

# French-Japanese Week on Disaster Risk Reduction

## 日仏防災イベント週間



### Tokyo & Sendai, October 2-8, 2017



AMBASSADE DE FRANCE  
AU JAPON



# French-Japanese Week on Disaster Risk Reduction

**October 2<sup>nd</sup> to October 8<sup>th</sup>, 2017**  
**Japan**

Registration (mandatory) at <http://drr.science-japan.org>

In Japan and in France, natural risks threaten population and strategic facilities such as power plants and public transport networks. This is why it is important to understand these risks in order to prevent them and minimize their damage.

Scientific cooperation is a key element to tackle this issue that deals with various scientific fields. In this regard, the Third United Nations World Conference on Disaster Risk Reduction, held in Sendai in 2015, was an important milestone that built an international framework for the disaster risk reduction. In this context, France and Japan could foster their cooperation in order to better understand disaster risk by sharing their scientific outcomes.

Hence this week aims to gather French and Japanese scientists from various fields around:

- **A symposium** aiming to present the main actors and topics of the French-Japanese cooperation on disaster risk reduction on Monday, October 2<sup>nd</sup>.
- **Several workshops** held in Japan during the same week from Tuesday, October 2<sup>nd</sup> to Thursday, October 5<sup>th</sup>.
- **Visits** in Japan of tsunami-affected areas as well as facilities and institutions on Friday, October 6<sup>th</sup> (*by invitation only*), open campus of Tohoku University on October 7-8.

## Organizers:

- Embassy of France in Japan
- Bureau français de la MFJ – UMIFRE 19 (日仏会館フランス事務所)

## Co-organizer:

- Fondation Maison franco-japonaise (公益財団法人日仏会館)

Regarding general information, please contact: [drr2017@ambafrance-jp.org](mailto:drr2017@ambafrance-jp.org)

- Mrs. Aki SATO, Assistant
- Mr. Pierre FEUARDANT, Project Manager
- Mr. Sébastien CODINA, Team Leader

*For registration and information regarding a specific workshop, please contact the organizers (see next pages).*

Date	Venue	Event	Organizers
Monday, October 2	<a href="#">MFJ Auditorium</a>	Symposium on French-Japanese cooperation on disaster risk reduction	Embassy of France in Japan, Bureau français de la MFJ – UMIFRE 19
	<a href="#">Embassy of France</a>	MUOGRAPHERS 2017 General assembly ( <i>by invitation only</i> )	The University of Tokyo, ERI, BRGM, INFN, INGV, INAF, Wigner RCP, Sheffield University, CNRS, Kansai University
	Residence of France	Reception at 18:45 ( <i>by invitation only</i> )	Embassy of France in Japan
Tuesday, October 3	<a href="#">MFJ Auditorium</a>	Sedimentary signature of tsunamis	Université Clermont Auvergne, IRIDeS, IPGP
	<a href="#">MFJ 601</a>	Workshop on earthquakes and triggered hazards	BRGM, DPRI
	<a href="#">MFJ 501</a>	Disaster management and health emergencies	Mines Alès, University of Nîmes, CHU Grenoble Alpes
	<a href="#">AORI</a>	Mega-earthquakes in subduction zones: insights from fossil examples exhumed onland	University of Orléans, Universities of Kagoshima and Tokyo, AIST
	<a href="#">ERI</a>	Monitoring of active processes in seismic and volcanic zones	IPGP, ERI
Wednesday, October 4	<a href="#">MFJ Auditorium</a>	France-Japan Tsunami and Disaster Risk Reduction Workshop	University of Lyon, Tohoku University
	<a href="#">MFJ 509</a>	Tsunami in the Atlantic and the English Channel: Definition of the effects through numerical modelling (TANDEM) Workshop	CEA with TANDEM project partners and JMA
	<a href="#">MFJ 601</a>	GéNéPi project workshop – mediation information system to support crisis management	GéNéPi project partners
	<a href="#">MFJ 501</a>	Workshop on GPR measurement of active faults and tsunami sediments (PM)	IPGS, Tohoku University
	RTRI	Earthquake engineering: soils, structures and Soil-Structure Interaction ( <i>by invitation only</i> )	IFSTTAR, RTRI (internal meeting)
	<a href="#">ERI</a>	Monitoring of active processes in seismic and volcanic zones	IPGP, ERI
Thursday, October 5	<a href="#">MFJ Auditorium</a>	Workshop on the prediction of non-linear soil behavior	SEISM, IFSTTAR, CEREMA, DPRI
	<a href="#">MFJ 601</a>	Knowledge and vulnerability in the Fukushima nuclear disaster (AM)	CNRS, Université de Lille
		Crisis, Breaks and new Dynamics in post 3.11 Japan (CBD311), UMIFRE 19 (MFJ) (PM)	Bureau français de la MFJ – UMIFRE 19
	<a href="#">MFJ 501</a>	Workshop on subsurface electromagnetic measurement	Tohoku University
	<a href="#">MFJ 509</a>	Tsunami in the Atlantic and the English Channel: Definition of the effects through numerical modelling (TANDEM) Workshop	CEA with TANDEM project partners and JMA
	<a href="#">ERI</a>	Monitoring of active processes in seismic and volcanic zones	IPGP, ERI
	<a href="#">IRIDeS</a>	France-Japan Tsunami and Disaster Risk Reduction Workshop (PM)	University of Lyon, Tohoku University
	<a href="#">IRIDeS</a>	Reception at 18:30 ( <i>by invitation only</i> )	IRIDeS
Friday, October 6	<a href="#">Sendai, Tagajo</a>	IRIDeS tour, field trip ( <i>by invitation only</i> )	Tohoku University
October 7-8	<a href="#">Sendai</a>	Tohoku University open campus	Tohoku University

# Symposium on French-Japanese cooperation on Disaster Risk Reduction

## Date and duration

Monday, October 2<sup>nd</sup> (one day)  
10:00 am to 6:00 pm

## Place

Auditorium of the [Maison franco-japonaise \(日仏会館\)](#)

## Organizers

Embassy of France in Japan  
Bureau français de la MFJ – UMIFRE 19 (日仏会館フランス事務所)

## Language

English without translation

## Contact and registration

Free of charge  
Online registration: <http://drr.science-japan.org>

## Event abstract

Disaster Risk Reduction is a very broad field with a lot of different disciplines in hard sciences and human sciences. Both France and Japan are subject to natural disasters and benefit from an excellent and active research and numerous actors aiming to mitigate their impact. The purpose of this symposium is, for the main actors of this research landscape, to present their fields of research and their French-Japanese cooperation.

See program on the next page for more information.

