



**Letter of support  
from the Centre National de la Recherche Scientifique (CNRS)  
regarding the International Research Project**

**“FROM GEODYNAMICS TO EXTREME EVENTS”**

**“G2E”**

28 May 2021

To CNRS partners of the IRP “G2E”:

- French partners: Université Toulouse 3 Paul Sabatier, CNES, IRD, Observatoire de la Côte d’Azur, INRAE, Aix-Marseille Université, Sorbonne Université, Université Savoie Mont-Blanc, Université Grenoble Alpes, Université de Montpellier, Université Paris Est Marne la Vallée, Université Pau Pays de l’Adour, Total SE, Université Perpignan Via Domitia, Université de Bordeaux, Université de Bretagne Occidentale, Université de Lille, Université Littoral Côte d’Opale, Université Paris Saclay, Université de Rennes, Cergy Paris Université

- Taiwanese partners: Academia Sinica, National Central University, National Taiwan University, National Cheng Kung University, Chinese Culture University, National Taiwan Ocean University, National Taipei University of Technology, National Chung-Cheng University, National Donghua University, National Sun Yat-Sen University

Dear Partners,

Conducting research in all fields of knowledge, the CNRS promotes international research collaboration. This includes the support to **International Research Projects**. These refer to scientific collaborative projects gathering scientists from organizations of two to three countries jointly developing collaborative research activities by means of scientific exchanges.

I would like to inform you hereby that, under this scheme, the CNRS has selected the **International Research Project “From Geodynamics to Extreme Events” - “G2E”** involving scientists from French and Taiwanese institutions (see details in annex 1, “Summary Sheet”). The scientific programme of the said Project is scheduled to run from January 1st, 2021 to December 31st, 2025 (5 years) and is attached to this letter (see details in annex 1, “Summary Sheet”). Subject to performance and availability of funds, the CNRS plans to specifically devote **75.000 €** to it for its duration.

Typically, CNRS grants its support to these projects after evaluating proposals submitted by members of CNRS-affiliated research units in conjunction with other participating scientists. This evaluation takes into account the scientific interest and potential results of the projected joint activities as well as existing ties and complementarity amongst the participating scientists. The CNRS support takes the form of dedicated financing aiming at covering part of the international extra cost arising from the conduct of the networks (i.e. international travel and living expenses, meeting organizational costs), which complements funds directly contributed by the participating laboratories and research teams.

Besides, these Projects are to meet the following conditions:

- Publications related to the work carried-out in common within a Project shall mention the Project explicitly as well as the organizations involved in it.

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- In case of results obtained within a Project, a specific agreement shall be signed by the organizations involved to deal about results ownership and their exploitation ;
- Any information exchanged within the Project and identified as confidential shall be kept strictly confidential for the duration of the said Project and for five (5) years after its completion.

We hope that your organization will share our interest in this Project and will be able to provide it with financial support. In this case, I would be grateful if you could kindly inform the CNRS by emailing a letter of support specifically relating to the aforementioned Project to [Caroline.danilovic@cnrs-dir.fr](mailto:Caroline.danilovic@cnrs-dir.fr). For your convenience, a template is proposed herewith.

I would be most grateful if you could take the necessary steps to provide us with a prompt reply.

Looking forward to your cooperation.

Sincerely,



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On behalf of Prof. Antoine Petit, Chairman and Chief Executive Officer  
Dr. Christelle Roy, Director of International Relations



