IUGG IASPEI International Association of Seismology and Physics of the Earth's Interior

IASPEI Newsletter

September 2017

IN THIS ISSUE

Foreword

Dear Readers,

In July and August, the IASPEI community gathered in Kobe, Japan, for the first joint Scientific Assembly of IAG and IASPEI. We start the newsletter with some reports from the Assembly.

Then, we continue with the report from an IRIS Workshop in South Africa.

Also in this issue of the IASPEI Newsletter, I must inform you with great sadness that two of our colleagues passed away. We remember them in the obituaries.

Please don't forget to inform me about international conferences and workshops with IASPEI related topics. Then, I can add these events to the Meetings Calendar of future Newsletters.

Johannes Schweitzer
Secretary General

First Joint Scientific Assembly of IAG and IASPEI 2017

The first joint Scientific Assembly of IAG (International Association of Geodesy) and IASPEI was held at the Kobe International Conference Center, Japan, from July 30 through August 4, 2017 (http://www.iag-iaspei-2017.jp/) and became a big success.

The conference had 1107 registered participants from 65 different countries of which 747 gave IASPEI as their primary Association. With this number of participants, the Kobe conference was to my knowledge the largest IASPEI Assembly ever.

The scientific program consisted in total of 43 symposia (7 IAG, 27 IASPEI and 9 Joint Symposia), and 1119 oral and poster presentations were given (IAG: 254; IASPEI:

564; Joint: 301). In particular, the 9 Joint Symposia attracted many participants and had to be accommodated in two parallel sessions throughout the duration of the conference. All accepted abstracts will be published on the IASPEI web-site (www.iaspei.org) within this autumn.

The Assembly started with a well-attended ice-breaker on Sunday evening. During the joint Opening Ceremony on Monday, three invited plenary presentations were given: Prof. Kosuke Heki spoke about “Geodesy in Japan: Legends and highlights”, Prof. Barbara Romanowicz about “Imaging the earth's deep interior using seismic waves in the age of high-performance computing”, and Prof. Manabu Hashimoto about “Evolution of earthquake science with space geodesy”.

During the following IASPEI Opening Plenary, the third IASPEI medal was awarded to Eric Robert Engdahl (see own Chapter in this Newsletter).

During the Assembly, the IASPEI Commissions and the IASPEI sponsored bodies also had their business meetings, and several of the Commission Chairs changed. Commission reports and the actual names of the Commission chairs can be found on the Commission web-pages (http://www.iaspei.org/commissions).

A first result of the joint Assembly was the new Inter-Association Initiative between IAG and IASPEI to form a joint sub-Commission on **Seismo-Geodesy**. The home of this new sub-Commission within IASPEI will be the Commission on Earthquake Source Mechanics (ESM).

The traditional IASPEI Dinner with more than 160 participants was held on Thursday, June 29, at the Kobe Animal Kingdom with a menu of excellent Japanese cuisine. Some of the pictures taken during the Scientific Assembly and the IASPEI Dinner will be posted on the IASPEI web-site.

The Scientific Assembly finished with the Closing Plenary on Friday, August 4, 2017.

During this Plenary, the proposed changes (see also the last IASPEI Newsletter) to the IASPEI Statutes and By-laws were unanimously adopted by the 16 National Correspondents present. The actual texts will be published on the IASPEI web-site. The participants endorsed the following IASPEI resolutions, which will be also available on the web:

Resolution 1

IASPEI strongly encourages efforts to conserve archives of analogue seismograms, metadata and seismological bulletins, making them usable by future generations of Earth scientists.

Resolution 2

Recognizing the outstanding long term value of the International Monitoring System of CTBT and associated data and in view of the need for better characterisation of moderate to large earthquakes to achieve better regional and global seismic hazard assessment, IASPEI encourages CTBTO to further enhance its civil application efforts and consider producing complementary magnitude determinations for all events in the Reviewed Event Bulletin in accordance with IASPEI magnitude standards.

Resolution 3

Inspired by the recovery of the city of Kobe from the devastating earthquake of 1995, IASPEI promotes continued research on seismological, engineering and social aspects of destructive seismic events and their integration to achieve better understanding and improved mitigation efforts for future earthquakes.

Resolution 4

IASPEI thanks the Local Organising Committee for a successful and memorable first joint Scientific Assembly of IAG and IASPEI in Kobe, Japan.

