



REPORT TO IUGG ON IASPEI 2007 ACTIVITIES

IASPEI 2007 General Assembly at Perugia (Italy)

Around 500 estimated IASPEI related scientists have attended the 2007 Perugia General Assembly. IASPEI arranged 12 IASPEI related symposia and workshops, 17 Inter-association symposia and workshops - out of which 8 were IASPEI led - and 2 Union symposia (High-performance computations in geosciences and Early warning of natural hazards). Details can be found in the IUGG Conference Compte Rendue. 135 total grants were assigned by IASPEI to scientists requesting them for a total of \$ 29,210.00.

SYMPOSIA AND SCIENTIFIC MEETINGS

1) Support of international conferences and workshops related to IASPEI activities

A number of workshops, conferences and activities have been supported, principally to allow attendance of scientists from less-developed countries. A total of \$ 6,000 have been spent for such activities.

In the following the reports on the single sponsored initiatives.

A) 10th International Workshop on Modeling of Mantle Convection and Lithospheric Dynamics, September 2-7, 2007, Carry-le-Rouet, France.

Short report

Building on the example of the previous instances of the this international workshop, including that held in Erice (Sicily, 2005), Hrubá Skála (Czech Republic 2003) and Aussois (France, 2001), the meeting consisted in five sessions and an afternoon of touristic visit of the nearby city of Arles. The number of participants was 91, coming from 13 countries.

Each session featured a set of invited keynotes and poster presentations with a lot of time for informal discussions and interactions. A good balance was obtained between theoretical and technical presentation, numerical and analog models. A specific technical session was held with presentation and demonstration of numerical tools in a tutorial form.

The workshop website was built to allow each participant to upload material, such as pdf files

of their poster or keynote presentation. It will be maintained to keep this material available at <http://geologie.ens-lyon.fr/Carry2007>

Thanks to the US\$2500 contribution from IASPEI, we could waive the registration fees (covering food and lodging) for several students:

- Pierre-Andre Arrial (Nantes Univ) presented a poster titled Numerical modelling of the influence of subduction parameters on partial melting.
- Joerg Hasenclever (Hamburg) presented a poster titled What controls passive and active mantle upwelling beneath Mid-Ocean Ridges?
- Christian Huettig (German Aerospace Center, DLR) presented a poster titled Optimal domain decomposition for 3D spherical mantle convection codes using minimal energy configurations of classical electrons.
- Eligiusz Postek (Leeds) presented a poster titled Surface deformations during the earthquake cycle for a layered visco-elastic crust.

B) International Trainings Course on Array Seismology, Arezzo (Italy), June 30 – July 3, 2007

Short report

An “International Trainings Course in Array-Seismology” was created as part of the XXIV^o IUGG General Assembly held in Perugia (Italy) and requested by the IASPEI Commission on “Education and Outreach”. The Trainings course was held in Arezzo from June 30 - July 3, 2007, a few days before the beginning of the IASPEI-sessions in Perugia.

The event was organized by the Italian research institute “Istituto Nazionale di Geofisica e Vulcanologia” together with the Norwegian Research Institute NORSAR (Kjeller, Norway), and German institutes, Institute of Geophysics (University of Hamburg), Institute for Geosciences (University of Potsdam), and the Seismological Central Observatory (Federal Institute for Geosciences and Natural Resources, Gräfenberg). Six research scientists from the above mentioned research institutes gave lectures on theory and applications (which comprised practical exercises), including the following topics:

- Introduction to Array Seismology (plane wave concept, shift and sum in time domain, semblance, vespagram, slowness power spectrum);
- Fundamentals of data processing (narrowband filtering and aliasing effect, beam forming, plane wave parameter estimation, f-k analysis);
- Concept and practical aspects of array design (array transfer function, resolution capabilities);
- Introduction to, and practice with the “Seismic Handler” Software;
- Exercises on data analysis of local, regional and teleseismic events;
- Direct imaging of spatio-temporal source processes;
- Review of microtremor/ambient vibration array analysis.

