Information about activity of Commission on Earthquake sources: Modeling and monitoring for Prediction activity during IASPEI General Assembly in Gothenburg, Sweden, July 22 – 26, 2013

Business meeting of Commission was held on Wednesday, July 24, 2013 form 18:00 till 19:00 in the room G2 in Swedish Exhibition & Congress Centre, Gothenburg.

The following persons have taken part in this meeting:
1. Alexey Zavyalov (Russia) – commission chair,
2. Boris Levin (Russia),
3. Ritsa Papadimitriou (Greece),
4. Gerassimos Papadopoulos (Greece),
5. David Rhoades (New Zealand),
6. Daya Shanker (India),
7. Peter Shebalin (Russia),
8. Vladimir Kossobokov (Russia),
9. Vladimir Smirnov (Russia),
10. Gennady Sobolev (Russia),
11. Tamaz Chelidze (Georgia),
12. A. Cichowicz (South Africa),
13. Peter Suhadolc (Italy) – IASPEI General Secretary,
14. Domenico Giardini (Switzerland) – IASPEI President.

Agenda of the meeting was so:
1. Activity Report 2011-2012 of Commission to IASPEI.
2. Scope of the Commission for the next two years.
3. Suggestions to the scientific program for the IUGG 2015 General Assembly in Prague, Czech Republic, 22 June - 2 July 2015.
4. Miscellanea

   a). About new Commission Chair

1. Activity Report 2011-2012 of Commission on Earthquake Sources: Modeling and Monitoring for Prediction was placed on IASPEI web site:
http://www.iaspei.org/commissions/CESMMP/CommissionEQS-MMP_Activity_report_2011-2012_ver20130331.pdf
in June 2013.

The data for this report were presented by
Prof. Alexander V. Ponomarev, Moscow, Russia;
Dr. Antonella Peresan, Trieste, Italy;
Prof. Giovanni Martinelli, Emilia Romagna, Italy;
Prof. Eleftheria E. Papadimitriou, Thessaloniki, Greece;
Prof. Sregey B. Turuntaev, Moscow, Russia;
Dr. Vadim A. Saltykov, Petropavlovsk-Kamchatsky, Russia;
Prof. Alexey A. Lyubushin, Moscow, Russia;
Prof. Michael V. Rodkin, Moscow, Russia;
Prof. Ivan N. Tikhonov, Yuzhno-Sakhalinsk, Russia;
Prof. Boris W. Levin, Yuzhno-Sakhalinsk, Russia;
Prof. Tamaz L. Chelidze, Tbilisi, Georgia;
Dr. Galina Ya. Khachikyan, Almaty, Kazakhstan.

Alexey Zavyalov (commission chair) expressed gratitude to all of them.

2. The scope of Commission was issued at the end of 2007 and lay out on IASPEI web-site http://www.iaspei.org/commissions/CESMMP.html. In the scope the basic attention is concentrated on researches of physics of destruction process at different scales, since experiments in laboratory on rock samples and finishing researches of a seismic regime.

Nobody suggested any changes for the Commission Scope for next two years.

3. Commission discussed suggestions from members, working in the frame of Commission Scope, to the scientific program for the IUGG 2015 General Assembly in Prague, Czech Republic.

The following suggestions were proposed:

Proposal from Alexey Zavyalov (Russia): "*Modeling and monitoring of earthquakes.*"
Possible conveners: Alexey Zavyalov (*Russia*), Vladimir Smirnov (*Russia*), T. Locaichek (*Czech Republic*).
Scope:
The scope of this symposium is in the frame of Commission on EQs sources: Modeling and Monitoring for Prediction.

Proposal from Eleftheria Papadimitriou (Greece): "*Statistical Seismology and Modeling*".
Possible conveners: Eleftheria Papadimitriou (*Greece*).
Scope:
This title is not appealing but the meaning is that we may organize it in cooperation with Mathematicians who are dealing with semi and hidden Markov, we already have a banch of common publications and can invite more people to participate.

