YEN - Solyval (recycling)

Treasurer : Guy HAGELAUER, Cartonnerie de
La Réunion (cardboard)

Deputy treasurer : Mrs Carole CHANE-KI-CHUNE,
Groupe Le Quotidien (printing firm)

Members : Carole CHANE-KI-CHUNE (printing) | Frédéric AUCHE, Mascarin (food industry) | Philippe LABRO, Téréos Océan Indien (food and plastics) | Yvan MAINIX, Fibres (wood) | Pascal QUINEAU, Ovocoop (food industry) | Gilles COUAPEL - Dom'Eau (equipment) | Alex HOW-CHONG, HCE (recycling) | Philippe GUERIN, Armement Enez du (fishing) | Claude BIHRY, Urcoopa (food) | Paul MARTINEL - Cilam Group (food industry and plastics) | Maurice GERISOLA.

PARTNERSHIPS

Reunion Education Authority | Chambers of Commerce | Centre of excellence, | IRD, etc.



APLAMEDOM

Reunion association for aromatic and medicinal plants

→ www.aplamedom.org

👤 President : **Claude MARODON**

✉ contact@aplamedom.org

☎ +262(0) 262 93 88 18

📍 **CYROI, Parc Technor**
2 Rue Maxime Rivière
97490 SAINTE-CLOTILDE

PRESENTATION

Aplamedom Reunion is a multidisciplinary association run by volunteers from the medical, university, industrial and farming sectors. Alongside APLAMEDAROM - Guadeloupe, in 1999, it set up a network of Aromatic and Medicinal Plant (PAM) associations in the French overseas territories, to develop a policy of wider recognition, scientific validation and promotion of medicinal plants used in overseas territories.

Aims

- ▶ **TO EXPAND** knowledge of PAMs in Reunion and the Indian Ocean area
- ▶ **TO LIST** and **ASSESS** traditional practices relating to PAMs scientifically
- ▶ **TO MAKE USE OF** and **DEVELOP** internal resources and grow the sector in a sustainable way
- ▶ **TO RAISE AWARENESS** about the use of medicinal plants and the preservation of biodiversity

Main issues

- ▶ **To provide a structure** to production and processing in PAMs through ADPAPAM
- ▶ **To support economic** projects involving PAMs in the region
- ▶ **To promote recognition** of the traditional pharmacopeia

ACTIVITIES

- ▶ Research on plants in traditional pharmacopeia, in collaboration with organisations in Reunion (CYROI, University of Reunion Island)
- ▶ Support projects in the utilization of local plant resources
- ▶ Training focused on knowledge, uses, traditional popular practices, toxicity
- ▶ Environmental and sustainable development education activities focusing on biodiversity and cultural heritage linked to PAMs (the Zerbaz Péi educational project, exhibitions, events).
- ▶ Communication : participation in international symposia, organisation of workshops and conferences, publications, etc.

Through its multidisciplinary network, APLAMEDOM brings together players in the PAPAM (Fragrant, Aromatic and Medicinal Plants) sector. APLAMEDOM is a founding member of the QUALITROPIC centre of excellence and the Association for the Development and Defence of Fragrant, Aromatic and Medicinal Plants (ADPAPAM). It is also a member of Reunion Technopole science park and the French Ethnomedicine Society.

Research topics

- Improve knowledge of the aromatic and medicinal plants traditionally used in Reunion and expand their use
- Ethnobotanical studies, chemical and pharmacological analysis

Key research programmes

- **PAM RIVAL** (Aromatic and Medicinal Plants in Research, Innovation and Use) - improved understanding of Reunion plant diversity and greater use of these plants (2014-2015)
- **Production of monographs** for the official recognition of medicinal plants in Reunion by the ANSM - Registration in the French pharmacopeia of 19 plants from Reunion (2013-2014)
- **Cultural experimentation and use of medicinal or aromatic plant species** that are traditionally used in Reunion (EAFRD funding 2012-2015)
- **ATEM** - Activities for traditional, plant-based diabetes treatments : an ethno-metabolomic approach (CYROI / APLAMEDOM / University of Reunion Island)

KEY PUBLICATIONS

Works

- ▶ **Zerbaz péi**. Practice and use of herbal teas in Reunion. Éditions Azalées, 2011 ;
- ▶ **Symposium proceedings** - 7th International Symposium on Aromatic and Medicinal Plants in French overseas regions. APLAMEDOM, Saint Denis, Reunion, 2013.



SPECIALIST APPRAISALS

Services

- ▶ Ethnobotanical studies
- ▶ Phytochemistry : chemical analysis of plant extracts
- ▶ Support for practical application projects

PARTNERSHIPS

Local

- ▶ CYROI
- ▶ University of Reunion Island : LCSNSA laboratory, DETROI
- ▶ PVBMT
- ▶ Extraits de Bourbon Company
- ▶ Reunion Eco-Ex Company
- ▶ Reunion National Park, CBNM, ONF
- ▶ ADPAPAM, ARMEFLHOR

National

- ▶ French Ethnomedicine Society
- ▶ University of Nice
- ▶ Network of PAM associations in overseas territories





GREEN
Groupement Régional des Entreprises
engagées pour l'ENvironnement
de la Réunion

GREEN CLUSTER

*Regional Group of Companies committed to
the environment*

→ www.clustergreen.re

👤 Director : **Christiane ALBERT**

✉ calbert@clustergreen.fr

☎ +262(0) 262 41 10 57

📍 10-12 Rue des Deux Canons
immeuble SASSY-BAT A RDC 2
97490 SAINTE-CLOTILDE

Total staff : 30 members

PRESENTATION

Green is a registered association comprising multi-sector companies and public and private-sector bodies seeking to make the environment a driver of economic, ecological and social development in Reunion.

The cluster seeks to promote ecological business and environmentally friendly (CSR) firms, as well as developing synergies around projects linked to the circular economy.

The target markets are Reunion and international cooperation.

ACTIVITIES

- ▶ Networking / combining clusters
- ▶ Monitoring
- ▶ Development and support for collaborative projects
- ▶ Sharing and promoting best practices
- ▶ Training

PARTICIPANTS

- ▶ The board of directors is made up of three institutions (Reunion Regional Council, Ademe and SICR) and seven companies.

PARTNERSHIPS

- ▶ Clusters and eco-companies (PEXE and GREEN CROSS)
- ▶ Research and training institutes
- ▶ Companies in all sectors
- ▶ Public and private institutions





cpme
LA RÉUNION

CPME REUNION

→ <http://cpmereunion.re/>

👤 President : **Eric LEUNG**
 ✉ contact@cpmereunion.re
 📞 +262(0) 262 96 43 16
 📍 **54 Chemin Cachalot - Pierrefonds**
97410 Saint-Pierre

Staff : **6**

No. of members : **600 (as of 15 June 2018)**

PRESENTATION

CPME REUNION is the confederation of small and medium-sized businesses. Forging close ties with small and medium-sized firms in Reunion, its main aims are to support, defend and represent small, local businesses. The CPME Reunion commissions focus is on the following subject areas :

- Legal, social
- Training, employment
- Sustainable development
- Digital economy and innovation
- Economics and forecasting
- Trade
- Services
- Industry

ACTIVITIES

The **CPME's** mission is to defend and represent the interests of small enterprises in Reunion. As such, it delivers a range of initiative and projects :

- ▶ **Support for members** in all their business needs (information, advice, contacts, technical support)
- ▶ **Development and promotion of proposals** with local and national bodies to defend small firms in Reunion
- ▶ **Defense by CPME representatives on specific issues faced** by small enterprises to a range of organisations
- ▶ **Organisation of events** to improve managerial skills
- ▶ **Setting up** projects to help local firms (improved purchasing strategy, REELE project studies, guides to support measures, etc.)

CPME REUNION also provides access to the following services :

- ▶ **AGEFOS PME**, for easier employee training
- ▶ **AGEFICE**, for easier manager training
- ▶ **GSC**, unemployment insurance for managers and entrepreneurs

PARTICIPANTS

The management board comprises business leaders from 4 sectors :

VP Industry / Public Works	: Johnny LAW-YEN
VP Services	: Jean-François TARDIF
VP Independent Trades	: Cédric DALY
VP commerce	: Pascal Plante
Treasurer	: Abdoullah Lala
Secretary	: Danielle Gros

PARTNERSHIPS

As a representative employers' organisation, the **CPME** is a member of numerous regional bodies and forms partnerships with local organisations playing a role in business life (the state, local authorities, chambers of commerce, company-support organisations, etc.). **CPME REUNION** fulfils around 160 mandated functions.



DIGITAL REUNION

DIGITAL REUNION

→ www.digitalreunion.com

👤 President : **Philippe ARNAUD**

✉ equipe@digitalreunion.com

☎ +262(0) 692 72 08 67

📍 8 rue Pondichéry, ZI La Mare
97438 Sainte-Marie

.....
Total staff : 4 FTE

No. of members : 118

PRESENTATION

Digital Reunion represents the island's digital technology businesses. It also supports activities to develop and promote Reunion's sector in Reunion regionally, nationally and internationally.

ACTIVITIES

- ▶ **To help** make Reunion a region of excellence in terms of new technology
- ▶ **To foster** the development of the digital sector in Reunion : to support innovation, and develop regional, national and international cooperation
- ▶ **To promote** the skills of Reunion digital companies
- ▶ **To encourage** the development of financial support in the sector
- ▶ **To boost** ICT and encourage the island's people to embrace them
- ▶ **To pool** skills and means in the digital sector : strategic and technological forecasting, partnerships, collaborative projects, clusters, etc.
- ▶ **To help** organisations develop skills and support them in identifying and sharing best practices
- ▶ **To assist** the local economy in adopting digital technology

PARTICIPANTS

Board structure

ARNAUD Philippe : President

NOIRBUSSON Antoine : General Secretary - Vice-President for Practices and Territories

ROYER Elodie : Vice-President for Innovation and Research / French Tech contact

BEREZAIE Yannick : Treasurer - Vice-President for Partnerships and Cooperation

LINKWANG Emilie : Vice-President for Trades and Skills

Stéphane JAILLET : Vice-President for International Development and Exports

TSISANDAINA Ken : Vice-President for Sectors and Members

Board members : COLOMBEL Stéphane | ALBERT Isabelle | MAMODALY Mamodraza | RAMSAMY Daniel | HERMESSE Xavier

PARTNERSHIPS

- ▶ Partner of Syntec National Digital
- ▶ Partner and member of FEDOM
- ▶ Promoter of FRENCH TECH REUNION
- ▶ Promoter of the Club DSI Reunion, in collaboration with CIGREF
- ▶ Reunion Technopole, Girls in Tech, Lizine by CBO Territoria, Le Village by CA, Le Transfo
- ▶ ADIR, MEDEF, CPME, CLUB du TOURISME, QUALITROPIC, SBA
- ▶ Outremer Network
- ▶ Business France | BPI | French Tech | International NxSE business forum for Africa / Indian Ocean | Ocean Work Center



EFOIR

*Indian Ocean Reunion Women
Entrepreneurship*

→ www.entrepreneuraufeminin.re

👤 President : **Chaheda RIVIERE**

✉ presidente@efoireunion.re

☎ +262(0) 693 00 02 91

📍 22 Chemin de la Fontaine Domenjod
97490 SAINTE-CLOTILDE

No. of members : over 150

PRESENTATION

The association was founded in 2002.

Today, we live in a world gripped by environmental, social and economic upheaval. The tensions surrounding change are a call for us to unite and to be more creative together. Collective intelligence is now part and parcel of all our future prospects.

With this in mind and guided by this process, we at **Entreprendre Au Féminin** have chosen to make our contribution to tomorrow's world. We believe that a more balanced society involves recognising the talents of all its members and of women, most of all. Life has endowed nature and human being with two polarities, each singular, which must find their equilibrium point in complementarity. The question is to take into account the fact that 50% of existence into a subtle and open way to build a different world for our children.

ACTIVITIES

Entreprendre au Féminin Indian Ocean Reunion is a business-orientated social network. It's first aim is to share experience and knowledge about business and the economy.

EFOI Reunion helps women in their professional careers by developing their entrepreneurial skills.

PARTNERSHIPS

MEDEF Reunion | CMAR | CCIR | CLUB EXPORT | UNIVERSITY OF REUNION ISLAND | AFPAR, etc.



JCI

Jeune Chambre Economique
de Saint-Denis de la Réunion
Le Mouvement des Jeunes Citoyens Entrepreneurs

JCEF - JCI

**Junior French Economic Chamber in Saint
Denis, Reunion**

→ saintdenisdelareunion@jcef.asso.fr

→ www.facebook.com/jcesaintdenis974

→ www.twitter.com/jcestdenis974

→ www.instagram.com/jcesaintdenis974

→ JCE Saint Denis [https://fr.linkedin.com/
company/jce-saint-denis-de-la-reunion](https://fr.linkedin.com/company/jce-saint-denis-de-la-reunion)

👤 2019 President : **Valérie MOUTOUSSAMY**

✉ presidence@jcesaintdenis.re

☎ +262(0) 692 60 83 46

📍 (provisional, pending change of address)

**4 Rue du Moulin à Vent
97400 Saint-Denis**

**Staff : 14 members (5 active observers, 10
observers)**

No. of members : 14

PRESENTATION

The **Junior Economic Chamber (JCE)** is a movement of men and women aged 18 to 40 from a wide range of backgrounds. The **JCE** in Saint Denis was founded in 1961 by Maxime Rivière and Jean de Cambiaire. It is affiliated to the French Junior Economic Chamber (an association set up in 1952 and an officially-recognised organisation since 1971), as well as the century-old international movement (Junior Chamber International, JCI).

JCI's mission is :

- to give young people opportunities to develop and bring about positive changes.
- to be the main international network for young active citizens.

The movement is independent of all political, religious or union affiliations.

ACTIVITIES

Active citizens are committed to the **Saint-Denis Junior Economic Chamber** to help change society and individuals' lives, by setting up economic, social, environmental and community projects. The **JCI in Saint-Denis** acts locally, for the community. It provides a laboratory for introducing innovative, high-impact solutions to solve local issues.

In addition, by offering development opportunities through training and action, it acts as a "school" encouraging individual responsibility in a friendly spirit.

- ▶ An example is the 8-episode web series produced to raise public awareness and curiosity about Smart Cities.

PARTICIPANTS

Governance and Members

The JCI Saint-Denis board is renewed each year to provide young people with opportunities to develop. In 2018, the board members were :

Irshad Akhoune : President

Valérie Moutoussamy : General Secretary and Vice-President for
Communication

Julie Taristas : Treasurer and Training Vice-President

Emilie Larose : Programme Vice-President

Jordan Payet : Conviviality Vice-President

The board members were joined in 2018 by the following members :

Violette Assati | Sébastien Cohéléach | Christopher Dijoux | Amanda Esparon
| Audrey Law-Houing | Séverine Magdeleine | Anne-Laure Ringanadepoullé |
Mickaël Rivière | Nastasia Rivière.

In addition to these members are applicants and occasional participants listed as "observers".

PARTNERSHIPS

The Junior Economic Chamber in Saint-Denis takes part in the Reunion Youth Development and Innovation Office (PRODIJ), is on the Board of Directors at the Reunion Regional Centre for Youth information (CRIJ), on the steering committee of P2ER at the University of Reunion Island, on the board of the COFIP at the University of Reunion Island and is part of the Regional Committee for Innovation (CRI).

It also works with a wide range of partners.

We also work with other partner, including : Agency for the Environment and Energy Control (ADEME) | Capab | Crédit Agricole de La Réunion | Cité des Arts | Youth, Sports and Social Cohesion Department of Reunion (DJSCS) | EDF Reunion | Tétranergy | the Town of Saint-Denis | CINOR, etc.