**Monday, October 2<sup>nd</sup>, 2017**

**Symposium on French-Japanese cooperation on Disaster Risk Reduction**

Auditorium of **Maison franco-japonaise (日仏会館)**

Session	Time		Presentation	Organism/Project	Speaker
<i>Chair:</i> <b>Sébastien CODINA</b> <i>Scientific Attaché, Embassy of France in Japan</i>	10:00	10:10	Welcome address	Bureau français de la MFJ – UMIFRE 19	Cécile SAKAI
	10:10	10:15	Overview on French-Japanese cooperation on DRR	Embassy of France	Pierre FEUARDANT
	10:15	10:35	Sendai Framework for Disaster Risk Reduction	UNISDR Office in Japan	Yuki MATSUOKA
<b>Risk identification and assessment</b>	10:35	10:55	Observatories and monitoring systems	IPGP	Anne LE FRIANT
	10:55	11:15	Fluid circulations along the seismogenic zone: insights from natural examples and relationship with earthquake cycle	Universities of Kagoshima and Orléans	Yujin KITAMURA / Hugues RAIMBOURG
	11:15	11:35	Monitoring of slow earthquakes – Possible connection to huge earthquakes	ERI	Kazuhige OBARA
	11:35	11:55	Imaging, sampling and monitoring subduction seismogenic zone	JAMSTEC	Shuichi KODAIRA
	11:55	12:15	Effect of a weak periodic modulation on earthquakes	ENS Paris/ERI	Takahiro HATANO
	12:15	12:35	Ground Penetrating Radar (GPR) and its applications	Tohoku University / IPGS	Maksim BANO / Motoyuki SATO
	12:35	12:55	Tsunamis in the Atlantic and the English Channel - Definition of the effects through numerical modeling	TANDEM	Hélène HEBERT
	12:55	13:10	<i>Panel discussion and questions</i>		
	13:10	14:20	<i>Lunch</i>		
<b>Urban risk and social impact</b>	14:20	14:40	Landslides in urban residential slopes induced by strong earthquakes in Japan	BRGM / DPRI	Toshitaka KAMAI
	14:40	15:00	Can large cities be designed as earthquake shields?	IFSTTAR	Jean-François SEMBLAT
	15:00	15:20	Improving the seismic risk analysis for nuclear facilities safety	SINAPS@	Catherine BERGE-THIERRY
	15:20	15:40	A cross-disciplinary approach to risk assessment and management in Univ Grenoble-Alpes	Univ. Grenoble Alpes	Sandrine CAROLY / Céline CHOLEZ
	15:40	16:00	Mediation Information system to support agility of crisis management	GéNéPi	Frédéric BENABEN
	16:00	16:20	<i>Coffee break</i>		
<i>Chair:</i> <b>Fumihiko IMAMURA</b> <i>Director of IRIDeS</i>	16:20	16:40	Protection from nuclear disaster and production of knowledge: the Fukushima case	CNRS-Clersé-University Lille 1	Thierry RIBAUT
	16:40	17:00	Disaster management and health emergencies	Mines Alès / University of Nîmes	Gilles DUSSE
	17:00	17:20	Lyon Urban School: new approaches to the urban vulnerability	University of Lyon	Michel LUSSAULT
	17:20	17:40	Universities role for Sendai Framework on DRR: actions of IRIDeS, Tohoku University	Tohoku University/IRIDeS	Fumihiko IMAMURA
	17:40	17:55	<i>Panel discussion and questions</i>		
	17:55	18:00	Closing remarks	Embassy of France	Sébastien CODINA

## Muographers 2017 General assembly (*by invitation only*)

### Date and duration

Monday, October 2<sup>nd</sup> (one day)

### Place

[Embassy of France in Japan](#)

Minamiazabu, 4-11-44, Minato, Tokyo 106-8514

### Organizers

The University of Tokyo/ERI

Istituto Nazionale di Fisica Nucleare (INFN)

Istituto Nazionale di Geofisica e Vulcanologia (INGV)

Istituto Nazionale di Astrofisica (INAF)

Wigner Research Centre for Physics of the Hungarian Academy of Sciences

Sheffield University

CNRS: National Scientific Research Center

Kansai University

Geological and Mining Research Bureau (BRGM)

### Language

English without translation

### Contact

Contact person : Hiroyuki Tanaka (The University of Tokyo/ERI):

[ht@virtual-muography-institute.org](mailto:ht@virtual-muography-institute.org)

### Event abstract

The Muographers 2017 General Assembly will bring together European and Japanese researchers to give presentations about the use of elementary particles, muons, to investigate the structure inside volcanos ("muography"). Other examples of the use of this technique, such as the imaging of the interior of historic architecture, carbon capture and storage, caves and other targets, along with a unique educational outreach program with art, will be also presented. Muography is an exciting technological innovation that utilizes basic physics to address major societal hazards. The conference will begin with two brief introductory talks by a Japanese and a European expert. They will outline what muography is, and how it can provide insights into understanding volcanoes and other difficult to access large structures. The talks will emphasize the successful collaborations that have occurred between Europe and Japan, including projects focused on famous volcanoes such as Mount Vesuvius and Sakurajima and the Egyptian Cheops pyramid.

A memorandum of understanding between Earthquake Research Institute and the French Geological and Mining Research Bureau will be signed.

[The program of both events is available here.](#)

**Mon. October 3**



**Thu. October 5**

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# Workshops

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*The program of these three days will include 15 workshops organized by French and Japanese actors on numerous domains such as geology, seismology, crisis management, health emergencies, volcanology, modeling, human sciences, etc.*

**Registration mandatory at <http://drr.science-japan.org>**

# Sedimentary signature of tsunami

## Date and duration

Tuesday, October 3<sup>rd</sup> (one day)

## Place

[Maison franco-japonaise \(日仏会館\) Auditorium](#)

## Organizers

Université Clermont Auvergne /LMV (Laboratory of Magmas and Volcanoes)  
Raphaël Paris: [raphael.paris@uca.fr](mailto:raphael.paris@uca.fr)  
Tohoku University/IRIDeS (International Research Institute of Disaster Science)  
Kazuhisa Goto  
Paris Institute of Earth Physics (IPGP)  
Nathalie Feuillet

## Language

English without translation

## Registration

<http://drr.science-japan.org>

## Event abstract

Identifying and quantitatively characterizing tsunami deposits in order to better understand tsunami flow dynamics and to estimate the magnitude of past tsunamis is one of the key challenges of tsunami science. During the workshop on the “Sedimentary signature of tsunamis”, different topics will be addressed through scientific communications and discussions: new methods for characterizing tsunami deposits; advances in numerical modeling of sediment transport (including boulders) by tsunamis; linking observations of tsunami flows inland and deposits (insights from recent tsunamis); inverse modeling of past tsunamis from the characteristics of their deposits.

## Program

9:00-9:15: Introduction (Raphaël Paris, Kazuhisa Goto)

### <Morning Session>

#### Session 1: Sedimentary records of palaeo-tsunamis

- 9:15-9:45 Yuichi Nishimura: Contribution of paleo tsunami study to seismic hazard assesment in Hokkaido.
- 9:45-10:15 Yuki Sawai: Pre- and post-2011 attempt to anticipate unusually large tsunamis along the Japan trench.
- 10:15-10:45 Daisuke Ishimura: Progress of historical and paleo-tsunami deposit research on the Sanriku Coast after the 2011 Tohoku tsunami.



<break>

- 11:00-11:30 Osamu Fujiwara: Developing better quantitative estimates of timing and size of the Nankai Trough earthquakes and tsunamis.
- 11:30-12:00 Nathalie Feuillet & Anne Le Friant: Tsunami deposits in low lying islands of the Caribbean and in deep offshore basins of the Lesser Antilles fore-arc.
- 12:00-12:30 Discussion.

### <Afternoon session>

#### **Session 2: Methodological developments**

- 13:30-14:00 Yasuhiro Takashimizu: Spatial distribution of sedimentary characteristics of the 2011 Tohoku-oki tsunami deposits, Minami-Soma city, Japan.
- 14:00-14:30 Tetsuya Shinozaki: Prospects for geochemical techniques in tsunami research.
- 14:30-15:00 Simon Falvard & Raphaël Paris - X-ray microtomography of tsunami deposits: new insights into depositional processes from 3 dimensional, high resolution data.
- 15:00-15:30 Daisuke Sugawara: Assessing tsunami source and magnitude information using sediment transport modeling.

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- 15:45-16:15 Hajime Naruse: Inverse Calculation from Deposit to Tsunami Transporting Sediment Mixture in Non-Equilibrium Conditions.

#### **Session 3: Discussion (16:15-18:00)**

- 16:15-16:45 Paris R: Perspectives of research on tsunami deposits.
- 16:45-17:15 Goto K: Contribution of paleotsunami research to the risk assessment.

17:15-18:00 Discussion

# Workshop on earthquakes and triggered hazards

## Date and duration

Tuesday, October 3<sup>rd</sup>  
1:00 pm – 5:00 pm

## Place

[Maison franco-japonaise \(日仏会館\) Room 601](#)

## Organizers

Geological and Mining Research Bureau (BRGM)  
Gilles Grandjea: [g.grandjean@brgm.fr](mailto:g.grandjean@brgm.fr)  
Kyoto University/DPRI (Disaster Prevention Research Institute)  
Shinichi Matsushima: [matsushima@sds.dpri.kyoto-u.ac.jp](mailto:matsushima@sds.dpri.kyoto-u.ac.jp)

## Language

English without translation

## Registration

<http://drr.science-japan.org>

## Event abstract

French-Japanese Symposium on Earthquakes and Triggered Hazards was held in September 2015, organized by BRGM (Geological and Mining Research Bureau) and DPRI (Disaster Prevention Research Institute, Kyoto University). BRGM and DPRI have been collaborating on several aspects of earthquakes and triggered hazards and signed a Memorandum of Understanding in 2013. In this workshop, we will have presentations related to earthquakes and triggered hazards, such as earthquake source, strong ground motion, site effects, landslides, tsunamis that have been updated or newly obtained since the symposium in 2015.