The trainings course was attended by 17 young seismologists coming from USA (2), Sweden (1), India (1), Taiwan (1), Italy (9) and Germany (3). As closing ceremony a press conference was organized with the

participation of Peter Suhadolc (IASPEI secretary), Donella Mattesini (deputy mayor of the city of Arezzo) and Enzo Boschi (President of INGV).

The array trainings-course was sponsored by IASPEI, INGV and the City of Arezzo,

Arezzo, 10 July 2007, Thomas Braun (course chairman)

C) IRIS Seismological Workshop

‘Managing Waveform Data and Related Metadata for Seismic Networks’

October 21-26, 2007 Kuala Lumpur, Malaysia

Background

The past twenty years have seen a revolutionary growth in the way we monitor seismic hazard: analog seismographs were replaced by digital instruments that are sensitive over a wide frequency band; the digitization made it possible to group instruments in local, often telemetered networks with centralized archiving of digital waveform data.

Earth does not know about national borders, and seismologists have spearheaded efforts to share their data. The growth of the Internet has made it possible, in principle, to link data centers all over the world. In fact, for some networks, such linkages have already been established, and a mature system of data management has grown in such large data centers as ORFEUS (Europe), JAMSTEC (Japan) and IRIS/DMC (US).

Scope

This workshop is a major attempt to disseminate the experience and expertise in seismological data management. It is directed at managers and operators of seismic networks. We shall provide training in the application of advanced database management systems, educate participants on the scientific developments that form the basis of modern seismometry, and give a short introduction to modern methods of analysis possible with the current advanced instrumentation and databases. We expect participants to come away from the workshop with all the necessary knowledge to set up and maintain their own database and to link their network to the growing global network for data access.

This is the third workshop of this kind organized by the IRIS DMC in the past three years.

Topics:

- Broadband and Intermediate Period Portable Experiments
- Station Siting
- Station Design
- Basic Electronics of Modern Feedback Seismometers
- Concept of Poles and Zeroes to Describe Instrument Responses
- Digitization and finite Formats such as SEED
- Data Handling
- Real Time Data Exchange
- Data Quality Control
- Practical Moment Tensor Determinations

Participation

The focus of this workshop was on organizations from the Southeast Asia region. The workshop had 46 participants from 18 different countries, 9 lecturers and 11 people involved in different aspects of the preparation and organization of the workshop (see attachment 1 – Workshop Roster).

From the IASPEI funds we could provide financial support for the airline ticket for Mr. Lok Bijaya Adhikari of the Seismological Center Surkhet in Birendranagar, Nepal.

Financial Support

Funding for this workshop came from the IRIS DMC, as well as GNS Science, New Zealand and JAMSTEC/IFREE, Japan. The Malaysian Meteorological Department provided local support.

IASPEI funds were crucial to enable attendance of the participant from Nepal. Without the contribution from IASPEI the cost of the air travel for Dr. Adhikari would have been outside the budgeted amount.

IRIS provided complimentary support for Dr. Adhikari.

Workshop Organization:**Organizer:**

Mrs. Marjolijn Francissen, IRIS-DMC, Seattle, USA

Local Organization:

Mrs. Irene Eu Neo Swee, Malaysian Meteorological Department, Petaling Jaya, Malaysia

Lecturers:

Dr. Tim Ahern, IRIS-DMC, Seattle, USA

Dr. Rick Benson, IRIS-DMC, Seattle, USA

Dr. Jim Fowler, IRIS-PASSCAL, Socorro, USA

Dr. Bruce Beaudoin, IRIS-PASSCAL, Socorro, USA

Prof. Goran Ekstrom, Columbia University, New York USA

Prof. Erhard Wielandt, Ret. University of Stuttgart, Germany

Dr. Joachim Wasserman, University of Munchen, Germany

Drs. Reinoud Sleeman, ORFEUS, The Netherlands

Sidney Hellman, ISTI, New York, USA

Co-Sponsors:

Dr. Ken Gledhill, GNS Science, New Zealand

Dr. Seiji Tsuboi, JAMSTEC, Japan

IASPEI provided a 1000 USD grant for support of one participant from Nepal.