REUNION FRENCH TECH

Health related technology

→ <https://digitalreunion.com/french-tech-reunion/>

👤 French Tech Contact : **Elodie ROYER**

✉ vp.frenchtech@digitalreunion.com

☎ +262(0) 692 53 82 17

📍 8 rue Pondichéry, ZI La Mare
97438 Sainte-Marie

PRESENTATION

The **French Tech concept** refers to an **ecosystem of French start-ups**, and showcases French excellence in innovation. **French Tech** takes the form of hubs, both overseas (San Francisco, Cape Town, Abidjan, Hong Kong) and in continental France (Bordeaux, Nantes, Lyon), along with thematic French Tech networks that may be developed anywhere in the world.

French Tech's main aim is to give a boost to group dynamics.

French Tech has an optimistic and ambitious mindset and is firmly focused on the future. It is helping to create the world and economy of tomorrow. It is also an innovative public venture managed by the Ministry of the Economy, Industry and Digital Technology, working for the community, seeking to make France a major start-up nation.

Our philosophy : to support and rely on entrepreneurs to bring about change.

ACTIVITIES

- ▶ To **galvanise** a group of people all over France behind a single brand
- ▶ To **speed up** the growth of start-ups by boosting private support structures and capital-risk investment (by supporting entrepreneurs and signposting them to suitable structures)
- ▶ To **promote** France and French Tech abroad (by organising and taking part in a wide range of events, either in partnership with other tech networks or in forums, such as NxSE)

PARTICIPANTS

Governance

French Tech Contact

: Elodie ROYER

Partnered by

: Mamodraza MAMODALY

PARTNERSHIPS

- ▶ DIGITAL REUNION



CERCLE

Reunion free-enterprise business circle

→ <https://www.facebook.com/cerclereunion/>

👤 President : **Laurent BLERIOT**
✉ laurent.bleriot974@gmail.com
☎ +262(0) 692 65 33 44
📍 12 Boulevard de la Providence
97400 SAINT-DENIS

Staff : 5 board members
No. of members : 100

PRESENTATION

Promotion and development of entrepreneurship

The aim of the association is to :

- **promote interactions** and business links between all economic players
- **foster business relations** between its members in total transparency, while respecting the law and ethics
- **enable rewarding exchanges** in terms of economic information
- **organise seminars**, training activities and conferences to improve economic approach and managerial capacities
- although the **C.E.R.C.L.E** is **totally apolitical**, it **seeks to be active** in public life, it reserves the right to intervene in economic debates to attract the public authorities' attention to specific measures that might improve the economic environment.
- **to launch** lobbying and public relations initiatives to help pass on our ideas
- **to develop a sense of togetherness** among members through events organised outside the world of work

ACTIVITIES

- ▶ Co-organisation of "**Strategy Thursdays**" with Xavier Fontanet (360° MOOC about overseas territories)
- ▶ Contribution to the Overseas Innovation Contest in Paris for the past two years
- ▶ Coordination of the "France s'engage" foundation visit to Reunion in 2018

PARTICIPANTS

Governance : 15 board members

Members : 100 members from all business sectors :

Public works | Services | ICT | Innovation and biotechnologies | Transport | Industry | Insurance/Banking | Tourism

PARTNERSHIPS

- ▶ MEDEF Reunion
- ▶ NEXA
- ▶ Overseas Territories Network





MEDEF REUNION

→ www.medef-reunion.com

👤 President : **Didier FAUCHARD**

👤 Managing Director :

Sandrine DUNAND-ROUX

✉ contact@medef-reunion.com

☎ +262(0) 262 20 01 30

📍 30 rue André Lardy, La Mare
97438 SAINTE-MARIE

Total staff : 10

No. of members : 600

PRESENTATION

MEDEF Reunion is an employers' organisation whose main role is to defend and represent the interests of companies in Reunion. **MEDEF Reunion** responds to issues faced by entrepreneurs and managers, such as helping to find support, broadening their networks, granting a voice, representing and informing, providing better understanding and control of a complex environment, helping to take part in local economic development and expand internationally, while promoting the role of entrepreneurs.

ACTIVITIES

MEDEF Reunion provides its members with a range of skills and support on a daily basis :

- ▶ **Support for innovation**, particularly by showcasing Reunion start-ups at MBA contests and setting up contacts with funding bodies
- ▶ **Support for new entrepreneurs**, particularly through a community of experts (Mentor Lab by MEDEF)
- ▶ **Guidance** : Customised professional support : employment - integration, social aspects, training, finance, taxation, institutional networks, economics - Europe, administrative procedures, networking between companies
- ▶ **Developing contacts** : Getting a head start and taking the right direction : meetings throughout the year with specialist contributors
- ▶ **Information** : Local, national and European news. Monitoring changes in the law and regulations
- ▶ **Exchanging experience** : Between different sized firms and in different sectors, sharing best practice, avoiding mistakes, understanding conditions on the ground, limiting risk and saving time
- ▶ **Encouraging an entrepreneurial spirit** at all stages of the professional process

PARTICIPANTS

MEDEF Reunion represents almost 600 business owners or managers, 85% of which are from SMEs employing fewer than 50 staff in all business sectors belonging to 21 professional federations.

The organisation is run by business leaders who are representative of the economic fabric of Reunion and who play an active role in the steering committee and management board. Board members are elected on the basis of membership of their federation or their company.

PARTNERSHIPS

MEDEF Reunion has signed partnership agreements and works closely with Job Centres, | mission locale youth centres , | ALEFPA, | RSMA and FAZSOI.

MEDEF Reunion is on the executive committee at Qualitropic | Technopole | Club Export and Temergie as an administrator.

Mandates ensure that **MEDEF Reunion** is also represented by around 100 members in bodies and organisations in the areas of skills development, the sustainable economy, jurisdictional matters, social development and boosting employment.



SYNERGIE JEUNES INDIAN OCEAN

→ <https://www.facebook.com/Synergie-Jeunes-Entrepreneurs-Ocean-Indien-489788057754021/>

→ <https://www.facebook.com/ambitionjeune/>

👤 President : Moea LATRILLE

✉ contact@synergiejeunes.re

☎ +262(0) 692 50 10 34

📍 246 Chemin Surprise
97436 SAINT-LEU

📍 Indian Ocean headquarters : Mauritius

📍 Local headquarters : Cité Tardif,
PK 10, 3 Impasse du Père Laval
97430 LE TAMPON

Staff : 10

No. of members : *around 100 in the Indian Ocean area*

PRESENTATION

Synergie Jeunes is a platform for young entrepreneurs in the Indian Ocean area and is currently active in five regions : Mauritius, Seychelles, Comoros, Madagascar and Reunion

Its main aims are to develop entrepreneurial culture among young people by creating a regional network, to promote economic cooperation, mutual help and local and regional links between member countries, and especially to resolve shared issues linked with intrinsic obstacles (geographical, island-based, economic, political issues, etc.) and to reinforce links between countries in the Indian Ocean region.

The annual local and regional contest "**Young Ambition**" helps the most promising projects in the Indian Ocean to emerge and gain wider support.

ACTIVITIES

- ▶ **Organising local and regional events** in a friendly atmosphere
- ▶ **Organising the annual, local and regional "Young Ambition" contest.** This involves identifying the most promising projects locally and regionally, providing them with support and access to a regional and international networks
- ▶ **Developing local and regional training** (local courses with CROEC, social and media project courses between Reunion-Comoros and Madagascar-Comoros)
- ▶ **Organising themed after-work events**
- ▶ **Contest-winners** are given access to internships and training to develop their projects in other regions
- ▶ **Participation in local and regional events** (Economic Forum for Indian Ocean Islands, Export trade fair, International Business Forum on Sustainable Development, etc.)

PARTICIPANTS

All the network's members are local or regional project promoters, entrepreneurs or company managers working with a regional reach and from all economic sectors.

There is a regional Indian Ocean office and a local office in each island territory. **Synergie Jeunes, in Reunion** is a non-profit organisation established in January 2014.

PARTNERSHIPS

Long-term partners : IOC and JCI.

Partners since the network was created : UCCIOI | EFOIR | Reunion Regional Council | Club Export | Reunion Technopole | Nexa | University of Reunion Island | Le Transfo | D2R | CROEC | IRT | Digital Reunion | Eco Austral | w3a.





TEMERGIE

Reunion Energy cluster

→ www.temergie.com

👤 General Secretary : **Benjamin FORTUIT**

✉ sg@temergie.com

☎ +262(0) 693 45 59 60

☎ NEXA switchboard+262(0) 262 20 21 21

📍 **Nexa, 6th floor, Cadjee building**
62 Boulevard du Chaudron - BP 60030
97491 SAINTE-CLOTILDE CEDEX

Staff : **2 (4)**

No. of members : **45**

PRESENTATION

In 2010, **Temergie** secured its status as a "cluster" from the DATAR (Regional Planning and Regional Affairs Department).

Temergie seeks to boost growth in the Reunion's energy sector through technological, legal and social innovations to achieve the goal of self-sufficiency in electricity by 2030, coupled with fuelling R&D&I, creating jobs and added value locally.

Professional capabilities in the sector include :

- Renewable energy
- Energy management
- Energy storage
- Sustainable electrical mobility

ACTIVITIES

- ▶ **Setting up** an energy operators network
- ▶ **Supporting**, developing, promoting and providing official certification for R & D projects, collaborative ventures and innovative projects for companies in Reunion
- ▶ **Promoting** the international development of Reunion companies

BOARD STRUCTURE

President	: Gaston Bigey, Nexa,
Honorary President :	: Michel Dijoux, Dijoux Group,
1st Vice-President	: Alin Guezelo, Regional Council,
2nd Vice-President	: University of Reunion Island, Jean-Pierre Chabriat & Alain Bastide
Vice-President of Board and administration	: FRBTP, Public Works Regional Federation Francis Huot Marchand
Vice-President	: Reunion Industrial Development Agency, Maurice Cerisola
Treasurer	: Patrice Galbois, COREX SOLAR,
Deputy treasurer	: Laurent Blériot, Bioalgastral,
Secretary	: Alin Guezelo, SPL Energies Réunion
Deputy Secretary	: Olivier Duhagon, EDF Réunion

PARTNERSHIPS

Temergie seeks to be part of a regional movement with several partnerships in Reunion, as well as nationally with other centres of excellence and clusters.

Reunion Technopole | CAPENERGIES | Reunion energy operators network | France Energies Marines | ADEME | INES CEA





TEAMWORK
Community

COWORKING

THINK, PRODUCE,
MOTIVATION,
SOCIAL

WORK

Third places



- 150 **O'KARTIE FAB LAB** - FAB LAB in western Reunion
- 151 **H30** - FAB LAB in eastern Reunion
- 152 **IUT LAB** - University Institute of Technology of Reunion Island
- 153 **RUN FAB LAB** - FAB LAB assisting local stakeholders
- 154 **LA RAFFINERIE** - Economic-cultural centre
- 156 **LE CARÉ** - Business and Networking Hub
- 157 **LE TRANSFO** - Co-working space dedicated to the digital economy and innovation
- 158 **LE VILLAGE BY CA** - Open innovation ecosystem
- 159 **LIZINE BY CBO** - Network of spaces for co-working and exchange
- 160 **STUDIO EPERON** - Co-working space





O'KARTIE FAB LAB

→ <https://sciences-reunion.net/fablab-okartie/>

👤 Director : **James CARATINI, CCSTI**

👤 Fab manager : **Daniel MOUCOUVEA**

✉ **o-kartie@sciences-reunion.net**

☎ +262(0) 262 92 24 39

☎ +262(0) 692 51 47 76

📍 **4 Rue Jacquot, l'Etang
97460 SAINT-PAUL**

.....
Total annual budget (including payroll) :

90K€

Staff : 2

PRESENTATION

"FAB LABS" are places for dialogue, trying out solutions, learning and pooling skills and equipment. They assist in the implementation of project, either for personal development or for business purposes.

O'kartie is the only Fab Lab located in a residential complex managed by a social landlord. It is run by an association promoting science-based education, called "**Sciences Réunion**".

Activities are targeted for young students and unemployed adults looking forward to professional insertion. In the evening, the Fab Lab also caters for project promoters and businesses. The Fab Lab is supervised by an ethical committee, including these financial partners.

SERVICES PROVIDED

O'kartie makes its premises available to partners for courses based on social inclusion ventures, digital projects, 3D modelling and printing, and project development.

A team member is present from Monday to Saturday in welcoming and assisting various projects.

OTHER ACTIVITIES

- ▶ 90 min to 2 hour robotics workshop for teens, on Wednesdays and children on Saturdays.
- ▶ Reception and company activities for partners.
- ▶ Help with I.T. skills for isolated individuals in the local area.

NETWORKS

- ▶ In collaboration with the Fab Lab based at the University Institute of Technology in Saint-Pierre | Nexa network | the department of education | and members of Sciences Réunion

PRESENTATION

The **Eastern H30 Fab Lab** is based in the Bras-Panon small business park. Its members include the technology-orientated ORSIIT Association (Reunion Island Observatory for Information Security and Technological innovation). The **Fab Lab** is used by business owners, together with an enthusiastic group of electronics engineers and mechanics.

SERVICES PROVIDED

The **H30 Fab Lab** is a workshop providing the public and especially its members with digital production facilities and tools. It seeks to promote experiments through practice and by developing projects using the tools in the workshop.

- ▶ I.T. consulting, technical services
- ▶ **Examples :** repairs, maintenance and restoration of CNC-type machine tools for use in the Fab Lab.

OTHER ACTIVITIES

- ▶ Creative leisure workshops
- ▶ Technical workshops
- ▶ Event-hosting : Hack'In Réunion



H30 EASTERN FAB LAB

→ <http://www.fablab-h30.re/>

👤 Fab manager : **Willy TAOCHY**

✉ **h3oclub@hotmail.com**

✉ **tao-paul@hotmail.com**

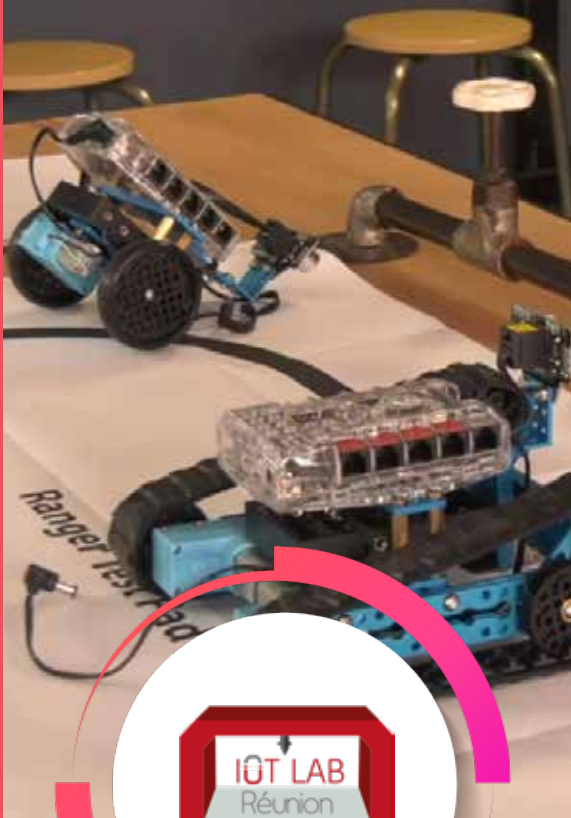
☎ **+262(0) 692 37 32 79**

📍 **Cité Artisanale**

97412 BRAS-PANON

.....
Staff : 50





IUT LAB REUNION

University Institute of Technology of Reunion Island

→ <http://iut.univ-reunion.fr/innovation/fablab/presentation/>

👤 Director : **Richard LORION**

👤 Fab manager : **Alexandre REFAIT**

✉ fablab@univ-reunion.fr

☎ +262(0) 262 96 28 70

☎ +262(0) 262 24 41 28

📍 **40 Avenue de Soweto - Terre-Sainte
BP373 97455 SAINT-PIERRE - Cedex**

Staff : 2

PRESENTATION

This **Fab Lab** is supported by the Reunion University Institute of Technology (IUT), part of the University of Reunion Island. The **IUT LAB** specialises in training with a **learning-by-doing** approach and primarily seeks to improve students' vocational skills. However, the Fab Lab is very popular among the nearby start-up business community. The **IUT LAB** is focused on the future, in line with higher education courses on networks and telecommunications and smart objects (IOT).

