

**To: Chair of IASPEI Commission on Seismological Observation and Interpretation
Dr. Dmitry Storchak <dmitry@isc.ac.uk>**

From: Rushan Wu (Chair of the IASPEI Task Group on scattering and heterogeneity of the Earth)

Resolution of the group meeting on 10/4/2005 (12:30-13:45) in Santiago, Chile

Objectives:

The objectives of the Task Group are to promote the international collaborations and interactions among scientists around the world on wave propagation and scattering in heterogeneous earth. The specific tasks of the Task Group could include: Organize international meetings, workshops, training courses on the related topics, or help to organize symposia in more general topics for IASPEI or IUGG etc.; Exchange information in an international scope periodically through internet and e-mails; Compile progress reports on wave propagation and scattering in heterogeneous media, in which the theoretical and methodological progresses during the period should be summarized; Sponsor and organize special programs; Maintain a constructive relation with AGU, EGS, SEG, EAGE, SSA, SSJ, SEGJ and other regional, professional associations by co-sponsoring some symposia, workshops and training courses of common interests.

Past activities since last IUGG 2003 in Sapporo, Japan:

1. Edited the progress report of the 1st volume of the IASPEI monograph "Advances in Wave Propagation in Heterogeneous Earth" (Eds. Wu and Maupin). It will be published soon from Elsevier as a volume of Advances in Geophysics Series.

Table of contents:

- i. Cerveny, V., L. Klimes and I. Psencik: Seismic Ray Method: Recent Developments
- ii. Maupin V.: Introduction to Mode coupling methods for surface waves
- iii. M. Bouchon and F. Sanchez-Sesma: Boundary Integral Equations and Boundary Element Methods in Elastodynamics
- iv. X. F. Chen: Generation and propagation of seismic SH waves in multilayered media with irregular interfaces
- v. R. S. Wu, X. B. Xie and X. Y. Wu: One-way and one-return approximations for fast elastic wave modeling in complex media
- vi. R. S. Wu, X.Y. Wu and X. B. Xie: Simulation of high-frequency wave propagation in complex crustal waveguides using generalized screen propagators
- vii. Chaljub, E., D. Komatitsch, J. Vilotte, Y. Capdeville, B Valette and G. Festa: Spectral element analysis in seismology
- viii. Moczo, P., J. Robertsson and L. Eisner: The finite-difference time-domain method for modeling of seismic wave propagation
- ix. L. Huang: A Lattice-Boltzmann Approach to Acoustic Wave Propagation
- x. H. Sato and M. Fehler: Synthesis of Scalar-Wave Evnvelopes in 2-D Random Media

2. Organized workshops and sessions focusing on seismic wave scattering in heterogeneous media:

- i. Satellite Workshop of IUGG 2003 on "Seismic Waves in the Heterogeneous Earth: More Applications to Seismology and Exploration Geophysics", 7/10/2003, convened by H. Sato and H. Niitsuma, Tohoku Univ., Sendai, Japan.
- ii. Workshop on "Probing Earth Media Having Small-Scale Heterogeneities", 11/22/2004, convened by H. Sato, O. Nishizawa and H. Asanuma, Tohoku Univ., Sendai, Japan.
- iii. Session on "Scattering and Attenuation" at IASPEI, 10/03/2005, Santiago, Chile, chaired by M. Korn.

3. Created a Web site "Scattering and Heterogeneity in the Earth":

For exchanging scientific information, references related to seismic wave scattering in the heterogeneous earth medium, we created a special web site since 2001 and have maintained it at Tohoku university: <http://www.scat.geophys.tohoku.ac.jp/>

Proposed action plan in the future:

1. To compile a progress report on wave propagation and scattering in heterogeneous media especially focusing on the advances in stochastic quantification of heterogeneity including a summary of relevant developments in observation, wave propagation theory, and modeling. We plan to make it as the second publication as a result of the Task Group activity. Sato and Fehler are in charge of this editing process.
2. To encourage for having interdisciplinary workshops focusing on seismic wave scattering in heterogeneous earth media in order to make a bridge between seismology, exploration geophysics and physics.
3. To enrich the contents of the task group web site, <http://www.scat.geophys.tohoku.ac.jp/> , as a useful tool for exchanging information and distributing tutorial materials and codes.
4. To propose a symposium for IUGG 2007: Possible titles are "Stochastic and deterministic approaches for the earth medium heterogeneity and the earthquake source process" or "Complementary approaches for the earth medium heterogeneity and the earthquake source process: Stochastic and deterministic"

Vote for the new chairperson of next term:

After the summary of the past work at the task group meeting held on October 4, 2005, at 12:30 – 1:45PM, we had a vote on the new chairperson of the next term (starting after the IASPEI 2005 meeting). Wu nominated Haruo Sato as the candidate. All the people agree on the proposal. Then we had a hand-counting vote. We have all the 14 attendees voted for except Haruo Sato himself. There were 3 active members voted: M. Fehler, M. Korn, and Ru-shan Wu. The others are attendees of the business meeting and active researchers in the field. Their names are attached in the following. In the new term, we reorganize the Task Group and extend the membership especially to young generation seismologists.

Participants of the group meeting: Listed group members (4), R. S. Wu, M. Fehler, M. Korn, H. Sato; Attendee (10), P. Audet, N. Biswas, T. Monfret, K. Yoshimoto, H. Nakahara, T. Takahashi, T. Maeda, Y. Zheng, F. J. Sanchez-Sesma, W. S. Lee

At the evening meeting of the commission on seismological observation and interpretation chaired by J. Havskov on Oct. 4, 2005, above past activities of the Task Group and the future action plan were reported. The commission approved the extension of the Task Group chaired by H. Sato. We would like to express sincere thanks to the chair R. S. Wu for his leadership and the present Task Group members for their active contribution. (H. Sato)