## Program

11:00 – 11:05 Welcome  
Gilles GRANDJEAN (BRGM)  
11:05 – 11:30 Surface ruptures associated with the 2016 Kumamoto earthquake  
Masayuki YOSHIMI (Geological Survey Japan, National Institute of Advanced Industrial Science and Technology)  
11:30 – 11:55 Rupture process and near-fault ground motions of the 2016 Kumamoto earthquake, Japan  
Kimiya ASANO (DPRI)  
11:55 – 12:20 Generation mechanism of large-scale fissures in the Aso valley accompanied with 2016 Kumamoto earthquake - Relationship to subsurface structure -  
Issei DOI (DPRI), Toshitaka KAMAI, Satoshi GOTO, Ryokei AZUMA, Takahiro OHKURA, Hidehiko MURAO, and Kenji MIMA

12:20 – 12:45 Building damage survey of the 2016 Kumamoto earthquake  
Takuma SAEKI (National Research Institute for Earth Science and Disaster  
Resilience)  
12:45 – 14:15 Lunch Break  
14:15 – 14:40 Landslides and rock falls induced by seismic events - An overview in France  
and Europe -  
Gilles GRANDJEAN (BRGM)  
14:40 – 15:05 The sub-bottom archaeological sites of Lake Biwa (Japan) - Lessons for the  
modern water-front region on earthquake disaster -  
Toshitaka KAMAI (DPRI)  
15:05 – 15:30 Tsunami induced by earthquakes, historical and modeling approaches  
Anne LEMOINE (BRGM)  
15:30 – 16:00 Coffee Break  
16:00 – 16:25 Lateral heterogeneity of subsurface structure inferred from directionally  
dependent microtremor horizontal-to-vertical spectral ratios  
Shinichi MATSUSHIMA (DPRI)  
16:25 – 16:50 Inferring shake-maps and post-earthquake situational awareness with  
Bayesian networks  
Pierre GEHL (BRGM)  
16:50 – 17:25 Discussions  
17:25 – 17:30 Closing  
Shinichi MATSUSHIMA (DPRI)

# Disaster management and health emergencies

## Date and duration

Tuesday, October 3<sup>rd</sup> (one day)

## Place

[Maison franco-japonaise \(日仏会館\) Room 501](#)

## Organizers

Mines d'Alès  
Gilles Dusserre: [gilles.dusserre@mines-ales.fr](mailto:gilles.dusserre@mines-ales.fr)  
Université de Nîmes  
CHU Grenoble Alpes

## Language

English without translation

## Registration

<http://drr.science-japan.org>

## Event abstract

Europe and Japan have made progress in preparing disasters and large scale emergencies, although gaps remain in some key areas (incident command, standardized approaches, *etc.*).

Moreover, a significant issue faced by front line responders has been the significant increase of the number and type of potential scenarios they must be prepared to handle. The workshop dedicated to Disaster management and health emergencies will try to handle some features of health emergency domains (lessons learnt, training, simulation, response of medical teams and humanitarian actions).

## Program

**8:30 – 9:00 Welcome**

**9:00 - 9:20 Decision making during health emergencies – The use of lessons learnt**

Cécile L'Héritier, Gilles Dusserre, Sébastien Harispe, Abdelhak Imoussaten et Benoit Roig  
Centre de Recherche LGI2P/Ecole des mines d'Alès, Site EERIE,  
Parc scientifique G. Besse, 30035 Nîmes cedex 1, France  
Université de Nîmes, Rue du Dr Georges Salan, 30000 Nîmes

**9:30 – 9:50 Disaster management and community-based integrated care system**

Ken Osaka, Kemmyo Sugiyama (International Research Institute of Disaster Science,

**10:00 – 10:20 Lessons in post-disaster mental health issues - Longitudinal alterations of mental health conditions among communities affected by the Great East Japan Earthquake** Ayako Sato, Hiroaki Tomita (Tohoku Medical Megabank Organization / International Research Institute of Disaster Science, Tohoku University)

**Break**

**11: 00 – 11:20 Master of Science Damage (Disaster management and environmental impact)**

Gilles Dusserre, Serge Bastide, Karine Weiss

**11: 30 – 11: 50 Personal safety during field hospital deployment**

Rillard Didier, Cadiere Axelle, Roig Benoit

Université de Nîmes, Rue du Dr Georges Salan, 30000 Nîmes

**12: 30 End of morning session**

**12:30 – 14:00 Lunch break**

**14:00 – 14:20 Lessons learned from Tsunami in 1933**

Dr Takashi FUJITA

PhD FACS, Trauma and Resuscitation Center, University OF TEIKYO , JAPAN

**14:30 -14: 50 Time courses of patient load at hospitals in the setting of previous Mass Casualty Incident in Japan: using mass-balance dynamic simulation model.**

Pr Naoto MORIMURA

PHD, Professor and chair, Department of Acute Medicine Graduate School of Medicine, The University of Tokyo, JAPAN

**15:00 – 15:20 Novel indicator of the degree of medical demand-supply imbalance at each hospital in a disaster setting: Introduction of the Risk-Resource-Ratio score.**

Pr Naoto MORIMURA, PHD, Professor and chair, Department of Acute Medicine Graduate School of Medicine, The University of Tokyo, JAPAN

**15:30 – 15:50 In-hospital management of massive admission of severe trauma patients: the crucial role of surgeon's formation.**

Pr Catherine ARVIEUX, Dr Sandrine BARBOIS, Dr Julio ABBA

CHU Grenoble-Alpes , University Grenoble Alpes (UGA), France

**16:00 – 16:30: Conclusions**

\*All presentations will be followed with 10 min of questions

# Mega-earthquakes in subduction zones: insights from fossil examples

## Date and duration

Tuesday, October 3<sup>rd</sup> (1 day)

## Place

[Atmosphere and Ocean Research Institute](#), the University of Tokyo, room 217  
5-1-5 Kashiwanoha, Kashiwa, Chiba 277-8564 JAPAN  
(15 minutes bus from TX Kashiwanoha-Campus station)

## Organizers

The University of Tokyo/AORI  
Asuka Yamaguchi: [asuka@ori.u-tokyo.ac.jp](mailto:asuka@ori.u-tokyo.ac.jp)  
University of Orléans  
Hugues Raimbourg: [hugues.raimboug@univ-orleans.fr](mailto:hugues.raimboug@univ-orleans.fr)

## Language

English without translation

## Registration

<http://drr.science-japan.org>

## Event abstract

The mega-earthquakes that occur episodically along subduction margins are a major natural hazard, which requires a lot of research effort to be focused on the conditions favoring their generation along the plate interface. The recent development of geodetic and seismological monitoring has highlighted the great variability in time and space of the way slip occurs along the plate interface. The great challenge is therefore now to understand why the plates interface, in some instances, creeps aseismically or, in other ones, rupture during mega-earthquakes.

For this purpose, fossil subduction zones now exhumed onland, such as the Shimanto Belt in Japan, provide the access to the deep portions of plate interface that cannot be reached in modern margins.

Using fossil examples, the purpose of this session is to provide a comprehensive description of the whole range of deformation processes that are operative along the plate interface and of their controlling factors. It implies to combine various approaches, including structural geology, geochemistry and rock deformation experiments.

Great emphasis should be put in particular on the interpretation of fossil deformation structures in terms of slip properties and on their correspondence with modern processes. Another point of focus includes the analysis of the various strain weakening processes, especially those related to the fluid.