SERVICES PROVIDED

Equipment available :

- ▶ **3D printing** : 2 Prusa i3s, 1 MakerBot Replicator 5X and soon 1 CR-10S
- ▶ **Vinyl cutter** : laser cutter of the ERM DL12 type
- ▶ **Connected objects** : 3 Raspberry Pi 3 Model B kits and 4 LinkItOn cards and starter kits
- ▶ **Laser cutter/engraver** : laser cutter of the ERM DL12 50 Watt type
- ▶ **Conventional workshop** : Pillar drill, electric cordless drill, set of wood and metal drill bits, 1 Dremel vertical drill stand, 1 Dremel 4000, 1 Dremel table moto-saw, a set of spanners, screwdrivers, regular and safety bits, monkey wrench of various sizes, a set of connectors, a set of pliers, workbench with vice, measuring tools, etc.

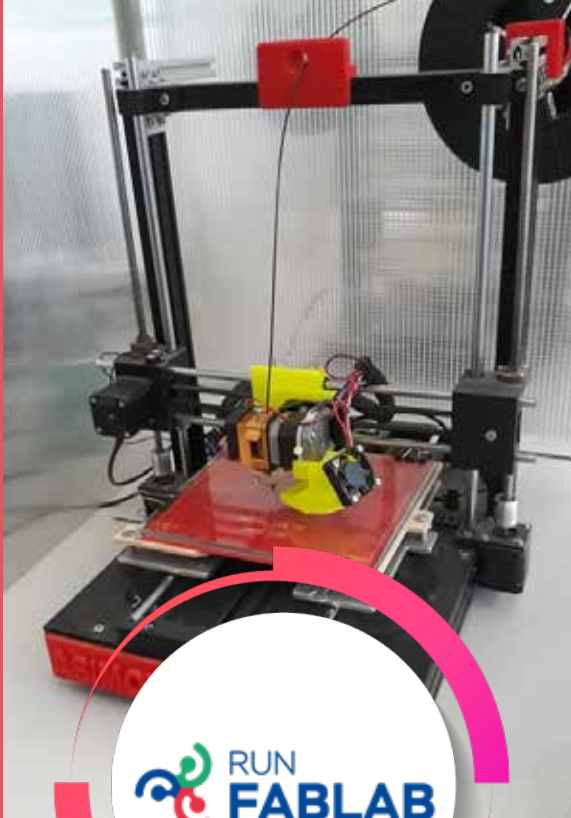
OTHER ACTIVITIES

The **IUT LAB** also organises educational workshops in a friendly atmosphere, as well as conferences and courses in using the machines :

- ▶ Introduction to 3D printing
- ▶ Learn programming with ARDUINO
- ▶ Learn how to use a digital vinyl cutter
- ▶ Learn to set up a 3D printer

NETWORKS

- ▶ The **IUT LAB** is supported by IO Connect, a company specialised in smart objects and the exclusive operator of Sigfox technology in the Indian Ocean region.



RUN FAB LAB

Fab Lab assisting local stakeholders

→ www.runfablab.re

👤 Director : **Daniel MEMBRIVES**

👤 Fab manager : **Thierry GABET**

✉ contact@runfablab.re

☎ +262(0) 262 56 62 11

☎ +262(0) 692 94 06 26

📍 18 Rue Albert Lougnon, Parc Technor
97490 SAINTE-CLOTILDE

Total annual budget (including payroll) :

230,200€

Total staff : 3

PRESENTATION

The **Fab Lab** has a multi-disciplinary approach with 6 fully-equipped technical facilities. It has also signed up to MIT's **Fab Lab** Charter.

Run Fab Lab caters for the general public and is especially geared towards the needs of companies and project developers.

The **RUN FAB LAB** venture received investment aid from the EU and Reunion Regional Council. It operates with the help of an target-based agreement with CINOR.

At the end of 2017, the number of members exceeded 130.

SERVICES PROVIDED

Run fab lab provides 3D printing and digitisation using a 3D scanner, produces printed circuit boards and electronic equipment, laser cutting of a range of materials, vinyl cutting, moto-saw cutting, digital milling, professional sewing and digital embroidery, robotics and domotics, drilling and shaping.

Prices are based on membership fees. See the "**tarifs**" (prices) section on the runfablab.re website for further information

OTHER ACTIVITIES

▶ Workshops for ability levels.

The **fab lab** aims to create DIY projects, such as jointly making of a cutting machine or a blister-pack machine, as well as fostering the concept of the "connected bee-hive".

NETWORKS

▶ The **fab lab** has signed an agreement with the Reunion Technopole association and ENSAM-R (National School of Architecture of Montpellier - Reunion)

▶ Exchange of experience with other **fab labs** in Reunion.





La Raffinerie
LA FRICHE ÉCO-CULTURELLE DE SAVANNA

LA RAFFINERIE

Ecological and cultural activity centre

→ www.LaRaffinerie.re

👤 Coordinator : **Julien GAILLOT**

✉ contact@les-rencontres-alternatives.com

☎ +262(0) 692 59 69 27

📍 **33 Rue de l'Eglise
97423 Le Guillaume**

PRESENTATION

La Raffinerie (The Refinery) is an environmentally responsible development project on abandoned land in the working-class district of Savanna in Saint-Paul, Reunion. The project brings together separate yet inter-dependent spaces and is an effective promotion and development tool on a local and regional scale. Circular economy, social economy, culture, sustainable development, ecological transition and biodiversity are key words that would be translated into actions and activities organised around different areas and themes.

La Raffinerie will provide information, training, activities and tools to help people improve their daily lives, while meeting current and future environmental needs.

ACTIVITIES

- ▶ **Workshops** : recycling centre (bikes, e-waste, paper), a Fab Lab for ecological design and the sale of equipment made from recycled objects. The workshops use mainly waste materials and respect the principles of the circular economy.
- ▶ **With artistic spaces** including an exhibition room, a "WALL" (an ephemeral exhibition area for street artists), workshop on publishing, workshop for artist residencies, outdoor set for open-air cinema and facilities for the performing arts and music and to allow an area of expression for local artists and creators.
- ▶ **A shop**, offers specialised books and a recycling section where products made from all the workshops will be on sale.
- ▶ **A dining room** with a café and a micro-brewery will be a place of meetings and exchanges and will contribute to the economic viability of the place.
- ▶ **A sports area** : climbing, skateboarding, petanque. The area will be run by various associations and will operate in different ways, with open access, instructors, training and courses.
- ▶ **Co-working** for micro-entrepreneurs in the circular economy, the social economy, culture and sustainable development. Co-working will take on a blended format, involving permanent staff, mobile workers and the administrative teams at La Raffinerie. An outdoor area will be used for breaks, meals and relaxation.
- ▶ **An urban micro-farm**, for production and training. The farm will have several aims : to grow fruit and vegetables for the restaurant, to provide a training centre (social inclusion and individual students) and a learning and outreach area for schools. The garden will also be accessible to people with reduced mobility and by utilising permaculture principles'.
- ▶ **Collaborative areas** with non-packaged groceries for sale, an "amapéi" and an "amacca" (cultural baskets). These spaces located on a single open-air site, with buildings and containers that generate their own power and have ecological sanitation facilities. The principle of sharing will be in place and a volunteer commitment of 3H per month per member will be set up.
- ▶ **A events area** will provide a venue for trade fairs, special events, conferences or exhibitions. The surface will be flexible thanks to mobile partitions to adapt to requests. All the necessary equipment will be available : lighting, furniture, video projector, etc.
- ▶ **Local activities** will help forge links between the district and La Raffinerie, with, for example, a food-processing laboratory / a honey farm, shared gardens, an open-air classroom, eco-tourism accommodation and an educational bee-hive.

PARTICIPANTS

The cooperative model has been chosen for a democratic approach, whereby partners, suppliers, project promoters or staff take part in important decisions for the project.

POTENTIAL PARTNERS

- ▶ Reunion Departmental Council (site owners)
- ▶ Municipality of Saint-Paul
- ▶ Saint-Paul Nature Reserve
- ▶ Reunion Regional Council
- ▶ TCO
- ▶ Ademe
- ▶ Social housing landlords
- ▶ Reunion Active
- ▶ Various foundations
- ▶ A range of private project promoters and associations





LE CARÉ

Business and networking hub

→ www.lecare.re

👤 Director : **Radji ARAYE**
✉ contact@lecare.re
☎ +262(0) 262 61 46 00
📍 **62 Rue Adrien Lagourgue**
97424 Le Piton Saint-Leu

Staff : 2

PRESENTATION

The **CARé** is a community of workers, freelancers, entrepreneurs, companies and associations from all different professions, particularly in construction, property and innovation, and all participating in a collaborative space where they come to work, meet, train, exchange and share their experiences.

The **CARé** is primarily a place for talking and sharing, where people work together to develop sustainable, innovative and collective projects. The **CARé** has forged its network by generating synergies between members, with the help of some 100 companies and freelancers, and regular events, such as **PitchOCARé**, focus on the skills and dynamism of members and partners to develop exchanges of services and skills and form new partnerships.

SERVICES PROVIDED

Our co-working space offers members a range of services to develop and organise their professional activity :

- ▶ an **Open Space** for co-workers in a calm and pleasant setting with excellent facilities (wifi, telephones, printers, etc.).
- ▶ **fully-equipped meeting rooms** (wifi, video projector, flip charts) for lessons, meetings, workshops or seminars.
- ▶ a **company registered address service** to meet entrepreneurs' basic needs (a recognised address, reception and distribution of your mail) that is also exempt from property tax on companies.

OTHER ACTIVITIES

Building on the success of **PitchOCARé**, for various "pitchers" will present their business and talk to specialists in their work areas. Several events will be launched to match the interests of freelancers in the region :

- ▶ The "**bilan CARé**" (CARé review) will take place three times a year. It grants new **members**, as well as entrepreneurs in Reunion, will be granted the opportunity by experts to review their workplan (in consulting, accounting, business coaching, communications, property, auditing, funding, administration, public markets, subsidies). By offering participants a comprehensive and efficient expertise to address their respective problems, we want to provide them with all our support to develop their professional activities.
- ▶ The "**thematic workshops**" will take place monthly and are based on a chosen theme. The workshops will be presented by professionals in our co-working space and will address challenges and questions raised by changes in their professional environments. The idea is to highlight innovative initiatives and provide our members with a broad overview of new practices on a given subject.

NETWORKS

We also have a network of experts and partners (accounting, administration, property, legal advice, consulting, communications) available to help our members build and develop their projects at special rates.



PRESENTATION

Le Transfo - a co-working space run by the Digital Economy International Innovation department of the Reunion Chamber of Commerce. It provides digital and innovation players with 15 work areas in an open space, along with six individual furnished offices.

- **Target audience** : Project promoters, small businesses in the digital and innovation sector.
- **Participants** : REGIONAL COUNCIL | NEXA | Technopole | Qualitropic | Digital Reunion | WEBCUP ...

SERVICES PROVIDED

- ▶ **Working space** rental- Open Space
- ▶ **Office rental**
- ▶ **Meeting rooms** and/or classrooms with a video conference system for rent

This shared work space is accessible 24 hours a day. Security badges. High-speed, fibre optic broadband connection.

- ▶ **Events / workshops / conferences**

OTHER ACTIVITIES

- ▶ **Private services**

NETWORKS

- ▶ NEXA | TECHNOPOLE | QUALITROPIC | DIGITAL REUNION | WEBCUP

LE TRANSFO Co-working space

→ www.letransfo.re

👤 Digital Economy Director at the International Innovation Centre :
Sophie JEANNETTE

✉ sophie.jeannette@reunion.cci.fr

👤 Manager : **Isabelle EPIVENT**

✉ isabelle.epivent@reunion.cci.fr

✉ letransfo@reunion.cci.fr

☎ +262(0) 262 33 15 55

📍 ZAC OI - 35 Route de la Soie
Résidence Dina Margabin
Terre Sainte 97410 SAINT-PIERRE

Total annual budget (including payroll) :

€251,600

Total staff : 2





VILLAGE BY CA Reunion

→ <https://www.levillagebyca.com/fr/village/la-reunion>

👤 Director : Elisabeth PEGUILLAN
✉ elisabeth.peguillan@levillagebyca.com
☎ +262(0) 262 72 39 01
📍 6 Rue Maurice Tomi - Parc Technor
97490 SAINTE-CLOTILDE

Staff : 2

PRESENTATION

The **Village By CA Reunion** is an all-embracing ecosystem devoted to business creation and innovation for young entrepreneurs.

- **Target audience** : start-ups / small businesses
- **Participants** : members : Crédit Agricole and the Village By CA partners

DESCRIPTION OF FINANCIAL INSTRUMENTS

- ▶ Launch phase funding during the **innovation** process
- ▶ **Eligibility** : for innovative businesses in the process of being set up (project promoters, individuals) or new firms (legal entity)
- ▶ **Grant aid**

BUSINESS REVIEWS

- ▶ **No. of projects supported** : 22 since September 2016
- ▶ **Total grants allocated** : €311,000 since September 2016

NETWORKS

- ▶ All local innovation network can apply for funding
- ▶ Network of **49 Crédit Agricole branches** in contact with the bank's **250,000 customers** and potential beneficiaries



PRESENTATION

LIZINE is a network of spaces for co-working and exchange, open to the general public.

Specially designed for freelancers, project promoters and temporary workers. Co-working spaces is available over Reunion, in La Mare business district in Sainte-Marie, the Savanna business district in Saint-Paul and at Grand Bois, in Saint-Pierre.

SERVICES PROVIDED

- ▶ Private furnished offices for rent from 1/2 day to one month
- ▶ Open-space work stations for rent from 1/2 day to one month
- ▶ Meeting rooms with facilities for hire

OTHER ACTIVITIES

- ▶ Registered company address scheme
- ▶ Themed events

NETWORKS

- ▶ Reunion Technopole | Qualitropic competitiveness cluster | Medef | CPME | Job Centre | Digital Reunion, etc.

