

IASPEI Commission on Seismological Observation and Interpretation (CoSOI)
Business Meeting, August 1, 6 pm (room 402)
IAG-IASPEI 2017, Kobe, Japan

Participants:

Johannes Schweitzer (NORSAR, Norway)
Torsten Dahm, Simone Cesca (GFZ, Potsdam, Germany)
Stephen Myers, Lawrence Livermore National Laboratory, California, USA
Dimitry Storchack, Kostas Lentas, Domenico Di Giacomo, Elisabeth Entwistle (ISC, UK)
Paola Albinì (INGV, Italy)
Josep Battlo (Spain)
Bob Engdahl (USA)
Paul Richards (USA)
Uli Wegler (University of Jena, Germany)
Michael Korn (University of Leipzig, Germany)
Kristine Pankow (Utah, USA)
Hisashi Nakahara (Japan)
Myrto Pirli (Norway)

Agenda:

1. Election of the chair of CoSOI (lead by Johannes Schweitzer, IASPEI Secretary General)
2. Reports by the working groups
 - 2.1 Reference Events for Improved Locations (Kostas Lentas)
 - 2.2 Utilization of Global 3D Models for Seismic Observatory Applications (Stephen Myers)
 - 2.3 Magnitude Measurements (Domenico Di Giacomo)
 - 2.4 Triggered and Induced Seismicity (Stanislaw Lasocki)
 - 2.5 Historical Seismology (Paola Albinì, Kenji Satake)
 - 2.6 International Seismic Format (James Harris)
 - 2.7 Seismic Scattering and Heterogeneity (Hisashi Nakahara & Ulrich Wegler)
 - 2.8 New Manual of Seismological Observatory Practice (Torsten Dahm)
 - 2.9 Benchmarking and verification platform of routine moment tensors (Torsten Dahm)
3. Plan for the next IUGG General Assembly (Montreal, 2019)
4. AoB

Executive Summary:

#	ToDo	who
1	Check web-link for NMSOP (see below)	T. Dahm
2	Ask users for feedback on format structure for ISF	J. Harris
3	Feedback on candidates for co-chairs for planned CoSOI sessions in Montreal 2019, considering to include young and female scientists	
4.	Improve content and structure of webpage for CoSOI	T. Dahm and all WG leaders

Summary of the meeting

1. Step down of Thomas Meier as chair of CoSOI and election of a new chair

Johannes Schweitzer (secretary general) introduced the meeting, and led through topic 1.

As communicated to all working group leaders of commission and to the secretary general, and provided in the pre-defined agenda, Thomas Meier steps back as chair of the commission after 4 years. Johannes Schweitzer thanked Thomas Meier for his work.

As a candidate for a new chair, Torsten Dahm (GFZ Potsdam) has been suggested by Johannes Schweitzer and Thomas Meier. Torsten Dahm introduced himself to the CoSOI group. No other candidate was identified before and during the meeting. Torsten Dahm was elected as new chair.

2. Reports by the working groups

Working group presented the activity during the last 2 years. Here, a brief summary of the major points is provided.

K. Lentas: Reference Events for Improved Locations

(no 2017 report)

S. Myers: Utilization of Global 3D Models for Seismic Observatory Applications

- The Regional Seismic Travel Time Model and ray tracer (RSTT) are integrated into the iLoc program. Now, anyone can use a 3D model of the crust and upper mantle in conjunction to improve the accuracy of regional-phase travel times and improve seismic event location accuracy. Note that iLoc enables use of RSTT for regional phases and any 1D global model for teleseismic phases. Both RSTT and iLoc are open source and available for download at <http://www.sandia.gov/rstt/> and http://www.orfeus-eu.org/website_until_17aug2016/software/seismo_softwarelibrary.html, respectively.
- Workshops and special sessions at professional meetings are being used to train regional network operators on the use of RSTT and iLoc. These efforts are coordinated with the Comprehensive Nuclear-Test-Ban Treaty Organization's outreach program.
- The global LLNL-G3Dv3 model and Earth_3D travel time code are available for download at <https://www-gs.llnl.gov/nuclear-threat-reduction/nuclear-explosion-monitoring/global-3d-seismic-tomography>. LLNL-G3Dv3 is a published and validated model. The Earth3D java code enables ray tracing and calculation of 28 phases used for seismic event location and seismic tomography. Many models that are available for download at IRIS (<http://ds.iris.edu/ds/products/emc-earthmodels>) have been translated into Earth3D format.