## Program

10:30 Gaku Kimura "Tectonics of Northern/Southern subbelt boundary fault in the Shimanto Belt" (30min)

11:00 Rina Fukuchi "Tectonic evolution of the Nankai accretionary prism at off-Kumano region" (30min)

11:30 Hiroaki Koge "Sandbox experiment simulating subduction of horst-graben structure of Japan Trench" (20min)

(Lunch break)

13:00 Ryota Hasegawa "Geochemical anomalies along the Nobeoka Thrust" (20min)

13:20 Yui Kouketsu "Application of carbonaceous material Raman geothermometer to fault rocks" (30min)

14:00 Yujin Kitamura "Raman spectroscopic analysis of carbonaceous materials within fault rocks from Aki Tectonic Line and Okitsu melange" (20min)

14:20 Asuka Yamaguchi "Raman spectra of carbonaceous materials within the black fault rocks in Kodiak accretionary complex" (20min)

14:40 Hugues Raimbourg "Aseismic vs. seismic deformation along the plate interface, the insight from fossil examples" (30min)

(coffee break)

15:30 Kohtaro Ujiie "Detection of frictional heating on faults using Raman spectra of carbonaceous materia" (30min)

16:00 Kiyokazu Oohashi "A structural traverse across the Shimanto belt in western Shikoku, Japan" (30min)

16:30 Olivier Fabbri "Paleo-asperities frozen along a major fault zone in Alpine Corsica ophiolites: Implications on present-day subduction zone intermediate-depth seismicity" (30min)

17:15 General discussion

18:00 Conference dinner

# Monitoring of active processes in seismic and volcanic zones

## Date and duration

Tuesday, October 3<sup>rd</sup> to Thursday, October 5<sup>th</sup> (3 days)

## Place

Earthquake Research Institute, University of Tokyo  
<http://www.eri.u-tokyo.ac.jp/en/access/>

## Organizers

IPGP  
The University of Tokyo/ERI

## Language

English

## Registration

<http://drr.science-japan.org>

## Event abstract

This workshop is organized in the framework of the longstanding scientific collaboration between ERI (Tokyo) and IPG (Paris). These workshops are held every two years, alternatively in Japan and France during the last decade. They enable to take stock of ongoing collaborative projects, to launch new scientific projects and to discuss the exchange of scientists, PhD students and post-docs.

In 2017, the workshop will be focused on the monitoring of active processes in seismic and volcanic zones.

## Program

### **WG1: Earthquake and Tsunamis (Kenji Satake, Giovanni Occhipinti)**

IPGP: 9 (5 researchers, 4 students/post-doc), ERI: 16 (9 researchers, 7 students)

### **WG2: Volcanology, Environmental Seismology (Mie Ichihara, Anne Le Friant)**

IPGP: 3 (researchers), ERI: 4 (3 researchers, 1 student),

### **WG3: Structure and Multiscale Geodynamic Processes (Takashi Iidaka, Nobuaki Fuji)**

IPGP: 4 (3 researchers, 1 students), ERI: 7 (4 researchers, 3 students)

Participants: IPGP: 16 (11 researchers, 4 students, 1 post-doc)

ERI 27: (16 researchers, 11 students )



## Preliminary Program

### Tuesday, October 3: Day 1

**8:30 - 9:00**            **Reception**  
**9:00 - 09:30**        **Introduction and welcome talks (ERI & IPGP) – Jean-Paul Montagner & Masa Kinoshita**

#### **Session WP1: Earthquake and Tsunamis**

Chair: Kenji Satake, Giovanni Occhipinti

**09:30 - 09:50**        **Takashi Iidaka:** *Seismic image at the source fault area of the 1891 Nobi earthquake:*  
*Implication for the generation of M8 earthquake*  
**09:50 - 10:10**        **Kazushige Obara:** *Monitoring of slow earthquakes, possible connection to huge earthquakes*  
**10:10 - 10:30**        **Jean-Pierre Vilotte:** *Automatic detection and location for restoring Low-frequency tremor earthquakes activity and the extended source emissivity area during tectonic episodes in southwestern Japan*  
**10:30 - 11:10**        **Coffee/Tea Break**  
**11:10 - 11:30**        **Akito Araya:** *Seismic and geodetic observation using a long-baseline laser strainmeter constructed at an underground site in Kamioka, Japan*  
**11:30 - 11:50**        **Pascal Bernard:** *Imaging energy radiation of faulting surfaces from regional records*  
**11:50 - 14:00**        **Lunch** (with poster viewing)

#### **Session WP3: Structure and Multiscale Geodynamic Processes**

Chair: Takashi Iidaka, Nobuaki Fuji

**14:00 - 14:20**        **Jean-Paul Montagner:** *Anisotropic tomographic structure of continents- the case of India*  
**14:20 - 14:40**        **Nozomu Takeuchi:** *Determination of Intrinsic Attenuation in the Oceanic Lithosphere Asthenosphere System*  
**14:40 - 15:00**        **Nobuaki Fuji:** *Towards waveform seismic filtering to unveil the Earth's mantle's evolution*  
**15:00 - 15:20**        **Hitoshi Kawakatsu:** *A new fifth parameter for transverse isotropy*  
**15:20 - 16:00**        **Coffee/Tea Break**  
**16:00 - 16:20**        **Eleonore Stutzmann:** *Monitoring the ocean activity from seismic signal*  
**16:20 - 16:40**        **Kiwamu Nishida:** *The global source location of P-wave microseisms using Hi-net data from 2005 to 2011*  
**16:40 - 17:00**        **Jérôme Dymont:** *Getting better constraints on subducting slabs from marine magnetics – investigations off Sumatra and Japan*  
**17:00 - 17:20**        **Takeshi Akuhara:** *Toward understanding megathrust faults: A new approach using high-frequency receiver function analysis with OBS data*  
**17:20 - 18:10**        **Presentation Poster (2 min each)**

18:30 – 20:30

Reception at Abreuvoir

## Wednesday, October 4: Day 2

### Session WP1: Earthquake and Tsunamis

Chair: Kiwamu Nishida, Giovanni Occhipinti

- 9:00 - 9:20**      **Giovanni Occhipinti:** *Ionospheric detection of tsunami earthquakes: Ideas for future early warning*
- 9:20 - 09:40**      **Shingo Watada:** *Tsunamis without tsunami sources: Tsunami Interferometry*
- 09:40 - 10:00**      **Nathalie Feuillet:** *Megathrust seismic cycles at the Ryukyu trench: insight from micro atoll corals and reef terraces*
- 10:00 – 10:40**      **Coffee/Tea Break**
- 10:40 - 11:00**      **Takashi Furumura:** *Unusual strong ground motion across Japan from the 680 km deep 30 May 2015 Ogasawara Island earthquake*
- 11:00 - 11:20**      **Virgile Rakoto:** *Atmospheric resonance of the tsunami normal modes and estimation of the tsunami height from the TEC perturbation induced by a tsunami using a least square inversion method*
- 11:30 – 13:30**      **Lunch & Posters**

### Session WP2: Volcanology, Environmental Seismology

Chair: Mie Ichihara, Anne Le Friant.

- 13:30 - 13:50**      **Anne Le Friant:** *Record of volcanic construction and collapses of the Lesser Antilles volcanoes from submarine (Expedition IODP 340) and field trip investigations*
- 13:50 - 14:20**      **Mie Ichihara:** *Variety of acoustic waves generated by continuous gas flow in fluid*
- 14:20 - 14:40**      **Jean-Christophe Komorowski:** *New insights on unrest and hazards from hydrothermal and failed-magmatic eruptions at La Soufrière de Guadeloupe (Lesser Antilles) in light of lessons learned from Japanese examples at Bandai (1888) and Ontake (2014)*
- 14:40 - 15:00**      **F. Maeno:** *Nature, dynamics and hazards of phreatic eruptions: Insights from the Ontake eruption in 2014*
- 15:00 - 15:40**      **Coffee/Tea Break**
- 15:40 - 16:00**      **Yosuke Aoki:** *Recent uplift of Iwo-yama, Kirishima Volcanic Complex, Southwest Japan*
- 16:00 - 16:20**      **Anne Mangeney:** *How the seismic signal can be used to detect, localize and characterize gravitational flows and their link with volcanic, seismic and climatic activity.*
- 16:20 - 18:00**      **Poster Session**

Free Night / Free Dinner

## Thursday, October 5: Day 3

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

### WP1: Earthquake and Tsunamis

Chair: Kenji Satake, Giovanni Occhipinti, Kiwamu Nishida

**WP2: Volcanology, Environmental Seismology**

Chair: Mie Ichihara, Anne Le Friant

**WP3: Structure and Multiscale Geodynamic Processes**

Chair: Takashi Iidaka, Nobuaki Fuji

**Conveners**

Jean-Paul Montagner, Masa Kinoshita

**10:00 - 11:30      Meeting of WG and first draft-rapport redaction**

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

**Adjourn**

# Tsunami and DRR Innovation Workshop

## Date and place

One day on Wednesday, October 4<sup>th</sup> at the [Maison franco-japonaise \(日仏会館\) Auditorium](#)  
Afternoon of Thursday, October 5<sup>th</sup> in Sendai,  
Field trip on Friday, October 6<sup>th</sup> in Sendai (*by invitation only*).