The next IASPEI General Assembly will be held in Montreal, Canada, in July 2019.

J. Schweitzer

IASPEI Medal 2017

During the IASPEI Opening Plenary of the first Joint Scientific Assembly of IAG and IASPEI in Kobe, Japan, the 2017 IASPEI Medal was awarded to Eric Robert Engdahl. The laudation was given by Prof. Brian L.N. Kennett, Australia.

Laudation

Bob Engdahl has made an unparalleled contribution to international science through IASPEI. He has held all major offices in the Association through Commission Chair, Vice-President, Secretary-General and President. Bob was a member of the IASPEI executive when I joined in 1987 and still present when I stepped down as Past-President in 2007. He served on the Executive Committee of the International Seismological Centre (1983-1991), and represented IASPEI on the Federation of Digital Seismographic Networks (FDSN) from 1991-1999.

Bob is a fine scientist who has dedicated his life to improving knowledge of the Earth and earthquakes from seismogram recordings. Early on he was one of the pioneers of using computers for earthquake location, which he used to advantage in the study of the Alaskan subduction zone. The Flinn-Engdahl standard geographical system for regionalisation of seismic events is a lasting testament to his efforts. Indeed, as a result of his long career at NEIC, USGS and its precursors we have new travel times, better earthquake locations and 3-D tomographic models of the Earth of unprecedented resolution. An important product – the EHB catalogue – did much to improve understanding of earthquake depth across the globe, and has been a primary database for seismic tomography. Bob has also put considerable effort into improving knowledge of global seismicity from the early instrumental period into the beginning of the modern era though the ISC Millennial Catalogue and its continuation into the GEM project, providing a sound foundation for hazard assessment.

B.L.N. Kennett delivering the laudation.

Bob has collaborated widely across the globe, and has been very willing to provide support to diverse projects that could call on his knowledge and expertise in event location and earth structure. With more than 110 publications and over 11,000 citations he has made a major impact.

Within IASPEI as Chair of the Commission on Practice he did much to encourage take up of improved techniques for seismogram analysis. For 12 years, he was Secretary General, supporting three Presidents (Nicolaev, Froidevaux and Kennett), and ensuring the outwardly smooth running of IASPEI – though this often required rapid paddling beneath the surface. Yet, he still maintained a high science profile, and in consequence he made the unusual transition from Secretary-General to President.

His dedication to our science cannot be matched, and we are very fortunate that he channelled this through IASPEI.

I present to you Eric Robert Engdahl the 2017 IASPEI Medallist.

B.L.N. Kennett

Eric Robert Engdahl receiving the Medal from IASPEI President Thorne Lay.

Bob Engdahl's Acceptance Speech

It is a great honor for me at this late stage in my life to be awarded the IASPEI Medal. My first thought upon learning of the award was how one of my earliest mentors, Father William Stauder, S.J., at Saint Louis University, introduced me to seismology through the early works of Jeffreys and Bullen that characterized the structure of the Earth. This was a monumental and long-standing contribution to our science, yet it was based on only a limited amount of data. This inspired a lifetime mission of mine, as an observational seismologist, to seek data no matter how great or how sparse that were hard to refute and needed to be explained. Along the way, I was fortunate enough to team up with other scientists, many of them smarter than me, to produce research results that could stand the test of time. It is really not surprising that many of my co-authors are not from the USA, as I was fortunate to have the opportunity to work at a number of foreign research facilities for several months at a time and to develop long-term collaborative relationships there.

My interests have always been global, perhaps because our science does not have political boundaries, and it seemed natural for me, as a member of an agency that routinely reported on earthquakes globally, to become involved in international bodies, such as IASPEI, that promote our science. My first venture into this world was at the 1967 IUGG meeting in Zurich where I presented a paper on the structure of the Earth's core based on my Thesis with none other than Jeffreys and Bullen in the front row. It was an exciting time in seismology, with the introduction of the plate tectonics paradigm and the interest in monitoring nuclear tests, and it brought me into contact with scientists, not just from seismology, but also with those having inter-disciplinary interests. This led me over the years to collaborative research in many areas including subduction zone tectonics, global earth structure, source mechanisms, ground truth events, and even earthquake prediction.

