



Working Group 1 - Earthquake and environmental seismology

Chairs: Shingo Watada (ERI), Natalia Poiata (IPGP)

Ongoing projects:

1. Slow earthquakes:

- J.-P. Vilotte (IPGP), N. Poiata (IPGP), M. Supino (IPGP), C. Satriano (IPGP), N. Shapiro (IsTerre)
K. Obara (ERI), S. Takemura (ERI), S. Baba phd student (ERI);
- Sakura 2020 exchange project submitted (PIs: Poiata & Takemura; involved: Supino, Baba)
- Master subject proposal (potential; ERI or IPGP student)
- 2 publications (Poiata et al., 2016, 2018 GJI) + 1 submitted (Supino et al., 2019)

2. Broadband seismic noise:

- E. Stutzmann (IPGP) N. Benbelkacem phd student (IPGP), G. Barruol (IPGP);
K. Nishida (ERI)
- Main focus: extensive catalog of secondary microseismic noise sources

Potential future projects/collaborations:

1. Tsunami:

- A. Mangeney (IPGP), A. Le Friant (IPGP), N. Feuillet (IPGP), G. Occhipinti (IPGP)
S. Watada (ERI), Y. Wang phd student (ERI)

2. Gravity signals & early warning:

M. Vallee (IPGP), K. Juhel (IPGP), P. Bernard (IPGP), J-P Montagner (IPGP);
S. Watada (ERI), Kame (ERI), Kimura phd student (ERI)
Instrumental development - TOBA; collaboration with M. Ando (Univ. ofTokyo)

3. Development and improvement of source detection, imaging and classification:

C. Satriano (IPGP), E. Stutzmann (IPGP), A. Laurent phd (IPGP), N. Poiata (IPGP), J-Ph. Metaxian (IPGP), A. Falcin phd student (IPGP), G. Barruol (IPGP), P. Bernard (IPGP)
K. Nishida (ERI), H. Miyake (ERI)?, K. Obara (ERI)?

4. Data assimilation for wave field prediction:

J-P. Vilotte (IPGP)?
T. Furumura (ERI), A. Oba master student (ERI)

5. Monitoring physical changes:

J-P Montagner (IPGP), E. Stutzmann (IPGP), J.-Ph. Metaxian (IPGP)
K. Nishida (ERI), Y. Aoki (ERI)

6. Cryoseismology:

G. Barruol (IPGP), A. Mangeney (IPGP), E. Stutzmann (IPGP), N. Poiata (IPGP)
R. Nishiyama (ERI)

Earthquake source process imaging and characterization:

C. Satriano (IPGP), M Vallee (IPGP), P. Bernard (IPGP), N. Feuillet (IPGP), Y. Klinger (IPGP)?, S.Antoine phd student (IPGP)?

H. Miyake (ERI), K. Koketsu (ERI), A. Kato (ERI), Y. Aoki (ERI)
Studies including seismological, geodetic and geological data

Working Group 2 - Volcanology

P. Allard, M. Ichihara,
S. Vergnolle, J.C. Komorowski, A. Nercessiam (IPGP)
Y. Aoki, Y. Suzuki (ERI)

Ongoing project

Volcanic plume dynamics

Y. Suzuki (ERI), E. Kaminski, G. Carazzo, and S. Tait (IPGP)

Proposed projects

(1) Hydrothermal systems and lava domes at La Soufrière and Usu volcanoes

Field data: Deflation of lava domes at Usu (Y. Aoki, ERI), flank sliding and deformations at La Soufrière (J.C. Komorowski, IPGP). Question about Usu: why thermal diffusion appears to be so fast?

