SCEC4 Science Collaboration Planning

Greg Beroza (Deputy Director)

SCEC

an NSF+USGS center

Goals of the Meeting

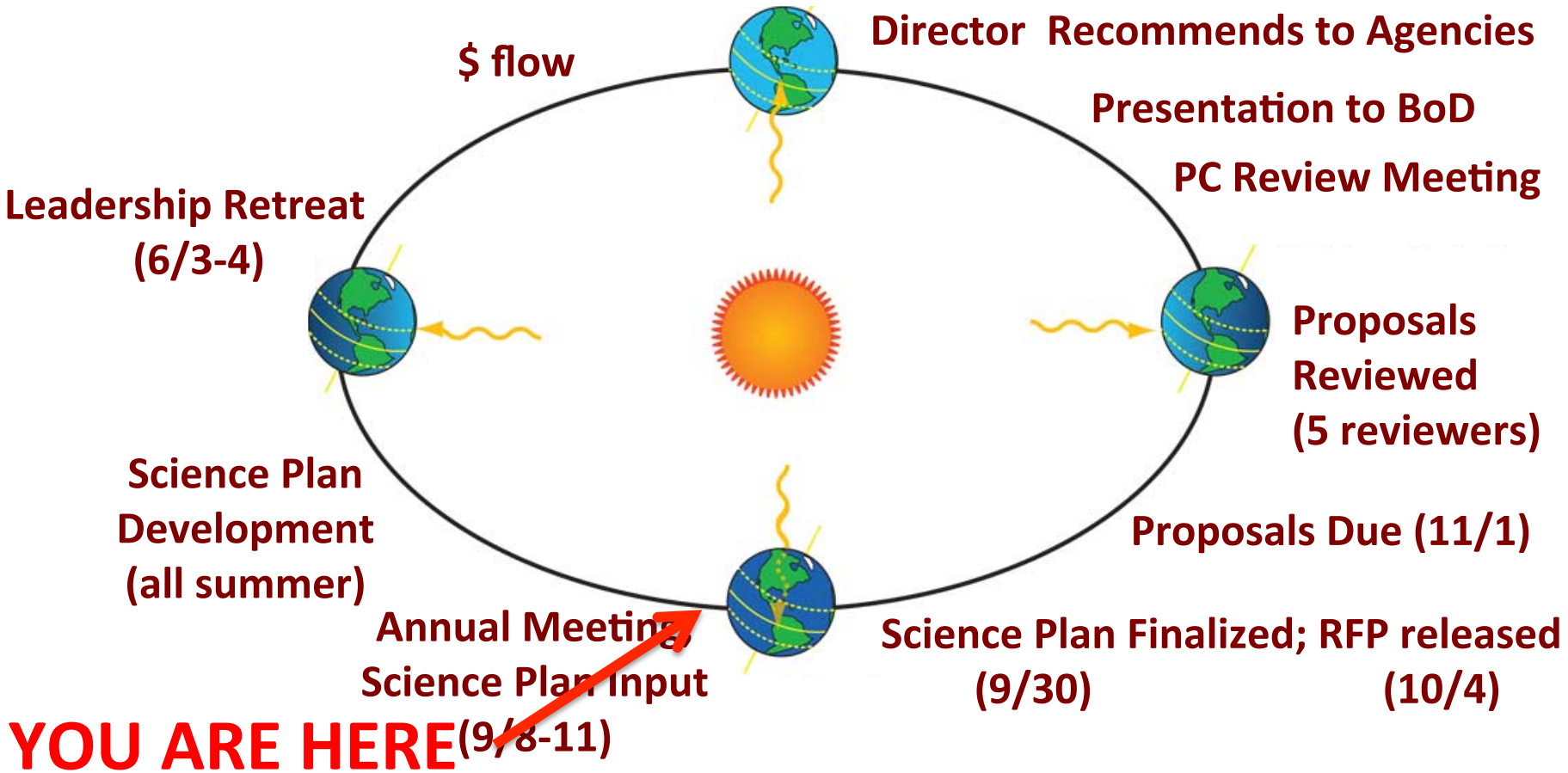
Assess the state of SCEC research

- **Overview Talks** (Monday am)
- **Plenary talks** (each day)
- **Poster Sessions** (dedicated time)

Consider what course corrections are required and amend the collaboration plan accordingly

- **Plenary discussions**
- **Collaboration Plan session** (Wednesday am)
- **Forge collaborations throughout**
- **Planning Committee meeting** (Wednesday pm)

