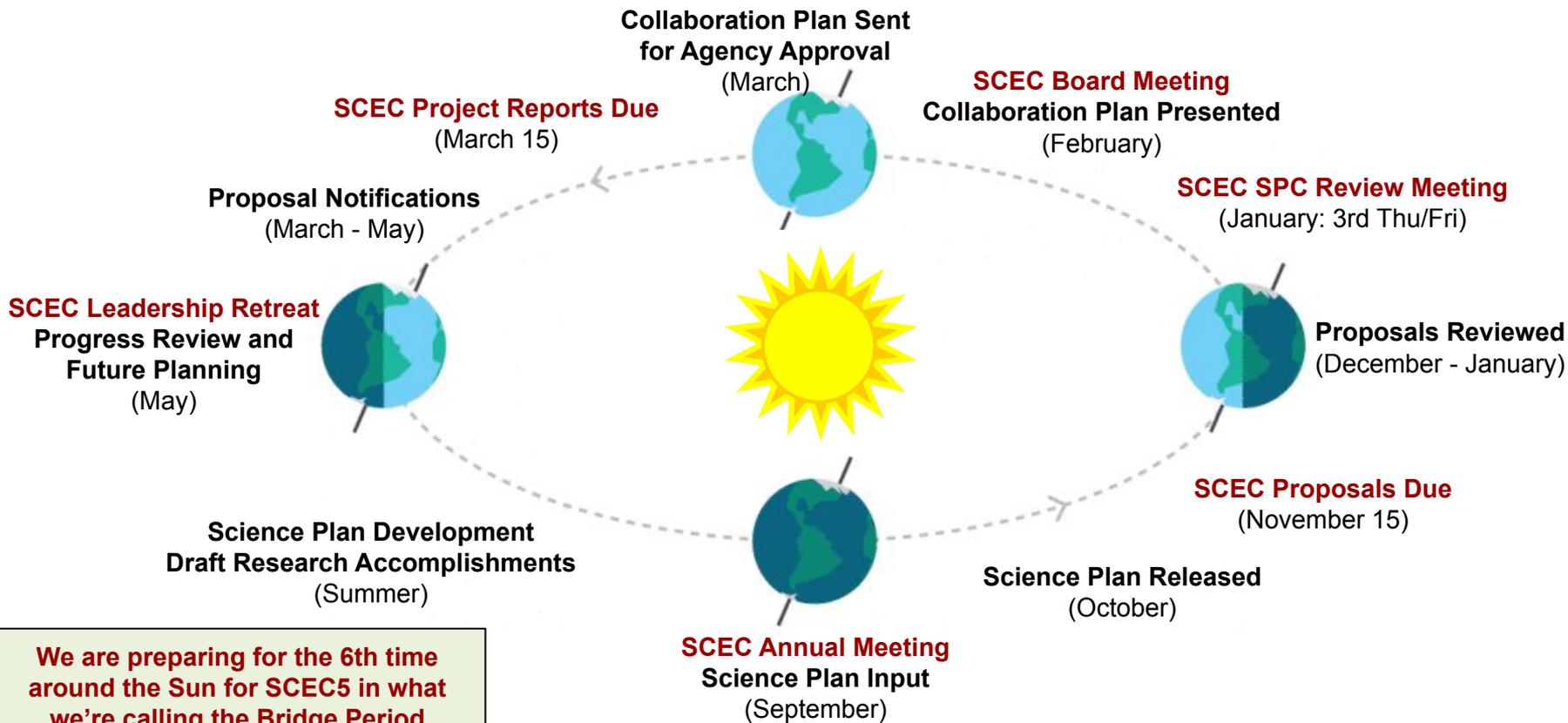


# The SCEC Science Planning Cycle



We are preparing for the 6th time around the Sun for SCEC5 in what we're calling the Bridge Period

# *Themes and Topics of the SCEC5 Plan*

## **Theme A. Modeling the Fault System**

1. Stress and Deformation Over Time
2. Special Fault Study Areas: Focus on Earthquake Gates
3. Community Models
4. Data-Intensive Computing

## **Theme B. Understanding Earthquake Processes**

5. Beyond Elasticity
6. Modeling Earthquake Source Processes
7. Ground Motion Simulation
8. Induced Seismicity

## **Theme C. Characterizing Seismic Hazards**

9. Probabilistic Seismic Hazard Analysis
10. Operational Earthquake Forecasting
11. ~~Earthquake Early Warning~~ \*
12. Post-Earthquake Rapid Response

## **Theme D. Reducing Seismic Risk**

13. Risk to Distributed Infrastructure
14. Velocity and Rheology of Basin Sediments

## **Communication, Education, and Outreach**

# *Science Plan: New/Noteworthy This Year*

- 2022 is an extended year of the SCEC5 research program. Our overarching mission remains focused on reaching SCEC5 goals.
- The performance period for SCEC-funded projects will have an effective February 1, 2022 start date and January 31, 2023 end date. Workshops funded in response to this Science Plan must be scheduled between February 1, 2022 and December 31, 2023.
- The Ridgecrest earthquake sequence provides important new data and research opportunities across the SCEC collaboration, including, but not limited to: constraints on the stress field, earthquake interaction, ground motion prediction, and the community rheology model. We remain interested in work related to this earthquake.

# *Science Plan: New/Noteworthy This Year*

- Again this year, investigators that anticipate extensive use of research computing and/or cyberinfrastructure support through SCEC should consult with the Computational Science group leaders, Ricardo Taborda ([rtaborda@eafit.edu.co](mailto:rtaborda@eafit.edu.co)) and Ahmed Elbanna ([elbanna2@illinois.edu](mailto:elbanna2@illinois.edu)). Prior to proposal submission, investigators should contact Tran Huynh ([tran.huynh@usc.edu](mailto:tran.huynh@usc.edu)) to ascertain the relevant SCEC capabilities that may contribute to the proposed project, as well as guidance on the developer level of effort needed.
- The SCEC Transitions Program welcomes proposals for workshops, seminars, short courses, or other types of training experiences for early-career researchers (ECRs) and students that (i) expand their competency in using earthquake research tools and techniques and (ii) increase awareness of geoscience career pathways and advancement opportunities.

## *Science Plan: New/Noteworthy This Year*

- We will consider workshops that focus more effort on training the next generation of users in the use of SCEC software, SCEC datasets, other data access and visualization tools, and software best practices.
- We will also consider field trips paired with synthesis workshops. The workshop budget should include field trip expenses, as well as expenses for the development of “virtual field trip guide” to allow for enhanced accessibility for workshop participants and a synthesis report or publication.
- Sustained call to develop methodologies to validate ground motion simulations based on dynamic rupture simulations for assessment of aleatory variability and epistemic uncertainty in simulated ground motions, and for the development of methodologies to validate and calibrate estimates of permanent displacements.

# *Possible Increased Emphasis*

- Inter-relating community models and taking steps to increase their extensibility and their long-term maintenance.
- Work towards greater accessibility of simulation output, such as CyberShake simulations, so that they can be mined and/or used more readily.
- Should we explicitly increase emphasis on machine learning, DAS, new methods in geochronology, etc., or should we let the application of such methods grow organically within the existing research framework?
- Are we doing enough with OEF?
- Should we redouble efforts to develop earthquake simulators?
- Other?