Proposed tools:

Numerical simulation (fluid flow in porous medium): Marina Rosas-Carbajal (IPGP)

Muon tomography: Marina Rosas-Carbajal (IPGP), R. Nishiyama, and L. Orah (ERI)

(2) Phreatic eruptions: La Soufrière and Ontake

J.C. Komorowski (IPGP), F. Maeno (ERI), and Tomaso Esposti Ongaro (INGV-Pisa)

Visit to Japan: J.C. Komorowski

(3) *How to measure acoustic waves from granular flow in the lab (and in the field)?*

A. Mangeney and S. Vergnolle (IPGP)

Mie Ichihara (ERI)

(Claudia Sanchez and Tomaso Esposti Ongaro)

(4) *Vanuatu and remote volcanic islands*

M. Ichihara, Y. Aoki, T. Ohminato, T. Kaneko, F. Maeno, and T. Koyama (ERI)

P. Allard, S. Vergnolle, Raffael Grandin, Tara Shreve, J.P. Metaxian (IPGP)

ERI will submit in 2020 a binational cooperation project between Japan and Vanuatu.

ERI and IPGP will look for another funding for a broader joint collaboration on remote island volcanoes (Vanuatu, Mayotte and Nishinoshima)

Working Group 3 - Global Geophysics

Our working group covers all the domains concerning the Earth and planetary interiors from their origins, formations and actual and future states from seismology, geodynamics, geomagnetism and geochemistry. During the workshop, we had 13 oral and 3 poster contributions to our session followed by a discussion on October 4th on the ongoing and future collaborations between ERI and IPGP (K. Baba, N. Fuji, J. Dymant, T. Iidaka, H. Iwamori, H. Kawakatsu, J.-P. Montagner, M. Wamba). Here in this document, we resume the discussion so that we can review it during the next workshop 2021 in Tokyo. Note that some scientists who are not present during the discussion due to the other working group discussions are also listed without their approvals. This is why we define those as « possible » future projects.

Talks & Posters (October 2nd and 3rd, 2019) Chairs: Takashi Iidaka and Nobuaki Fuji

Taichi Kawamura/Philippe Lognonné: From Mars with NASA InSight to the Moon with JAXA Lunar Polar Lander

Hitoshi Kawakatsu: Building Pacific Array: an international collaboration to image mantle dynamic processes across the Pacific basin

Nathalie Feuillet: Megathrust seismic cycles at the Ryukyu trench: insight from micro atoll corals

Takashi Iidaka: Lateral variation of the reflected wave amplitude from the subducting Philippine Sea plate

Nobuaki Fuji: A roll-over slab geometry revealed beneath the Caroline Plate

Vincent Lesur: Modelling the Earth core magnetic field: a Japanese-French IGRF candidate

Guilhem Barruol: Plume-lithosphere interaction beneath the Indian Ocean

Kiyoshi Baba: Upper mantle electrical conductivity beneath the northwestern Pacific

Mathurin Wamba: Seismic imaging of mantle plumes beneath la Réunion hotspot by waveform inversion

François Petrelis: Stress heterogeneity and the G-R law: understanding the b-value (at least in models)

Satish Singh: Imaging of the Lithosphere-Asthenosphere Boundary using active source seismology

Hikaru Iwamori: Mantle geochemical structure and top-down hemispherical dynamics of the Earth

Jérôme Dymant: Magnetic anomalies before and after subduction: the Japan Trench

Liqing Jiao: Necking and fracturing may explain stationary seismicity and full degassing in volcanic silicic spine extrusion

Ssu-Ting Lai: One station time-lapse centimetric seismic imaging: weakening and rupture process of granite rock during deformation

Zack Spica: Ocean-bottom distributed acoustic sensing in the Tohoku region

Ongoing projects as of October 4th, 2019 by: K. Baba, N. Fuji, J. Dymant, T. Iidaka, H. Iwamori, H. Kawakatsu, J.-P. Montagner, M. Wamba

1. Eta-kappa parameterization of seismic anisotropy (H. Kawakatsu - J.-P. Montagner)

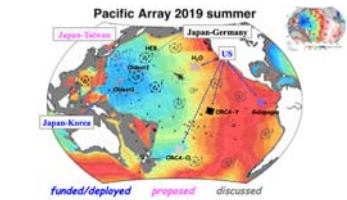
A long lasting collaboration. H. Kawakatsu and J.-P. Montagner are now reformulating the seismic anisotropy by introducing new parameters. Some contributions have been already published and there are invited each other.

2. Regional tomography studies (T. Iidaka - N. Fuji)

T. Iidaka and N. Fuji have been working during the summer 2018 with a PhD student on full waveform inversion for seismic structure of the upper mantle beneath the mainland China. The work is nearly accepted for a publication and they would like to continue on the exploration of SW Japan.