SCEC Science Planning Cycle



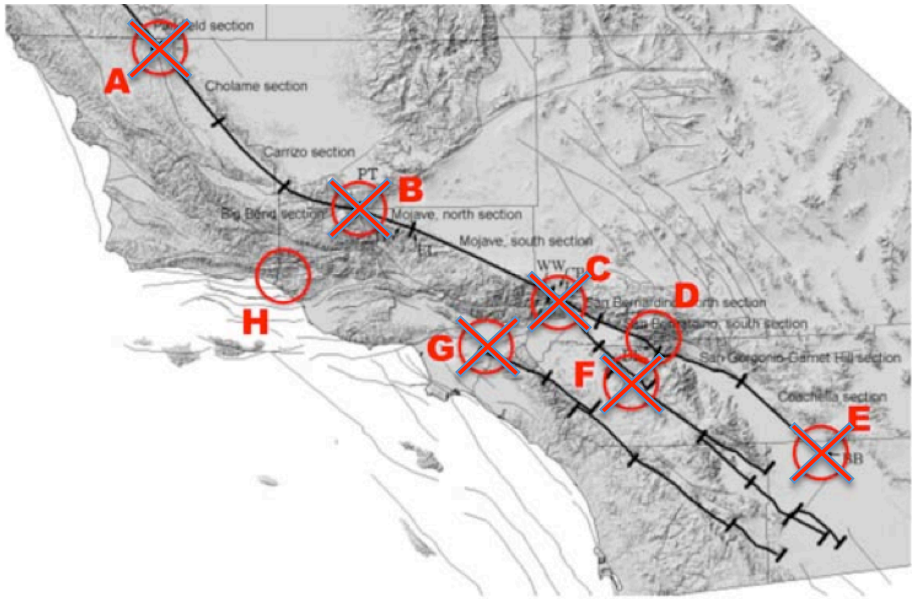
What's New in the Collaboration Plan?

The Collaboration Plan is not greatly changed from last year.

There are a number of small changes and suggestions throughout the document.

What's New in the Collaboration Plan?

The 2014 Collaboration Plan recognizes the two existing Special Fault Study Areas: San Gorgonio Pass and Ventura Area

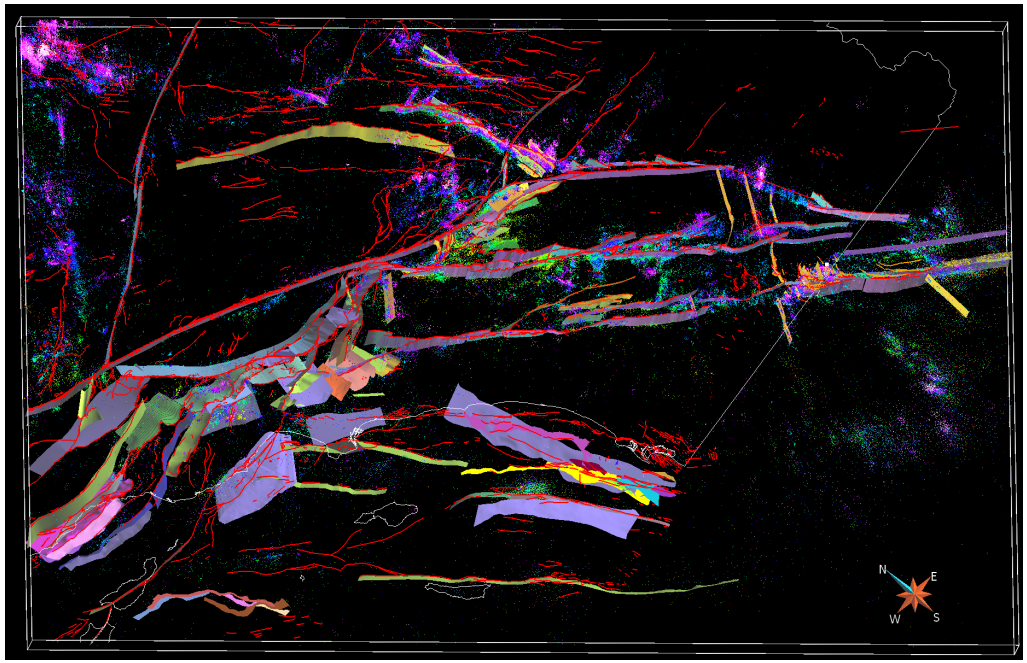


We do not anticipate funding additional SFSAs in SCEC4.

At several places within the RFP there are explicit calls for targeted and integrated research on these two SFSAs, including including newly available lidar data sets.

What's New in the Collaboration Plan?

Call for improvement of CFM where better fault representations are known to be required, a call for coordination with relevant outside agencies.



