

**Meeting Announcement
Third Circular
APEC Cooperation for Earthquake Simulation**

**9th ACES Symposium on Earthquakes and Multihazards
Chengdu, China, August 10-16, 2015**

The APEC Cooperation for Earthquake Simulations organization is pleased to announce the 9th ACES workshop and symposium, to be held in Chengdu China 10-16 August 2015, including a two day field trip to 2008 Wenchuan M8.0 earthquake fault zone.

Please find the main meeting web site at:

<http://www.csi.ac.cn/ACES2015/Home/index.html>

Abstracts should be submitted at:

<http://www.csi.ac.cn/ACES2015/toUploadFile.action>

Registration should be made at:

<http://www.csi.ac.cn/ACES2015/toRegister.action>

Note that abstracts are due by May 15, 2015. Travel support is available with preference for early career scientists. We especially encourage scientists interested in the proposed GNSS tsunami early warning project.

For information, and to apply for travel funds, US scientists should visit:

<https://geodynamics.org/cig/events/calendar/2015-aces/>

Travel funds are available! Notifications of support will begin at the close of abstract submission.

Session descriptions are given below.

Sessions of the 9th ACES International Workshop

Session 1: Microscopic simulation

The goals of this session are the development of microscopic numerical simulation models for the elementary physical and chemical processes and study of fault rheological properties and constitutive relations. This interdisciplinary field is of essential importance for the understanding of scaling from microscopic to larger scales. The presentation and discussion of the session are focusing on, but limited to, the micro-model construction (physical/chemical processes), study of micro-mechanisms and emergent behaviour, fault zone constitutive laws, damage mechanisms, rupture nucleation, granular mechanics (fault gouge), and the frictional instability.

Session 2: Scaling physics

The goals of this session are to develop theory and understanding of emergent behaviours resulting from the underlying physics and nonlinear dynamics of fault zones and crustal fault systems. The presentation and discussion of the session are focusing on, but limited to, study of scaling domains, emergent behaviors, role of fluctuations & fundamental physics, field theories, multi-scale, and multi-resolution physics.

Session 3: Macro-scale simulation: Earthquake generation and cycles

The goals of this session are to develop macroscopic domain numerical simulation models for the earthquake generation process (based on continuum mechanics) including the complete cycle from tectonic loading, quasi-static rupture nucleation, to dynamic rupture, to fault lithification and healing, and to gain understanding of the earthquake cycle & crustal movement, and seismicity & spatio-temporal patterns of interacting fault systems. The presentation and discussion of the session are focusing on, but limited to, construction of macroscopic domain numerical simulation models for long time scale processes and the earthquake cycle. Study of macro-phenomena including stress transfer, long range inter-actions in fault systems, effective constitutive laws (consequences), dynamic rupture processes, and the earthquake cycle.

Session 4: Macro-scale simulation: Dynamic rupture and wave propagation

The goals of this session are to develop macroscopic domain numerical simulation models for short time scale dynamic processes including dynamic rupture, wave propagation and strong ground motion, and to develop the definition of standard models in different tectonic settings. The presentation and discussion of the session are focusing on, but limited to, construction of macroscopic domain simulation models for short time scale processes and wave propagation, definition of standards including "standard earth models" in different tectonic settings, code standards, data repositories, data formats, and attenuation functions.

Session 5: Computational environment and algorithms

The goals of this session are the development of computational methods and algorithms for the simulation models, and common tools/routines for their computation on super-parallel computer systems. The presentation and discussion of the session are focusing on, but limited to, development of numerical algorithms, algorithms catalog & handbook, computational environment, distributed computing, laboratories, XML, CORBA, objects, web-based computing, parallel computing and visualisation technologies.

Session 6: Data assimilation and understanding

The goals of this session are to compare the theoretical forecasts of numerical simulation models to data observations and use these comparisons as a basis to gain insight into the earthquake cycle and earthquake behaviour. Provide feedback to the Simulation Working Groups needed for the model refinement process. Data may include "real-time data" and "static data". Examples include seismicity, laboratory/rock physics, crustal deformation/GPS, geo-elasto-magnetic, electro-magnetic emissions, groundwater, and earth structure. The presentation and discussion of the session are focusing on, but limited to, data inversion, pattern processing, data mining tools development and application.

Session 7: Model applications

The goals of this session are the development of applications using new simulation capabilities such as earthquake forecasting, space-time hazard quantification, strong ground motion prediction, scenario modelling, and industrial applications. The presentation and discussion of the session are focusing on, but limited to, strong ground motion studies, earthquake forecast tests and evaluations, benchmarks - model "shoot-outs", define set of standard problems, industrial/engineering applications, dams, buildings, structures, built environment, geophysical exploration, mining, geomechanics, materials engineering, etc.

Special Session 1: Earthquake simulation and forecast in China: State-of-the-art and future prospective (invited-only presentations)

The goals of this session are to show the state-of-the-art of Earthquake simulation and forecasting in China by several invited presentation, including efficiency evaluation of earthquake forecasting, earthquake prediction test site, new technology for seismogenic zone detection, etc. Future prospective will be discussed in this session.

Special Session 2: The lure of LURR — Celebration of Professor Yin's 80th Birthday

The goal of this session is to honor Prof. X.C. Yin's contributions to ACES and research achievement of earthquake forecasting. The theory, methodology, algorithm and practice of Load/Unload Response Ratio developed by him will be reported to celebrate his 80th birthday.

Special Session 3: Global Navigation Satellite System (GNSS) Tsunami Early Warning System: Models, Simulations, Data and Technology

The goals of this session are to develop the science and technology for a GNSS tsunami early warning system that is intended for deployment around the Pacific Rim. The past decade has witnessed a terrible loss of life and economic disruption caused by large earthquakes and resultant tsunamis impacting coastal communities and infrastructure across the Indo-Pacific region. While investment and collaboration to strengthen the early warning and mitigation systems have improved measurement and modelling for 'distant' tsunamis generated from earthquakes far across an ocean basin the science and technology now exists to provide near real-time visualization as tsunamis propagate around the world and to reduce significantly the risk from tsunamis generated near the. This is accomplished through the use of real-time GNSS measurements in combination with other observations that measure both ground displacements generated by large earthquakes and disturbances in the ionosphere from the propagating wave. The presentation and discussion of the session are focusing on, but limited to, science, technology and data associated with the development and deployment of a real-time GNSS tsunami early warning system.

Special Session 4: Nepal Earthquake

The recent M7.9 earthquake that struck Nepal devastated that country and caused in excess of 7000 deaths. This late-breaking session will accept papers that deal with the science, data, models, and response to that earthquake.