- International collaborations in magnetism (H. Shimizu - V. Lesur)
V. Lesur presented during his talk his international collaboration with EM community in Japan, including ERI. They will like to make benefit of this IGP-ERI MoU in order to strengthen their partnership.

Discussions - possible future collaborations (October 4th, 2019) discussed by: K. Baba, N. Fuji, J. Dymont, T. Iidaka, H. Iwamori, H. Kawakatsu, J.-P. Montagner, M. Wamba

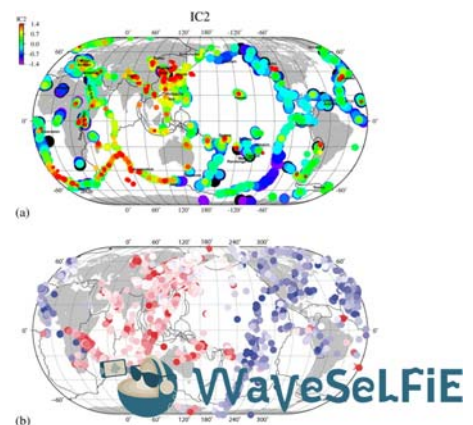


- Pacific array -> Indian ocean array? (H. Kawakatsu - IGP seismology/marine geosciences)

H. Kawakatsu showed that Pacific Array (figure on the right) multi-national project on the temporary OBS deployment in the Pacific Ocean is in a good shape, amongst Japan, Korea, Taiwan, USA, and Germany for instance. IGP would like to contribute to this but it is still difficult for French side to obtain some financial support for such a campaign. One alternative for French side to commence its participation to this internationally ambitious programme would be Indian Ocean array, and Korean (S.-M. Lee) are already there.

- Low-degree Earth models indicated from seismology and geochemistry (H. Iwamori - N. Fuji)

One of the talks to be highlighted during this workshop was one given by H. Iwamori on the degree-one global heterogeneity that are observed geochemically via independent component analysis (blind source separation, see the figure (a) on the right). These features have been « observed » in global seismic studies, particularly for the inner core (figure (b)), yet the dynamics behind is poorly understood. We would like to explore on seismic data of the mantle to capture these features directly without seismic tomography.



- Global seismology — deep Earth (H. Iwamori - E. Kaminski, J.-P. Montagner, N. Fuji)
Apart from talks from M. Wamba, T. Iidaka and N. Fuji, deep Earth exploration using seismic inversion is no more a mainstream. It would be still encouraged to maintain this way in order to understand the formation of our planet, in a collaboration with geodynamics, petrology and geochemistry. N. Fuji, J. Armitage, E. Kaminski are slowly starting his WaveSeLFiE project connecting forward modeling in geodynamics and in seismology with Academia Sinica (F. Deschamps) and HongKong University (T. Nakagawa). Here they are interested in working with H. Iwamori on the geochemical point of view as well as that on low-degree Earth models pointed above.
- Plume rheology (K. Baba - G. Barruol, E. Stutzmann)
Throughout his studies on the electrical conductivity beneath plumes, K. Baba has been interested in the other type of observation on the plume rheology. Knowing that IGP has been leading the Rhum-Rum project with German counterparts, K. Baba wants to start his new collaboration with seismologists expert in this project.
- Thermal structure of subduction zones (M. Yamano - J. Dymont)
J. Dymont is interested in his geo-magnetic analysis on subduction zones and to collaborate with the ERI group who are working on the thermal structure for a long time. His contribution on the Japan trench will improve the knowledge on it.
- Planetary seismology - moon project (N. Takeuchi - T. Kawamura, P. Lognonné, E. Stutzmann, N. Fuji)
As InSight project is going on very well, T. Kawamura is willing to work on the seismometers on moon 50 years after the Apollo landing. He has already developed connexions with JAXA but as theoretical seismologist N. Takeuchi is inside the project and it will be continuing as a bi-institutional collaboration.