LIZINE BY CBO TERRITORIA

→ www.lizine.com

👤 Manager : **Emilie TAOCHY**

✉ etaochy@cboterritoria.com

☎ +262(0) 262 61 60 60

📍 **Cuves de La Mare 2 - Bâtiment C**

**30 Rue André Lardy
97438 SAINTE-MARIE**

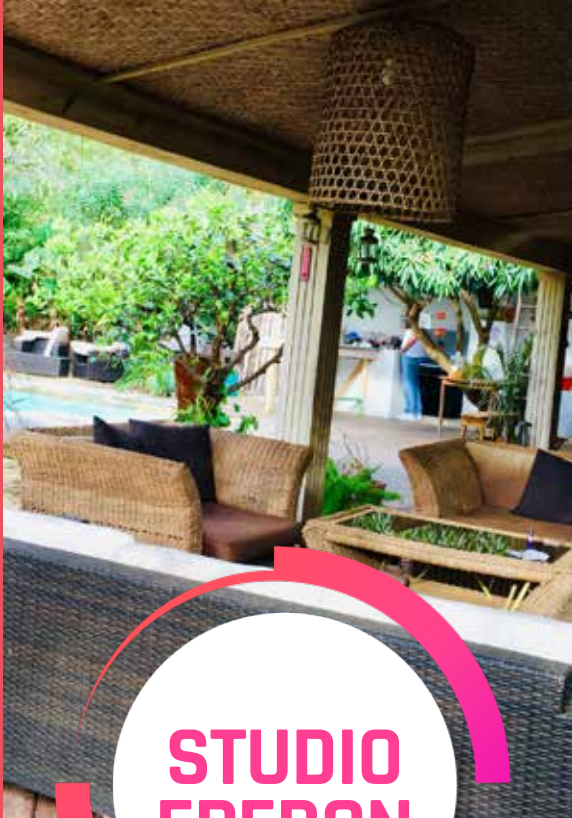
📍 **Centre d'affaires Savanna**

**Bâtiment A
14 Rue Jules Thirel
97460 SAINT-PAUL**

📍 **Grand Bois**

**249 Avenue du Général de Gaulle
97410 SAINT-PIERRE**





STUDIO EPERON

STUDIO EPERON

→ <https://www.facebook.com/studioeperon/>

👤 Manager : **Mathieu ALONSO**

✉ studioeperon@gmail.com

☎ +262(0) 693 60 48 24

📍 105 bis Chemin Eperon,
97435 SAINT GILLES LES HAUTS

PRESENTATION

Nature of activity : luxury co-working space

Target audience : Media - Audio-visual sector - Photography - Marketing - Advertising - Personal development

SERVICES PROVIDED

Work space available

- ▶ 4 private offices for 2 to 6 people
- ▶ An inner open space for up to 5 people
- ▶ An exterior open space for up to 6 people
- ▶ A meeting room in a bungalow, separate from the main building, for up to 7 people
- ▶ A kitchen area (fridges, oven, gas stove, microwave, dishwasher)
- ▶ An outdoor area with garden furniture and barbecue
- ▶ Relaxation areas in a mezzanine or outside, next to the swimming pool
- ▶ 100Mbs/20 pro wifi connection (with fibre optic broadband)

2018 Prices :

- ▶ Private offices : 550 to 950 euros per month
- ▶ An area in the open space facility : 290 euros per month - 90 euros per week

Tenants sign a lease agreement with the lender.

OTHER ACTIVITIES

During the weekend, the outdoor area is aimed at organising various activities : **cooking, wellness, corporate events** (receptions, product launches, etc.) for up to 50 people.

NETWORKS

- ▶ The objective of the co-working and events space is to provide a synergy between start-ups in Reunion in the Media | Marketing | Advertising | and Events Planning sectors.







Funders

- 164 **ACG MANAGEMENT** - Investment fund management company
- 165 **ADIE** - Association for the right to economic initiative
- 166 **FRANCE ACTIVE REUNION** - Movement for socially responsible entrepreneurs
- 167 **INITIATIVE REUNION ENTREPRENDRE** - Association financing company creation
- 168 **KAPOC** - Reunion investment fund for community benefit projects
- 169 **POCPOC** - Reunion crowdfunding website





ACG MANAGEMENT

→ www.acg-management.fr

👤 Executive Director : **Gilbert MARTIN**

✉ gmartin@acg-management.fr

☎ +262(0) 262 21 43 52 (*front desk*)

☎ +262(0) 262 51 75 57 (*direct line*)

📍 **34 Rue Sainte Anne**
97400 SAINT-DENIS

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Total staff : 3

PRESENTATION

ACG Management (formerly Viveris Management), a management company authorised by the Financial Market Authorities, was set up in 2000 and helps to manage institutional investment funds in Reunion. ACG Management is based in Marseille with specialist teams in Marseille, Paris, Ajaccio, Bastia, Tunis and Saint Denis.

DESCRIPTION OF FINANCIAL INSTRUMENTS

The FPCI (formerly FCPR) is an investment tool enabling investors to purchase capital in companies, so that firms can be launched, developed or transferred to new owners in stable financial conditions. The goal is to consolidate the equity of local companies in the representative sectors of the regional economy. FPCI investments are made in the form of minority holdings in company capital or as convertible bonds.

ACG Management manages the institutional investment fund policy in Reunion, including 2 FCPIS :

- ▶ **RUN DEVELOPPEMENT** : This 10.8M€ fund specialises in small businesses with turnovers between 0 and 3M€, in the launch and development phases.
- ▶ **RUN CROISSANCE** : 19.4M€ for small to medium-sized firms not listed on the stock exchange and with turnovers between 3M€ and 50M€, during development or hand-over phases.

BUSINESS REVIEWS

The overseas territories capital development unit of ACG Management :

Data record (on 31/12/2017)

- ▶ **€88 M** raised and managed in the overseas territories since the unit was set up in 2000
- ▶ **7 funds** launched for French overseas territories and 2 management mandates
- ▶ **Over 30 companies** in the French overseas territories portfolio
- ▶ **General funds** : Industry, Services, ICTs, Biotechnology, Energy/Environment, Industrial Goods & Services, etc.

ACG Management has over 892M€ in stock rights. The company has already financed over 350 small businesses as minority shareholders in all French regions, in overseas territories and around the Mediterranean basin.

NETWORKS

ACG Management has subsidiaries in Noumea and Tunis.

The fund's institutional partners include BPI France | French Development Agency | Reunion Regional Council | Crédit Agricole | BPCE | SFI | Amundi | BFC | ATB Tunis | Attijariwafa Bank Morocco | Réunion Pension Fund | Crédit Mutuel ARKEA



ADIE

Association for the right to economic initiative

→ www.adie.org

👤 Regional Director : **David GONDONNEAU**

✉ reunion@adie.org

☎ +262(0) 262 55 11 14

📍 27 Rue du Butor
97400 SAINT DENIS

Total staff : 519 employees (20 employees in Reunion)

PRESENTATION

Adie is a registered public-interest association. It helps people without access to the banking system to set up or develop their business ventures with micro-credit.

It was founded in 1989 by Maria Nowak, who adapted Grameen Bank microcredit to the French context. Adie has been operating in Reunion since 1994. In 25 years, Adie has injected over 50 million euros into the local economy and helped create or safeguard an average of four jobs a day.

Adie's aims are :

- **To finance** micro-entrepreneurs without access to bank loans through micro-credits
- **To support** business creators before, during, and after the launch of their companies
- **To help** improve the institutional environment of microcredit schemes and company creation

With rising unemployment, Adie is campaigning to make microcredit and support for company creation a recognised tool in employment policy, in economic development and social inclusion.

DESCRIPTION OF FINANCIAL INSTRUMENTS

▶ **Financing of professional microcredit** : financing for all needs (equipment, stock, vehicles) all types of activity (retailing, artisans, building, services) and all kinds of companies (freelancers, limited companies, etc.)

Amount : €12,000 for up to 48 months

▶ **Guarantee** : a person to act as guarantor for half of the loan or a deposit of 25% of the amount

▶ **Access to additional subsidies** : non-collateral loan, local subsidies (subject to conditions)

▶ **Professional insurance** adapted to the needs of microentrepreneurs, to work safely and in addition to the microcredit funding

▶ **Professional multi-risk insurance with premises** (protection of premises, goods and equipment)

Amount : €310 per year for 10 months

▶ **Professional multi-risk insurance without premises** (protection of goods and equipment)

Amount : €200 per year for 10 months

▶ **Professional Liability Insurance** (civil liability and professional use)

Amount : €120 a year for 10 months

Amount : €80 a year for non-mobile retail activity at fairs and markets

BUSINESS REVIEWS

▶ Number of projects funded : **1499 people** funded in 2017, including **845 entrepreneurs**

▶ Total amount lent in 2017 : **€8,918,116**

▶ Average amount per project : **€8000 per company**

▶ Outstanding microcredit : **€15,365,800** (on 30/05/2018)

NETWORKS

European Micro-finance Network | FINANSOL (a group representing the social-financing sector).





FRANCE ACTIVE REUNION

→ www.franceactive.org/

👤 Director : **David PIGASSE**

✉ reunion.active@yahoo.fr

☎ +262(0) 262 72 17 27

📍 **10 Rue Champ Fleuri
97490 SAINTE-CLOTILDE**

Total staff : 10

PRESENTATION

France Active Reunion represents the socially responsible national entrepreneurs organisation, **France Active**

France Active Reunion allows entrepreneurs to invest in projects with a positive impact. The challenge for socially responsible entrepreneurs is to set up a business and to work in their regions, give a meaning to their projects and to transform society.

To meet their needs, **France Active Reunion** advises entrepreneurs by funding projects and providing a unique access to economic and social operators.

Every day, **France Active Reunion** works to create a fairer society through economy.

DESCRIPTION OF FINANCIAL INSTRUMENTS

- ▶ **In stages during the innovation process** : from the initial idea to development, restart or a change in scale (excepting R&D period, from the pre-sales phase)
- ▶ Amount : from €5,000 to 1 million euros
- ▶ Professional funding solutions : **Social loans - guarantees on bank loans - subsidies**
- ▶ **For socially responsible entrepreneurs**, including social economy operators (associations, cooperatives), self-starters (unemployed, on temporary contracts, part-time), entrepreneurs in priority or vulnerable areas, business sectors promoting the common good (environment, disability, sustainable development)
- ▶ **Sectors of activity** with a guarantee of good standards
- ▶ **Intensity**

BUSINESS REVIEWS

- ▶ Number of projects supported : in 10 years, **France Active Reunion** has supported over 800 projects or companies with an average of **about 100 projects a year**
- ▶ Total amount : this represents a total of **17 million euros** injected into the local economy
- ▶ Average amount per project : **25K€ to 30K€**

NETWORKS

France Active Reunion works with sustainable entrepreneurs on a daily basis.

We organise or facilitate our work **along with other operators in the business creation network** : CCIR-CMAR chambers of commerce & chamber of agriculture | Local banks and micro-financing bodies (Initiative Réunion | ADIE | IMF | CREASOL), CROEC Experts Accountants and auditors | Technopole North & Techsud | URSIAE.

We are on the board of the **CDIAE** and members of the **management board for beneficiary associations** and for social inclusion operators (missions locales | Job centres).

We respond to requests from **institutions** (DIECCTE, DAC OI, CAF, Regional Council, Chamber of Commerce, Departmental Council), **local authorities** (towns and inter-communal bodies on the island), and **professional federations** (MEDEF | CPME).

Our other partners : CER France | CAPAB Social Economy Centre | CRESS | Job centres (North and South), Cité des Métiers | Nexa | IRTS | EMAP.

Our network mainly comprises companies, cooperatives and associations. We support them through our funding solutions, the DLA local support measure or by networking in all fields of activity and throughout the region.



INITIATIVE REUNION BUSINESS DEVELOPMENT

→ www.initiative-reunion.fr

👤 Director : **Dominique SERY**
✉ contact@initiative-reunion.fr
☎ +262(0) 262 55 26 44
📍 6 bis, Route de Savanna
Immeuble Chane Chu
97460 SAINT-PAUL

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Total staff : 10

PRESENTATION

Initiative Reunion is a non-profit organisation committed to financing Reunion entrepreneurs' projects and to helping them get their business adventure off to a strong start. It aims to make a big contribution to the local economy by providing very small and small enterprises (the economic lungs of the island) with technical and financial support. Collateral-free or interest-free loans enable project promoters to launch their activity as well facilitating access to an additional bank loan by boosting their own finances.

DESCRIPTION OF FINANCIAL INSTRUMENTS

- Loan of Honour **Business creation**
- Loan of Honour **Takeover/transfer**
- Loan of Honour **Growth**
- Loan of Honour **Innovation** (with no obligation for support from banks)
- Loan of Honour **Alizé Réunion**
- Loan of Honour **Outstanding**

BUSINESS REVIEWS

- ▶ Number of projects financed : **137 companies financed**
- ▶ Number of loans made : **162**
- ▶ Total amount of loans made : **€2,392,231**
- ▶ Total amount of related bank loans : **€8,678,409**
- ▶ Average loan per project : **€14,766**

NETWORKS

Initiative Reunion is one of 223 local support and funding associations helping to create companies in France. It is a member of the Initiative network. Network members all share strong common features. They share the values of solidarity and trust, as well as the principles outlined in the network's ethical charter.

Data record (on 31/12/2017)

- ▶ **Leading non-profit network** for support and funding
- ▶ **43,128 jobs** created or safeguarded
- ▶ **16,416 companies** created or transferred with **773 innovative firms**
- ▶ **€185 M** of collateral-free loans granted





KAPOC

Reunion investment fund for community benefit projects

→ www.kapoc.re

👤 President : **Jacques TIREL**

✉ contact@kapoc.re

☎ +262(0) 692 23 18 53

📍 41 Rue Felix Guyon
97400 SAINT-DENIS

Total staff : 0.1 FTE (staffed by volunteers)

PRESENTATION

SAS KAPOC is a capital investment fund for start-ups and existing firms in Reunion, with the Solidarity and Social Company label. It invests in projects that are part of an intelligent, considered and sustainable development approach for our island. Shareholders include the company's founders, the Collège Coopératif de La Réunion association, members of staff, investors (individual and group), as well as companies in which investment has been made.

DESCRIPTION OF FINANCIAL INSTRUMENTS

- ▶ Provision of own equity (minimum 10,000€)
- ▶ Provision of capital
- ▶ Contributions from associates

BUSINESS REVIEWS

- ▶ Number of projects supported : 2 cooperative companies
- ▶ Total : 40,000€
- ▶ Average amount per project : 20,000€



POCPOC

LE CLAN

→ www.pocpoc.re

👤 Référent : **LE CLAN**

✉ contact@pocpoc.re

☎ +262(0) 692 23 18 53

📍 41 Rue Felix Guyon
97400 SAINT-DENIS

Total staff : 0 (developed by volunteers)

PRESENTATION

www.pocpoc.re was launched in February 2014 and is the first (and now the only) crowd-funding website in Reunion. The site collects donations for projects that are part of intelligent, considered and sustainable development approach in Reunion.

DESCRIPTION OF FINANCIAL INSTRUMENTS

- Crowdfunding donations
- At any time in the life-cycle : from the first project idea to the development phases
- Amount : generally below 10,000€
- Value : donations can be used to raise funds, but also to test out ideas on the market
- It perfectly complements all the financial instruments on the market
- Highly flexible (a bank account is all you need - no legal status required)

BUSINESS REVIEWS

- ▶ Number of projects supported : 59 campaigns launched (9 ongoing as of 06/06/2018)
- ▶ Total : 90,000€ collected
- ▶ Average amount per project : 2,100€





Support structures and services



- 172 **AD2R** - Reunion Rural Development Association
- 173 **BOUTIQUE DE GESTION** - Support in business set-up
- 174 **CB TECH BY CYROI** - Incubator for companies in the life-sciences sector
- 175 **CIRBAT** - Tropical construction, innovation and research centre
- 176 **CITEB** - Technical center for research and valorization of aquatic environments
- 177 **CRITT RÉUNION** - Regional Centre for Innovation and Technological Transfer
- 178 **E-SANTÉ TESIS** - Indian Ocean eHealth incubator network
- 179 **ILE DE LA RÉUNION TOURISME** - Regional Tourism Board
- 180 **MESS CAPAB** - Centre for the Social and Solidarity Economy
- 181 **NEXA** - Regional Agency for Development, Investment and Innovation
- 183 **QUALITROPIC** - Tropical bioeconomics competitiveness cluster
- 185 **REUSIT** - Business and project incubator
- 186 **REUNION TECHNOPOLE** - Regional science park





AD2R

Reunion Rural Development Association

→ www.ad2r.re

👤 Director : **Françoise WONG PIN**

✉ francoise.wongpin@ad2r.re

✉ contact@ad2r.re

☎ +262(0) 262 92 14 00

📍 3 Rue Papangue

97490 Sainte-Clotilde

Staff : 17

Members : 33

PRESENTATION

The Association's work focuses on the following areas :

- **Regional planning and development**
- **Territorial development expertise**

AD2R contributes to overall development (economic, social, environmental and cultural) in Reunion by encouraging local inhabitants to participate in their own development and in the development of society at large. Their contribution to regional planning strategies, to wealth creation, to forging social links through the emergence and development of various projects especially by encouraging innovation, constitutes the basis for sustainable development, based on the richness and diversity of local cultures.

