[EE] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-IS Intersection

[M-IS03]Interdisciplinary studies on pre-earthquake processes

convener:Katsumi Hattori(Department of Earth Sciences, Graduate School of Science, Chiba University), Jann-Yenq Liu(Institute of Space Science, National Central University, Taiwan), Dimitar Ouzounov(Center of Excellence in Earth Systems Modeling &Observations (CEESMO) , Schmid College of Science &Technology Chapman University, Orange, California, USA, 共同), Qinghua Huang(Peking University)

Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

This session expands the interdisciplinary discussions on preparation process of earthquake and earthquake predictability by presenting the latest progress in studying the physically based pre-earthquake phenomena. New observations from space and ground have provided evidences, which may enhance better understanding of tectonic activity. The session anticipates talks that include but not limited to observations and analyses of seismic, electrical, electromagnetic, electro-chemical and thermodynamic processes related to stress changes in the lithosphere along with their statistical and physical validation. Presentations on the latest observational results associated with major earthquakes obtained by different methodologies are welcomed. The topics of the session are as follows but not limited.

-General discussion on earthquake preparation process and the physics of pre-earthquake signals

- Theory, modeling, laboratory experiments, computational simulation for generation and propagation of pre-earthquake signals and their connection with seismic cycle

 - Multi-parameter observations, detection, and validation of pre-earthquake signals

 - Cross-disciplinary studies, practical and technical approaches for better understanding of earthquake preparation processes and their connection with seismicity

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[MIS03-P05]Multi-sensor monitoring network for earthquake precursors and preparation process in Boso, Japan

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Keywords:Multi-sensor monitoring network , earthquake precursors , earthquake process

New observations from ground and space have provided multiple evidences of pre-earthquake signals and the latest studies show their statistical significance, repeatability, and universality. In this project, to understand the preparation process of large earthquakes and slow-slip events in subduction zone, especially to clarify the nucleation stage of the earthquake cycle, we plan to establish a dense observation network in Boso, Japan, where large subduction earthquakes are expected soon. Since the subsurface fluid flow may play an important role in the preparation process of subduction activities, we intend to employ electromagnetic approaches including oceanic and continental MT survey to monitor the underground resistivity structure which is sensitive to the dynamics of fluid. Other geophysical monitoring such as ULF geomagnetic and geoelectrical observations, radon measurements, and inland GPS movements, TIR, and OLR will be incorporated to help to understand the preparation process and evaluate the applicability of various pre-earthquake signals towards short term earthquake forecasting. We call this idea “sensor WEB”. We will show the state of the art in our poster

presentation.

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