

## JOB OFFER

<b>Job title</b>	-IGR – (Indice de risque) Postdoctoral fellowship in the framework of « HydrES : Risques Hydrologiques et socio-économiques liés aux pluies Extrêmes à La Réunion » funded by P.O. FEDER / INTERREG VI 2021/2027
<b>Job description</b>	
<b>Category:</b>	A
<b>Corps:</b>	Fixed-term contract agent
<b>Affectation</b>	
<b>Administrative:</b>	University of Reunion Island / Unit: LACy/CEMOI
<b>Workload:</b>	Full time, 100%
<b>Location:</b>	Saint-Denis, La Réunion (French Department in Indian Ocean)
<b>Condition du contrat</b>	
<b>Starting date:</b>	01 October 2026
<b>Length:</b>	21 months
<b>Financing:</b>	FEDER et Contreparties nationales PO 2021/2027
<b>Missions</b>	
<p>In the framework of the project entitled: 'HydrES: Hydrological and socio-economic risks associated with extreme rainfall in Réunion', selected under the 2023 ERDF Open Call for Proposals and funded by the ERDF Operational Programme / INTERREG 2021/2027, you are being recruited to the CEMOI unit for a period of 21 months as a postdoctoral researcher to carry out successfully the project under the supervision of Sabine Garabedian, the project leader.</p> <p>In this role, you will be assigned the following tasks and responsibilities:</p> <p><b>Action 4 "Risk Indices and Socio-Economic Impact":</b></p> <p>You will contribute to Action 4 by focusing on the following tasks: Developing a composite risk index.</p> <p><b>Description and context:</b></p> <p>There is a wealth of literature on risk measurement indices. Although the concept of risk has been defined in many different ways, these definitions generally follow a common logic. In accordance with the UNDRO definition (1979), risk is traditionally considered to be the product of three components: the occurrence of the hazard, exposure and vulnerability (Dao &amp; Peduzzi, 2004; Binita et al., 2021). Whilst conventional practice</p>	

favours a multiplicative aggregation—justified by the fact that a zero value for any one of the components mathematically cancels out the risk (Peduzzi et al., 2009; Feindouno et al., 2017)—the choice of indicators and their weighting remain major methodological challenges.

With this in mind, the methodology for constructing the risk index will incorporate the ‘Benefit of the Doubt’ (BoD) approach, derived from Data Envelopment Analysis (DEA). Unlike fixed or arbitrary weightings, this method allows for an endogenous weighting of indicators. It offers the advantage of maximising the risk score of each entity assessed by applying the weights most favourable to its specific characteristics, thereby avoiding penalising an observation due to a pre-determined weighting choice that would not reflect its multidimensional reality. This approach ensures greater objectivity in the comparison of risk profiles, whilst identifying the dimensions where performance (or, in this case, risk) is most critical.

This role aims to (i) collect data on land use according to socio-economic characteristics, which will be grouped into three sub-categories: population, economic activity and built environment. This will include, for example, the age of the population, the proportion of the population living below the poverty line, or the proportion of agricultural land, (ii) work in collaboration with geology researchers at the LGSR – IPGP to collect data on rainfall and its impacts in terms of runoff, flooding and landslides, (iii) construct a composite index using the Multi-Layer Benefit of the Doubt (ML-BOD) method, which is an application of Data Envelopment Analysis (DEA) methods.

Their work will be included in the deliverables:

- D4.1.1: Production of a risk index tailored to the island of Réunion
- D4.1.2: Production of a risk map at the municipal level
- D4.1.3: Scientific publications

#### **Main activities:**

- Collection and processing of geographical and meteorological data on Réunion.
- Collection and processing of data relating to socio-economic characteristics on Réunion.
- Cartographic production.
- Production of scientific articles and presentations at national and international conferences.

#### **Skills**

##### **General, theoretical or subject-specific knowledge**

- Knowledge of BOD or DEA models
- Knowledge of the economics of natural hazards
- Knowledge of environmental economics
- Knowledge of GAMS software

##### **Language skills**

- FRENCH:
  - Oral and written expression: Very good standard required.
  - Good writing skills
- ENGLISH:
  - Listening and reading comprehension: good
  - Speaking and writing skills: good level required.

You are expected to devote 100% of your working time to carrying out this Action 4.

At the end of your assignment, you will be required to submit your work to Ms GARABEDIAN, the project lead, in the form of an analysis and an expert report.

As part of your work, you will be required to undertake certain business trips, such as: assignments to present your work at scientific events.

**Specific conditions of exercise:**

As part of your role within the 'HydrES: Hydrological and socio-economic risks associated with extreme rainfall in Réunion' project, you are required to report on your activities to the project lead on a monthly basis via the SINCHRO application;

In the event of a significant change to your working hours compared to the above-mentioned forecast, you must promptly notify your line manager and the project leader.

You must strictly maintain the confidentiality of the work to which you contribute or which you may become privy to within the unit.

To carry out your duties, you will have access to the following laboratory facilities:

- Computer workstation
- Access to numerical computing resources
- Access to bibliographic resources

**Application process**

Contact:	Sabine Garabédian ( <a href="mailto:sabine.garabedian@univ-reunion.fr">sabine.garabedian@univ-reunion.fr</a> )
Application material:	Curriculum Vitae and Motivation Letter Applications must be sent with object title « Recrutement poste IGR HydrES (Indice de risque) » To the following email addresses : <a href="mailto:recrutement-biatss@univ-reunion.fr">recrutement-biatss@univ-reunion.fr</a> , <a href="mailto:sabine.garabedian@univ-reunion.fr">sabine.garabedian@univ-reunion.fr</a>
Deadline:	June 13th at 12:00pm (GMT +4)