## Organizers

Tohoku University/IRIDeS  
Fumihiko Imamura: [imamura@irides.tohoku.ac.jp](mailto:imamura@irides.tohoku.ac.jp)  
University of Lyon/INSA  
Jean-Yves CAVAILLE: [jean-yves.cavaille@insa-lyon.fr](mailto:jean-yves.cavaille@insa-lyon.fr)  
Tohoku University/FRI  
Tetsuo SHOJI: [tshoji@fri.niche.tohoku.ac.jp](mailto:tshoji@fri.niche.tohoku.ac.jp)

## Language

English without translation

## Registration

<http://drr.science-japan.org>

Program: <http://www.fri.niche.tohoku.ac.jp/workshop2017/program.html>

## Event abstract

### Workshop in Tokyo

The purpose of this interdisciplinary workshop is to report and advance our understanding, mitigation and response to disasters caused by tsunami and other natural disasters. The first part of this workshop will bring French and Japanese collaborators of the Tohoku-Lyon Tsunami Workshop Series (2012, 2013, 2014 and 2015) held alternatively at the universities of Lyon and Tohoku. Their preventatives will report on their ongoing research and most recent discoveries. The second part of this workshop will depart from the sole field of tsunami research to contribute more broadly to the fields of natural disaster science, crisis management and disaster digital archives. For this section, leading researchers from France and Japan will be discussing the current projects and future initiatives that may contribute to the application of the Sendai Framework for Disaster Risk Reduction.

### Workshop at Sendai

The participants in this workshop will be invited to travel to the region of Tohoku for a tour of the newly established IRIDeS as well as the tsunami-affected areas. Together, the participants will discuss the progress of IRIDeS and the local governments in the reconstruction of Tohoku. We invite all interested parties to contact us for further information and proposals for the workshops and Tohoku study-tour.

**Wednesday, October 4th, 2017 Maison Franco-Japonaise 日仏会館 in Tokyo**

- 9:30-12:00
  - Welcoming the Tsunami and DRR Innovation WS by Tetsuo SHOJI, Jean-Yves CAVAILLE, and Fumihiko IMAMURA
  - Session 1 Fluid dynamics of tsunami and structure for energy dissipation
- 14:00-16:00
  - Session 2 Detection, Alert, and real-time monitoring
- 16:30-18:30
  - Session 3 Safety at nuclear power plan in Japan and France
  - Session 4 Crisis management and reconstruction
  -

**Thursday, October 5th, 2017 At IRIDeS of TU, Sendai (by invitation only)**

- 16:00-18:30
  - BBB (build back better) at IRIDeS meeting hall
- 18:30-
  - Banquet at IRIDeS

# TANDEM Workshop

## Tsunamis in the Atlantic and the English Channel: Definition of the effects through numerical modelling

### Date and duration

Wednesday, October 4<sup>th</sup> and Thursday, October 5<sup>th</sup> (2 days)

### Place

[Maison franco-japonaise \(日仏会館\) Room 509](#)

### Organizers

CEA with partners from TANDEM and Japan Meteorological Agency/Meteorological Research Institute

Hélène Hébert (CEA): [helene.hebert@cea.fr](mailto:helene.hebert@cea.fr)

Anne Loevenbruck (CEA): [anne.loevenbruck@cea.fr](mailto:anne.loevenbruck@cea.fr)

### Language

English without translation

### Registration

<http://drr.science-japan.org>

### Event abstract

In the aftermath of the Tohoku tsunami, the French government launched research initiatives to better identify the tsunami hazard on the French coastlines of the Atlantic Ocean and English Channel, where nuclear facilities have been operated since about 30 years. The TANDEM project (2013-2017) gathers geologists, geophysicists, numerical modelers in cooperation with Japanese scientists to draw lessons from the 2011 tsunami and to propose hazard levels in France.

The workshop will address the following issues:

- the validation of numerical models to characterize tsunami hazard,
- the influence of the uncertainties on the parameters used in the modeling,
- the lessons to be drawn from the Tohoku-Oki tsunami (2011), through detailed coastal studies in Japan (impact, interaction with the infrastructures...),
- the application of the methods on the French coastlines, in order to better estimate the effects of rare tsunamigenic sources (nearby landsliding, distant and local earthquakes),
- the current challenges on Tsunami Warning in operational context (Japan / France).

Wednesday October 4th 2017

9:00 Welcome address and introduction to the TANDEM workshop H. Hébert (CEA)

■ **WP3 – Numerical study of the Tohoku-Oki tsunami**

9:30 Scope and overview of the WP3 A. Loevenbruck (CEA)

9:50 Simulation of the Tohoku-Oki tsunami M. Le Gal (OIST)

10:10 Tsunami model based on moving mesh approach on the sphere: application to the Tohoku tsunami M. Ricchiuto (INRIA)

10:30 *Coffee break*

11:00 Tohoku-Oki 2011 Tsunami high-resolution modeling and sensitivity to the rupture complexity: Kamaishi and Sendai areas S. Le Roy (BRGM)

11:20 Numerical study of tsunami undular bore impacts on a composite breakwater: the case of the Port of Soma S. Abadie (UPPA)

11:40 Numerical study of tsunami flooding over coastal levees during the 2011 Tohoku tsunami T. Shimozone (The University of Tokyo)

12:00 Tohoku tsunami results K. Satake (The University of Tokyo)

12:20 Discussion

12:40 *Lunch break*

■ **WP1 – Numerical models for tsunami hazard studies**

14h00 Overview of the WP1 work S. Abadie (UPPA) & M. Ricchiuto (INRIA)

14h20 Comparative evaluation of numerical codes S. Le Roy (BRGM)

14h40 Accurate tsunami simulations solving the shallow water equations with effects of Boussinesq dispersion, elastic loading and sea water density stratification T. Baba (Tokushima University)

■ **WP2 – Sensitivity and uncertainty studies**

15h00 Numerical study of tsunami undular bore overtopping S. Abadie (UPPA)

15h20 Uncertainty analysis: the global framework developed by IRSN for defining flood hazard C.-M. Duluc (IRSN)

15:40 *Coffee break*

16h10 Building a tsunami database of AZGBR fracture zone for the French Atlantic Coast throw an uncertainty propagation study V. Bacchi (IRSN)

16h30 Global sensitivity analysis for historical tsunamis R. Pedreros (BRGM)

16h50 Lisbon 1755 event: contribution of contemporary testimony in Lesser Antilles for earthquake source characterization A. Lemoine (BRGM)

17:10 Discussion

Thursday October 5th 2017

9:00 Welcome

■ **WP4 – Tsunami hazard along the French Atlantic and Channel coasts**

9h30 Analysis of the tsunami hazard in the French Atlantic Coast induced by the AZGBR fracture zone V. Bacchi (IRSN)

9h50 Tsunamis in the Atlantic and Channel Seas: low to moderate risk associated with seismic sources P. Heinrich (CEA)

10h10 Historical observations and tsunamis modelling heights at French coasts (English Channel and Bay of Biscay) : seismic and landslide sources A. Lemoine & R. Pedreros (BRGM)

10:30 **Coffee break**

11h00 Evaluation of landslides related hazards (French Atlantic margin) R. Silva Jacinto (IFREMER)