ACTIVITIES

The association seeks to :

- ▶ **Develop** information, discussion, dialogue and take-up of projects by as many participants as possible
- ▶ **Support and advise** project promoters, mainly in a rural setting
- ▶ **Register** its initiatives as part of regional policy
- ▶ **Develop** training for a wide-ranging public
- ▶ **Extend** its activities beyond the island, in line with its aims

NETWORKS

Partnership as part of the implementation of activities :

- ▶ Highland Regional Initiatives : **Mountain and Sea Centre**
- ▶ Broadening the skills of rural communities : **CAE Energie Alternatives**
- ▶ LEADER Programme - Local Action Group FOR the East : **CIREST**
- ▶ LEADER Programme - Local Action Group for the Northern Highlands : **CINOR**
- ▶ LEADER Programme - Local Action Group for the Western Highlands : **TCO**
- ▶ Business creation support (AFE/Region) : **CAE, RUN SCOP, CREASOL**

BOARD STRUCTURE

Governance : representatives of rural society, associations, economic players, representatives from bodies contributing to rural development

President : Jean-Flore BARRET

Members : a Board with 11 members (from civil society)





BOUTIQUE DE GESTION

Support in business set-up

→ www.bge974.fr

👤 Director : **Christine VILAR**

✉ contact@bge974.fr

☎ +262(0) 262 41 25 71

📍 **47 Rue Maréchal Leclerc
97400 Saint Denis**

Staff : 8

No. of members : 211

PRESENTATION

ADEL BGE La Reunion is an association helping entrepreneurs to set up businesses in Reunion.

Our missions :

- ▶ To welcome project promoters
- ▶ To provide administrative support (appropriate for person-project, market study, funding and choice of legal status)
- ▶ To provide follow-up support after the launch (company business diagnosis, definition of action plan and monitoring of actions)

Our main audience :

- Job seekers
- Young people
- People on minimum allowances
- Disabled workers
- Subsidised work contract-holders

ACTIVITIES

ADEL BGE Reunion also aims to welcome, support and accompany creators of social enterprises (social-enterprise companies, intermediary associations, medium-sized businesses) and develop new sectors (guava wood, nursery assistants' houses).

Number of supported projects :

2016 ▶ Applications : 1631 | Support : 1047 | Follow-up support : 531

2017 ▶ Applications : 1607 | Support : 1152 | Follow-up support : 495

PARTICIPANTS

The association is financed by :

- ▶ The European Social Fund (ESF)
- ▶ Companies, Competition, Consumption and Employment Department (DIECCTE)
- ▶ Reunion Departmental Council
- ▶ Association Managing Funding for Professional Insertion of Disabled People (AGEFIPH)

PARTNERSHIPS

Member of BGE (Boutique de Gestion) | National Network in support of entrepreneurs | Points Chances Network





CB-TECH BY CYROI

Biotech business incubator

→ www.cyroi.fr

👤 Director : **Christian MERIAU**

👤 Manager : **Vény TIRVASSEN**

✉ v.tirvassen@cyroi.fr

☎ +262(0) 262 93 88 44

📍 2 Rue Maxime Rivière
97490 Sainte-Clotilde

Staff : 4

PRESENTATION

CB-TECH business incubator seeks to :

- ▶ identify innovative life science and biotechnology projects
- ▶ support start-ups or young entrepreneurs by giving them access to the GIP CYROI technical support centre
- ▶ establish contacts between these individuals and organisations in the Research, Development and Innovation ecosystem (NEXA, Qualitropic, Chamber of Commerce, Incubateur, Digital Reunion, Village by CA)

Hosting several enterprises : visit www.cyroi.re

- ▶ **In 2019, its capacity doubled with the help of the CUBE.** A new building is currently being built, the technical facility is linked to the CYROI and give structure to biotechnology start-ups allowing them to stay within the facilities up to eight years (4 years in the business incubator, 4 years in the business centre).

SERVICES PROVIDED

- ▶ **Administrative services** : support in the project's inception activities, I.T. maintenance, mail services, access to meeting rooms, faxes, telephones, conference calls, printers, internet, server and computers
- ▶ **Financial services** : project viability study, search for funding, development of a business plan, assistance in setting-up funding applications (banks, public subsidy, investment funds), study of the financial structure, economic analysis
- ▶ **Taxation** : R&D services eligible for research tax credits (CIR), tax benefits for new companies
- ▶ **Communication** : visual identity, website, communications tools, community networks
- ▶ **Marketing** : market studies, innovation marketing
- ▶ **Strategy** : strategies for company growth (locally or internationally), strategic diagnosis

POSITIONING IN THE INNOVATION CHAIN

- **Description** : Business Incubator / NF X50-770 Standard
- **Sectors** : Biotechnology - Life sciences



CIRBAT

Reunion tropical construction, innovation and research centre

→ www.cirbat.re

👤 Director : **Alçay MOUROUVAYE**

✉ cirbat@cma-reunion.fr

☎ +262(0) 262 58 87 90

📍 **URMA BTP - Rue Comorapouille
97440 SAINT-ANDRÉ**

Total annual budget (including payroll) :

€500,000

Total staff : 7.5 FTE

PRESENTATION

CIRBAT's activities are designed to adapt building materials and practices, as well as prevailing standards in the construction industry, to tropical constraints allowing small businesses to access to the local materials and human resources required to innovate technically and to produce new products through an integrated approach to sustainable development.

CIRBAT seeks to provide to stakeholders in construction with a coherent and relevant offer in terms of technical studies, shared knowledge, technical training and support for innovation.

Facilities

- ▶ **LEM** : Laboratory for Joinery Tests
contact : Willy.nalatiapoulle@cma-reunion.fr
- ▶ **LVM** : Laboratory for Material Ageing
contact : Frederic.chanfin@cma-reunion.fr
- ▶ **ORLAT** : Regional Anti-Termite Observatory
- ▶ **NF EN ISO 17025 STANDARD-COMPLIANT LABORATORIES** AEV test bench linked to the COFRAC assessment chain
- ▶ **MATRICE** : Mission for Technical, Research, Innovation, Certification and Environment

SERVICES PROVIDED

Innovation appraisals

- ▶ **CAP'INNOVATION** : Support Contract for Innovation Projects : technical support for companies to develop products and techniques adapted to tropical contexts
- ▶ Standardised tests (ORLAT, LEM, LVM)
- ▶ Technical assistance : innovation, certification, environment, etc.
- ▶ Technical training
- ▶ Certification, standards

NETWORKS

- ▶ Chamber of Trades
- ▶ Innovation centre network
- ▶ Professional organisations
- ▶ Technical centres - Laboratories- Universities : FCBA, | CSTB | PIMENT Laboratory | ESIROI - CODE | CIRAD, | CESI | CAUE-EnviroBAT, etc.
- ▶ Administrations | Standardisation bodies (AFNOR, CEN, ISO, SBS)

INNOVATION PROCESS ACTIVITIES :

Generation | Detection | Qualification | Emergence | Development | Monitoring





CITEB

Technical center for research and valorization of aquatic environments

→ www.citeb.re

👤 **Presidence : Nexa represented by Gaston BIGEY**

✉ contact@citeb.re

☎ +262(0) 262 20 21 21

📍 **62 boulevard du chaudron
BP 60030 - 97491 Ste-Clotilde**

Total staff : 7

PRESENTATION

Technological resource centre for aquaculture, fishing, marine biotechnologies, risks assessment and environmental impacts through :

Missions

CITEB supports the development of the blue economy field in La Réunion, in strong coordination with academic, economic and public stakeholders, through :

- ▶ the design and promotion of aquaculture and aquaponic systems
- ▶ the development of biotechnology projects from micro-algae (phytobank, detection of active compound, support to private stakeholders)
- ▶ the support to local fishing activities through R&D programmes, expertises, trainings, advisory services
- ▶ knowledge development on the conservation and valorisation of aquatic habitats (R&D projects, expertise, technical support)
- ▶ the analysis of biotoxins and sea water quality

SERVICES PROVIDED

- ▶ Tailor made services and support for R&D projects
- ▶ Analysis, tests, on-site measurement
- ▶ Information and promotion : technological watch, company visits
- ▶ Training services for regional stakeholders

INFRASTRUCTURE

Humid technical platform based in Le Port Ouest for experiments in controlled zones (basins of 1 to 50m³, laboratories, and training area).

A microalgae phytobank and laboratories hosted by the CYROI in Sainte-Clotilde

NETWORKS

Local partners : University of La Réunion | UMR Entropie | UMR Marbec | Kélonia | Globice | APLAMEDOM | CRITT | Institut bleu | Cluster maritime | Qualitropic | CYROI

National : IRD | Ifremer | Cirad | IRTA | Institute Malardé | IAEA | Cedre

Indian Ocean : Darwin Aquaculture Centre (Australia) | IHSM (Fisheries and Marine Sciences Institute, Madagascar) | INAQUA (Mozambique) | Albion Research Centre (Mauritius)

International : University of Virginie Tech (USA) | Scientific Networks | CTOI | WIOMSA | GdR Phycotox



CRITT REUNION

Regional Centre for Innovation and Technological Transfer

→ www.reunion.cci.fr/innovation

👤 Director of Digital Economy
International Innovation Centre :

Sophie JEANNETTE

👤 Manager : **Alain CERVEAUX**

✉ sophie.jeannette@reunion.cci.fr

✉ alain.cerveaux@reunion.cci.fr

✉ critt@reunion.cci.fr Reception/Assistant

☎ +262(0) 262 92 24 00

📍 **TECHNOR - 3 Rue Serge Ycard
97490 Sainte-Clotilde**

Total annual budget (including payroll) :

€1,164,700

Staff : 8

PRESENTATION

The **CRITT** is part of the International Innovation Digital Economy department at the Reunion Chamber of Commerce (CCIR). It has been given the "**Centre of Technological Resources**" (CRT) label by the French research ministry.

▶ **The Reunion Regional Centre for Innovation and Technology Transfer (CRITT Reunion)** provides support for firms through consulting, strategic information and technical experimentation.

Target audience

▶ Project promoters, small/medium-sized companies

Participants

REGIONAL COUNCIL | D2RT | NEXA | ESIROI | CIRBAT | ADEME | AFNOR | ARIST | INPI | ACTIA | Technopole | Qualitropic | REGION | NEXA | ADEME | ESIROI | TECHNOPOLE | QUALITROPIC | IUT | CMA (Chamber of Professions and Trades) | CIRAD | QualiREG | AFNOR | ACTIA | INPI | LNE | CRITT Agroalimentaire La Rochelle

SERVICES PROVIDED

▶ **Support for project promoters**, small businesses through consulting in technological development, strategic information, accessible expertise and concrete solutions in the fields of metrology, the food industry, intellectual property and strategic monitoring, Quality Safety Environment (QSE) and project engineering.

▶ Consulting in technological development

▶ Ecological design

▶ Strategic and technological information

▶ QSE

▶ Development of food products

▶ Food safety

▶ Mass and temperature standardisation

▶ Environmental chamber testing

▶ Sensory analysis

Price-setting

▶ Private services

OTHER ACTIVITIES

▶ **Private services**

Facilities

▶ Document resource centre for standards and patent rights

▶ COFRAC accreditation n° 1-1792-certified sensory analysis laboratory

▶ Metrology laboratory with COFRAC accreditation : n° 2-1455 (mass) and n° 2-5584 (temperatures)

▶ R&D food laboratory

▶ Rapid prototyping laboratory

NETWORKS

NEXA | TECHNOPOLE | QUALITROPIC | DIGITAL REUNION





TESIS
E-SANTÉ

E-SANTÉ TESIS

→ www.tesis.re

👤 Director : **Antoine LERAT**

✉ a.lerat@tesis.re

☎ +262(0) 262 77 01 00

📍 **Ruche e-santé,**
14 chemin des Anglais
97420 LE PORT

Staff : 23 employees

Members : 41

PRESENTATION

Operational application of the digital public health policy in Reunion and Mayotte, with funding supported by the Indian Ocean Regional Health Agency.

SERVICES PROVIDED

E-health

- ▶ Construction and administration of a shared regional IT system for healthcare professionals
- ▶ Guaranteeing security of data transmitted by the IT system
- ▶ Developing a range of digital services based on the IT system
- ▶ Delivering these services to healthcare professionals and support their sustained use

Innovation in e-health

- ▶ Premises available - **The e-health hive** - subject to conditions
- ▶ Standard references and documents for patients and professionals can be made available for the local ecosystem

NETWORKS

For Innovation aspects, the **GCS TESIS** works to support the FrenchTech network and for the HealthTech Island label in Reunion, as a member of Digital Reunion, particularly by making premises available (e-health hive) and associated skills.

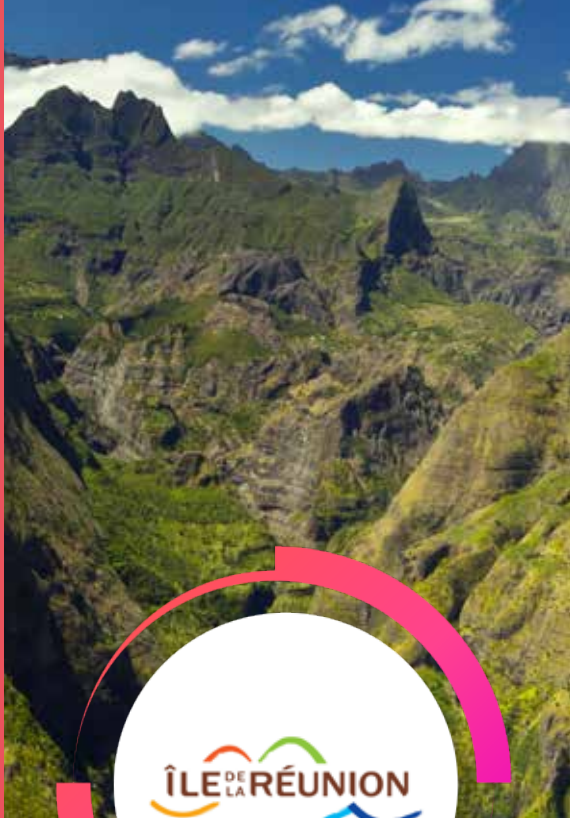
PARTICIPANTS

Governance

Administrator
Select committee
ARS OI
Members of GCS TESIS

Members

6 members associations
Hospitals and clinics
Profit-making hospitals and clinics
Non-profit hospitals and clinics
Self-employed professions
Health networks



REUNION ISLAND TOURISM

→ www.reunion.fr

✉ direction@reunion.fr

☎ +262(0) 262 90 78 78

📍 4 Rue Jules Thirel - Immeuble La
Balance, Bat B - CS 61087
97864 SAINT-PAUL CEDEX

Total annual budget (including payroll) :

€1,164,700

Staff : 75 permanent employees

Total staff : 97

Permanent contracts : 75 - Temporary : 10 - Adapted : 12

Members : 59 (General Assembly) - 239 (QTIR)

PRESENTATION

The association «**Reunion Island Tourism**» has for main purpose to contribute to the development and promotion of the tourism sector of the Réunion as a destination.