Proposal from Antonella Peresan (Italy): "*Seismic Hazard Assessment: Quo Vadimus?*"
Possible conveners: Antonella Peresan (*Italy*), Vladimir Kossobokov (*Russia*).
Scope:
The destructive earthquakes, which occurred worldwide during the recent years, are seriously questioning the effectiveness of traditional seismic hazard estimates, which are essentially based on a probabilistic approach. The operational and decision-making problems related to the existing practice of seismic hazard assessment, are nowadays matter of intensive debate, particularly in view of inherent uncertainties in assessing earthquake probabilities.
The Symposium aims to contribute spotting out the possible paths towards improved seismic hazard assessment, which may take advantage from newly available data and physical models of seismic waves' generation and propagation processes. We therefore solicit presentations on innovative approaches, as well as those related to the recent advances in understanding earthquake sources, driving forces, and models that may help integrating and improving current methodologies. Presentations addressing the issue of time dependent seismic hazard assessment, based on the space-time characterization of impending earthquakes, are welcome. We also encourage contributions on tools for evaluation of risks from future earthquakes, as well as those on theoretical and practical aspects of verification and validation of seismic hazard assessments.

Proposal from Prantik Mandal (India): "*Utilization of geophysical techniques in studying bio-physical problems: A future direction of research.*"
Possible conveners: Prantik Mandal (*India).*
Scope:

We can think of having a session on study of bio-geophysics using geophysical techniques wherein techniques like shallow seismic imaging using passive source and active source can be discussed. In fact, the future focus of research in science is going to be the integration of physics, chemistry and biology in studying societal problems. Thus, it would be really necessary for earth scientists to change the direction of research to meet to demand of future.
One example could be to study the present day uplifts or erosional features in important areas through seismic imaging in order to understand their geological evolution, which in turn, would help us their behavior in future. This can help us to reduce the societal hazard associated uplifts and erosional features.
Another example could be to study temporal behavior of microorganisms in big lake during or after an earthquake, which would provide excellent data to biologists for their research.
Study of lake levels during different seasonal and climatic variations, which would provide us a good inputs for locating drought prone areas. If we can locate some ponds or lakes in an area are having water even in summer, then we can be sure about the fact that area will not have any drought problem. Similarly, if we can locate an opposite situation with some other lakes or ponds in some other regions, then we could be sure about the fact that region will have a serious drought problem. By accomplishing this modeling, we can help government or society in a big away for proper optimal design of schemes to tackle the drought problem. Similarly, if we can study nature of river levels during different seasonal and climatic variations, then we can government to optimize schemes to tackle flood problems.

Proposal from Prantik Mandal (India): "*Generation of synthetic earthquakes: An important future issue to reduce the uncertainties in the seismic hazard estimates.*"
Possible conveners: Prantik Mandal (*India*), Alexander Gorshkov (*Russia*).
Scope:
We can think of having a session on improving the existing earthquake catalogues by generating synthetic earthquakes in seismically active regions like Thouku or Sumatra regions, where seismologists never expected the occurrence of an M9 earthquake based on existing earthquake catalogue. Further, another idea is becoming very strong that suggests a variable return periods for an area. This has got a significant implication in seismic hazard estimation. This issue can be also tackled through the generation of synthetic earthquakes using different techniques. Thus, the generation of synthetic earthquakes is very important for the proper assessment of seismic hazard for any seismically important areas, which would reduce the loss due to earthquakes significantly.
This will be very important particularly for intraplate or stable continental regions. In general, stable continental or intraplate earthquakes (like the 2001 Bhuj earthquake, India and the 1811-12 New Madrid earthquakes) are characterized by their large return period (of the order of 500-1000 years) and rarity of occurrences. Because of their typical characteristics, generally these earthquakes will be devastating e.g. the 2001 Bhuj earthquake claimed a death toll of 20,000 people. Thus, the catalogues for these earthquakes will be generally incomplete that demands generation of synthetic earthquakes for proper estimation of seismic hazard associated with intraplate or stable continental regions.

Alexey Zavyalov proposed to combine the first two symposia, as their titles contain the word "modeling." Ritsa Papadimitriou agreed. Vladimir Smirnov suggested the title of the joint symposium "*Earthquakes generation process: Physics, Modeling and Monitoring for Forecasting.*" ***Possible conveners****:* Alexey Zavyalov (Russia), Vladimir Smirnov (Russia), Eleftheria Papadimitriou (Greece), Tomazh Locaichek (Czech Republic). The offer was accepted.

All other suggestions were adopted by Commission and should be recommended for inclusion in scientific program of IUGG 2015 General Assembly.

4. Alexey Zavyalov informed the participants that in August 2012 he was elected President of the European Seismological Commission. Therefore he cannot continue to serve as chairman of Commission on Earthquake sources: Modeling and monitoring for Prediction. He recommended to the post by Vladimir Smirnov, Russia, Moscow State University. Other candidates have not been proposed. The question is put to a vote. Voting results: "For" - 13, "Against" - no, "Abstain" - 1.