
NEWS AT A GLANCE

- *Episodes* Special Issue on Subduction-related Disasters
 - Sendai Agreement
 - GIRAF Session
 - Heritage Stone Task Group: First Newsletter
 - Congress on Geoheritage Inventories, Toulouse (Sept. 22–26, 2015)
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EPISODES SPECIAL ISSUE ON SUBDUCTION-RELATED DISASTERS

The December 2014 issue of *Episodes* (Vol. 37, No.4) contains a report of, and 13 papers based on presentations given at the [2nd G-EVER International Symposium and the 1st IUGS–SCJ International Workshop on Natural Hazards](#), which was held in Sendai, Tohoku, Japan on October 19–20, 2013 and focused on the formulation of disaster mitigation measures in the Asia–Pacific Region. The location was chosen to commemorate the major Tohoku earthquake and tsunami of March 11, 2011.

The [G-EVER Consortium](#) promotes natural disaster risk reduction activities through the collaboration different research institutes worldwide, principally:

1. establishing a framework for cooperation of research institutes and organizations working on volcanic disaster prevention in the Asia-Pacific region;
2. enhancing the exchange and sharing of information on seismic and volcanic disaster prevention; and
3. formulating international standards for the database, data exchange and disaster risk assessment.

Papers include both the wide ranging and the specific. In addition to a review of global earthquake and volcanic eruption risk management activities, there are papers on tsunami risk reduction and disaster counter measures mainly in Japan but also in China. The issue includes a regional review of crustal and mantle structure of the Sea of Okhotsk as well as a review of the evidence for paleo-earthquakes in part of central Japan. Contributions deal also with mechanisms for major subduction earthquakes, analysis of fault-related folding, and stress-dilatancy relationships and frictional instability of fault gouges. Other papers consider geological and geomorphological features of deep-seated landslides in tectonically active parts of Asia and earthquake induced landslides in urban areas of Japan. In addition, another covers the sensitive and important topic of geoethical aspects of risk communication.

At the meeting, there were intensive discussions on how to reduce the risks of natural disasters such as earthquakes, tsunamis, landslides and volcanic eruptions leading to the Sendai Agreement on necessary actions. The Agreement is stated in full here as well as in the journal and in the news section of the IUGS website.

The journal can be read online at www.episodes.co.in or can be accessed through the IUGS website www.iugs.org.



Contents of the *Episodes* Special Issue (December 2014, Vol. 37. No. 4)

“*Geohazards in Subduction Zone Environments and Their Implications for Science and Society*”

Guest Editors: Yujiro Ogawa, Yildirim Dilek & Shinji Takarada

- 0) Preface
Yujiro Ogawa, Yildirim Dilek & Shinji Takarada
- 1) *Towards more effective risk reduction: catastrophic tsunami*
Ian Lambert & Roland Oberhänsli
- 2) *Strain buildup in the Northeast Japan orogen with implications for gigantic subduction earthquakes*
Yasutaka Ikeda
- 3) *History of the paleo-earthquakes along the Sagami Trough, central Japan —Review of coastal paleoseismological studies in the Kanto region*
Masanobu Shishikura
- 4) *The current situation of tsunami geology under new policies for disaster countermeasures in Japan*
Kazuhiisa Goto, Shigehiro Fujino, Daisuke Sugawara & Yuichi Nishimura
- 5) *Local paleo-tsunami size evaluation using numerical modeling for boulder transport at Ishigaki Island, Japan*
Akifumi Hisamatsu, Kazuhisa Goto & Fumihiko Imamura
- 6) *Recent progress of tsunami hazard mitigation in China*
Ren Yefei, Wen Ruizhi & Song Yuying
- 7) *Geological and geomorphological features of deep-seated catastrophic landslides in tectonically active regions of Asia and implications for hazard mapping*
Masahiro Chigira
- 8) *Landslides in urban residential slopes induced by strong earthquakes in Japan*
Toshitaka Kamai
- 9) *Experimental analysis on Rowe’s stress-dilatancy relation and frictional instability of fault gouges*
Momoko Hirata, Jun Muto & Hiroyuki Nagahama
- 10) *Self-affinities analysis of fault-related folding*
Kazuhei Kikuchi, Kazutoshi Abiko, Hiroyuki Nagahama & Jun Muto
- 11) *Crustal and mantle structure of the Sea of Okhotsk, Pacific Northwest: A review*
Alexander G. Rodnikov, Natalia A. Sergeeva & Ludmila P. Zabarinskaya
- 12) *Geoethical elements in risk communication*
Jose Luis González, Jesús Martínez-Frías & Niichi Nishiwaki