Competencies attributed to the Regional Tourism Committees (CRT) and the Departmental Tourism Committees (CDT).

OUR MISSIONS

► Promotion | communication | marketing | observation | structuring | support | coordination | planning, digitisation and e-tourism.

TARGET MARKETS

- French-speaking markets : France, Belgium, Luxembourg, Switzerland
- German-speaking markets : Germany, Switzerland, Austria
- African and Indian Ocean : South Africa, India, China, Mauritius, Seychelles

NETWORKS

IRT member in partners'	Partner networks	Promoted or co-promoted brands/labels
Destination Regions	Gîtes de France	Reunion Island Tourism / IRT
Tourisme & Territoires	Clévacances	Reunion the Ultimate Island
Atout France	AGGM	Explore (with FRT)
Vanilla Islands		QT / QTIR - PassKdo

BOARD STRUCTURE

Honorary members : 1

Ex-officio members : 46

Associate members : 11





MESS CAPAB

Social and Solidarity Economy Centre

→ <http://alie.re/economie-social-et-solidaire/>

👤 Director : **Stéphane DELAUNAY**
👤 Project Manager : **Sarah LAVINA**
✉ capab@alie.re
☎ +262(0) 262 93 39 30
📍 107 Rue Juliette Dodu
97400 SAINT-DENIS

Staff : 3

PRESENTATION

Support services for Social Economy project promoters

The **Centre for Application of Alternative and Biodiversity Projects** (CAPAB) is a local development centre.

SECTORS

- ▶ Social innovation
- ▶ Social projects, Sustainable development
- ▶ Social-project funding
- ▶ Local distribution
- ▶ Circular economy
- ▶ Fair Trade, ethical purchasing

ACTIVITIES

- ▶ Welcoming, informing and guiding project promoters
- ▶ Supporting social-economy projects
- ▶ Promoting experiments with innovative projects

NETWORKS

- ▶ CAE Alternative Energies -Dynamic Services
- ▶ REU.SIT incubator
- ▶ POC POC | Cooperative Association
- ▶ Reunion Active

BOARD STRUCTURE

The **Social and Solidarity Economy Centre** is supported by the Local Association for Inclusion through Economic Activity (ALIE)



NEXA

*Regional Agency for Development
Investment and Innovation*

→ www.nexa.re

👤 President & Chief Executive Officer :

Olivier RIVIERE

👤 Executive Vice-President :

Gaston BIGEY

✉ contact@nexa.re

☎ +262(0) 262 20 21 21

📍 62 Bvd du Chaudron - BP 60030
97491 SAINTE-CLOTILDE CEDEX

Staff : 27

PRESENTATION

Nexa, the regional agency guides the regional transformation toward an ecological, competitive and innovative economy, by organising and developing the ecosystem, supporting participants, developing flagship projects and international opportunities.

Missions

- ▶ Support the regional Council in the design and implementation of research, innovation and economic development policies
- ▶ Implement the regional Smart Specialisation Strategy
- ▶ Manage the regional economic observatory
- ▶ Support and funding of innovative projects
- ▶ Development of growth-generating projects promoting the circular economy and energy transition
- ▶ International promotion of Réunion

SERVICES PROVIDED

Raising awareness on innovation

- ▶ Coordinating the approach to « innovate Réunion»
- ▶ Organise thematic events related to entrepreneurship and innovation
- ▶ Promotion and training of Design thinking in the region
- ▶ Promotion of local capacities and initiatives

Supporting and funding projects

- ▶ Provide guidance to project leaders towards collaborators in the ecosystem
- ▶ Tailored support for entrepreneurs to develop and test their services with users
- ▶ Support the development of projects contributing to circular economy and energy transition
- ▶ Technical and economic expertise for innovative projects
- ▶ Support the growth acceleration program of companies
- ▶ Financial engineering services (business plans, identification of funding sources, fundraising assistance)
- ▶ Assist in detecting call for proposals and competitive European project development calls for projects (Horizon 2020)
- ▶ Equity investment in high-potential firms

Access to competitive EU funds

- ▶ Awareness raising on opportunities related to European programmes for the environment (LIFE), research and innovation (Horizon 2020)
- ▶ Monitoring of national and European calls for project
- ▶ Support in project development
- ▶ European partner search
- ▶ Promotion of capacity in Reunion



Global focus

- ▶ Design and develop communication tools to promote the region
- ▶ Organisation of themed forums and educational tours to boost the region's attractiveness
- ▶ Support to enterprises and promotion of the region through major local and international trade events

NETWORKS

- ▶ ERRIN | EURADA | EEN
- ▶ Business France | ADARI | CNER
- ▶ Agreements : CROEC | Qualitropic | University | Reunion Chamber of Commerce | AEFC | CYROI

BOARD STRUCTURE

- ▶ Local authorities : CINOR | Reunion Regional Council | TCO
- ▶ Reunion Chamber of Commerce | Ravate Professionnel | Sidélec Réunion | Suez RV Réunion





QUALITROPIC

Tropical bioeconomics competitiveness cluster

→ www.qualitropic.fr

👤 Director : **Jérôme VUILLEMIN**
✉ jerome.vuillemin@qualitropic.fr
☎ +262(0) 262 97 10 88
📍 **Quartier d'affaires La Mare**
Bâtiment B - La Turbine
4 rue André Lardy
97438 SAINTE-MARIE

Total annual budget (including payroll) :
€740 K

Total staff : 9

PRESENTATION

The centre fulfils three main missions that can be funded by the public authorities.

Missions carried out mainly for public authorities and including the following :

- ▶ developing, updating and monitoring the centre's strategy
- ▶ certification for collaborative R&D projects
- ▶ reporting activities required by the public authorities
- ▶ missions carried out by the centre on specific request from the French government or regional authorities, to take part in public policy-related projects

Missions to foster innovation, research and collaborative development between companies and laboratories, or initiatives related to :

- ▶ the development of new R&D projects and support of projects, leading to the launch of new products innovative services and processes launched on the market
- ▶ formal recognition of support for other R&D projects
- ▶ organisation of the community of centre members
- ▶ participation and organisation in the centre's joint initiatives

Support missions for member companies to provide a favourable environment for their growth and to help implement findings from R&D projects

- ▶ support for innovation
- ▶ initiatives promoting links with training operators
- ▶ international initiatives and international development of centre members

Initiatives are developed additionally to services provided by other participants in the ecosystem for firms in the centre's local area. These initiatives may involve all members of the centre or be organised on a more individual basis, for a small number of members.

Sectors

- ▶ Sugar cane
- ▶ Fruit and vegetables
- ▶ Aromatic, medicinal perfumed plants
- ▶ Horticulture and other plant production
- ▶ Fishing and fish farming
- ▶ Livestock farming
- ▶ Timber
- ▶ Microalgae
- ▶ Food industry
- ▶ Health and wellness
- ▶ Environment

Main Markets

- ▶ Food and functional foods
- ▶ Bioenergy
- ▶ Organic fertilisers
- ▶ Eco-friendly products
- ▶ E-health
- ▶ Natural tropical extracts
- ▶ Biomaterials and products
- ▶ Seeds and plants



Main development goals

QUALITROPIC focuses on the "tropical bioeconomy", i.e. the production and use of all plant or animal origin tropical resources for food, considered as a by-product or waste. This reflects major global issues of climate change, increasingly scarce fossil fuels, food safety, biodiversity conservation and public health, etc. These key challenges are even more serious in the tropical island context. The centre's main aim is to become a global benchmark in the tropical bioeconomy and in self-sufficient economic island systems in a circular economy approach :

- ▶ for the production of tropical products or products adapted to tropical conditions,
- ▶ to identify tropical food or non-food products providing added value in a tropical or international market,
- ▶ for production systems in a tropical environment,
- ▶ for solutions (in nutrition, pharmaceuticals, etc.) combating tropical risk factors,
- ▶ for developing innovative economic models to optimise the use of renewable tropical resources and to limit dependency on imports.

Areas of strategic action (roadmap 2019 - 2022)

QUALITROPIC is the only officially certified French centre of excellence in the area of tropical bioeconomy. It is now recognised as the centre for bioeconomy in the French overseas territories with the mission to promote the development of innovation in all French overseas departments : Reunion, Martinique, Guadeloupe, French Guiana, Mayotte.

The Strategic Business Units selected for 2019-2022 focus on cross-cutting themes in the French overseas territories :

- ▶ Food safety
- ▶ Bioproducts and the circular economy
- ▶ Biodiversity conservation

SERVICES PROVIDED

Project management, intellectual property protection, consulting in marketing, taxation, innovation and communication

- ▶ Brainstorming workshop

NETWORKS

Local level

Nexa | Témergie | Technopole | Club Export | CRITT | chambres consulaires | cluster Green | Digital Reunion

National level

- ▶ Other French competitiveness clusters
- ▶ French overseas territory clusters : PARM (Martinique), Synergiles (Guadeloupe), etc.
- ▶ SATT A x LR
- ▶ CVT ALLENI

International level

- ▶ UCCOI
- ▶ CHESE Cluster Madagascar

BOARD STRUCTURE

Companies group

CREDIT AGRICOLE DE LA REUNION
EARL DE LA GIRODAY
EDF
HCE
JPP DISTRIBUTION
QUALICARRY
ROYAL BOURBON INDUSTRIES
SARPC
SCEA VIVEA
TEREOS OI

Scientific group

APLAMEDOM
HYDROREUNION
CIRAD
CYROI
eRcane
IRD
UNIVERSITY

Institutional group

ADIR
MEDEF

Ex-officio members

Representative of the Regional Council **Nathalie NOËL**

Jean-François MOUTAMA
Christian DE LA GIRODAY
Olivier DUHAGON
Alex HOW CHOONG
Jean-Patrick PAYET
Laurence GALAUP
Régis MOREAU
Tugdual POIRIER
Alain DAMBREVILLE
Philippe RONDEAU

Claude MARODON
Jacques GAUTHIER
Eric JEUFFRAULT
Maya CESARI
Bernard SIEGMUND
Pascale CHABANET
Frédéric MIRANVILLE

Frédéric AUICHE
Sylvie LEMAIRE



REUSIT

→ www.reusit.re

👤 Coordinator : Inel OLIVAR

✉ direction@reusit.re

☎ +262(0) 262 25 10 54

📍 9 bis Rue Jules Ferry
97430 LE TAMPON

Total annual budget (including payroll) :

320,000€

Total staff : 5

PRESENTATION

The REUSIT incubator seeks to :

- ▶ **Test activity** in a real situation through legal hosting (pre-creation)
- ▶ **Support** project promoters in learning the job of an entrepreneur
- ▶ **Study / Develop** the economic micro-sector

SERVICES PROVIDED

- ▶ Provide information on the "incubator" system in 4 centres (north, east, south and west)
- ▶ **Assist** in the integration process (before launch of the test)
- ▶ **Provide with a registered address** for the project, providing organisations with a SIRET code
- ▶ **Support** project promoters in learning the job of an entrepreneur (individuals and groups)
- ▶ **Assist** project promoters in the "registration" phase

NETWORKS

- ▶ Member of the "Points Chances" network
- ▶ Member of the Union of Business Incubators
- ▶ Member of the Regional Committee for Innovation

BOARD STRUCTURE

- ▶ 13 members of the Board, including :
7 individuals | and 6 legal entities

POSITIONING IN THE INNOVATION CHAIN

- **Multi-activity company incubator project**
- **Sectors** : support for project promoters





REUNION TECHNOPOLE

→ www.technopole-reunion.com

👤 Managing Director : **Laurent GABORIAU**

✉ direction@technopole-reunion.com

☎ +262(0) 262 90 71 80

📍 14 Rue Henri Cornu

**Immeuble DARWIN -Parc TECHNOR
97490 SAINTE-CLOTILDE**

Total annual budget (including payroll) :
1.2M€

Total staff : 7

PRESENTATION

The aim of the Reunion Technology hub :

- ▶ To foster cross-fertilisation (companies, research and higher education)
- ▶ To raise awareness about innovation and generation
- ▶ To create innovative companies
 - Identifying and transferring technology
 - Setting certification standards (incubator and RETIS standards), selecting innovative projects
 - Devising and providing structure for projects
 - Providing incubation support
 - Boosting development
 - Giving support to innovative firms, particularly through BPI France's Diag Innov tool
 - Promoting the creation of innovative companies
- ▶ Managing science parks
 - Promoting innovation through networks
 - Developing ecosystems dedicated to innovation
 - Giving collective and group support to existing firms
 - Promoting parks and occupants
 - Developing new business sectors

SUPPORT SERVICES FOR PROJECT PROMOTERS FOR INNOVATIVE BUSINESS CREATION

Internal services

- ▶ Support in the pre-incubation phase : project structure, formalisation and feasibility
- ▶ Preparation for the Incubator Selection Committee
- ▶ Innovation-certification and selection by a Committee of Experts
- ▶ Strategic support for the project
- ▶ Coaching for project promoters
- ▶ Training : morning sessions, innovation workshop, etc.
- ▶ Networking : Incubating Club, etc.
- ▶ Administrative support
- ▶ Occasional accommodation and hosting for incubated projects
- ▶ Project promotion

External services financed during incubation process

- ▶ Scientific and technical services (collaboration with public or private research laboratories)
- ▶ Legal, tax and financial support
- ▶ Strategic support (marketing, sales)
- ▶ Protection for innovation (trade marks, patents)
- ▶ Training
- ▶ Travelling expenses in metropolitan France

FOR INNOVATIVE SMALL BUSINESSES

- ▶ Support in setting up businesses in the TECHNOR and TECHSUD parks
- ▶ Project engineering
- ▶ Networking with research or funding bodies
- ▶ Studies and requests for BPI France's DIAG INNOVATION financial assistance scheme (Help for First Innovative Projects)

- ▶ Commercial partnership searchers
- ▶ Promotion of innovative firms

NETWORKS

- ▶ **European** : EBN
- ▶ **National** : RETIS | Reunion Technopole science park is a member of the RETIS network committee
- ▶ **Local** : R&D players = NEXA | Qualitropic | French Tech | Témergie | ADIR | Digital Reunion PEPITE Reunion | University of Reunion Island | CIRAD, IRD | CRITT | CIRBAT | Initiative Reunion Entreprendre | BPI France, etc.

BOARD STRUCTURE

PERMANENT Members : 7

COMPANIES Group members : 7

HIGHER EDUCATION AND RESEARCH Group members : 5

PROFESSIONAL ORGANISATIONS AND PUBLIC INSTITUTIONS
Group members : 7

Members : 111

POSITIONING IN THE INNOVATION CHAIN

- Supporting, organising and promoting innovation
- **Sector** Transversal factors of innovation







Private consultants

190	ANTIANE RÉUNION
191	ATIS
192	AVIA EXECUTIVE
193	CAIRN CONSULTANTS
194	CAMILLE ROY
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211	SHEO TECHNOLOGY
212	SQUIRREL
213	VAKOM
214	VINN CONSULTING





ANTIANE RÉUNION

→ www.antiane.com

👤 Sales Manager : **Ludovic SANGARIA**

✉ lsangaria@antiane.com

☎ +262(0) 262 37 37 33

📍 14 Rue Hélène Boucher
97438 Sainte-Marie

.....
Turnover 4M€

Total staff : 40
.....

PRESENTATION

We provide support to companies in their digital transformation processes and in optimising Cloud-ready I.T. infrastructure.

SERVICES PROVIDED

Our services are geared to small and medium-sized companies (mainly B2B) or developers (DevOps).

CUSTOMERS

We are part of the Infodom group (www.infodom.com). We work in all sectors and according to the different types of services.





