

About the 1-st ACES Workshop

Purpose of the workshop

ACES workshops are the principal forum for international scientists of the cooperation to interact. The first workshop aimed to allow the working groups to form and for researchers to become familiar with the complementary work of other participants, discuss the state of the science, and identify initial working group goals and/or activities.

Workshop location

Workshop locations will be rotated amongst the participant economies of ACES. The Inaugural Workshop was held in the city of Brisbane - a delightful city located on the picturesque Brisbane river, and at Noosa Heads - a vibrant tropical coastal town just north of Brisbane, renowned for its beautiful beach, surfing, and location adjacent an unspoiled coastal headland national reserve with outstanding views.

Working Groups

The research work of ACES is achieved through the five Working Groups:

- WG1:** Microscopic Simulation,
- WG2:** Macroscopic Simulation,
- WG3:** Computational Methods/Algorithms,
- WG4:** Data Assimilation, and
- WG5:** Models Applications (e.g. forecasting).

Workshop themes/Working Group sessions

Themes of the workshop were addressed in the Working Group sessions listed below. The first digit of session numbers specifies the Working Group and second digit refers to the session number within the Working Group. The first convenor listed was the principle convenor.

WORKING GROUP 1 SESSIONS

Session 1.1 Modelling the micro-physics underlying earthquake nucleation processes and rupture

Convenors: D. Place and Y. Bai

Session 1.2 Frictional behaviour of rocks, gouge layers and complex fault zones: simulation, observation and scaling

Convenors: M. Blanpied, P. Mora and M. Ohnaka

WORKING GROUP 2 SESSIONS

Session 2.1 Physical modelling and simulation of the earthquake cycle

Convenors: M. Matsu'ura, D. Turcotte and K. Wang

Session 2.2 Simulation of earthquake rupture, seismic wave propagation and strong motion

Convenors: R. Madariaga, E. Fukuyama and R. Archuleta

Session 2.3 Simulation and observations of complex interacting fault systems

Convenors: S. Jaumé and J. Rundle

WORKING GROUP 3 SESSIONS

Session 3.1 Macroscopic methods (FEM, FD, PS, SE) of earthquake faulting and waves

Convenors: K. Hirahara and D. Komatitsch

Session 3.2 Particle-based methods (LS, Distinct Element, MD) to simulate fault microphysics

Convenors: D. Place and H. Sakaguchi

WORKING GROUP 4 SESSIONS

Session 4.1 Inversion and assimilation of geodetic data

Convenors: B. Minster and T. Sagiya

Session 4.2 Physical scale dependencies, observed scaling relations and simulation

Convenors: M. Ohnaka and B. Shaw

WORKING GROUP 5 SESSION

Session 5.1 Earthquake forecasting and hazard quantification

Convenors: D. Jackson, X.C. Yin and A. Yoshida

Workshop program

The workshop program aimed to foster discussion on the key issues and questions identified by the convenors of each session. In addition, national programs pertaining to ACES were overviewed on the first day of the workshop. Summaries of these presentations are not included in this volume but information is available via the internet or e-mail addresses provided below. Additional information is available on: http://quakes.earthsciences.uq.edu.au/ACES_WS.

Australia's national programs

- *Earthquake simulation research programs at QUAKES*, P. Mora, Director, QUAKES and Professor, The University of Queensland (<http://quakes.earthsciences.uq.edu.au>)
- *Australian Geological Survey Organisation activities*, K. McCue, Head, Earthquake Hazards Group (<http://www.agso.gov.au/geohazards/quakes>)
- *Solid mechanics group simulation research at CSIRO*, H. Sakaguchi, Division of Exploration and Mining, CSIRO (<http://www.ned.dem.csiro.au/research/solidMech> and <http://www.ned.dem.csiro.au/research/solidMech/Solid-Mech-RC>)

China's national programs

- *Earthquake prediction research and results of the Centre for Analysis and Prediction*, China Seismological Bureau, X.C. Yin, Professor, Centre for Analysis and Prediction, China Seismological Bureau (yinxc@sun.ihep.ac.cn)
- *Meso-scale simulation research at Laboratory of Nonlinear Mechanics*, Professor Y. Bai, Director, Laboratory of Nonlinear Mechanics (LNM), Institute of Mechanics, China Academy of Sciences (CAS), (baiyl@lnm.imech.ac.cn or <http://web.imech.ac.cn>, <http://web.imech.ac.cn/English/lnm.htm>, <http://web.imech.ac.cn/lnm>)

Japan's national programs

- *The Crustal Activity Modelling Program/Earth Simulator Project*, M. Matsu'ura, Director, CAMP/Earth Simulator Project and Professor, Tokyo University (matsuura@geoph.s.u-tokyo.ac.jp)
- *The Strong Motion Modelling Program/Earth Simulator Project*, K. Hirahara, Director, SMMP/Earth Simulator Project and Professor, Nagoya University (hirahara@eps.nagoya-u.ac.jp)
- *The GeoFEM Project/Earth Simulator Project*, H. Nakamura, Director, Department of Research for Computational Earth Science, Research Organisation for Information Science and Technology (<http://geofem.tokyo.rist.or.jp>)

USA national programs

- *Programs and future directions of Southern California Earthquake Center (SCEC):* T. Henyey, Director, SCEC; and D. Jackson, Science Director, SCEC (<http://www.scec.org>). See also <http://milhouse.jpl.nasa.gov/gem> or <http://www.npac.syr.edu/projects/gem> for information on the new national GEM (General Earthquake Model) group program.

Taiwan programs

- *Earthquake research and modelling at National Cheng Kung University, Y.T. Yeh¹,* Satellite Geoinformatics Research Center, National Cheng Kung University (ytyeh@mail.ncku.edu.tw).

Workshop home page

Additional information on the 1-st ACES workshop is available on:

http://quakes.earthsciences.uq.edu.au/ACES_WS

About ACES

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¹ Institute of Earth Sciences, Academia Sinica, PO Box 1-55, Nankang, Taipei 115, TAIWAN (ytyeh@earth.sinica.tw) appropriate at the time of the workshop.