13) *Global Earthquake and Volcanic Eruption Risk Management Activities, Volcanic Hazard Assessment Assist System and Asia–Pacific Region Hazard Mapping Project in G-EVER*

Shinji Takarada, Joel C. Bandibas, Yuzo Ishikawa & the G-EVER Promotion Team

14) *Report of the 2nd G-EVER International Symposium and the 1st IUGS–SCJ International Workshop on Natural Hazards and the Sendai Agreement*

Eikichi Tsukuda & the G-EVER Promotion Team

SENDAI AGREEMENT

The 2nd G-EVER International Symposium and the 1st IUGS–SCJ International Workshop on Natural Hazards was held in Sendai, Tohoku, Japan on October 19–20, 2013. The aim was to discuss how best to reduce the risks of disasters from natural geohazard events such as earthquakes, tsunamis, landslides, and volcanic eruptions. Ninety-four participants representing twelve nations and regions and thirty national and international institutes contributed. A broad consensus for future mitigation strategies was developed, as follows.

- 1) Study the processes leading to natural disasters through the support of international, broad-based, and interdisciplinary scientific studies relevant to the entire System Earth.
- 2) Improve the methods and content of hazard maps, for society and hazard assessment activities in Asia–Pacific region.
- 3) Create or help build comprehensive international databases, including on past disasters and hazards, and also on geological and geophysical features of subduction zones of the world.
- 4) Promote scientific research on topics such as geodetic measurements, submarine landslides and predicting the maximum aftershocks from major earthquakes, including the 2011 Tohoku-oki Earthquake.
- 5) Enhance systematic mapping and dating of paleo-tsunami deposits in all regions especially those with significant populations and infrastructure.
- 6) Promote innovative practical applications of monitoring data.
- 7) Strive for better hazard assessments by seeking convergence of a variety of methods and disciplines, and also try to understand any discrepancies.
- 8) Improve the quantity and quality of data on paleoevents, recent events (modern analogues), including that from monitoring, and other precursors of future events, including better understanding and modeling of what controls occurrence and magnitude of events.
- 9) Promote better translations from hazard to risk including damage curves, values at risk, etc.



- 10) Improve outreach mechanisms, including visualizations, to enhance communication with end users from early stages of research to outreach stages. Develop multidisciplinary teams and communicate uncertainty to end-users.
- 11) Improve methods for communicating authoritative information to underpin decision-making. Offer training to public officials and local people to reduce geo-risks.
- 12) Promote the optimum use of geoscientific information by public officials and other decision makers. Lessons-learned and best practices are the most useful types of warning information. Gather feedback from public officials and engage in dialogue about what decisions they need to make and what information they need to make those decisions.
- 13) Develop creative new options for mitigating impacts, based on scientific, technical and socio-economic expertise, and develop effective means to have advice used in policies/decisions. Engineers, social scientists and economists should be involved.
- 14) Play international leadership, coordination, and best practices through ICSU.
- 15) Participate in related global risk reduction efforts, such as Integrated Research on Disaster Risk (IRDR) Program, Future Earth, Global Earthquake Model (GEM), and Global Volcanic Model (GVM).

This agreement was produced and unanimously endorsed by participants at the 2nd G-EVER International Symposium and the 1st IUGS–SCJ International Workshop on Natural Hazards in Sendai, Tohoku, Japan, October 19–20, 2013.