**SUMMARY SHEET  
OF THE INTERNATIONAL RESEARCH PROJECT (IRP)**

**“FROM GEODYNAMICS TO EXTREME EVENTS”**

**“G2E”**

**2021-2025**

**French Coordinators : MOUTHEREAU Frédéric, RATZOV Gueorgui**

**1) Project summary, main goals and expected results**

The French-Taiwan collaboration in Earth Sciences has been active for nearly three decades. Taiwan is indeed internationally recognized as a unique place where to address major questions regarding the mechanisms of lithospheric deformation and their interactions with climate and surface processes. Since 2007, thanks to the joint CNRS-MOST initiative, the France-Taiwan collaboration became a Laboratoire International Associé of the CNRS, named LIA ADEPT (Active Deformation and Environment Program for Taiwan). At that time, the LIA involved a large scientific community centered on Solid Earth questions (active tectonics, geodynamics, mountain building, seismology, etc...). Since 2015, the LIA D3E (From Deep Earth to Extreme Events), under the impulsion of L. Siame / S. Lallemand and J.C. Lee / S.K. Hsu, integrated new specialties promoting scientific actions directed towards the Earth's surface and the Atmosphere. The former LIA D3E (2015-2019) was a locomotive for both parties that stimulated a fruitful bilateral collaboration taking the form of 1) **25 Peer-reviewed publications and 35 Presentations in international conferences**, 2) contributing to awarding **13 joint PhD degrees**, 3) promoting scientific and educational exchanges: **35 missions in France or Taiwan**, organising **4 international workshops** as well as **2 summer schools and 2 joint field trips**, etc... Additionally, the LIA acted as an incubator that provided support for the submission of world-leading international projects, including a successful ERC Starting Grant

In the context of population growth and climate changes that impact our economy, the major societal challenges to be solved by the scientific community are related to better anticipation of natural disasters and future energy. The long-standing France-Taiwan collaboration takes roots in the unique geodynamic context of Taiwan mountains formed between two active subduction zones and at the origin of severe seismic hazards, but also host of numerous resources (Fig. 1), including hydrocarbon resources, ore mineralization and geothermal energy. Taiwan is also located along the “Typhoon alley”, with seasonal monsoons producing extreme episodic rainfalls, floods, and landslides. This collaborative **IRP project G2E “From Geodynamics to Extreme Events”** aims to bring together the complementary skills and innovative technologies related to the study of lithosphere deformation, climatic and surface processes in order to set an efficient community between France and Taiwan able to face future scientific challenges in Earth Sciences.

The scientific program is organized in **5 work packages** : **WP1** is dedicated to the development and application of novel geophysical techniques to infer the deep structure of the island at lithospheric and crustal scales. **WP2** will combine geological observations and analyses and numerical modeling tools to address new geodynamic questions in the complex Taiwan region. **WP3** focuses on linking the long-term mountain building with shorter-term

surface processes and climatic evolution. **WP4** aims at building time-series of extreme events over the Holocene and upper Pleistocene in order to infer undocumented magnitudes and periods of increased hazards related to climate evolution and intense tectonics. The last work-package **WP5** is aimed at establishing new collaborative directions related to the sustainable exploration of resources and natural environmental risks offshore.

## 2) List of Participants

### a) in France

Name	Laboratory	Institutional affiliation (employer)
<b>Coordinators</b>		
<b>MOUTHEREAU Frédéric</b>	Laboratoire Géosciences Environnement de Toulouse	Université Toulouse 3 Paul Sabatier
<b>RATZOV Gueorgui</b>	Géoazur	Université Côte d'Azur
<b>Participants</b>		
BRICHAU Stéphanie (CR IRD)	Laboratoire Géosciences Environnement de Toulouse	IRD
BONNET Stéphane (PR)	Laboratoire Géosciences Environnement de Toulouse	Université Toulouse 3 Paul Sabatier
CHEVROT Sébastien (DR)	Laboratoire Géosciences Environnement de Toulouse	CNRS
DUCHENE Stéphanie (PR)	Laboratoire Géosciences Environnement de Toulouse	Université Toulouse 3 Paul Sabatier
KACZMAREK Mary-Alix (MC)	Laboratoire Géosciences Environnement de Toulouse	Université Toulouse 3 Paul Sabatier
MARC Odin (CR)	Laboratoire Géosciences Environnement de Toulouse	CNRS
CALVET Marie (IR)	Institut de Recherche en Astrophysique et Planétologie	Université Toulouse 3 Paul Sabatier
LETORT Jean (CNAP)	Institut de Recherche en Astrophysique et Planétologie	Université Toulouse 3 Paul Sabatier
MARGERIN Ludovic (CR)	Institut de Recherche en Astrophysique et Planétologie	CNRS
RATZOV Gueorgui	Géoazur	Université Côte d'Azur
REVEL Marie (MC)	Géoazur	Université Côte d'Azur