D. Di Giacomo: Magnitude Measurements

- Most of the items listed in the Continuation Plan are still to be achieved. The ISC is leading point *b*) of the Continuation Plan and the implementation of IASPEI standards in magnitude

measurements (presentation by Elizabeth Entwistle in the conference program). Further work is needed to achieve all other goals of the WG. The WG may benefit from new members and encourages researchers working in the magnitude problem to participate more actively.

S. Lasocki: Triggered and Induced Seismicity (not at the meeting, provided by e-mail)

The aim of Triggered and Induced Seismicity WG (TAIS) is integration of induced seismicity research. This is realized through two intermediate objectives:

1. Developing and strengthening contacts and information exchange between AS research communities.
2. Integrating anthropogenic seismicity research infrastructures.

Since the last IUGG/IASPEI GA in Prague, two events have been organized regarding #1. The session “Anthropogenic Seismicity” convened by Stanislaw Lasocki (Institute of Geophysics, Polish Academy of Sciences), Aderson Farias do Nascimento (UFRN - Natal RN, Brasil), Carlos Alberto Vargas Jimenez (Universidad Nacional de Colombia) and Waldo Taylor Castillo (Instituto Costarricense de Electricidad, Costa Rica) was a part of II Regional Assembly of the Latin America and Caribbean Seismological Commission (LACSC 2016), San José, Costa Rica, 20 - 22 June 2016. The session consisted of ten presentations. The second event was the Symposium on Anthropogenic Seismicity in the framework of Joint Scientific Assembly of the International Association of Geodesy and the International Association of Seismology and Physics of the Earth’s Interior - IAG-IASPEI, Kobe, Japan 30 July – 4 August, 2017. This symposium was very well populated. It gathered 29 oral presentations, presented in 6 sessions and 16 poster presentations. The symposium was convened by Stanislaw Lasocki (Institute of Geophysics, PAS), Carlos Alberto Vargas Jimenez (Universidad Nacional de Colombia), Harsh Gupta (National Geophysical Research Institute, India) and Ogasawara Hiroshi (Ritsumeikan University, Japan). Actions regarding the second objective have been carried on in the framework of Implementation Phase of EPOS integration program, though some independent actions have also been undertaken. The IS-EPOS platform for anthropogenic seismicity research, a technical solution of Thematic Core Service Anthropogenic Hazards (TCSAH) of EPOS, has substantially enlarged its resources. In addition, it has been hosting two European projects (SHEER, SERA), and will be hosting the third one starting from September, 2017.

P. Albini, K. Satake: Historical Seismology

Since the IUGG meeting in Prague (2015), the Working Group “Historical Seismicity” has two co-chairs, Kenji Satake and Paola Albini. The networking activity characterising this open WG has proceeded, and achieved some important results.

- a) The organisation of the session “SE5 Paleo- & Historical Earthquake Research and quantitative analysis of seismicity” at the AOGS 13th Annual Meeting, 31 Jul to 5 Aug, 2016., Beijing, China
- b) From AOGS session stemmed a series of eight papers, peer reviewed, and since November 2017 freely available online at <https://www.springeropen.com/collections/hgse> under the title “Historical and Geological Studies of Earthquakes”, edited by Kenji Satake, Jian Wang, Christa Hammerl, Javed Malik.
- c) The organisation of the IASPEI Symposium “S04 Historical and macroseismic studies of earthquakes” at IAG-IASPEI Joint Scientific Assembly, 30 Jul to 4 Aug, Kobe, Japan, convened by two co-chairs of this WG.