D) International Scientific Conference to mark the 50th Anniversary of the Founding of the Geophysical Observatory of Addis Abeba University November 1- 4, 2007, Addis Abeba, Ethiopia

Organized by
the Geophysical Observatory, Addis Abeba University

Celebrations have been held to mark the 50th anniversary of the founding of the Geophysical Observatory of

Addis Abeba University on November 2, 1957.

The observatory's 50th year, 2007, is also the 50th anniversary of the International Geophysical Year (IGY) and has furthermore been declared the International Heliophysical Year.

It is also a happy coincidence for the Observatory, as an Ethiopian national institution, that 2007 marks the beginning of the Third Ethiopian Millennium, which presents the institution with the opportunity for a retrospective view of its past history, a review of its present status and a preview of its hopeful prospects for institutional development into the future.

Salient features of the history of the Geophysical Observatory may be viewed at the website: <http://www.aau.edu.et/faculties/sc/goaau/50thhome.html>

The international scientific conference and field trip were aimed at providing fora for the exchange of knowledge, experience, techniques and information in the scientific areas of endeavor in which the Observatory and its international, regional and domestic associates, collaborators and friends engage.

2. THE CONFERENCE

Title and Theme

The conference had the following title and orientation

“THE GEODYNAMICS OF AFAR AND THE ETHIOPIAN RIFTS”
“Geophysics, Geohazard Challenges and Resources”

The conference was held in the new Graduate Programs Building of the Faculty of Science.

The Technical Program of the conference consisted of key-note lectures as well as oral and poster presentations.

Eight oral presentations were delivered during each session. The presentations dealt with the following subjects:

- Geophysics,
- Geodynamics,
- Geohazards,
- Environment,
- Resources.

IASPEI has provided \$1,000 to support this conference.

2) IDEA (International Digital Earthquake Archives)

(Project of the Committee for Preservation of WWSSN and Historical Seismograms: “SeismoArchives: Seismogram Archives of Significant Earthquakes of the World”, under construction at the IRIS DMC)

Report

Collecting and Scanning Seismograms in Support of the USGS/CMG Tsunami

Hazard Potential in the Caribbean Project (August, 2006 to December, 2007)

Under the USGS Purchase Order 06WRSA0430 (7/30/2007), the IASPEI SeismoArchives Project (under the supervision by Willie Lee) carried out the following tasks:

- (1) Collected and scanned analog seismograms of selected Caribbean earthquakes mostly for the period from 1905 to 1985, and
- (2) Collected and prepared arrival time data for relocating earthquakes in the Caribbean region from 1900 to 2005, including the necessary software for data processing and analysis.

The work was divided into four parts. In the first part, selected seismograms on microfilm were scanned. In the second part, selected seismograms on paper were collected from several important seismographic observatories, and then either the copies or the originals were scanned. The work involved selecting Caribbean earthquakes and selecting critical stations that were required to provide a good azimuthal coverage of the Caribbean region. In the third part, arrival time data for earthquakes in the Caribbean region from 1900 to 2005 were collected from sources around the world and entered into computer database. In the fourth part, the necessary software for checking arrival times and relocating earthquakes using a direct search method of Lee and Dodge was written and results of some trial runs were obtained.

All the deliverable products specified in the USGS Purchase Order 06WRSA0430 were delivered on time to USGS, and IASPEI received a payment of \$50,000.

The USGS P.O. Order No. 06WRSA0430 was extended for 6 months by Amendment/Modification No. 0001 in order for the IASPEI SeismoArchives Project to deliver (1) 1,000 seismograms in image files, and (2) a batch-production version of the interactive forward earthquake location software.

All the deliverable products specified in the Amendment/Modification No. 0001 were delivered on time to USGS, and IASPEI received a payment of \$15,000.

The scanned seismograms will be archived at the IRIS DMC under the SeismoArchives Project (<http://www.iris.edu/seismo/>) by volunteers (Willie Lee being the principal one).

Peter Suhadolc
IASPEI Secretary General and Treasurer