RIZZA Magali (MC)	Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement	Aix Marseille Université
SIAME Lionel (MC)	Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement	Aix Marseille Université
LE POUHRIET Laetitia (PR)	Institut des Sciences de la Terre de Paris	Sorbonne Université
THOMAS Marion (CR)	Institut des Sciences de la Terre de Paris	CNRS
PATHIER Erwann	Institut des Sciences de la Terre	Université Grenoble Alpes
WILHELM Bruno (MC)	Institut des Géosciences de l'Environnement	Université Grenoble Alpes
BALLAS Gregory (MC)	Géosciences Montpellier	Université de Montpellier
BOSCH Delphine (DR)	Géosciences Montpellier	CNRS
BOUCHETTE Frédéric (MC)	Géosciences Montpellier	Université de Montpellier
DOMINGUEZ Stéphane (CR)	Géosciences Montpellier	CNRS
GAUTIER Stéphanie (MC)	Géosciences Montpellier	Université de Montpellier
LALLEMAND Serge (DR)	Géosciences Montpellier	CNRS
DEFFONTAINE Benoît (PR)	Laboratoire de Recherche en Géodésie	Université Paris Est Marne la Vallée
FRUNEAU Bénédicte (MC)	Méthodes d'Analyses pour le Traitement d'Images et la Stéréorestitution	Université Paris Est Marne la Vallée
AUBOURG Charles (PR)	Laboratoire des Fluides Complexes et leurs Réservoirs	Université de Pau Pays de l'Adour
CALLOT Jean-Paul (PR)	Laboratoire des Fluides Complexes et leurs Réservoirs	Université de Pau Pays de l'Adour
BASSETTI Maria-Angela (PR)	Centre de Formation et de Recherche sur les Environnements Méditerranéens	Université Perpignan Via Domitia

CERTAIN Raphaël (MC)	Centre de Formation et de Recherche sur les Environnements Méditerranéens	Université Perpignan Via Domitia
ROBIN Nicolas (MC)	Centre de Formation et de Recherche sur les Environnements Méditerranéens	Université Perpignan Via Domitia
CAVAILHES Thibault (MC)	Environnements et Paléo environnements Océaniques et Continentaux	Université de Bordeaux
BABONNEAU Nathalie (MC)	Laboratoire Géosciences Océan	Université de Bretagne Occidentale
GRAVELEAU Fabien (MC)	Laboratoire d'Océanologie et de Géosciences	Université de Lille
COLIN Christophe (PR)	Géosciences Paris Saclay	Université Paris Saclay
STEER Philippe (MC)	Géosciences Rennes	Université de Rennes
MOHN Geoffroy (MC)	Laboratoire Géosciences et Environnement Cergy	Cergy Paris Université

**b) in Taiwan**

<b>Name</b>	<b>Laboratory</b>	<b>Institutional affiliation (employer)</b>
<b><i>Coordinators</i></b>		
<b>HSU Ya-Ju</b>	Institute of Earth Sciences	Academia Sinica
<b>LIN Jing-Yi</b>	Department of Earth Sciences	National Central University
<b><i>Participants</i></b>		
CHAN Yu-Chang (ARF, )	Institute of Earth Sciences	Academia Sinica
CHAO Benjamin Fong (DRF),	Institute of Earth Sciences	Academia Sinica
CHI Wu-Cheng (ARF),	Institute of Earth Sciences	Academia Sinica
DESCHAMPS Frédéric (ARF),	Institute of Earth Sciences	Academia Sinica
HUANG Bor-Shouh (RF),	Institute of Earth Sciences	Academia Sinica
HORNG Chorng-Shern (APR),	Institute of Earth Sciences	Academia Sinica