11h20 Landslide generated tsunamis off the Atlantic margin P. Heinrich (CEA)

11h40 Ongoing simulations in the Canary Islands (EDF)

12h00 Contribution of seismic motion to earthquake loading for gravitational instabilities P. Traversa (EDF)

12h20 Dispersive model of tidal propagation in the Garonne River A. Filippini (INRIA)

12:40 Discussion

13:00 **Lunch break**

■ **Current challenges on Tsunami Warning in the Japanese and French operational contexts**

14:10 Update of JMA tsunami warning system and procedures since 2011 S. Harada (JMA)

14:30 DONET instrumentation and data for tsunami warning system E. Araki (JAMSTEC)

14:50 Tsunami simulation method initiated from waveforms observed by ocean bottom pressure sensors for real-time tsunami forecast; Applied for 2011 Tohoku Tsunami Y. Tanioka (Hokkaido University)

15:10 CENALT warning system H. Hébert (CEA)

15:30 **Coffee break**

16:00 Rapid magnitude estimation of tsunami earthquakes and detectability of submarine landslide by seismic data A. Katsumata (MRI)

16:20 Near-real time earthquake information and tsunami estimation system for Indonesia, Philippines and Chile regions N. Pulido (NIED)

16:40 Protection Policy and Evacuation Planning against Tsunami in Japan T. Arikawa (Chuo University)

17:00 Discussion



# French GÉNéPi Project Workshop – mediation Information System to support crisis management

## Date and duration

Wednesday, October 4<sup>th</sup> (one day)

## Place and access

[Maison franco-japonaise \(日仏会館\) Room 601](#)

## Organizers

GéNéPi consortium

Frederick Benaben: [frederick.benaben@mines-albi.fr](mailto:frederick.benaben@mines-albi.fr)

Audrey Fertier: [audrey.fertier@mines-albi.fr](mailto:audrey.fertier@mines-albi.fr)

## Language

English without translation

## Registration

<http://drr.science-japan.org>

## Event abstract

The GÉNéPi project deals with a methodological and technological support for crisis management. The project is based on a use-case regarding the Loire flood. It covers: (i) preparation and prevention phases (time dimension), (ii) coordination of heterogeneous actors (horizontal dimension) and (iii) management levels (vertical dimension).

GéNéPi aims at defining the lifecycle of a mediation information system according to three abstraction layers. The business layer deals with knowledge gathering (regarding the crisis, partners' capacities, risks, doctrines) and collaborative process deduction. The technical layer provides a solution to orchestrate these collaborative processes. The agility management layer deals with the monitoring of the response in order to detect potential requirements for adaptation and to suggest adaptation mechanisms to deal with the dynamicity of the crisis.

The workshop will be based on presentations and demonstrations of the contributions of the project (after three years) and discussions about adjustments and perspectives.

## Program

09:00-09:30 : Context of the GÉNéPi Project (Commandant Florent Courrèges / Frederick Benaben)  
09:30-10:00 : Business use-case of the Project (Helene Dolidon)  
10:00-10:30 : Big-Picture of GÉNéPi (Frederick Benaben)  
10:30-11:00 : Break  
11:00-12:00 : Live demo / video (Audrey Fertier, Chihab Hanachi, Nicolas Boissel-Dallier)  
12:00-12:30 :  
12:30-14:00 : Lunch  
14:00-14:30 : Gathering of information - Theoretical description (Audrey Fertier)  
14:30-15:00 : Deduction of Behavior - Theoretical Description (Chihab Hanachi)  
15:00-15:30 : Behavior orchestration - Theoretical Description (Nicolas Boissel-Dallier)  
15:30-16:00 : Break  
16:00-16:30 : Agility feature - Theoretical description (Frederick Benaben)  
16:30-17:00 : Conclusion and perspectives (Commandant Florent Courrèges / Frederick Benaben)  
17:00-17:30 : Wrap-up and complementary questions

# Workshop on GPR measurement of active faults and tsunami sediments

## Date and duration

Wednesday, October 4<sup>th</sup> (13:30 – 18:20)

## Place

[Maison franco-japonaise \(日仏会館\) Room 501](#)

## Organizers

Motoyuki Sato (Tohoku University/CNEAS): [sato@cneas.tohoku.ac.jp](mailto:sato@cneas.tohoku.ac.jp)  
Maksim Bano (IPGS): [Maksim.Bano@unistra.fr](mailto:Maksim.Bano@unistra.fr)

## Language

English

## Registration

<http://drr.science-japan.org>

Program: [English](#) | [Japanese](#)

## Event abstract

Investigation of active faults is important in understanding the events that occurred many years ago, but at the same time the knowledge can be used for understanding the mechanism of natural disasters and further prediction. Ground Penetrating Radar (GPR) is one of subsurface exploration techniques, which is quite effective for understanding near surface geophysical conditions. Recently, GPR has been applied for active fault surveys, however, it is still very challenging, because most of the active fault is not very shallow for GPR surveys. In this workshop, we invite specialists in GPR survey and introduce the field survey results for discussion. The case studies also include Tsunami sediments, which is important in understanding the history of geological structure after earthquake and tsunami.

## Program

### Workshop on GPR measurements of active faults and tsunami sediments

Organized by Motoyuki Sato(Tohoku Univ), Maksim Bano(IPGS/Strasbourg Univ.)

**4<sup>th</sup> October (13 : 00~18 : 20)**

(1) 13:00 - 13:10  
Introduction

(2) 13:10 - 13:50  
GPR measurements to assess the characteristics of active faults in Mongolia

○Maksim Bano (Strasbourg Univ.)

(3) 13:50 - 14:30

Fault Mapping at the Confluence of the Aga River and the Tadami River - Japan - using Ground Penetrating Radar

○Gomez Christopher (Kobe U.) • Kataoka Kyoko (Niigata U.)

(4) 14:30 - 14:55

Application for GPR survey to faults in Mogod Earthquake in central Mongolia

○Tsogtbaatar Amarsaikhan • Motoyuki Sato (Tohoku Univ)

(5) 14:55 - 15:20

Interpretation of GPR survey of subsurface layer structure of the west coast fault zone at Aomori bay

○Kazuki Fujisawa, Motoyuki Sato (Tohoku Univ.)

— — — Break ( 20 min ) — — —

(6) 15:40 - 16:20

GPR survey for paleotsunami research

○Kazuhisa Goto • Hiraku Takeda (Tohoku Univ.) • James Goff (UNSW) • Hideaki Matsumoto (Tohoku Gakuin Univ.) • Daisuke Sugawara (Museum of Natural and Environmental History, Shizuoka)

(7) 16:20 - 17:00

Distribution of paleo-tsunami deposits in the eastern Taiwan using Ground Penetrating Radar

○Mamoru Nakamura, Masaya Sokei (Univ. Ryukyus) How-Wei Chen(NCU)

(8) 17:00 - 17:40

Eroded Coastal Dune and Deposits in North Sumatra (Indonesia) following the 2004 Boxing Day Tsunami - a Geophysical Approach

○Gomez Christopher (Kobe U.) • Lavigne Franck (Sorbonne U.) • Wassmer Patrick (U. Strasbourg)

(9) 17:40 - 18:20

Delineation of Tsunami Deposits by an Array GPR System "Yakumo"

○Hai Liu (Xiamen Univ.) • Honghua Wang (Guilin Univ. of Technology) • Motoyuki Sato (Tohoku Univ.)

# Workshop on subsurface electromagnetic measurement

## Date and duration

Thursday, October 5<sup>th</sup> (9:30 – 17:35)

## Place

[Maison franco-japonaise \(日仏会館\) Room 501](#)

## Organizers

Tohoku University/CNEAS (Center for Northeast Asian Studies)  
Motoyuki Sato: [sato@cneas.tohoku.ac.jp](mailto:sato@cneas.tohoku.ac.jp)

## Language

English

## Registration

<http://drr.science-japan.org>

Program: [English](#) | [Japanese](#)

## Event abstract

This is a biannual conference, focused on subsurface electromagnetic measurements and its applications. GPR is one of the important topics, but not limited to it. Presentations on Innovative idea for subsurface electromagnetic measurement techniques, applications are welcome.