My association with IASPEI has been one of the high points of my career. I found it to be one of the few international organizations that had one of its foremost goals the involvement of scientists from developing countries in its affairs. Through my long IASPEI involvement and especially as Secretary General for 12 years I sought to bring that goal to fruition. In that process I am very grateful to the conveners and local organizing committees from countries all over the world that helped organize our meetings. Through that engagement I have made many long-standing relationships that have really made it all worthwhile.

As most of you well know, for many years the problem of earthquake location has been one of my primary interests. What seemed to be a simple application of Geiger's algorithm is not so simple at all because of the Earth's lateral heterogeneity. A high-resolution robust 3D global velocity model will eventually be needed, especially in subduction zones where the inherent bias in earthquake locations can

only be addressed by the application of specialized algorithms. Until that time all we can do is the best job possible with a 1D model, and that has been my driving motivation for the development of better 1D global velocity models with Kennett and Buland, and the EHB algorithm with Van der Hilst and Buland to improve the location and depth of earthquakes in those models. That work continues in my present-day collaboration with the International Seismological Centre (ISC) to locate earthquakes in the early part of the last century with sparse and often uncertain data under the ISC-GEM project and to refine and expand the EHB catalog from 1964 to the present under the ISC-EHB project for use in seismicity studies and global tomography.

As I look over this audience I see many faces that are familiar to me both as a result of collaborative research and of joint activities within IASPEI. I can hardly accept this award without acknowledging my gratitude for their friendship and support. I wish not only for them, but also for the young scientists present, many more years of success in their research and to encourage them to participate in service to the scientific community that has been so rewarding for me.

Finally, I am grateful to my late wife Eileen and to my present wife Inge for their support during my career.

Thank you.

Report on the IRIS Workshop 'Managing Data for Seismic Networks' August 20-26, 2017

Workshop Scope

The objective of the workshop was to assist operators of seismic networks in the generation of time series and metadata that describe their seismic stations. We provided training in a variety of areas including: seismic station installation and instrumentation, methods of transmitting real time data, development of station metadata, how to access data from the FDSN data center operated by IRIS, and introduced participants to the IRIS MUSTANG Quality Assurance system that monitors the quality of seismological data.

Participants came 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.

A tutorial on ObsPy, a Python based toolkit for seismological observatories, was presented. ObsPy is an open-source project dedicated to providing a Python framework for processing seismological data. It provides parsers for common file formats, clients to access data centers and seismological signal processing routines that allow the manipulation of seismological time series.

The workshop also provided an introduction and training to the workshop participants on the SeisComp3 seismological network management system. The SeisComp3 system supports several FDSN standard methods of accessing data and is available at no cost to seismic network centers. Operating a SeisComp3 system allows networks to participate in a Federated FDSN data center system.

The metadata workshop takes place in three regions of the globe, 1) Africa Middle East, 2) Central and South America, and 3) SE Asia.

The latest workshop occurred in Pretoria, South Africa on August 20-26, 2017. More information about the workshop and the participants can be found online at http://ds.iris.edu/ds/workshops/

One of the highlights of the workshop was a series of network reports presented by participants. These reports identified the current state of the art in the region and

addressed issues related to local processing procedures as well as data exchange

This workshop had 30 participants from 15 countries and 6 Lecturers.

Gale J. Cox, IRIS-DMC, Seattle, USA (shortened)

Obituaries

Hosseyn Hamzehloo
1966 – 2017

On 13 March 2017, Prof Dr Hosseyn Hamzehlo, our dear colleague in the International Institute of Earthquake Engineering and Seismology, Tehran, Iran, passed away at the age of 50, after 9 months courageous fighting against blood cancer. He was a professor of Engineering Seismology, IIEES.

He started his career in IIEES in December 2000. Hosseyn graduated with a BSc degree in Physics, from Arak University, Iran, 1988, and MSc in Geophysics and then MTech in Engineering Geophysics from I. I.T Roorkee, India 1996. His MSc thesis was a study related to the 1990 Rudbar earthquake sequence in NW Iran. He then followed his education in IIT Roorkee, India to obtain his PhD in 2000. The subject of his PhD dissertation was "Seismic modeling of fault rupture for four Iranian earthquakes". He was the first Iranian scientist to be focused on the numerical aspects of strong motion simulation.