Working group 4 - Innovative Observations

Abstract

The working group 4 (WG4) discusses possible collaboration between the two institutes for innovative observations. The two institutes have been individually working on technology regarding (1) optical fiber sensors, (2) offshore seismometers, (3) borehole observatories, (4) drones, and (5) data sharing. It should be recommended to work in a collaborative manner to enhance innovation in these fields. The following text is possible style of such collaborative projects.

Attendees list

Pascal Bernard (chair)
Ryuichi Nishiyama (chair)
Masataka Kinoshita
Zack Spica
Masanao Shinoahara
Arnaud Lemarchand
Jean-Marie Saurel
Sébastien Bonaimé
Koji Miyakawa
Nathalie Feuillet
Natsumi Hokanishi
Sophie Debaecker

(1) Optical fiber sensors

ERI has recently applied distributed acoustic sensing (DAS) method to an ocean bottom optical cable (by Shinoahara). In the future, DAS is expected to provide complementary infrastructure to traditional seismic networks. IPGP has been developing optical seismometers whose sensing parts work purely optically and without any electronics (by Bernard). A possible collaboration is to mount such sensors at one end of an existing telecom fiber at Asama volcano, Japan.

(2) Offshore seismometers

IPGP has an expertise on development of seismometers for space use (eg. InSight), whereas ERI has an expertise and infrastructure for ocean-bottom measurements (seismometers, pressure gauge, etc.). A possible challenge between the two institutes is to transfer technology developed in space to the ocean bottom. Extreme condition to another extreme condition. It would be also challenging to deploy optical seismometers (or optical pressure gauge) at the ocean bottom network in Japan.

(3) Mayotte event

The emergence and the discovery of the ocean-bottom volcano off the coast of Mayotte island opens new opportunities for scientists to apply cutting-edge observation technology. The mentioned ocean bottom seismometers, DAS and optical seismometers should be conducted in the framework of an international collaboration. If such collaboration happens and produces steady outcomes, drilling of the region might be possible in future.

(4) Drones

Both IPGP and ERI have experience and interest in drone technology. A collaboration is already initiated in the field of coral detection at Okinawa, Japan. Further collaborative projects should be investigated.

Keyword: DEM creation, landslide mapping, sensor installation, sample collection

(5) Data sharing

For collaborative research, data format is problematic. For instance, "win" format is commonly used in government agencies in Japan, however, it is not used in Europe. Although such problem cannot be solved by individual institute, discussion should be continued. We suggested that more Japanese webpages should be better translated to English to facilitate open data sharing.

Recommendation

To perform the mentioned collaborative projects, we would encourage more active exchange of technicians/engineers, as well as sharing technology and methods, etc. The IPGP-ERI workshop had “technical visit” session for the first time, in which technicians share the knowledge and expertise. This activity should be continued for the following workshops.



ERI-IPGP Workshop – October 2nd -4th, 2019
 Université de Paris, Institut de physique du globe de Paris

WG1: Earthquake and environmental seismology (Shingo Watada, Natalia Poiata)

WG2: Volcanoes (Mie Ichihara, Patrick Allard)

WG3: Global Geophysics (Takashi Iidaka, Nobuaki Fuji)

WG4: Innovative Observations (Ryuichi Nishiyama, Pascal Bernard)

	Wednesday	Thursday	Friday
Morning	<i>Po7 (Outremer)</i>	<i>Room 310</i>	<i>Room 108</i>
Lunch	<i>Cafeteria 6th floor</i>	<i>Cafeteria 6th floor</i>	<i>Cafeteria 6th floor</i>
Afternoon	<i>Po7 (Outremer)</i>	<i>Room 310</i>	<i>Free time (Room 108 booked in case)</i>
Dinner	<i>Buffet @ Médiathèque + Concert (poster session)</i>	<i>Joint dinner (restaurant) Students-Postdocs all together somewhere else</i>	<i>Free evening Friday beer</i>

Wednesday, October 2nd: Day 1

08:30 - 09:00 Reception
09:00 - 09:15 Introduction and welcome talks (ERI & IPGP) – Chaussidon/Montagner & Masa Kinoshita