Presentation in English is recommended.

[More information](#) on the Technical Committee

[Web site for paper submission](#)

## Program

### Workshop on Subsurface Electromagnetic Measurements

Organized by Motoyuki Sato (Tohoku University)

#### 5<sup>th</sup> October

#### GPR system (09 : 00~10 : 40)

(10) 09:00 - 09:25

Development of Non-Destructive Inspection Sensor for Wooden Structures (7) -- Demonstration Test of 3D Imaging in Wooden House Wall Model –

○Yasunari Mori, Takayoshi Yumii, Yumi Asano, Kyoji Doi (MES), Christian Kotyama, Yasishi Iitsuka, Kazunori Takahasi and Motoyuki Sato (Tohoku Univ)

(11) 09:25 - 09:50

## POLARIMETRIC IMAGING of FULL POLARIMETRIC GPR

○Xuan Feng • Qi Lu (Jilin University)

(12) 09:50 - 10:15

Acoustic wave transducers as Ground Penetrating RADAR cooperative targets for sensing applications

○Jean-Michel Friedt (FEMTO-ST/CNEAS) • David Rabus (SENSeOR SAS) • Gilles Martin (FEMTO-ST) • Gwenhael Goavec Merou (SENSeOR SAS) • Frederic Cherieux (FEMTO-ST) • Motoyuki Sato (CNEAS)

— — — Break ( 25 min ) — — —

## Quantitative Measurement (10 : 40~11 : 55)

(13) 10:40 - 11:05

Preliminary Experiment of Sea Ice Thickness Measurement by Ground Penetrating Radar

○Masayoshi Matsumoto • Mitsunori Yoshimura (PASCO) • Kazuhiro Naoki • Kohei Cho (Tokai Univ.)

(14) 11:05 - 11:30

A practical approach for high-resolution pavement inspection with multistatic array GPR YAKUMO

○Li Yi (AIST) • Lilong Zou • Motoyuki Sato (Tohoku Univ.)

(15) 11:30 - 11:55

Nondestructive inspection of pavement by MIMO GPR "Yakumo"

○Lilong Zou • Motoyuki Sato (Tohoku Univ.)

## Special Lecture (13 : 00~14 : 20)

(16) 13:00 - 13:40

Characterizing Peat Thickness Based on Common Mid Point (CMP) Ground Penetrating Radar -- A Preliminary Result --

○Djoko Nugroho • Lena Sumargana • Syaefuddin • Galih Adinata • Marina c.g. Frederik • Agustan • Oni Bintoro (BPPT)

(17) 13:40 - 14:20

L- and S-band SAR backscatter modelling for lunar subsurface water ice detection

○Shiv Mohan • R d. Shah (MGSI)

## Signal Processing and Modeling (14 : 20~16 : 20)

(18) 14:20 - 14:45

Unsupervised Adaptive PolSAR Land Classification System Using Quaternion Neural Networks

○Hyunsoo Kim • Akira Hirose (Tokyo Univ.)

(19) 14:45 - 15:10

2.5 Dimensional EM and seismic wave modelling

○Jian-guo Zhao (CUPB) • Bin Xiong (Guilin)

— — — Break ( 20 min ) — — —

(20) 15:30 - 15:55

Development of landmine visualization systems based on complex-valued self-organizing-map (CSOM)

○Akira Hirose (Tokyo Univ.)

(21) 15:55 - 16:20

Random noise de-noising and direct wave eliminating based on SVD method for ground penetrating radar signals

○Qi Lu · Xuan Feng · Cai Liu (Jilin University)

**Case Studies (16 : 20~17 : 10)**

(22) 16:20 - 16:45

Recent activities on archaeological survey by GPR

-- Case study in Inari-yama Kofun --

○Motoyuki Sato (Tohoku Univ.)

(23) 16:45 - 17:10

Diagnosing deterioration of tree trunks using GPR

○Ken Kajino, Kazunori Takahasi, Kunio Aono, Yayoi Asiba, Nobuaki Isizawa (OYO)

(24) 17:10 - 17:35

Railway Structures Inspection Method using G.P.R. -- Inspection precision improvement and improvement of the workefficiency for tunnnel lining and railroad-bed --

○Hiroyuki Morishima(JRC), Tomoki Kuboshima (JR East)

# Workshop on the prediction of non-linear seismic soil response

## Date and duration

Thursday, October 5<sup>th</sup> (one day)

## Place

[Maison franco-japonaise \(日仏会館\) Auditorium](#)

## Organizers

French SEISM Institute: E. Foerster, F. Lopez-Caballero

Evelyne Foerster (CEA): [Evelyne.FOERSTER@cea.fr](mailto:Evelyne.FOERSTER@cea.fr)

IFSTTAR: P.Y. Bard, L-F. Bonilla

CEREMA: J. Régnier, E. Bertrand

Kyoto University/DPRI: Prof. H. Kawase, Prof. Iai, Prof. Uzuoka, Prof. Tobita, Prof. Ueda, Prof. Matsushima

Prof. Shinichi Matsushima: [matsushima@sds.dpri.kyoto-u.ac.jp](mailto:matsushima@sds.dpri.kyoto-u.ac.jp)

## Language

English without translation

## Registration

<http://drr.science-japan.org>

## Event abstract

The PRENOLIN (PREdiction of NON-LINear soil behavior) benchmark is an international exercise, which ended in October 2015, and which aimed at verifying and validating multiple numerical simulation codes capable of predicting nonlinear seismic site response with various constitutive models. One of the main objectives of this project was the assessment of the uncertainties associated with nonlinear simulation of 1D site effects. The first verification phase (i.e., comparison between numerical codes on simple idealistic cases) was followed by a validation phase, consisting in comparing the predictions of numerical estimations with actual strong motion recordings obtained at well-known Japanese sites, selected within the Japanese KiK-net and PARI accelerometric networks, and being as close as possible to a 1D geometry (horizontal layers), with complete field and laboratory measurements. The benchmark involved about 21 teams and 23 different computational codes.

This workshop will be the occasion to present and discuss not only on numerical studies dedicated to non-linear soil behavior analyses, as obtained during the PRENOLIN benchmark, but also on empirical methods that may be used for such analyses.



## Program

**8:45 – 9:00      Welcome**

### **Session 1: Empirical and numerical approaches for seismic site response evaluation**

**9:00 - 9:25**      *PRENOLIN: International benchmark on 1D nonlinear site response analysis - validation phase exercise*

Dr. Julie Regnier, CEREMA, France

**9:30 - 9:55**      *Effects of soil spatial variability on seismic behavior of horizontally layered liquefiable ground*

Prof. Kyohei Ueda, DPRI, Kyoto University, Japan

**10:00 - 10:25**      *Comparing various numerical assumptions for 1D nonlinear site response analysis on real sites*

Dr. Evelyne Foerster, Seism Institute, CEA Paris-Saclay, France

#### **Coffee break**

**11:00 - 11:25**      *Direct modeling of material inhomogeneity of liquefiable natural deposits by effective stress analysis*

Prof. Ryosuke Uzuoka, DPRI, Kyoto University, Japan

**11:30 - 11:55**      *Empirical correction of the non-linear soil behavior in site response: application to Kumamoto earthquake recordings.*

Dr. Julie Regnier, CEREMA, France

**12:30              End of morning session**

### **Session 2: Field and numerical approaches for soil-structure interactions assessment**

**14:00 - 14:25**      *A new macroelement-based approach to model the seismic response of shallow foundations.*

Prof. Jean-François Semblat, IFSTTAR/GERS, France

**14:30 - 14:55**      *Study on seismic response analysis of large-scale reinforced concrete structure using high-fidelity model and considering soil-structure interaction.*

Mr. Hiroki Motoyama, ERI, Tokyo University, Japan

**15:00 - 15:25**      *Seismic assessment of existing structures: Contribution of in-situ measurements by ambient vibrations in the design of numerical models*

Dr. Cédric Desprez, IFSTTAR/MAST, France

**15:30 - 15:55**      *Numerical Evaluation of Fragility Curves for Earthquake-Liquefaction-Induced Settlements of an Embankment*

Dr. Fernando Lopez-Caballero, LMSSMat, CentraleSupélec, France

**16:00 – 16:25**      *From Soil-Structure Interaction to Site-City Interaction: application to a recent urbanized area in Rome (Italy).*

Dr. Chiara Varone, ESITC & IFSTTAR, France

**16:30 - 16:45      Conclusions of the workshop**

# Knowledge and Vulnerability in the Fukushima Nuclear Disaster

## Date and duration

Thursday, October 5<sup>th</sup>  
9h30-13h30

## Place

[Maison franco-japonaise \(日仏会館\) Room 601](#)

## Organizers

Doshisha University Kyoto  
Bureau français de la MFJ – UMIFRE 19  
Maison Franco-Japonaise

## Language

English without translation

## Registration

<http://drr.science-japan.org>

## Event abstract

The French-Japanese scientific collaboration we developed from 2013 to 2016 is organized around two actions that schematically fall within three fields: social/economic and epistemological. These are two ways of approaching the question that motivates us and prompts international and interdisciplinary collaboration in this research: *vulnerability and various modalities of responses to it in terms of protection in the context of the Fukushima nuclear disaster*.