Stochastic representations of fault complexity.

What's New in the Collaboration Plan?

In Earthquake Forecasting and CSEP, calls to develop and test hypotheses critical to forecasting large earthquakes, including those that use static stress change and/or account for faults

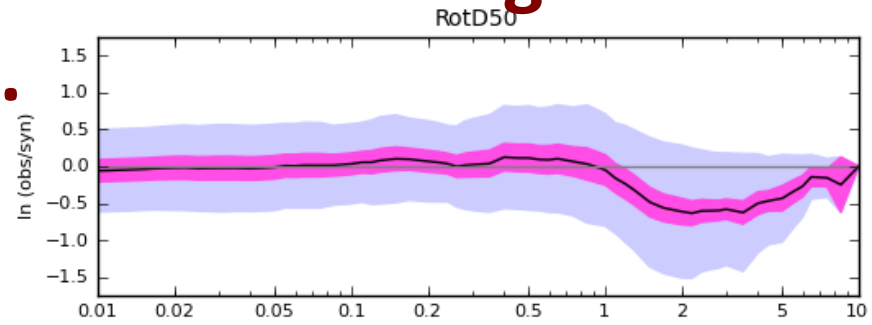
Develop approaches to evaluate forecasts generated outside of CSEP.

Use catalogs generated by earthquake simulators as synthetic laboratories to test proposed earthquake prediction procedures and to evaluate the utility of existing and new methods of CSEP testing.

What's New in the Collaboration Plan?

There are specific requests in the areas of GMP, the BBP, and the EEII, including:

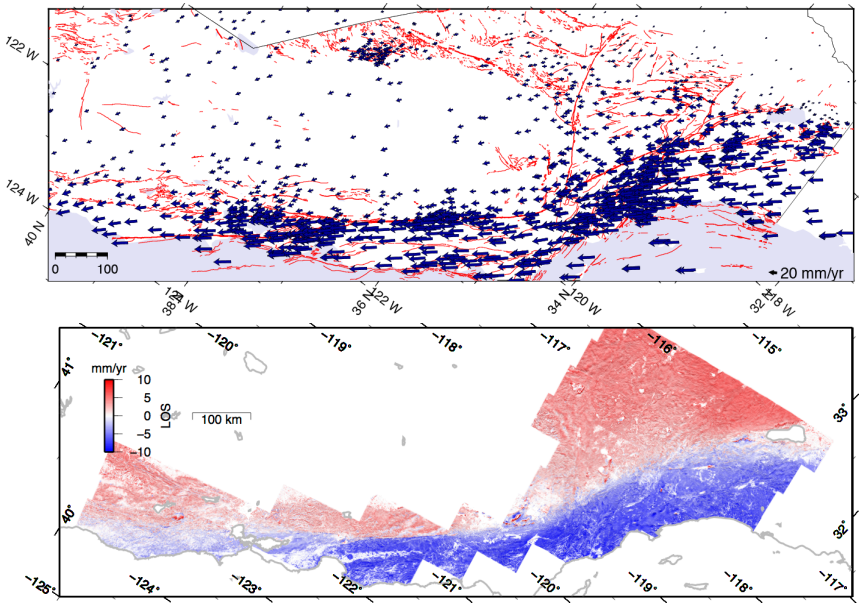
- **developing techniques for site response that can work from Vs30**
- **developing new validation metrics**
- **applying these metrics to ground motion simulations.**

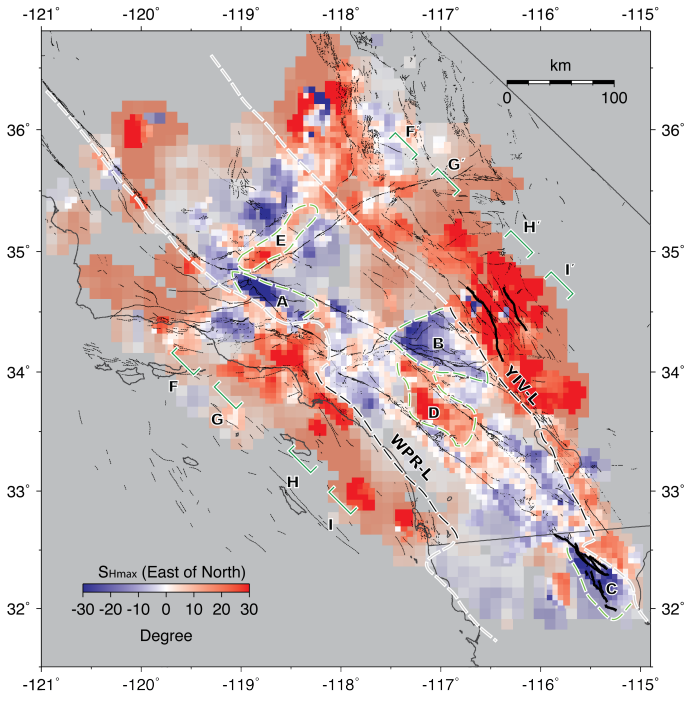


What's New in the Collaboration Plan?