He started the studies on induced seismicity on the Iranian Dam Sites and conducted several projects, using the installation of temporary seismic networks. Some of the induced seismicity studies conducted by Hosseyn might be mentioned, as seismic networks in the region of Darian Dam (Zagros belt) and the Sarcheshmeh Mining Complex (Central Iran).

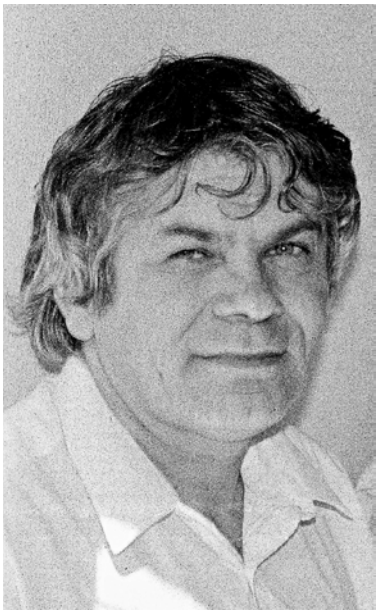
He also worked on attenuation of P and S waves in Alborz and north central part of Iran using the data recorded by permanent and temporary networks. These studies resulted also in estimates of direct-shear waves (Q d), coda (Q c), intrinsic (Q i) and scattering quality factor (Q Sc) in the crust of central and eastern Alborz region. He additionally worked on hybrid models, especially for the regions with no sufficient strong ground motion data, in order to build empirical models. In his later works he applied the host-to-target method.

Hosseyn was a serious and kind lecturer in the graduate school of IIEES in MSc and PhD in Geophysics, Seismology. He taught different courses as Strong Motion Seismology, Engineering Seismology, An Introduction to Seismology, Wave Form Modelling, Strong motion Simulation, Elastic Wave Equations. He supervised several MSc and PhD seminars, theses and dissertations. He conducted 6 PhD students on seismology. These students are now serving as faculty members in IIEES, University of Tehran, University of Hormozgan and other academic centers of Iran.

He performed an appreciable profile during about 16 years of his activities in IIEES (see his google scholar profile). He was a real friend and a perfect scientist. He is survived

by his small family; his wife and daughter (Mahdieh, 17 years old). Hosseyn will remain in our minds for his kindness, initiation and determination in professional research career, and especially for his real human character. God Bless him and R.I.P.

Mehdi ZARE, Prof of Engineering Seismology, International Institute of Earthquake Engineering and Seismology (IIEES), Tehran, Iran, email: mzare@iiees.ac.ir



George Purcaru (1939 – 2016)

On 24 October 2016, the mathematician and seismologist Dr. George Emil Purcary died in Frankfurt, Germany at the age of 77. George Purcaru was born on 22 March 1939 in Budişteni, Romania and grew up in Tecuci. In 1960, he graduated from the University of Bucharest after studying mathematics and seismology since 1955. During the years 1961 – 1973 George Purcaru worked at the Geophysical Research Center of the Romanian Academy in Bucharest as a researcher. Then, he was granted with a Norwegian stipend for a one year research visit at NORSAR, Norway, in 1974 – 75. During the same time, George worked on his PhD thesis “Studies on earthquake statistics, seismicity and prediction of earthquakes”, which he defended in 1976 at the University of Oulu, Finland. In 1975, George Purcaru moved to Germany to work with Prof. Hans Berckhemer (1926 – 2014) at the Goethe University Frankfurt.

During his entire career, George Purcaru’s interest in statistics defined his main seismological research topics: magnitude relations and distribution of strong earthquakes in time and space, and earthquake prediction. In 1978, he proposed together with Berckhemer a new magnitude scale for very large earthquakes, the “strain-energy magnitude”. Coming from a country with several earthquake disasters during the 20th century, George particularly worked on the prediction problem of large Vrancea earthquakes. For many years, George Purcaru was leading the working group on earthquake prediction of the European Seismological Commission, and over many decades, George was an active participant of major seismological conferences all over the globe. He is remembered by many colleagues for his enthusiastic contributions to scientific discussions during these meetings.

J. Schweitzer

Meetings Calendar

We report below titles, dates, places and websites of the forthcoming meetings relevant to the interests of IASPEI scientists. If you are aware of events not listed below, please inform the Secretary General.