Session WG1: Earthquake and environmental seismology

Chair: Shingo Watada, Natalia Poiata

09:15 - 09:30 **Mariano Supino:** *The regular scaling of low-frequency earthquakes*
09:30 - 09:45 **Shingo Watada:** *The 2018 Kurakatau tsunami*
09:45 - 10:00 **Martin Vallée:** *Multiple seismological observations and modeling of the prompt elasto-gravity signals*
10:00 - 10:15 **Kiwamu Nishida:** *Source locations of body wave microseisms*
10:15 - 10:30 **Éléonore Stutzmann:** *Blind Source Separation of Temporally Independent Microseisms*

10:30 - 11:10 **Coffee/Tea Break**

11:10 - 11:25 **Zack Spica:** *Extracting Geotechnical information in an urban environment using distributed acoustic sensing*
11:25 - 11:40 **Natalia Poiata:** *Space-time characterisation of low-frequency earthquakes activity in western Shikoku from analysis of continuous seismic data*
11:40 - 11:55 **Claudio Satriano:** *Rupture process of the Mw 3.3 earthquake in the St. Gallen 2013 geothermal reservoir, Switzerland*
11:55 - 12:10 **Kevin Juhel:** *Prompt gravity signals recorded by future gravity strainmeters and application to earthquake early warning*
12:10 - 12:25 **Jean-Paul Montagner:** *Porosity wave at Mount Fuji from ambient noise anisotropy.*

12:25 – 13:55 **Lunch**

Session WG2: Volcanoes

Chair: Mie Ichihara, Patrick Allard

13:55 - 14:10 **Nikolai Shapiro:** *Seismological studies of Kamchatka volcanoes*
14:10 - 14:25 **Patrick Allard:** *Source depth of Strombolian explosive activity at Yasur volcano, Vanuatu: insight from compositional gas changes and co-seismic signals*
14:25 - 14:40 **Mie Ichihara:** *Variable relations between magma discharge rate and eruption signals in infrasound*
14:40 - 14:55 **Anne Mangeney:** *Quantification of physical processes at the source of seismic waves generated by granular flows from laboratory-scale experiments.*
14:55 - 15:10 **Yujiro Suzuki:** *New scaling law for the Vulcanian-type volcanic eruption*
15:10 - 15:25 **Guillaume Carazzo:** *How did strong wind prevent total collapse of powerful Plinian eruptions: the examples of the 1815 Tambora, 1985 Nevado del Ruiz and 1991 Pinatubo eruptions*

15:25 - 16:00 **Coffee/Tea Break**

16:00 - 16:15 **Yosuke Aoki:** *Thermoelastic deflation of active volcanoes as imaged from synthetic aperture radar*
16:15 - 16:30 **Giulia Del Manzo:** *Eruptive history of Lesser Antilles volcanic arc and the impact of volcanism on marine environment : what can be learnt from Martinique?*
16:30 - 16:45 **László Oláh:** *High-definition and low-noise muography of the Sakurajima volcano with gaseous tracking detectors*
16:45 - 17:00 **Fabio Manta:** *Correlation between GNSS-TEC and eruption magnitude supports the use of ionospheric sensing to complement volcanic hazard assessment*
17:00 - 17:15 **Jean-Philippe Métaxian:** *Machine learning applied to volcanic earthquakes analysis: A case study on the Ubinas volcano, Peru*

- 17:15 - 17:30 **Sylvie Vergnolle:** *Insights on temporal activity at Yasur volcano (Vanatua) from simultaneous seismic and infrasonic records*
- 17:30 - 17:45 **Jean-Christophe Komorowski:** *The hazards of hydrothermal and phreatic explosions at La Soufrière de Guadeloupe: insights from historical events, computer simulations and the current unrest*
- 17:45 – 18:30 **Presentation Poster (2 min each)**
- 18:30 – 21:00 **Reception (with PhiloGaïa Orchestra and posters)**