Requests for contributions that are needed to develop:

- **Community Geodetic Model**
- **Community Stress Model**

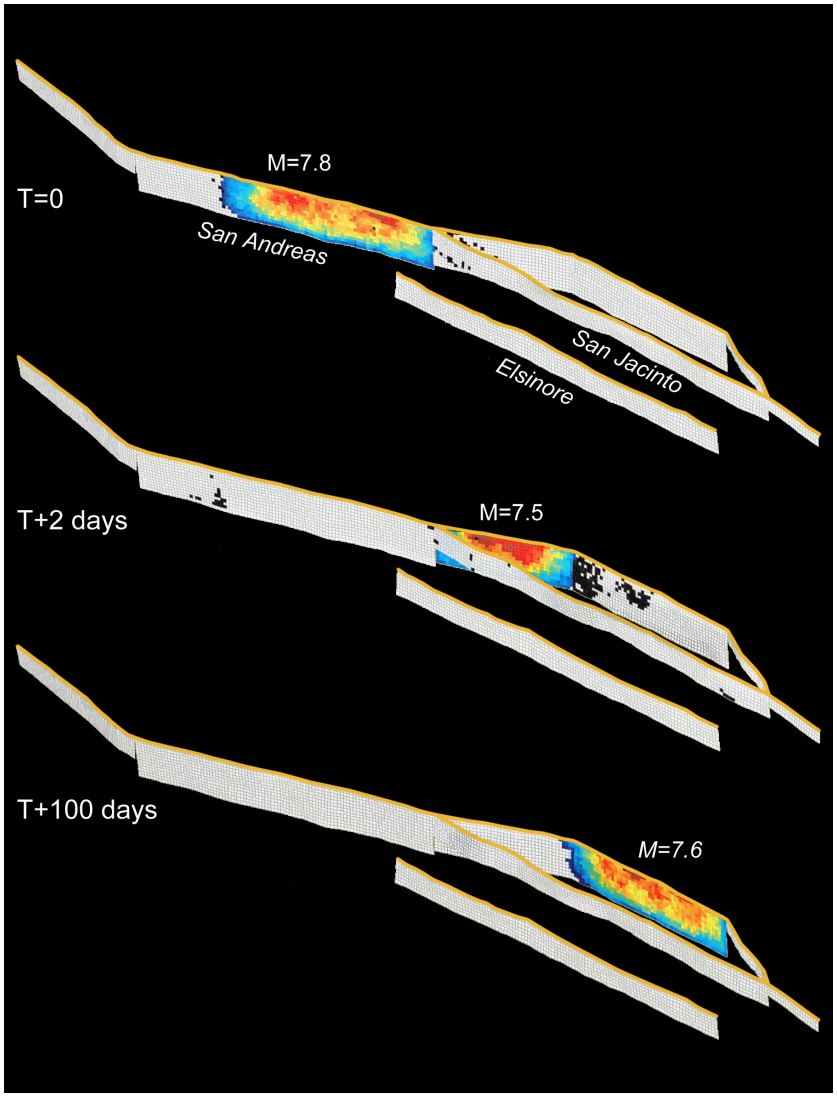




What's New in the Collaboration Plan?

Study the behavior of physics-based earthquake simulators, envisioning that they could become essential ingredients in future UCERF projects and a cornerstone of SCEC5.

The goal is to develop the capability of simulators to be able to contribute meaningfully to hazard estimates.



Examples of Important Simulator-Related Tasks:

- Study the sensitivity of results to input details
- Ways of simulating off-fault seismicity
- Add additional physics
- Develop alternate methods to “back-slip”
- Use synthetic catalogs as synthetic laboratories for CSEP testing as described under CSEP
- Data-mine synthetic catalogs for statistically significant patterns of behavior

Goals of the Meeting

Assess the state of SCEC research

- **Overview Talks** (Monday am)
- **Plenary talks** (each day)
- **Poster Sessions** (dedicated time)

Consider what course corrections are required and amend the collaboration plan accordingly

- **Plenary discussions**
- **Collaboration Plan session** (Wednesday am)
- **Forge collaborations throughout**
- **Planning Committee meeting** (Wednesday pm)