- d) This Symposium has been a great success, in terms of “on topic” abstracts submitted, and of the actual participation of the authors of the 20 oral presentations (no withdrawals) and 7 posters. A total of 13 countries were represented, with the largest contribution provided by the Japanese colleagues, and all the presentations offered interesting though different cues on how to deal with the macroseismic studies of earthquakes.
- For the above consideration, and taking into account that the WG is effectively acting to favour meetings and exchanges among scientists operating in sometimes forgotten area of scientific investigation, we chairpersons propose to maintain the WG “alive”

J. Harris: International Seismic Format

(no 2017 report)

H. Nakahara: Seismic Scattering and Heterogeneity

- Hisashi NAKAHARA took over the chair of the task group from Michael KORN at the 2015 IUGG meeting, and updated members of the task group especially by inviting young researchers.
- In these two years, we organized several sessions of seismic scattering and seismic interferometry at EGU and JPGU. We also organized a few workshops focusing on seismic wave propagation.

T. Dahm: New Manual of Seismological Observatory Practice

- 1st concept for the adaption and improvement of the structure of the NMSOP for future development has been developed. However, this need further time. There is currently no activity planned for a new release, although this has to be approached in about 2 years.

T. Dahm: Benchmarking and verification platform of routine moment tensors

- A prototype beta version of the platform (web service) was prepared. Still rudimentary, but first components as the configurable synthetic dataset generator were functional.
- The prototype functions and concept was discussed at the poster of the MT working group during the IASPEI conference. Feedback will be considered in the future development
- Some real data cases of regional events were selected to be used for comparing and benchmarking methods (quasi ground truth events). The data and metadata are prepared to be implemented in the platform for testing

3. Plan for the next IASPEI -IUGG joint meeting in Montreal

The following sessions have been suggested during our brain storming at the CoSOI meeting (and the IASPEI 2019 programme meeting on Wednesday). The names in brackets I suggest to take care to nominate a key convener (and potential chairs). The conveners (chair and co-chairs) are expected to develop the session description (after acceptance by the IASPEI) and to organize the scientific program of their session.

a) Open session seismology: T. Dahm. Co-chairs. N.N.

- b) Anthropogenic (induced and triggered) seismicity (possibly consider a sub-session with special Canada/US focus (D. Kühn would like to chair this block) : chair: D. Lasocki, co-chairs: D. Kühn? , N.N.
- c) Seismic scattering and noise interferometry: H. Nakahara. Co-chairs: U. Wegler?
- d) Historical earthquakes: P. Albini. Co-chairs: N.N.
- e) Standardization and automatic procedures in source studies (joint with Source Mechanics?): moment tensors, magnitudes, classification, detection, robustness, ...: N.N. (S. Cesca?, Di Giacomo?)
- f) Advancement in observation, processing and interpretation of seismological data: N.N.

CoSOI is open to organize joined sessions if thematic overlap exists (e.g. for source mechanism and location studies, historical and paleo-seismology, etc.). One such topic may concern time dependent seismology

4. AoB

- (a) P. Richards suggested a resolution for discussion within CoSOI, where IASPEI should prepare a statement to mention the urgent need to conserve over long term and keep accessible analog seismological data for the community in future. A draft of the text has been suggested and improved during discussion of the resolution. The CoSOI fully supports the resolution.
- (b) CoSOI webpage needs to be updated in terms of content and structure. The CoSOI chair will approach the working group leader with a a draft structure and request to deliver content.
- (c) International Seismological Format (ISF): A decision on the extended format structure shall be taken after consultation of users, so that their input can be considered. The working group leader will take this task.
- (d) The NMSOP link should stay static (if possible), since other organizations are setting links on the GFZ webpage (e.g. ISC). It was suggested that the design of the NMSOP should be improved, e.g. to improve the accessibility of the manual (is it possible to create a front end web page with better description)