

# MEETING AGENDA



## INTEGRATIVE SUBDUCTION ZONE SCIENCE: Moving into the Next Decade

The National Academies of SCIENCES  
ENGINEERING  
MEDICINE

Keck Center  
500 5<sup>th</sup> Street NW, Washington, DC

Room 101

Over the last few years, multiple geoscience community activities have been exploring the rich research opportunities and needs in subduction zone science. Recently published documents including the community workshop report *The SZ4D Initiative: Understanding the Processes that Underlie Subduction Zone Hazards in 4D*, the National Academies of Sciences, Engineering, and Medicine (NASEM) study *Volcanic Eruptions and Their Repose, Unrest, Precursors, and Timing*, and the USGS subduction zone science plan *Reducing Risk where Tectonic Plates Collide*, are part of the development of plans and implementation of offshore observatories in several subduction zones around the world. This one-day workshop hosted by the NASEM's Committee on Seismology and Geodynamics brings together scientists from academic and governmental domains to share current planning efforts, discuss scientific targets, and identify synergistic opportunities for coordination in an effort to propel the pursuit of subduction zone science into the next decade.

### Overarching Questions

What implementation and management options will 1) optimize the synergy of the different components of proposed projects to achieve their scientific objectives and mitigate subduction zone hazards, and 2) facilitate participation of a diverse group of scientists in research focused on crossing the shoreline?

What new strategies or resource reallocations are needed to achieve research, collaboration, and/or training goals, and how can we encourage innovation and diversity in multi-disciplinary plate-scale experiments?

**Doors open at 9:00 am**

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TUESDAY, NOVEMBER 7, 2017

## OPEN Session – All Welcome

9:15 am– 4:15 pm

**9:15 am**    **Opening Remarks and Introductions**

*Richard Allen, Committee Chair*

**9:20 am**    **Discussion with Carol Frost and Rick Murray, National Science Foundation**

9:45 am    Break

**10:00 am**    **Panel 1: Planning for Subduction Zone Science Initiatives**

*Moderated by Matthew Pritchard, Committee Member*

The societal relevance and economic impact of subduction earthquakes and explosive volcanic eruptions, and their associated tsunami and landslide susceptibilities, have provoked a number of community efforts, including a number of cross-disciplinary initiatives (e.g., NSF PREEVENTS, IES), projects that cross the shoreline (e.g., GeoPRISMS, Cascadia Experiment), and ongoing programs at USGS and NASA. Not only have new multi-disciplinary approaches been developed through these initiatives, but a vibrant, diverse, and international community of researchers has grown and been supported. Workshops and training opportunities have built a cohort of scientists that tackle problems in new ways while encouraging open access and coordinated outreach activities. The new SZ4D initiative aims to build on strong foundations and strengthen community links through a series of Research Coordination Network (RCN) proposals and related activities, which will be discussed in this session.

- Coordination of Research Coordination Networks – Terry Plank, Columbia University/Lamont-Doherty Earth Observatory
- Volcano Rapid Response Protocols – Tobias Fischer, University of New Mexico
- Modeling Collaboratory – Thorsten Becker, University of Texas Austin
- “Workshops on Volcanoes” International Field Schools – Diana Roman, Carnegie Institution of Washington

*Guiding Questions for Panel 1:*

- *Which aspects of the subduction problem does your initiative seek to address, and how are goals and deliverables linked to SZ4D and/or the USGS and ERUPT reports?*
- *How will your initiative:*
  - *Enable new scientific interactions among disciplines?*
  - *Encourage diversity (race, gender, etc.)?*



- *Provide opportunities for leadership for early and mid-career scientists?*
- *Build a strong cohort?*
- *How will core science initiatives be advanced through international collaborations from inception to implementation?*
- *How will core science initiatives be advanced through industry/development partnerships (e.g., instrumentation, telecoms, Google Earth, etc.)?*

11:45 am Working Lunch for Committee and Participants

**1:00 pm Panel 2: Lessons Learned from Successful Community Experiments**

*Moderated by Cindy Ebinger, Committee Member*

Large community-driven field programs in Earth science provide the potential to address science questions on a grander scale than individually-driven field programs, and interagency support ensures that science and societal relevance can be complementary. In the best cases, large field programs allow the community to come together and cultivate dynamic and exciting science and applications that are more than the sum of their parts, leading to diverse, innovative thinking about fundamental science questions. However, large programs must be carefully planned and led to ensure that community entrainment and excitement is fostered and maintained. In this panel we hope to learn from past successful programs and identify the key elements that enabled broad community engagement.

- Earthscope – David Simpson, IRIS
- Community Earth System Model – Jim Kinter, George Mason University
- International collaborations – Susan Beck, University of Arizona
- RIDGE/R2K – Dan Fornari, Woods Hole Oceanographic Institution

*Guiding Questions for Panel 2:*

- *What are the key elements (structural, governance, or otherwise) that led to the program's success?*
- *How did your program:*
  - *Develop a broad community base to ensure that it got off the ground?*
  - *Maintain broad community interest through the process of establishing funding?*
  - *Ensure continued broad engagement once it was operational?*
- *What are the most important facets in engaging international interest and participation?*
- *What are the lessons learned (for community engagement, science advances, usages of high performance computing, etc.) from other fields such as climate modeling?*
- *How did leadership coordinate the different experiments to ensure synthesis and integration in a timely fashion?*

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2:30 pm Break

**2:45 pm Panel 3: Agency Perspectives and the Path Forward**

*Moderated by Maya Tolstoy, Committee Member*

Success of large community-based programs requires synergy between the desires of the research community and the reality of available funding mechanisms within supporting federal agencies. In this final session, we invite perspectives from agency representatives, followed by a broad ranging discussion of potential paths forward. We aim to identify what is needed from the research community and agencies, determine the gaps in community planning and preparation, and decide upon milestones on the path to an engaging, integrative, inclusive research effort in subduction zone science.

**Panelists**

- NSF Division of Earth Sciences – Jennifer Wade
- NSF Division of Ocean Sciences – Candace Major, Debbie Smith, Maurice Tivey, Barbara Ransom
- USGS – Bill Leith, Jill Franks, Joan Gomburg, Charlie Mandeville
- NASA – Gerald Bawden, Ben Phillips, Craig Dobson
- NOAA/NWS Tsunami Program – Rocky Lopes
- NOAA Office of Ocean Exploration and Research – Alan Leonardi
- DOE – Jim Rustad

**4:15 pm Open Session Adjourns**

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