HSU Ya-Ju (RF),	Institute of Earth Sciences	Academia Sinica
KUO Ben-Yuan (RF),	Institute of Earth Sciences	Academia Sinica
LIANG Weng-Tzong (ARF),	Institute of Earth Sciences	Academia Sinica
LEE Jian-Cheng (RF),	Institute of Earth Sciences	Academia Sinica
MA Kuo-Fong (PR),	Institute of Earth Sciences	Academia Sinica
LEE Shiann-Jong (ARF),	Institute of Earth Sciences	Academia Sinica
YU Wen-Che (ATP),	Institute of Earth Sciences	Academia Sinica
TAN Eh (ATR)	Institute of Earth Sciences	Academia Sinica
CHANG Tsui-Yu (AP),	Institute of Oceanography	National Taiwan University
HORNG Sze-Ling (ATP),	Institute of Oceanography	National Taiwan University
HSU Ho-Han (ATP),	Institute of Oceanography	National Taiwan University
SU Chih-Chieh (AP)	Institute of Oceanography	National Taiwan University
SONG Sheng-Rong (AP),	Department of Geosciences	National Taiwan University
LU Chia-Yu (PR),	Department of Geosciences	National Taiwan University
HU Jyr-Ching (PR),	Department of Geosciences	National Taiwan University
CHEN Hong-Gey (PR),	Department of Geosciences	National Taiwan University
SHYU J. Bruce H. (PR),	Department of Geosciences	National Taiwan University
CHEN Chuan-Chou (PR),	Department of Geosciences	National Taiwan University
WU Yih-Min (PR)	Department of Geosciences	National Taiwan University
CHANG Chung-Pai (AP),	Department of Earth Sciences	National Central University
CHEN Chi (AP),	Department of Earth Sciences	National Central University
DONG Jia-Jyun (PR),	Department of Earth Sciences	National Central University
HSU Shu-Kun (PR),	Department of Earth Sciences	National Central University
KUOCHEN Hao (PR),	Department of Earth Sciences	National Central University
LEE Chyi-Tyi (PR),	Department of Earth Sciences	National Central University

LIN Andrew (PR)	Department of Earth Sciences	National Central University
LIN Jing-Yi (PR),	Department of Earth Sciences	National Central University
YEH Yi-Ching (ATP)	Department of Earth Sciences	National Central University
WU Tso-Ren (AP)	Institut of Hydrological and Oceanic Sciences	National Central University
RAU Ruey-Juin (PR)	Department of Geosciences	National Cheng Kung University
CHING Kuo-En (APT)	Department of Geomatics	National Cheng Kung University
LIOU Jing-Yih (RF)	Tainan Hydraulic Laboratory	National Cheng Kung University
NG Sin-Mei (ATP),	Graduate Institute of Earth Science	Chinese Culture University
CHEN Rou-Fei (ATP)	Graduate Institute of Earth Science	Chinese Culture University
CHEN Huei-Fen (AP),	Institute of Applied Geosciences	National Taiwan Ocean University
HUANG Yi-Ling (ATP),	Institute of Applied Geosciences	National Taiwan Ocean University
WANG Tan-Kin (PR),	Institute of Applied Geosciences	National Taiwan Ocean University
LEE Chao-Shing (PR)	Institute of Applied Geosciences	National Taiwan Ocean University
CHANG Kuo-Jen (APR)	Department of Civil Engineering	National Taipei University of Technology
LEE Yuan-Hsi (PR)	Department of Earth and Environmental Sciences	National Chung-Cheng University
YEN Jiun-Yee (AP)	Department of Natural Resources and Environmental Studies	National Donghua University
CHANG Yuan-Pin (AP)	Department of Oceanography	National Sun Yat-Sen University

### 3) List of Non-Member Laboratories and teams whose activities fall within the scope of IRP G2E

#### In France

Name	Laboratory	Institutional affiliation
FUJI Nobuaki (MC)	Institut de Physique du Globe de Paris	Université de Paris
SABATIER Pierre (MC)	Environnements Dynamiques des Territoires de Montagne	Université Savoie Mont Blanc
ROSAT Séverine (CR)	Institut de Physique du Globe de Strasbourg	CNRS