

Workshop report for
Strategies for Implementing a Community Stress Model

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SCEC grant 11013

February 2012

This workshop was supported by SCEC under grant 11013 to help kick off the discussions of the construction of a community stress model (CSM). The workshop was held after the 2011 Annual SCEC meeting in Palm Springs on September 14, 2011, and had 128 registered participants. The workshop program consisted of six invited presentations, 15 minutes each, four contributed five minute discussion presentations, and extensive group discussions (total of ~two hours), as detailed in the appendix. Workshop presentations were chosen to represent the observational, theoretical, and modeling aspects involved in the construction of a CSM.

Lively discussions ensued, including on the degree of homogeneity or heterogeneity of crustal stress, how to best model it, and how to take action to get started on the assembly of a stress indicator database. It was decided that the logical first step for the CSM group and SCEC CSM efforts is to compile all of the existing relevant data and stress models for California, and put them into common formats. This compilation should eventually become a resource for the SCEC community to be able to easily find and use these data and models. Such a compilation will also facilitate comparisons between the currently existing stress models in order to better understand where various models differ. The database will also facilitate evaluating the relative coverage of various data/models, etc, and will help get the ball rolling on putting together a numerical implementation of stress models overall.

It was also decided to strive to hold a followup CSM workshop in 2012 that will be focused on comparing the currently existing stress models (including the full range from geodynamic models to observational "models" such as borehole measurement compilations or focal mechanisms inversions). As one goal of the 2012 workshop, the group identified the process of coming with specific next steps by targeting areas of differences between the existing models. Attendance of the 2012 workshop is to be limited to contributors of data/models and representatives of user communities of the CSM, as we will be getting into the nitty-gritty of data/model formats and comparisons. The larger community will of course be updated on our progress, and a mailing list was established to continue the discussions related to the CSM and the CSM 2012 workshop. A proposal for the followup workshop was submitted by Jeanne Hardebeck as the lead.

Appendix: 2011 workshop agenda

2011 SCEC Annual Meeting: Workshop on Strategies for Implementing a Community Stress Model

Convener: Bruce E. Shaw, Jeanne L. Hardebeck, Brad Aagaard, John H. Shaw, and Thorsten W. Becker

Date: Wednesday, September 14, 2011 (13:00 - 17:00)

Location: Hilton Palm Springs Resort

- 13:00 Introduction
- 13:10 Talk 1: [Stress Required for Rupture Dynamics Models](#) (*B. Aagaard*)
- 13:25 Talk 2: [Stress Required for Fault Loading Models](#) (*B. Meade*)
- 13:40 Talk 3: [Stress Required for Simulators](#) (*K. Richards-Dinger*)
- 13:55 Group Discussion and 5-Minute Presentations
- [Bird](#)
 - [Hearn](#)
 - [Bykovtsev #1](#)
 - [Bykovtsev #2](#)
- 14:45 *Break*
- 15:00 Talk 4: [Alternative Stress Observations from Boreholes, etc.](#) (*N. Davatzes*)
- 15:15 Talk 5: [Stress Observations from Seismicity](#) (*E. Hauksson*)
- 15:30 Talk 6: [Connecting Stress Models to Real World Measurements](#) (*D. Sandwell*)
- 15:45 Discussion
- What Do Users Want?
 - How Do We Implement the Database?
 - Can We Self-Organize into Smaller Working Groups?
 - What are CSM Targets for 2012?
- 17:00 *Adjourn*