GEOSCIENCE INFORMATION IN AFRICA NETWORK (GIRAF)

The [Geoscience InfoRmation in Africa network](#) (GIRAF) was founded in 2009 and is governed by the IUGS Commission on the Management and Application of Geoscience Information (CGI) and the GIRAF Steering Committee led by John A. Duodo (Ghana) and coordinated by Kristine Asch (CGI, BGR Germany). GIRAF is bringing together African scientists, authorities, national experts and other stakeholders in Geoscience. The aims are to exchange and share geoscience information and good practice and to stimulate and support cross-border geoscience information collaboration and projects.



The workshops of the GIRAF network have been supported by the UNESCO, the IUGS, the German Ministry for Economic Cooperation and Development (BMZ), Australian Aid, the Geological Survey of Namibia (GSN), the Southern and Eastern African Mineral Centre (SEAMIC), the Geological Survey of Ghana Department and the participating member countries and organizations. GIRAF is associated to and supported by the Geological Society of Africa (GSAf), the African Association of Women in Geosciences (AAWG), the Young Earth Scientists (YES) Network,



OneGeology and several other international bodies. As for now, GIRAF includes 337 members, mainly from 37 African, but also from 15 non-African countries.

The aims of the GIRAF network are to:

- Build a pan-African geoscience information knowledge network of geological surveys, universities and companies.
- Exchange and share geoscience information and good practice.
- Bring together relevant African authorities, national experts and stakeholders in geoscience information.
- Make Africa a more active part of the international geoscience information community.
- Stimulate and support cross-border geoscience information projects in Africa
- Gather and review up-to-date feedback on the actual situation of geoscience information status and progress in Africa.
- Review the progress of the GIRAF network as set up at the 1st workshop in Namibia 2009.

At the GIRAF workshop 2014 in Accra, Ghana, GIRAF Embassies have been founded in [14 African countries](#). The Embassies are organized by GIRAF members' ambassadors, who are charged to create national GIRAF "Chapters". The ambassadors act as GIRAF newsletter editors, build GIRAF national core groups, link the national embassies to national geoscience agencies, organize GIRAF conferences at national scale, elaborate databases of geoscience information bodies and projects in their countries.

The long-term target of the GIRAF network is to improve the way geoscience information contributes to the health and prosperity of the people in Africa.

More information you can find on the [GIRAF website](#).

HERITAGE STONE TASK GROUP: FIRST NEWSLETTER

The IUGS—IAEG [Heritage Stone Task Group](#) has produced its [first newsletter](#) that describes its development and subsequent dynamic international outreach since it was first convened in 2011. The newsletter provides information on details of past and future activities, including congress sessions and contributions as well as publications up to the present day.

CONGRESS ON GEOHERITAGE INVENTORIES, TOULOUSE (SEPT. 22–26, 2015)

The concept of geological heritage initially rose in 1991 in France, following an international conference on the protection of geological heritage held at Digne-les-Bains. Since then, several European countries have engaged in this process to raise interest and to





protect geological heritage.

An international congress on “Geoheritage Inventories: Challenges, Achievements and Perspectives” (GEO INV 2015) will be held at the National Museum of Natural history of Toulouse (France) on September 22–26, 2015. The aim of this conference is to review the various regional, national and international action that have been undertaken so as to understand how European public policies approach geological heritage. The event will comprise two one-day field trips in the vicinity of Toulouse: to the Phosporites Caves of Quercy and the footprints of the Pterosaurus Beach, and to a reference site for Miocene mammal faunas.

Abstracts for oral contributions should be submitted by February 15, 2015. Presentations may deal with national- or regional scale syntheses or local examples showing various types of actions undertaken and methodological presentations illustrating the wide range of possible approaches at an international level.

More on GEO INV 2015 in its [First Circular](#).

NOTES

- If you require notices, information on publications, etc. to be considered for inclusion in forthcoming IUGS e-bulletins, please <mailto:Amaury@geo.uni-potsdam.de>
- Please check the IUGS [Calendar of Events](#) for upcoming scientific meetings this coming month. If you require information on international conferences, meetings, etc. to be considered for inclusion in this Calendar please <mailto:pbobrows@NRCan.gc.ca>
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Prepared by:

Amaury Pourteau

Post-doctoral researcher

Institute of Earth and Environmental Science
Potsdam University — Germany

+49 331 977 5846

amaury@geo.uni-potsdam.de

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