Thursday, October 3rd: Day 2

Session WG4: Innovative Observations

Chair: Ryuichi Nishiyama, Pascal Bernard

- 09:00 - 09:15 **Masanao Shinohara:** *Seafloor monitoring systems of crustal activities and tsunamis - Advance of OBS and cable system -*
- 09:15 - 09:30 **Pascal Bernard:** *Onland and offshore high resolution optical seismometers at the end of long, plurikilometric fibers*
- 09:30 - 09:45 **Masataka Kinoshita:** *IODP Nankai Trough Seismogenic Zone Drilling – Achievements and Lessons-*
- 09:45 - 10:00 **Wayne Crawford:** *Seafloor measurements of the 2018-19 Mayotte seismo-volcanic crisis*
- 10:00 - 10:15 **Sébastien De Raucourt:** *Planetary seismic station: from Mars to the Moon*
- 10:15 - 10:30 **Ryuichi Nishiyama:** *Joint inversion of gravimetry and muography data for the internal structures of mountains (volcanoes and glaciers)*
- 10:30 - 10:45 **Masataka Kinoshita, Koji Miyakawa, Natsumi Hokanishi, Kenji Satake:** *Introduction to ERI technical support*
- 10:45 - 11:30 **Coffee/Tea Break**

Session WG3: Global Geophysics

Chair: Takashi Iidaka, Nobuaki Fuji

- 11:30 - 11:45 **Taichi Kawamura/Philippe Lognonné:** *From Mars with NASA InSight to the Moon with JAXA Lunar Polar Lander*
- 11:45 - 12:00 **Hitoshi Kawakatsu:** *Building Pacific Array: an international collaboration to image mantle dynamic processes across the Pacific basin*
- 12:00 - 12:15 **Nathalie Feuillet:** *Megathrust seismic cycles at the Ryukyu trench: insight from micro atoll corals*
- 12:15 - 12:30 **Takashi Iidaka:** *Lateral variation of the reflected wave amplitude from the subducting Philippine Sea plate*
- 12:30 – 14:30 **Lunch (posters)**
- 14:30 - 14:45 **Nobuaki Fuji:** *A roll-over slab geometry revealed beneath the Caroline Plate*
- 14:45 - 15:00 **Vincent Lesur:** *Modelling the Earth core magnetic field: a Japanese-French IGRF candidate*
- 15:00 - 15:15 **Guilhem Barruol:** *Plume-lithosphere interaction beneath the Indian Ocean*
- 15:15 - 15:30 **Kiyoshi Baba:** *Upper mantle electrical conductivity beneath the northwestern Pacific*
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- 15:45 – 16:30 **Coffee/Tea Break**
- 16:30 - 16:45 **François Petrelis:** *Stress heterogeneity and the G-R law: understanding the b-value (at least in models)*
- 16:45 - 17:00 **Satish Singh:** *Imaging of the Lithosphere-Asthenosphere Boundary using active source seismology.*

- 17:00 - 17:15 **Hikaru Iwamori:** *Mantle geochemical structure and top-down hemispherical dynamics of the Earth*
- 17:15 - 17:30 **Jérôme Dymont:** *Magnetic anomalies before and after subduction: the Japan Trench*
- 17:30 - 19:00 **Poster Session**
- 19:00 **Dinner Researchers & Student Night**

Friday, October 4: Day 3

9:00 - 10:00 **General Discussion animated by the WG Chairs & Conveners.**

WG1: Earthquake and environmental seismology

Chair: Shingo Watada, Natalia Poiata

WG2: Volcanoes

Chair: Mie Ichihara, Patrick Allard

WG3: Global Geophysics

Chair: Takashi Iidaka, Nobuaki Fuji

WG4: Innovative Observations

Chair: Ryuichi Nishiyama, Pascal Bernard

Coffee/Tea Break

Conveners

Jean-Paul Montagner, Masa Kinoshita

10:30 - 11:30 **Meeting of WG and first draft-rapport redaction**

11:30 - 12:00 **Final Discussion, Conclusion, Perspectives**

Adjourn

LIST OF POSTERS (To be completed)

Solène Antoine: *Near-fault variations of slip and strain for a complex rupture zone of the Baluchistan earthquake (Pakistan, 2013)*

Satoru Baba: *Comprehensive detection of very low frequency earthquakes off the Hokkaido and Tohoku Pacific coast, northeastern Japan*

Pauline Bonnet: *Understanding the source of glacial earthquakes: mechanical modeling of capsizing icebergs and generated water motion*