ATIS

→ www.atis-conseil.fr

📍 Strategic and financial consulting :

Jean-Philippe VIAN

✉ reseau@atis-conseil.fr

☎ +262(0) 692 76 33 28

📍 24 Rue de la Lorraine

97400 St Denis

97744 SAINT-DENIS CEDEX 9

PRESENTATION

Profile : Administrator and financier with a business and cash-flow approach

SERVICES PROVIDED

- ▶ Consulting in strategy and financing for companies
- ▶ Business models, business plans, ERDF funding, banks and fund-raising
- ▶ We provide support for entrepreneurs seeking to develop in new markets

CUSTOMERS

Reuniwatt | Oscadi | Wello | NEToi | Immersive | APICAP





AVIA EXECUTIVE

👤 President : **Arnaud COTTEREAU**
✉ **arnaud.cottereau@avia.re**
☎ +262(0) 692 65 86 67
📍 **9 Rue des Baies Roses**
97460 Saint-PAUL

PRESENTATION

We are a Reunion-based company specialised in strategy, finance and management. We assist our clients in developing an investment project or a business model along with financial services based on a financial plan (from 2 to 20 years), as well as risk mapping.

In terms of training, a number of skills are offered at the AVIA company for :

TRAINING

- ▶ **Management** : Business schools (executive schools), CPA
- ▶ **Financial accounting** : DESCF, postgraduate diploma in management control and auditing
- ▶ **Law** : 2-year Master's degree in business law, 2-year Master's degree in tax law

EXPERIENCE

- ▶ **Industrial** (10 years of experience at COMEX - DAF) (Holcim - SFER)
- ▶ **Commercial** (6 years in company recovery) (Macé Group - SFER Group)
- ▶ **IT** (2 years in developing a new business model [DooG])

SERVICES PROVIDED

AVIA EXECUTIVE **helps entrepreneurs formulate and structure** their vision, give strategic guidance as well as to all aspects of innovative project business models.

Our **customised support** is based on proven methodologies (lean startup, Blue Ocean strategy, etc.) and on our extensive knowledge in the field of innovation.

We mainly work on **large-scale projects** to guide the vision and innovation strategy of local groups. We can work with **various commercial, industrial and public organisations**.

CUSTOMERS

Avia Executive has worked with a range of Reunion-based players on varied innovation-related matters.

Bottom-up innovation (identifying new forms of consumption)
> application to a manufacturing group

Adjacent innovation (replicating principles tested elsewhere in Reunion) > Definition and application for a cooperative organisation

The president of Avia Executive has managed several innovative IT projects, particularly when **setting up the DooG company**, which **won the first prize for packaging in 2009, the special jury prize in Usine Nouvelle in 2010** and the Groupama innovation prize in 2010.

DooG was a start-up specialised in designing IT services and solutions aiming to link the information from physical media (paper, billboards, packaging, TV screens, radio) with digital information available online or downloadable.





CAIRN CONSULTANTS

→ www.cairn-consultant.com

👤 Director : **Laetitia GOMEZ**

✉ contact@cairn-consultant.com

☎ +262(0) 692 50 97 12

📍 25 D Chemin Champcourt
97432 Saint-Pierre

PRESENTATION

At Cairn Consultant, our aim is to offer solutions pinpointing the smallest changes required.

The aim is to provide with support for your practical operations. We know your time is precious, which is why we always prefer action to words.

Through our customised support, we provide rational action plans tailored to your habits and your company culture.

We are inspired by methods used in leading French business schools (ESSEC BUSINESS SCHOOL, HEC) and models of excellence to always give the best options.

Our success is to render your business sustainable in the long-term

SERVICES PROVIDED

- ▶ Support in **defining company strategy**
- ▶ Support **in strategy and marketing**
- ▶ Courses **management innovation**
- ▶ Coaching in **public speaking (sales pitches)**
- ▶ Support **for an innovative manager approach**

SUBJECTS

- Management
- Communication
- Personal and professional development

TARGET AUDIENCE

Entrepreneurs and managers

INDICATIVE COST

€817 per day

Hourly rates available or at a flat rate on request

CUSTOMERS

Individual support for start-ups (Goni plus other confidential clients)

Workshop for project promoters (Technopole de La Réunion)

Contributions to courses for the "Académie des Savoirs" and "Oser Entreprendre"

Voluntary contribution to the Webcup association, coaching at Start-Up Weekends





CAMILLE ROY

👤 Consultant in quality and regulatory affairs : **Camille ROY**

✉ **camille.roy37000@gmail.com**

📞 **+262(0) 693 97 90 80**

📍 **13 Rue Victor Mac auliffe
97400 Saint-Denis**

PRESENTATION

Medical

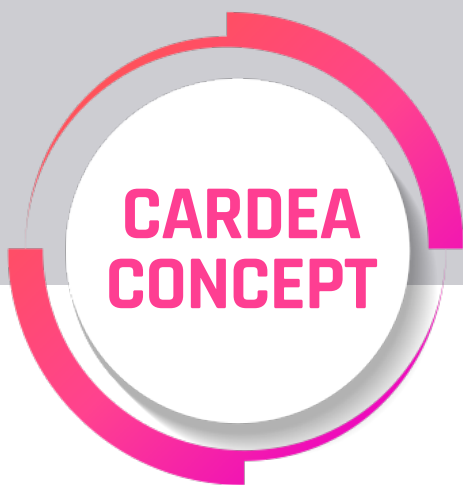
SERVICES PROVIDED

Medical certification

CUSTOMERS

Oscadi





CARDEA CONCEPT

👤 Manager/trainer : **Claire VASSIAS**

✉ **claire@cardeaconcept.re**

☎ **+262(0) 692 29 21 61**

📍 **1 Rue des Emeraudes
97419 - La Possession**

Turnover : **60,000€**

Total staff : **1**

PRESENTATION

Instructor - coach

Management **expert**

Lean Management | interpersonal communications

SERVICES PROVIDED

Creativity and idea-generation workshop (1 day)

▶ selecting ideas for innovation workshop (1 day)

▶ debriefing (2 hours)

CUSTOMERS

Veolia | Qualitropic | Ip Fix





DIX SEPTEMBRE

→ www.dixseptembre.com

👤 Development Manager :

Timothée JOUBERT

✉ timothee.joubert@dixseptembre.com

☎ +262(0) 251 70 35 96

📍 15 Boulevard Marcel Paul - Bât C
44800 Saint Herblain

.....
Turnover : 2.7 M€

Total staff : 18
.....

PRESENTATION

Dix Septembre was set up in 2010 in western France. Today, Emmanuel Cognet (Arts & Métiers engineer) has taken over the presidency.

Out of 18 staff members, we have 14 project engineers, including 2 PhD engineers. Our agency offers an average of 12 years of experience per employee.

We have been working with partners in Reunion since our foundation and are continuing our growth in the region, a source of unique projects helping our culture to flourish. Our skills are based on experience, high standards and commitment. We are familiar with tax benefit texts and codes. We use a technical approach, combined with an R&D and Innovation guidance expertise for our clients.

SERVICES PROVIDED

We help companies to finance their innovations. Our work is centred on 5 skills : in-depth knowledge of Research Tax Credit and Innovation Tax Credit measures, help in obtaining Young Innovative Company status, support and advice on related grants and subsidies, such as the ERDF fund, and support for R&D.

From the identification of audit and optimising research work on-site, including writing applications with support through exchanges with administrative bodies, as required. Each expert assists our clients throughout the various processes and procedures.

Through a trade-based approach, and their specialisation, our engineers (in materials, food, chemistry, telecommunications) are not restricted to one sector : we promote a flexible and diverse approach, corresponding both to companies and to their way of working internally.

We work with companies involved in research and innovation, providing consulting for start-ups to large corporations. Company size is not always the main indicator in undertaking R&D or innovation.

CUSTOMERS

With over 300 clients, we cover a very wide spectrum of sectors and professions : Machinery | Food | Construction | Architecture | IT | Biotechnology | Communications | Plastics | Medical | Recycling, etc.





ECOSYSTÈME INNOVATION ENTREPRENATION

👤 Consultant : **Sylvie CAMACHO**

✉ **sylvie@entrepreneuriat.fr**

☎ +262(0) 674 35 11 16

📍 **12 Impasse Léon Dierx
97427 l'Étang-Salé**

PRESENTATION

After studying biology, agronomy and environmental engineering, along with a **qualification in innovation management**, I began working with start-ups. I was determined to support projects which, like the hummingbird, contribute to progress in the world.

Since 10 years now, I have been assisting a wide range of projects. **I provide support for entrepreneurs in setting up their companies right from the project phase, from (re)defining a business model to financing.**

Innovation means teamwork and I regularly work **with Vincent Payet or with chartered accountants** to give all-round support in the life of a start-up business.

SERVICES PROVIDED

The first source of funding for an innovation must be the market! Therefore, your customers. I can provide guidance to **match your idea with your market**. Are you speaking to the right people? Is your price right? Have you taken your customer into account? What are your means of action and your aims?

I can promote your work with equanimity by accessing methods taken from **effectuation** and **design thinking**. Midway between training, coaching and external services, together we can co-develop your business model and apply your business plan to find extra funding.

CUSTOMERS

Ecole des Mines Albi, IPI Albi (innovative training module in entrepreneurship) | Self&Innov (organising your offer, tax-credit expertise) | Marianka (organising projects, searching for funding) | Earlyfund (technological documents, tax-credit expertise), etc.





GBO HOLDING

→ www.groupegbo.com

👤 Managing Director : **Arnaud COTTEREAU**

✉ acottereau@groupegbo.com

☎ +262(0) 692 65 86 67

📍 38 Rue Pasteur

97400 Saint-Denis

PRESENTATION

A Reunion-based agency specialised in **strategy, management** and **influence communication**. We provide our clients with support throughout their company's lifespan.

SERVICES PROVIDED

We help entrepreneurs to **finalise** and **structure their vision, define their strategy** and **all aspects of the business models in innovative projects**.

Our tailored support is based on proven methodologies (lean startup, Blue Ocean strategy, etc.) and our extensive knowledge of the field of innovation.

We mainly work on large-scale projects to organise the vision and innovation strategy for local groups. We can work with all kinds of commercial and public organisations

CUSTOMERS

We have been working with a range of Reunion-based operators on wide-ranging issues linked to innovation.

Bottom-up innovation (identifying new consumption patterns)
> application with a manufacturing group

.....
Organisational innovation > definition for local authorities

.....
Adjacent innovation (replicating principles tested elsewhere in Reunion)
> Definition and application for a cooperative organisation.





HUBEX

- www.hubex.re
- www.ecopal.re

👤 Manager : **Stéphane MALET**
✉ stephane@hubex.re
☎ +262(0) 262 877 315
📍 16 Rue Claude Chappe - SEMIR
97420 LE PORT

Turnover (previous year) : **185,239€**
Total staff : **3**

PRESENTATION

The Initiatives OI association is a group of consultants working in three sectors : consulting, training and project promotion in the region.

SERVICES PROVIDED

- ▶ **Consulting** : We work on company's creation and developing businesses. Traditional companies, as well as social enterprises. We are specialised in designing and introducing innovative economic models using innovative approaches (design thinking, lean startup, canvas). We organise collective intelligence workshops (World Café, Barcamp). We also work on aspects of economic intelligence and monitoring.
- ▶ **Training** : Training in active learning (training for instructors, providing active learning content, etc.), training in company creation ("Creating and doing business differently" course, collaboration in the business-creation Master's degree at the IAE, P2ER at the University of Reunion Island).
- ▶ **Project promotion** : Creation of the 1st Regional Economic Cooperation Centre in Reunion, EcoPAL, organising the pallet sector in Reunion.
- ▶ **Cost** : €800 to €1000 a day.

CUSTOMERS

AFPAR | CCIR | ALTEDIA | Handi-Pacte | Qualitropic | GRANDDIR | CRIJ | Webcup | Centre Jacques Tessier | Sunzil | CRESS | IAE | Colgate-Palmolive | SODESI, etc.





HUMAPRO

→ www.humapro.re

👤 Project manager : **Florent**

MONTROUGE

Work psychologist and project manager
for social and digital transformation

✉ florent@humapro.re

☎ +262(0) 262 01 50 97

📍 **8 Rue des Argonautes**
97434 La Saline Les Bains

Turnover (previous year) : **85,000€**

Total staff : **4**

PRESENTATION

I am an HEC Paris-qualified occupational psychologist in digital transformation. I have been assisting public and private businesses of all sizes and from all sectors, both locally and abroad, since 2011.

SERVICES PROVIDED

We provide **strategic diagnosis in social and digital innovation**. As a consequence, we help to apply changes in project engineering based on action plans developed with our clients. Individual training | group training | co-development workshops | modelling IT architecture in the short and medium term, etc. We provide support for individual and group procedures.

CUSTOMERS

REUNION SOCIAL SECURITY AGENCY (support for changes in all departments and at all staffing levels for the solidarity and innovation 2.0 project)
2016

.....
RSM REUNION (introduction of the world's 6th biggest chartered accountants and statutory auditors group using a social and regional innovation approach)
2017 - 2019

.....
BHS (social innovation and life-quality at work)
2018

.....
IRT (social innovation and quality of life at work)
2018

.....
SODEGIS (social innovation and quality of life at work)
2018





INNOVATECH CONSEIL

→ www.innovatech-conseil.fr

👤 Director : **Yves MARTIN-CHAVE**
✉ contact@innovatech-conseil.fr
☎ +33 442 73 62 92
📍 **391 Avenue de Jouques**
13 400 - Aubagne

Turnover : **about 2.5 million€**

Total staff : **13**

PRESENTATION

I worked for 22 years as a qualified chartered accountant before specialising in supporting innovative companies and founding Innovatech Conseil in 2008. I was also a business angel and an elected representative for the order of chartered accountants in the PACA region.

SERVICES PROVIDED

Innovatech Conseil is a **consulting firm that supports innovative companies**. It provides tailored services in funding innovation and in tax benefits for innovative companies. Innovatech Conseil helps draft tax-credit applications in their entirety from start to finish : from auditing and eligibility to writing financial and scientific reports via assistance in the event of a tax audit.

Innovatech Conseil **provides support to firms**. We provide a free tool, CIRexpert, for companies with a Tax Research Credit (CIR) below 100,000€. Innovatech Conseil has developed a range of secure and affordable services for these companies, including the scientific revision of CIR applications.

Lastly, Innovatech Conseil **provides guidance to specialist, such as chartered accountants, tax lawyers, etc.** While working with innovative companies and to help expand their customer's portfolios.

CUSTOMERS

Innovatech Conseil is a **CIR/CII-registered consultancy** with the Company Mediation service which reports to the Ministry of the Economy. It **is also certified by OPQCM**, a body that has been recognised by the French state since 1979.

The Innovatech Conseil team comprises **6 scientific PhD graduates** and is also **awaiting Confidential Defence certification**.

Finally, Innovatech Conseil has drafted over 750 CIR declarations since 2008 worth 300M€ and carried out over 150 tax-audits.





IO CONNECT

👤 Sales manager :

Guillaume CHAUSSE

✉ guillaume.chausse@ioconnect.re

☎ +262(0) 693 22 68 47

📍 2 bis Rue Saint Paul

97420 LE PORT

.....
Total staff : 5
.....

PRESENTATION

Small/medium-sized firms | Innovation radio | Internet of things

SERVICES PROVIDED

IO Connect is the Sigfox Operator in Reunion, Mayotte and Mauritius. It is developing the Sigfox network, dedicated to the internet of things. This means that all your objects can use the network to transmit the information you need.

IO Connect provides support in setting up IoT and IT projects, enabling you to create new values for your customers or to reduce your operating costs.

