

Charter: Proposal Review Committee

Evaluate proposals submitted to SCEC and recommend the portfolio of research proposals, trainings, and workshops to fund to the Center leadership to act on

A. Purpose

The Proposal Review Committee (referred to hereafter as “Committee” or “PRC”) is part of the Science Steering branch of the SCEC organizational structure. Its primary function is to evaluate proposals submitted to the Center and recommend an annual portfolio of research proposals, trainings, and workshops for funding that meet the Center’s goals and achieve its mission. This portfolio, approved by the Center Director, Co-Director, Board of Directors, and sponsors, forms the foundation of SCEC’s “annual collaboration plan” for advancing earthquake research, education, and outreach. The Committee reports to the Center Director.

Science Planning. In late spring, SCEC Leadership reviews the Center’s programs and activities and discusses research priorities. The SCEC Science Steering Committee drafts an Annual Science Plan based on these priorities, which is presented at the Annual Meeting in September. Using prior research results and community feedback, the Science Plan is finalized. A solicitation is typically released in early October, with proposals due to SCEC by mid-November (www.scec.org/scienceplan).

Review of Proposals. Proposals are independently reviewed by the SCEC Director, Co-Director, PRC Chair, and at least three reviewers with relevant expertise. In January, a subset of the PRC meets in person to construct and recommend the Annual Collaboration Plan, a portfolio of projects to fund. The plan and budgets are approved by the Board of Directors and sponsoring agencies, with investigators notified as early as possible, typically in March.

Annual Collaboration Plan. To construct the SCEC Annual Collaboration Plan, proposals are evaluated based on (a) scientific merit of the proposed research; (b) competence, diversity, career level, performance of the investigators; (c) alignment of the proposed project with SCEC priorities; (d) promise of the proposed project for contributing to long-term SCEC goals; (e) commitment of the investigators and institutions to the SCEC mission, including commitment to enhanced diversity, equity and inclusion in geosciences; (f) value of the proposed research relative to its cost; and (g) the need to achieve a balanced budget while maintaining reasonable scientific continuity with limited funding. The aim is to create a coherent science program that aligns with SCEC’s mission, institutional composition, and budget, meeting both short-term and long-term goals.

B. Membership

The Committee will consist of a Chair, Vice-Chair, and 24-30 members representing twelve disciplinary and interdisciplinary focus areas, as determined by the Center Director and Co-Director to accomplish SCEC’s science objectives (as defined in Section D). Every effort will be made to ensure Committee membership reflects the diversity of both science and society.

The Center Director will appoint the Chair and Vice-Chair of the Committee, subject to a two-thirds majority vote by the Board of Directors. The Chair will lead the Committee’s work as outlined in Section A, with the PRC Vice-Chair assuming the role in the Chair’s absence. The Committee will be chaired by the Science Steering Committee (SSC) Vice-Chair, with the SSC Chair as backup if the PRC Chair is unavailable. Except for the SSC Chair and Vice-Chair (who are non-voting members of the PRC), other members of the Proposal Review Committee cannot

concurrently serve on the Science Steering Committee, Executive Operations Committee, or SCEC Board of Directors.

The PRC Chair and Vice-Chair, in consultation with the Executive Operations Committee, will recommend candidates for the member positions. The Board of Directors will then confirm these selections by a majority vote. These members will serve staggered two-year terms, renewable once, to balance fresh perspectives with institutional knowledge.

C. Schedule

The Proposal Review Committee will coordinate through regular communication during the annual proposal review period (Nov-Jan). All members should expect up to two 1-hour conference calls and 8-10 hours of work per month in December and January. The review group representative attending the January in-person review meeting should plan to arrive in Los Angeles to begin work by Wednesday at 4:00 PM and depart after 2:00 PM on Friday. SCEC will cover travel costs for Committee members to attend the January meeting at the University of Southern California (USC). The Committee's work will generally follow this annual schedule:

