SZ4D - Community Efforts Ongoing

SZ4D Umbrella/ Coordinating Committee

Purpose:

- *To build network ties among the disparate groups working on these themes, and shape implementation plans based on the SZ4D Vision document, through focused thematic working group meetings, and*
- *To act as a central communication channel for the burgeoning activities of the various thematic teams, PI groups, agencies (USGS, NOAA, NASA, NSF) and international partners involved in or linked to SZ4D.*

Who: Harold Tobin (Wisconsin, Lead PI), Emily Brodsky (UC Santa Cruz), Melodie French (Rice U.), Matt Haney (USGS, Alaska), Diego Melgar (U. Oregon), Sarah Penniston-Dorland (U. Maryland), Terry Plank (LDEO), Diana Roman (Carnegie), Doug Wiens (Wash. U)
Additional members TBA:
What: Creating working groups on areas of key science development:

- What Controls the Mode of Slip along the Megathrust?
- Magmatic Drivers of Eruption
- Forearcs, Faults, Landslides
- "What Do I Do When my Megathrust/Volcano Starts Acting Up?" (Internationally)

Documents: See one-pager --
https://drive.google.com/file/d/1UNhAO0g4O7u9BAZ9wl6QcWjer8rFS5nY/view?usp=sharing
Status: NSF RCN proposal submitted February 2018
For input, contact: Harold Tobin (htobin@wisc.edu)

IRIS International Undergraduate Summer Internship in Subduction Zone Science

Purpose: *International collaboration is essential to advancing subduction zone science. To facilitate research partnerships between IRIS member institutions and international partners, we invite applications for IRIS international undergraduate summer internships in Subduction Zone Science. The goal of the program is to provide research and training opportunities for international undergraduates, and to help cultivate long-term international research and educational partnerships in the seismology community.*
Who: International Students, their Host Institution, and a mentor from an IRIS Institution
Students, apply here:
http://www.iris.edu/hq/event/international_undergrad_internship_in_subduction_zone_science
Mentors/hosts, apply here:
http://www.iris.edu/hq/event/international_undergrad_internship_in_subduction_zone_science_host/
Application Deadline: **February 28, 2018, 11:59 PM Eastern Time**.

Conference on Experimental Studies of Subduction Zone Processes

Purpose: *The objective of this conference is to discuss infrastructural needs of the experimental groups who study subduction processes. Experimental science directly informs diverse subduction research into earthquake timing and location, magma transport, and volcanic eruptions, through the study of material properties: viscosity, friction, dynamic rupture, poroelasticity, electrical conductivity, phase equilibria, melting, geothermobarometry, permeability, reaction kinetics, and diffusion.*
Who: Phil Skemer (Wash Univ. St Louis, Chair), Cici Cruz-Uribe (U Maine), Melodie French (Rice U.) Hiroko Kitajima (Texas A&M), Mike Krawczynski (Washington Univ. in St. Louis), Wenlu Zhu, (U. Maryland)
What: Participants for the conference will be drawn from the experimental rock mechanics, experimental petrology/volcanology, and mineral physics communities. Topics to be discussed include community organization and coordination, data and methodological standardization, and technical issues related to experimental studies on subduction zone materials.
Documents: See webpage -- https://sites.wustl.edu/esszp/
Status: Conference Date: June 5-6, 2018 (St. Louis)
Application Deadline: January 15, 2018

Seafloor Workshop Initiative - Seafloor Sensors

Purpose: To connect Engineering with Geophysics, in the development of observational capabilities for seafloor measurements
Who: Organized by Scripps, WHOI, IRIS (Lead) and UNAVCO
What: Topics include

i. Sub-sea communication
ii. Battery technology
iii. Timing
iv. Robotics

Status: Proposal submitted to NSF-OCE Fall 2017 following solicitation to connect technologies from Engineering with Ocean Sciences
Workshop would be in San Diego
Contact: Mark Zumberge (mzumberge@ucsd.edu)

Modeling Collaboratory for Subduction Zone Science

Purpose: *To plan the specifics of a Modeling Collaboratory for Subduction Zone Science (MCS) and explore the science questions centered around developing physical models of short- to long-term deformation associated with the megathrust and arc volcano systems, including and up to rupture and eruption.*
Who:Thorsten Becker (U. Texas, Lead PI) with Kyle Anderson (USGS Menlo Park), Magali Billen (UC Davis), Chuck Connor (U South Florida), Eric Dunham (Stanford), Helge