IO Connect distributes and incorporates the connected objects you need. The firm's products come from all over the world (South Africa, Brazil, China, Europe) and are all tested by our technical teams.

Our solutions :

- Energy management
- Remote meter readings
- Collection optimisation
- Asset tracking
- Smart Building
- Managing the cold chain
- Smart-parking
- Fleet management
- Supervision of technical centres

CUSTOMERS

EDF | Cise | TCO | Bolloré | TEE0 | CA | GAIA | TOPBIS | Solyval





IP TRUST

IP TRUST

→ www.iptrust.fr

👤 Industrial Property Advisor :

Pierre BREESE

✉ pb@iptrust.fr

☎ +33 668 68 13 99

📍 2 Rue de Clichy
75009 Paris

Turnover : 5M€

Total staff : 24

PRESENTATION

Physicist and I.T. engineer, European representative for patents, brands and models

SERVICES PROVIDED

Support for **project promoters, start-ups, small businesses and research bodies working on patents, brands, expertise and contracts.**

CUSTOMERS

TECHNOSUD | OENOBIOIOL | SARA112 | SYSTEM AK | NEWS | MEMBRIVES | SOITEC
| EXAGAN | WISTIKI | SONCEBOZ | ENERBEE | AQUASAY | DESJOYAUX | CNRS |
AGROPARISTECH | WALLIX | MMT | SUNNA DESIGN | GLOWEE |...





ISODOM

→ www.isodom.com

👤 Director : **Yannick BEREZAIE**

✉ yberezaie@isodom.com

☎ +262(0) 692 44 44 19

📍 Immeuble Darwin

4 Rue Emile Hugot

97490 Sainte-Clotilde

Turnover : **3.9M€**

Total staff : **35**

PRESENTATION

ISODOM, is a consultancy working in transforming organisations, Environment, Health and Safety Management and in I.T. systems engineering. We provide support for clients from the initial idea to the operational phase of projects, to co-develop today their success for tomorrow.

As the first overseas France company with the "Great Place To Work" label, the human dimension and innovation is central to our strategy. We are continually seeking to match our values with the overall performance of your company.

SERVICES PROVIDED

ISODOM's services target three complementary and vital components for an organisation's performance : **people, tools and processes!** The projects are conducted by teams of experienced and specialised consultants to guarantee high-end services to all our clients.

- **People** : Support for human resources (training, change management)
- **Tools** : Integration of the IT tools needed to manage a company and to measure the efficiency of its activities
- **Processes** : Setting up processes providing a description of the organisation for better control and improved results

CUSTOMERS

ADEME REUNION | AIR LIQUIDE | ASFA CHILDREN'S HOSPITAL | AURAR
| BRASSERIES DE BOURBON | BUSINESS MAURITIUS | REUNION HOSPITAL |
CILAM | CLINIQUE LES FLAMBOYANTS - CHS | CLUSTER GREEN | COLAS MAYOTTE |
GENERAL COUNCIL | CREDIT AGRICOLE - CRCA | DIECCTE | ENGEN REUNION | FRBTP
| GCS TESIS - GIE TOI | GRAND PORT MARITIME DE LA REUNION (GPMDLR)
| LOGIPREM-F | MISSION LOCALE EST | ORANGE REUNION | RAA (REUNION
AIR ASSISTANCE) | REUNION REGION COUNCIL | RENAULT AUTOMOBILES
REUNION | SAARRG - REUNION ROLAND GARROS AIRPORT | SAPHIR | SDIS
| SEANERGY | SHLMR | SICABAT | SUEZ | TCO | TERALTA | TEREOS | TOTAL
REUNION | UCCIOI





OCÉAN STRATÉGIE

→ <http://oceanstrategie.com/>

👤 President-Founder : **Remy EXELMANS**

✉ rem.exel@gmail.com

☎ +262(0) 692 65 09 29

📍 33 Ter Allee Coco
97 400 Saint-Paul

Turnover : **90,000€**

Total staff : **1**

PRESENTATION

I have been a consultant specialising in company strategy and HR organisation, corporate coaching, team building and digital coaching for the past 4 years.

SERVICES PROVIDED

I provide support for Reunion and Mayotte-based firms for their change-management projects in digital or non-digital areas. I consider innovation as a natural way to develop an organisation and as key factor of change strategy.

CUSTOMERS

Transcontinents Voyages | Sodiac | EDR | Réunioner | CPME | MEDEF | Digital Reunion | CCIM | Opcalia | IFAG | ISM/IFR | St Denis Town Hall | NEXA ...





PARTNERS

→ www.partnersconsultingoceanindien.fr

👤 Founder : **Evelyne GRASPERGE**
(Consultant in development of regional projects and collaborative structures - IC - Facilitator Coach)

✉ evelyne.grasperge@partnersconsultingoceanindien.fr

📍 Centre Affaire Le Caré
97 424 Le Piton Saint-Leu

Total staff : 4 consultants

PRESENTATION

- ▶ A consultant/organiser of regional development projects and sustainable and innovative organisations in the public and private sector
- ▶ Coach and facilitator

SERVICES PROVIDED

- ▶ Strategic coaching
- ▶ New governance tools
- ▶ Development of sustainable and collaborative public and private sector projects
- ▶ Change support

CUSTOMERS

Some of our customers : REUNION

Public sector : ILEVA | CINOR | CIREST | Saint Pierre Town Hall | Sainte Suzanne Town Hall

Public-limited companies (all local authorities) : TEREOS | HOLCIM | SBTPC... | Mayotte SMIAM MAMOUDZOU | French Guiana | Constance Group Mauritius...





RED SAMURAI

→ <http://red-samurai.re/>

👤 Manager and associate director :

Johan PRESENT

✉ johan@red-samurai.re

☎ +262(0) 692 64 45 13

📍 18 Rue Rontaunay
97400 Saint-Denis

Turnover : 120,000€

Total staff : 4

PRESENTATION

An ecosystem of key skills combined with the use of agile principles.

SERVICES PROVIDED

We provide organisations in Reunion with support to help them find, or recover, internal agility, to remove the obstacles from slow-moving projects, to undertake a new strategy, to improve in their digital transformation and recover internal support.

CUSTOMERS

SODIAC | SHLMR | SIDR | Saint Denis Town Hall | Chamber of Trade | Digital Réunion | La Technopole | Star-Aid | CNARM | TOTAL | EDF | Campus Réunion | ZotCar | etc.





SEYES

→ www.seyes.re

👤 Director : Rémi VOLUER

✉ remi@seyes.re

☎ +262(0) 692 60 57 98

📍 Immeuble Altéa

41 Rue de la Pépinière,
97438 Sainte-Marie

Turnover : 700 K€

Total staff : 13

PRESENTATION

Seyes is an innovation agency organised around 2 main activities :

Digital and Innovation Transformation services ;

- ▶ Creation of innovative products and services : strategy, projects, funding, design, production, sales
- ▶ Digital transformation in various organisations and sectors
- ▶ Support for innovative project promoters through our start-up studio
- ▶ A 100 m² space for project promoters within a 300 m² facility in the Seyes Lab (12 places)
- ▶ 100 project promoters hosted since 2016, support for 7 projects
- ▶ A programme to provide contacts with major companies and funding institutions
- ▶ Daily support from experienced entrepreneurs
- ▶ Direct and customisable access to the team's human and technical resources of the team

Seyes has French government authorisation for Innovation Tax Credit consulting / engineering

SERVICES PROVIDED

- ▶ Private project promoters (individuals or companies)

Prices : Seyes works as an accelerator : in exchange for our support, we become project partners and take a minority share in the capital of the organisations we support. The services are either free (mentoring, coaching, networking, consultancy) or negotiated at very low rates.

Clients : We support start-ups with strong international potential and projects with a major impact on the region. We prefer "disruptive" subjects : services, market or technology models, involving the launch and testing of new economic models.

- ▶ Corporations, medium-sized firms, public bodies

Price : per day per member of staff, from €450 to €1200 excl. VAT

Clients : any organisation needing consultancy support or quality production with a technical, design and business aspect.

STRATEGIC CONSULTING

We support organisations to define and manage their digital transformation and innovation strategy. This also involves setting up new tools and processes, and accompanying change management.

Skills : creation of new markets and sales channels, creation of products and services, launching new products or services. B-to-B and B-to-C digital platforms, professional software and infrastructures.

TECHNOLOGIES AND DIGITAL

We develop customised tools, services and platforms that are effective, user-friendly and efficient.

Skills : CMS Drupal 8, Big Data, Node & React JS, API creation, transactional platforms, large-scale cloud hosting, Redis clusters, mirroring and load balancing, ETL processes of all types (Amadeus, Insee, Stripe).

MARKETING & COMMUNICATION

We create brands and publicise them using communication channels and digital marketing techniques.

Skills : branding, storytelling, acquisition, transformation and loyalty, media purchasing, PR. Work in all media : digital, traditional, street and events media.

ASSOCIATE EXPERTS

Recognised partners working on our projects requiring specific skills.

Production : creative director, writer, illustrators, video directors

Consulting : telecommunications experts, research-tax benefits, SmartCity, Blockchain, business developers and export contacts, data scientist, etc.

CUSTOMERS

Website development

Intranet development



Communications management

Creation of L'Izine co-working product

Digital transformation

Support for start-ups (public) :

- Hub2 - mobile payment platform for Africa
- MemoPlanet - recording and broadcasting VHD video
- CrazyBee - bee-hive sponsoring for big companies
- Itac - co-working spaces for small trades and social enterprises
- Moncommercant.com - national platform highlighting local retailers





SHEO TECHNOLOGY

→ www.sheo-tech.fr

👤 Consultant in IT security
and data protection :

Mohamed CHAFIK

✉ Info@sheo-tech.fr

☎ +262(0) 692 33 23 91

📍 24 Chemin de la Vierge
97 400 Saint-Denis

PRESENTATION

Consultant in IT security, cybersecurity and data protection

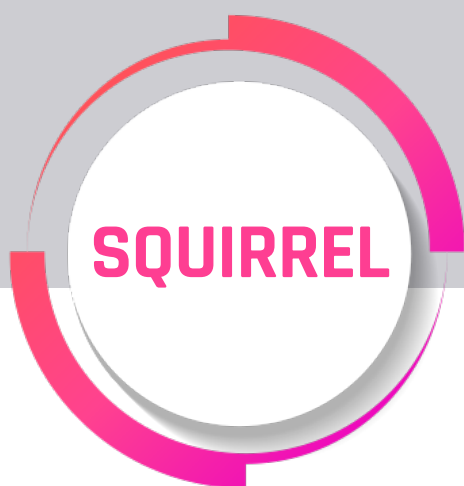
SERVICES PROVIDED

Services in computer security, as well as an instructor working with companies

CUSTOMERS

Several certifications in the sector





SQUIRREL

→ www.squirrel.fr

👤 Managing Director : **Thomas LEMAITRE**

✉ thomas@squirrel.fr

☎ +262(0) 692 03 25 36

📍 87 Rue des Pipangailles, N° 1
97 490 Sainte-Clotilde

Turnover : **428,306€**

Total staff : **5**

PRESENTATION

Technical Director / Mobile Architect

SERVICES PROVIDED

- ▶ DevOps
- ▶ Mobile Application Consultant
- ▶ Mobile Architect

In all areas of activity / sectors

Target audience : Small businesses | Start-ups | Key accounts

CUSTOMERS

See our portfolio : <http://bit.ly/portfolio-squirrel>.

Our clients include : L'Oréal | La Roche-Posay | Compte-Nickel | CIC Crédit Mutuel (MonéticoResto) | ENEDIS (EDF Group) | The French Tennis Federation | StarOfService | Speed Rabbit Pizza | Mezzo Di Pasta | Air Austral | Reunion Regional Council | etc.





VAKOM

→ www.vakom.fr

👤 Director : **Benoît DUBIN**

✉ bdubin@vakom.fr

☎ +262(0) 262 59 59 76

📍 **Le Mikado - Zac Trapèze**

44 Rue des Navigateurs

97434 Saint-Gilles Les Bains

.....
Turnover : 460K€

Total staff : 4

Number of clients : 150
.....

PRESENTATION

VAKOM is a network of franchise specialised in human resources.

We aim to promote the human capital of companies and organisations for well-being and sustainable performance. The goal is to design and construct methods and tools to help the human factor progress in companies and organisations tomorrow.

We also aim to develop and organise a network helping to build, share and expand business in a human way.

50 self-employed consultants working in Rouen/Le Havre and forthcoming 35 franchises in 2018, including the Reunion franchise, created in 2013.

SERVICES PROVIDED

5 main activities :

▶ **CONSULTING** : to help organisations to develop > seminars, appraisals and project support.

▶ **TRAINING** : to help teams develop in line with the company's projects > inter-company and in-house training, e-learning.

Subjects : Management, communications and professional development, human resources and skills, quality of life at work and sales performance.

▶ **RECRUITMENT & ASSESSMENT** : to identify and attract talents > assessment of candidates and their potential, recruitment and direct approach, consulting support for the recruitment and induction process.

▶ **PROFESSIONAL GUIDANCE** : to safeguard career paths > help staff define their career plans, manage their career paths and internal mobility, outsourcing of professional interviews and support for career changes.

▶ **COACHING** : to help individuals develop and grow.

CLIENTS : Managers, board members, employees.

CUSTOMERS

■ Listed by ARVISE and DIECCTE Reunion as part of the consulting network since 2016

■ Accreditation as a skills assessment centre in 2018 by UNIFORMATION, UNIFAF, ANFH, FONGECIF, FAFSEA, AFDAS, OPCALIA (through the CPF)

■ Listed by FAFSEA as part of the HR review and consulting support measure for 2018

■ Listed by OPCALIM as part of the HR consulting support measure 2018

■ Listed by OPCALIA, FAFSEA, OPCALIM and AGEFOS PME as part of the training guides for 2018-2019

■ DLA (Local Support Measure) listing for 2017-2019

■ Listed by AFDAS and FAFTT as part of the HR Consulting Support service for 2018

■ Listed by FAFSEA as part of the AEF Employment programme

■ Listed by FAFSEA for its career development support service as part of the CEP process (Consulting in Career Development) 2018-2019

■ ANEFA expert as part of the Seniors in Agriculture project

■ Listed as part of the CLEA project by OPCALIA and COPAREF





VINN CONSULTING

→ www.vinn-consulting.fr

 Consultant in innovation funding :

Vincent PAYET

✉ vincent@vinn-consulting.fr

☎ +33 637 26 26 58

📍 12 Impasse Léon Dierx
97427 Étang-Salé

Turnover : 250K€

Total staff : 1

Number of clients : 6

PRESENTATION

Graduated from a PhD in biomaterials and joined one of the biggest consultancies in innovation funding. I worked for 5 years as a consultant, then as the manager of a team of 4 consultants.

With an experience as an entrepreneur, I have created the Doucenfance company (closed in 2018), a firm developing innovative products to improve parent-child relations.

I have provided support to over 300 companies in all business sectors.

I work in collaboration Sylvie CAMACHO from Ecosystème Innovation Entreprenation.

SERVICES PROVIDED

Clients : start-ups and small businesses in the Occitanie and Reunion regions.

- ▶ Support for innovative projects (free guide to subsidies linked to innovation based on individual interviews)
- ▶ Consulting on tax credits for innovative companies, BPI France grants, regional grants and innovation competitions
- ▶ Support for funding applications and once funds have been granted (help in presenting your project in convincing way from the very first contact with the funding organisation)
- ▶ Support in managing innovation-tax credits (help with tax audits)





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REGIONAL AGENCY FOR DEVELOPMENT
INVESTMENT AND INNOVATION

www.nexa.re



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