- Nov 15 Proposals due to SCEC. Each year, SCEC solicits projects through a competitive process, typically attracting hundreds of investigators to contribute to the Center's programs and activities (www.scec.org/scienceplan).
- Dec (1st week) Committee orientation. A virtual meeting is convened by the PRC Chair, covering the SCEC review process, roles, and timeline. PRC members will receive proposals to review, with instructions to coordinate within their group to divide the workload based on expertise and conflicts of interest. They will also designate one representative from their review group to attend the in-person review meeting at USC in January.
- Dec 1-Jan 10 Individual review period. Each proposal will receive 5-6 independent reviews. Reviewers may submit reviews only if they have no conflicts. Each review group (Section D), composed of 2-3 PRC members, will be assigned 15-35 proposals. At least one review must be submitted for each assigned proposal. Reviews must include funding level, rating, and substantive comments based on the established evaluation criteria. To maintain impartiality during the individual review period, reviewers are prohibited from discussing their reviews or accessing others' submissions, ensuring diverse perspectives and unbiased evaluations. Independent reviews are due one week before the in-person review meeting.
- Jan (2nd week) Meeting preparation. After the individual review period ends (1 week before the in-person meeting), the assigned primary group reviewer attending the in-person meeting will gain access to all review information (ratings, funding, comments) submitted by everyone who reviewed the proposal. This helps them prepare to lead the discussion and recommend a priority for the proposal in the annual collaboration plan.
- Jan (3rd week) In-person review meeting. A subset of the PRC will convene at USC during the third week of January (Wednesday 4pm to Friday 2pm) for an intensive review of all submitted proposals. Their objective is to craft a balanced and impactful Annual Collaboration Plan, aligned with SCEC's strategic goals, which will be

presented to the SCEC Board of Directors for approval. Expected participants include the SCEC Director, Co-Director, PRC Chair, one person from each Review Group, USGS JPC representatives, and SCEC administration staff. Program officers and sponsors may observe discussions at their discretion.

Feb (1st week) Group review summaries. After the meeting, review group representatives can submit comments for reconsideration of a proposal's rating or funding, if no conflict exists. The primary group reviewer must log the final, anonymized summary of the proposal in the online system, ensuring it aligns with the group evaluation and offers constructive feedback to the investigators.

Feb 15 Presentation to Board of Directors. SCEC receives annual funding from the NSF, USGS, and other federal and non-federal sources. The Center administration will work to align the PRC funding recommendations with the most suitable prime award and the available annual budget. As a science collaboration, not a funding agency, SCEC has to build a coherent Annual Collaboration Plan that aligns with its mission, institutional composition, and budget, achieving both short-term objectives and long-term goals.

The Chair of the Committee will then present the proposed Annual Collaboration Plan to the SCEC Board of Directors for approval. Once approved by the Board, the Annual Collaboration Plan will be submitted to the agencies for final decision. SCEC will only notify investigators only following the formal approval by the prime sponsors.

D. Review Groups

The Committee comprises experts representing the twelve disciplinary and interdisciplinary focus areas of Center activities, as determined by the Center Director and Co-Director, and approved by the SCEC Board of Directors. These focus areas, known as "SCEC review groups," are used to assign reviewers for proposals based on required expertise. Each review group will consist of 2-3 PRC members. The review groups listed below (last updated 10/1/2024) may change as Center priorities evolve:

1. **Seismology.** Collects data on seismic phenomena in the plate boundary system of California, develops new techniques to extract detailed and reliable information from the data, and integrates the results into models of velocity structures, source properties, and seismic hazard. The group fosters innovation in network deployments, data collection, and data processing, especially those that fill important observational gaps and provide real-time research tools.
2. **Tectonic Geodesy.** Uses geodetic measurements to study crustal deformation over the earthquake cycle along the San Andreas Fault System. They aim to determine how faults are loaded and the role of off-fault deformation. The group monitors and responds to earthquakes, tracking surface deformation changes, measuring coseismic displacements, and contributing to the Community Geodetic Model.
3. **Earthquake Geology.** focuses on the Late Quaternary record of faulting and ground motion, including data gathering in response to major earthquakes. The group fosters research on outstanding seismic hazard issues, the geological framework and earthquake history of faults in California, and contributes significant information to the

Community Earth Models. The group manages the SCEC geochronology infrastructure, which provides ¹⁴C and cosmogenic dating for SCEC-funded research.