2017

9th High Pressure Mineral Physics Seminar
September 24 – 28, 2017, Saint Malo, France
URL: https://hpmps-9.sciencesconf.org/

6th Scientific Biennial Conference "Problems of Complex Geophysical Monitoring of the Russian Far East"
October 1 – 7, 2017, Petropavlovsk-Kamchatsky, Russia
URL: http://www.emsd.ru/en/conf2017/

2nd Cargèse school on seismogenesis
October 2 – 6, 2017, Cargèse, France
URL: http://earthquakes2.sciencesconf.org/

AGU Fall Meeting
December 11 – 15, 2017, New Orleans, USA
URL: http://fallmeeting.agu.org/2016/2017-fall-meeting-new-orleans/

2018

2nd General Assembly of the African Seismological Commission (AfSC)
April, Rabat, Morocco

EGU General Assembly 2018
April 8 – 13, 2018, Vienna, Austria
URL: http://www.egu2018.eu/

3rd General Assembly of the Latin American and Caribbean Seismological Commission (LACSC) and Seismological Society of America (SSA) joint meeting
April 23 – 26, 2018, San Juan, Puerto Rico
URL: http://seismology2018.org/

12th General Assembly of the Asian Seismological Commission (ASC) together with the 4th International Conference on Continental Earthquakes (ICCE)
May 12 – 14, 2018, Chengdu, China
URL: http://www.4thicce.com/

AOGS2018 15th Annual Meeting
June 3 – 8, 2018, Hawaii, USA
URL: http://www.asiaoceania.org/aogs2018

16th European Conference on Earthquake Engineering
June 18 – 21, 2018, Thessaloniki, Greece
URL: http://www.16ecee.org/

SEDI 2018
June 26 – 30, 2018, Edmonton, Canada

36th General Assembly of the European Seismological Commission (ESC)
September 1 – 7, 2018, Valletta, Malta
URL: http://www.escmalta2018.eu/page/home

AGU Fall Meeting
December 10 – 14, 2018, Washington D.C., USA

2019

EGU General Assembly 2019
April 7 – 12, 2019, Vienna, Austria
URL: http://www.egu2019.eu/

27th IUGG General Assembly
July 8 – 17, 2019, Montreal, Canada

AOGS2019 16th Annual Meeting
July 28 – August 2, 2019, Singapore

AGU Fall Meeting
December 9 – 13, 2019, San Francisco, USA

2020

AOGS2020 17th Annual Meeting
June 28 – July 4, 2020, South Korea

2021

AOGS2021 18th Annual Meeting
August 1 – 6, 2021, Singapore

General Information about IASPEI

The **I**nternational **A**ssociation of **S**eismology and **P**hysics of the **E**arth's **I**nterior [IASPEI] is one of the eight Associations of the **I**nternational **U**nion of **G**eodesy and **G**eophysics [IUGG].

The other IUGG Associations are:

Int'l Association of Cryospheric Sciences [IACS]
Int'l Association of Geodesy [IAG]
Int'l Association of Hydrological Sciences [IAHS]
Int'l Association of Meteorology and Atmospheric Sciences [IAMAS]
Int'l Association for the Physical Sciences of the Oceans [IAPSO]
Int'l Association of Geomagnetism and Aeronomy [IAGA]
Int'l Association of Volcanology and Chemistry of the Earth's Interior [IAVCEI]

Scientific Assemblies

IASPEI holds an Ordinary General Assembly every four years in conjunction with each Ordinary General Assembly of IUGG. Between the General Assemblies, IASPEI holds a Scientific Assembly, sometimes meeting with one of the other Associations of IUGG.

Participation in IASPEI Activities

Since July 2015, all scientists participating in IASPEI activities are counted as members of IASPEI (see http://www.iaspei.org/statutes.html). IASPEI welcomes all scientists throughout the world to join in seismological research.

IASPEI is subdivided into several Commissions, many of which have working groups for the study of particular subjects in their general areas of interest. On occasion, these internal IASPEI groups issue their own newsletters or circulars and many maintain their own web sites. At the IASPEI Assemblies, the groups organize specialist symposia, invite scholarly reviews and receive contributed papers that present up-to-the-minute results of current research. The IASPEI web site gives, or provides links to, information on the range of IASPEI activities.

The IASPEI Web site

IASPEI can be found on the web at:
http://www.iaspei.org/

Contacting IASPEI

The Secretary-General is the main point of contact for all matters concerning IASPEI.

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