Sophie Debaecker: *Seismic cycle in the Ryukyu Trench: Insights from marine terraces*

Tristan Deleplanque: *High-frequency sources separation by a regional seismic rupture imaging method applied to the 2016 Kumamoto foreshocks.*

Julian Eisenbeis: *New constrains from the LAYER station: the TEC enhancement before the seismic event is a simple artefact*

Gaspard Farge: *Sounds of the subduction piping system? — How the dynamics of transient pore pressure diffusion in subduction zones could account for low-frequency earthquakes activity*

Liqing Jiao: *Necking and fracking may explain stationary seismicity and full degassing in volcanic silicic spine extrusion*

Ssu-Ting Lai: *One station time-lapse centimetric seismic imaging: weakening and rupture process of granite rock during deformation*

Atsuki Oba: *Early forecast of long-period ground motions based on data assimilation of observed ground motions and numerical simulation of seismic wave propagation*

Tara Shreve: *From prodigious volcanic degassing to caldera subsidence and quiescence at Ambrym (Vanuatu): the influence of regional tectonics*

Zack Spica: *Ocean-bottom distributed acoustic sensing in the Tohoku region*

Alister Trabattoni: *Orienting and locating OBS from ship noise analysis*

Wang Yuchen: *Tsunami Data Assimilation Approach in Disaster Mitigation*

Technical Visit (organized by Jean-Marie Saurel)

* Wednesday, October 2nd: Day 1

9h30-12h30 - general visit of IPGP technical facilities (Jean-Marie Saurel)

Geochemical analysis and samples preparation (Natsumi)

14h00-14h30 - micro-drill demonstration (Vincent Busigny)

14h30-16h00 - FEG-FIB dual-beam microscope, FEG-FIB-SEM Auriga demonstrations (Stefan Borensztajn)

16h00-16h30 - PARI platform general tour (Mickaël Tharaud)

Geophysical instrumentation and observatories (Koji)

14h15-16h15 - geophysical instrumentation facilities tour (Geoscope, volcano observatories, laser seismometer) (Jean-Marie Saurel)

* Thursday, October 3rd: Day 2

Geochemical analysis and samples preparation (Natsumi)

14h00-16h00 - rock sample preparation and inclusion analysis lab (Pierre Burckel, Samia Hidalgo)

Geophysical instrumentation and observatories (Koji)

03/10 14h00-16h00 - Curie seismic vault and Insight seismometer (Tanguy Nébut, Jean-Marie Saurel)

IPGP Participants:

Patrick Allard
Guilhem Barruol
Pascal Bernard
Guillaume Carazzo
Wayne Crawford
Sebastien De Raucourt
Jérôme Dymont
Nathalie Feuillet
Nobuaki Fuji
Gauthier Hulot
Édouard Kaminski
Taichi Kawamura
Jean-Christophe Komorowski
Anne Le Friant
Vincent Lesur
Philippe Lognonné
Anne Mangeney
Jean-Philippe Métaxian
Jean-Paul Montagner
Giovanni Occhipinti
Natalia Poiata
Claudio Satriano
Jean-Marie Saurel
Nikolai Shapiro
Satish Singh
Éléonore Stutzmann
Martin Vallée
Sylvie Vergnolle

Students /Post-docs

Pauline Bonnet
Gaspard Farge
Giulia Del Manzo
Sophie Debaecker
Tristan Deleplanque
Julian Eisenbeis
Liqing Jiao
Kevin Juhel
Ssu-Ting Lai
Fabio Manta
Mariano Supino
Alister Trabattoni
Mathurin Wamba

ERI Participants:

Yosuke Aoki
Kiyoshi Baba
Natsumi Hokanishi
Hikaru Iwamori
Mie Ichihara
Takashi Iidaka
Hitoshi Kawakatsu
Masataka Kinoshita
Koji Miyakawa
Kiwamu Nishida
Ryuichi Nishiyama
François Pétrélis
Masanao Shinohara
Yujiro Suzuki
Shingo Watada

Students /Post-docs

Satoru Baba
Atsuki Oba
László Oláh
Zack Spica
Yuchen Wang