3rd World Stress Map Conference

15-17 October 2008

at the Heidelberg Academy of Sciences and Humanities
Heidelberg, Germany

First Circular

Frontiers of Stress Research:
Observation, Integration and Application

Introduction
The World Stress Map (WSM) started in 1985 as a task force of the International Lithosphere Program (ILP) and is located since 1996 at the Geophysical Institute of Karlsruhe University as a project of the Heidelberg Academy of Sciences and Humanities. The future perspective of the WSM is ensured by the GeoForschungsZentrum (GFZ) Potsdam that will carry on with this successful work beyond 2008. The conference is organized by the Heidelberg Academy of Sciences and Humanities and co-sponsored by the GFZ Potsdam and the Task Force VII of the ILP.

Scope of the Conference
Knowledge of the stress state and its linkage to deformation is an important issue for a wide range of practical applications like stability aspects of underground openings, the enhanced productivity of hydrocarbon and geothermal reservoirs, and seismic hazard assessment. Stress and strain observations are also critical for resolving questions related to, e.g. the driving forces of plate tectonics.

In recent years high quality data from satellite geodesy have revealed unusual new insights into the motion and deformation of the Earth's lithosphere. At the same time, the number and quality of contemporary tectonic stress data from the World Stress Map project has expanded in a similar way. Linking these data sets, in combination with other observations such as heat flow or gravity, is the future perspective to improve the knowledge on crustal properties, the state of stress in the Earth's crust, and the deformation processes controlling the shape of its surface and crustal structure. This integrative approach offers challenging opportunities to explore the driving forces of crustal and lithospheric deformation processes on various spatial and temporal scales. In all cases, numerical modelling plays an important role with high future potential due to increasing computer power.

A major focus of this conference is to present modern concepts on stress and strain measurement techniques and data analyses, integrated studies including numerical modelling, and the application of stress information in petroleum, mining, engineering, and geothermal studies.

Conference Topics
I. Observation - Stress, strain, structure, and strength of the lithosphere
- stress measurement techniques (including stress magnitudes and paleostress analysis)
- observations of strain accumulation and release on different temporal and spatial scales
- impact of geological and rheological structure of the lithosphere on the stress field

II. Integration - Modelling of stress and strain in the lithosphere
- time- and scale-dependence of lithospheric deformation processes
- modelling of the absolute stress state and its changes with time (inter-, co-, and postseismic)
- simulation of fracture propagation, fluid flow, and pore pressure variations

III. Application
- geomechanics for petroleum and geothermal reservoirs
- stability aspects of underground openings
- seismic hazard assessment

Preliminary Schedule

14 October 2008	Registration & ice breaker party
15-17 October 2008	Sessions I–III
18 October 2008	Field trip

Registration, Call-for-Papers & Special Volume in Tectonophysics
Please register online at http://www.world-stress-map.org/conference and indicate if you intend to give a presentation including an abstract limited to 400 words. The text should be written in English. Complementary to the conference, we invite you to contribute to a special volume of Tectonophysics on *Frontiers of Stress Research* that we intend to edit.

Deadlines & Fees

Registration and abstract submission:	30 April 2008
Acceptance of registration and abstracts:	15 May 2008
Acceptance of papers for the special volume:	15 May 2008
Submission of papers for the special volume:	15 August 2008

The conference fee of 150 € includes lunch buffet, coffee, tea and soft drinks during the conference days. Financial support for a limited number of young scientists and scientists from the developing world are offered.

Second Circular
The second circular will contain details on accommodation, field trip, social program, and a preliminary scientific program including the names of the keynote speakers. It will be distributed in early 2008.

Scientific Committee
Tony Addis (Shell), John Cook (Schlumberger, Cambridge), Georg Dresen (GFZ Potsdam), Terry Engelder (Pennstate University), Roy Gabrielsen (University of Bergen), Domenico Giardini (ETH Zürich), Richard Hillis (University of Adelaide), Richard Plumb (Schlumberger, Houston), Sergei Shapiro (FU Berlin), Ove Stephansson (KTH Stockholm), David Yale (Exxonmobile, Houston), Mark Zoback (Stanford University)

Organizing Committee & Contact
Friedemann Wenzel (Heidelberg Academy of Sciences and Humanities)
Oliver Heidbach (Geophysical Institute, Karlsruhe University)
Onno Oncken (GFZ Potsdam)
Markus Rothacher (GFZ Potsdam)

Geophysical Institute, Karlsruhe University, Hertzstr. 16, D-76187 Karlsruhe, Germany
phone: +49 721-608 4558, fax: +49 721- 71173
http://www. world-stress-map.org/conference, e-mail: conference@world-stress-map.org