Our action n°1 is: Protection and Vulnerability: Public Policies and the Variety of Responses to Disaster. The central question to which this research action aims is: *what kind of human protection can be conceived and enacted in situations of total vulnerability?* A. Gonon (Prof. Doshisha University Kyoto) will give an analytical perspective of the concept of vulnerability and the way it is used in the Fukushima disaster context. C. Asanuma-Brice (MFJ-Clerse-CNRS) will present the housing policy and its impact on the management of population in Fukushima.

Our action n°2 is: Knowledge, Society, and Democracy After Fukushima. This research action is directed toward the place of information and knowledge in nuclear society, and it aims to bring out the articulation between information/knowledge and human protection. S. Goto (Prof. University Fukushima) will discuss the ways the public is informed and educated after the nuclear disaster; while T. Ribault (CNRS-University Lille1) will show how we can mobilize the concept of *production of ignorance* to better understand the non-protection of the population in the Fukushima nuclear disaster context.

## Program

9h30 – 9h45: Welcoming

9h45 – 11h30: Session 1. Protection and vulnerability: public policies and variety of responses to the disaster

9h45 – 10h30: Anne Gonon (Doshisha University Kyoto): Vulnerability and protection in question in Fukushima

10h30 – 10h45: Break

10h45 – 11h30: Cécile Asanuma-Brice (MFJ-Clersé-CNRS): Managing population through the housing policy in Fukushima

11h30 – 13h: Session 2. Knowledge, Societies and Democracies after Fukushima

11h30 – 12h15: Shinobu Goto (Univ. Fukushima): Informing and Educating the public after the Fukushima nuclear disaster

12h15 – 13h: Thierry Ribault (Clersé-CNRS-Univ. Lille): The production of ignorance in the context of the Fukushima nuclear disaster: what are we talking about?

13h – 13h30: Discussion and conclusion.

## Crisis, Breaks and new Dynamics in post 3.11 Japan (CBD311), UMIFRE 19 (MFJ)

### Date and duration

Thursday, October 5<sup>th</sup>  
14h30-18h

### Place

[Maison franco-japonaise \(日仏会館\) Room 601](#)

### Organizers

Doshisha University Kyoto  
Bureau français de la MFJ- UMIFRE 19  
CNRS

### Language

English without translation

### Registration

<http://drr.science-japan.org>

### Event abstract

"Crisis, Breaks and new Dynamics in post 3.11 Japan" team has been set up in 2017 as a new research axis of the Umifre19 at the Maison Franco-Japonaise of Tokyo, with a CNRS special financial support. Supervised by Remi Scoccimarro (Geographer), in association with Anne Gonon (Sociologist), this team aims to bring together social scientists working on issues raised by the March 11 disaster. We're focusing both on tsunami and nuclear questions, aiming to understand what led to 3.11 disasters, its non-technical teachings, as well as evaluating the choices made to rebuild these areas.

### Program

14h – 14h05

Opening: From natural hazard to social production of disasters  
(A. Gonon and R. Scoccimarro)

14h05-14h35

"Facing urban vulnerability in an Anthropocene world."  
Michel Lussault, Pr, ENS Lyon – EVS

14h35-15h05

"Urban and regional planning in 3.11 disaster areas: Finally remodeling the Japanese archipelago?"  
Rémi Scoccimarro, Asso. Prof. Toulouse Univ. - Research fellow UMIFRE 19 MFJ

15h05-15h35

“Environmental Law in Post 3.11 Japan: From Crisis to New Dynamics?”

Isabelle Giraudou, Asso. Prof., University of Tokyo - Ass. Researcher, UMIFRE 19

15h35 - 16h Break

16h00-16h30

“Rebuilding local economies and communities after disaster: experiences and teachings of 2007 Chuetsu Earthquake”

Tarô Taguchi, Ass. Prof., Tokushima University

16h30-17h00

“Restoring confidence to restore rural economy of Fukushima prefecture”

Nicolas Baumert, Ass. Prof. Nagoya University

17h00-1730

“Perceptions of nuclear power in the Japanese society before and after “Fukushima”

Tino Bruno, PhD candidate, Lyon 3 univ. / Ritsumeikan univ.

1730-1800 Discussion

**Organizers:**

- Embassy of France in Japan
- Bureau français de la MFJ – UMIFRE 19 (日仏会館フランス事務所)

**Co-organizers:**

- Fondation Maison franco-japonaise (公益財団法人日仏会館)

**With the support of:**

- Tohoku University - IRIDeS (International Research Institute of Disaster Science), FRI (Fracture and Reliability Research Institute) and CNEAS (Center for Northeast Asian Studies)

**Workshop organizers and partners:**

- AIST: National Institute of Advanced Industrial Science and Technology
- BRGM: Geological and Mining Research Bureau
- CEA: French Alternative Energies and Atomic Energy Commission
- CEREMA: National Center for Studies and Expertise on Risks, Environment, Mobility and Urban and Country Planning
- CHU (University Hospital Center) Grenoble Alpes
- CNRS: National Scientific Research Center
- Doshisha University
- GÉNEPi: Granularity of the management levels in crisis context, ANR project which partners are the Ecole des Mines d'Albi, the CRICR, the CEREMA, the DDT45, the DREAL, EDF, InteropSys, the MTES and the University of Toulouse
- IFSTTAR: French institute of science and technology for transport, spatial planning, development and networks
- IMT: Institut Mines-Télécom
- IPGP: Paris Institute of Earth Physics
- IPGS: Strasbourg Institute of Earth Physics
- JAMSTEC: Japan Agency for Marine-Earth Science and Technology
- JMA: Japan Meteorological Agency
- Kagoshima University
- Kyoto University - DPRI (Disaster Prevention Research Institute)
- LIA HPRD: Joint International Laboratory on Human Protection and Response to Disaster between UMIFRE 19, Research Institute on Japan, CNRS, French Ministry of Foreign Affairs and University of Lille in France, University of Fukushima and University of Doshisha in Japan.
- RTRI: Railway Technical Research Institute
- SEISM Institute, a joint institute on seismic risk from Paris-Saclay University : CEA, EDF, CentraleSupélec, Ecole Normale Supérieure Paris-Saclay and CNRS
- TANDEM: Tsunamis in the Atlantic and the English Channel Definition of the Effects through numerical Modeling, ANR project which partners are: CEA, BRGM, EDF, Ecole des Ponts ParisTech, JMA, University of Pau, IRSN, SHOM, INRIA, IFREMER and PRINCIPIA
- The University of Lille – CLERSE (Lille Center for Research and Studies on Sociology, Economics)
- The University of Lyon
- The University of Nîmes
- The University of Orléans
- The University of Tokyo - ERI (Earthquake Research Institute) and AORI (Atmosphere and Ocean Research Institute)
- UMIFRE 19: Research Institute on Japan, CNRS, French Ministry of Foreign Affairs.
- United Nations Office for Disaster Risk Reduction (UNISDR) Office in Japan
- Univ. Grenoble Alpes
- Université Clermont Auvergne – LMV (Laboratory Magmas and Volcanoes)