4. **Research Computing (RC).** Develops research software and uses advanced modeling, data-intensive computing, and high-performance computing to address emerging needs of SCEC users. They work with SCEC scientists to leverage rapidly changing computer architectures, algorithms, and software technology, and engage with academic and national high performance computing (HPC) resource providers to facilitate large-scale and data-intensive research computing. The group also supports students in the geosciences and computer science to develop valuable research computing skills.
5. **Plate Boundary System (PBS).** studies earthquake history to clarify and refine hazard assessments throughout the entire transform plate boundary between the Pacific and North American Plates from western Nevada to the Borderlands offshore, and from Baja California to Cape Mendocino. They develop projects to collect and analyze data on the timing and size of large earthquakes along the San Andreas Fault System and to investigate fault features that may halt or permit continued rupture.
6. **Fault and Rupture Mechanics (FARM).** Uses field, lab, and theoretical studies to (1) constrain the properties, conditions, and physical processes that control faulting in the lithosphere throughout the earthquake cycle; and (2) develop physics-based fault models at various scales, such as for earthquake nucleation, propagation, and arrest, or long-term earthquake sequences. They aim to understand earthquakes in the San Andreas Fault System and contribute to seismic hazard estimates and physics-based ground motion predictions.
7. **Stress & Deformation Over Time (SDOT).** Studies lithospheric processes in the San Andreas Fault System to understand how faults are loaded and evolve over time on timescales from tens of millions of years to tens of years. They use geodynamic modeling to characterize present-day stress and deformation, and to tie this to long-term lithospheric evolution. SDOT also develops system-wide deformation models to contribute to physics-based probabilistic seismic hazard analysis.
8. **Community Earth Models (CEM).** Develops, refines and integrates community models describing a wide range of features of the California lithosphere and asthenosphere. These features include: elastic and attenuation properties (Community Velocity Model, CVM), temperature (Community Thermal Model, CTM), rheology (Community Rheology Model, CRM), stress and stressing rate (Community Stress Model, CSM), deformation rate (Community Geodetic Model, CGM), and fault geometry (Community Fault Model, CFM). Their ultimate goal is to provide an internally consistent suite of models that can be used together to simulate seismic phenomena in California.
9. **Earthquake Forecasting & Predictability (EFP).** Coordinates research on: developing earthquake forecast methods; evaluating earthquake forecasts; expanding knowledge of earthquake processes relevant for forecasting; developing and using earthquake simulators; and understanding the limits of earthquake predictability. Through the Collaboratory for the Study of Earthquake Predictability (CSEP), the EFP group supports a wide range of scientific prediction experiments worldwide, including those involving geographically distributed fault systems in different tectonic environments, through international collaboration.

10. **Ground Motions (GM).** Studies ground motion data and models wave propagation mechanisms, including nonlinearity and scattering effects. They develop and validate physics-based simulation methodologies to predict strong-motion broadband waveforms and permanent ground deformation. The group also studies how regional nonlinear effects can be modeled to produce simulated ground motions that are valid across a range of magnitudes, distances, and frequencies, especially for large magnitudes at close distances.
11. **Applied Science Implementation (ASI).** Connects SCEC scientists and research results with practicing engineers, government officials, business risk managers, and other professionals, as well as computer scientists, to improve the application of earthquake science and take advantage of emerging technologies to perform research. The ASI group engages with communities that interface with the Center, such as technical stakeholders and downstream users, to apply geoscientific knowledge to hazard quantification, validate ground motion simulations and earthquake rupture forecasts, and integrate and use SCEC science products.
12. **Community Capability Building (CCB).** Focuses on activities that train researchers at all career levels in multidisciplinary research and the skills needed to engage in the SCEC collaboration, including new technical skills that emerge and/or are needed for research. They support efforts that maximize the contributions from the next generation of earthquake scientists by providing opportunities to learn from and collaborate with experienced researchers, develop new skills, and build networks. This enables a diverse group of researchers to collaborate over time, building deep scientific collaborations and interpersonal networks to advance earthquake science.