Gonnermann (Rice), Kaj Johnson (Indiana U), Amanda Thomas (U Oregon), Ikuko Wada (U Minnesota)
What:
--Models will integrate constraints from international subduction zone observatories, field, and laboratory observations into a systems-level modeling framework that allows analysis of earthquake and volcano generating processes
--Collaboratory will develop new tools, integrate formerly separate modeling efforts, evaluate approaches for crossing spatial and temporal scales, and identify knowledge gaps that limit our understanding of subduction zone processes
--These goals will be accomplished through a series of workshops (earthquake system, volcano system, and fluid/melt generation and migration) and a webinar series on cyber infrastructure needs/capabilities
Documents: https://www.dropbox.com/s/jk3j6htx3s7drmz/proposal_final.pdf?dl=0
Status: NSF RCN proposal submitted January 2018
Contact: Thorsten Becker (twb@ig.utexas.edu)

Community Response to Volcanic Events

Purpose:

- *Coordinate responses by the research community to volcanic eruptions to overcome observational bias and advance volcano science.*
- *Prepare the US volcano science community for responding to volcanic eruptions.*

Who: Tobias Fischer (U. N.Mexico, Lead PI) and a 6 person steering committee
What:
-- Workshops and information sharing, among Geophysics, Geochemistry, Eruption Process and Products, Modeling and Communication working groups
-- Coordination between USGS and academic institutions
Status: NSF RCN proposal submitted February 2018
Contact: Tobias Fischer (fischer@unm.edu)

PREEVENTS Track 1 Conferences

Purpose: *PREEVENTS is intended to encourage new scientific directions in the domains of natural hazards and extreme events. Track 1 Conference proposals may be submitted for up to $50K.*
What: Conferences that will foster development of interdisciplinary or multidisciplinary communities required to address complex questions surrounding natural hazards and extreme events.
Documents: NSF Solicitation,
https://www.nsf.gov/pubs/2016/nsf16562/nsf16562.htm
Status: Looking for volunteers.
Are you interested in writing a PREEVENTS Proposal within the scope of SZ4D?
Track 1 proposals may be submitted at any time within the submission windows

Contact Harold Tobin (htobin@wisc.edu) or Terry Plank (tplank@LDEO.columbia.edu) to coordinate.

COVE: Community Volcano Experiment

Purpose: *To collect open access data at community volcano(es) in order to develop integrated physical and chemical models of volcanic processes.*

Who: Brandon Schmandt (U. New Mexico, Lead PI), David Fee (U. Alaska Fairbanks), Tobias Fischer (U. New Mexico), Esteban Gazel (Cornell U.) Ronni Grapenthin (New Mexico Tech.), Einat Lev (LDEO), Christelle Wauthier (Penn. State U.)

What:

- 'community volcano' sites would likely target one or a small cluster of volcanoes and obtain a level of multidisciplinary observations that are not typically feasible for individual researchers or small groups.
- COVE would focus on data collection and dissemination only, and all data and data products would be immediately open access to enable broad participation of the international research community with cutting-edge observational constraints.

Status: NSF proposal submission planned

Contact: Brandon Schmandt (bschmandt@unm.edu)

Workshop on Volcanoes

Purpose:

- Collect and synthesize synchronous ground- and satellite-based multiparameter observations of volcanic activity at a continuously active or restless 'laboratory volcano'
- Provide US graduate students with experience collecting, analyzing, and interpreting different types of volcanological observations
- Train local students and observatory personnel in the same methods
- Provide an immersive networking opportunity for students and international collaborators.

Who: Diana Roman (Carnegie, Lead PI), Greg Waite (Michigan tech), Tobias Fischer (U. New Mexico), Simon Carn (Michigan Tech), Matt Pritchard (Cornell), Ashley Davies (JPL), David Fee (U. Alaska), Jeff Johnson (Boise), Pete LaFemina (Penn State), Einat Lev (LDEO), Ben Andrews (Smithsonian), Philipp Ruprecht (U. Nevada Reno)

What: Workshop on Volcano: ~50 students and PIs, including students from host country:
72 hours of continuous, synchronized data collection by PI group
Classroom lectures, instrument demos, group data reduction, group presentations, outreach
Follow-up workshop (PIs): Final data synthesis, manuscript and workshop report

Status: Tentatively Planned Feb 2019 on Masaya Volcano, Granada, Nicaragua
Proposal recommended for funding by NSF and pending at NASA

Contact: Diana Roman (droman@carnegiescience.edu)

Community Science Workshop for Seafloor Geodesy

Purpose: To bring together individuals within the active research community to highlight the science that can be done with current and emerging sea-floor geodetic tools, and to identify the the infrastructure needed to mitigate geologic risk, and to answer the dominant scientific questions that exist with the geodetic communities.
Who: Organizing Committee including representatives from Georgia Tech (Andrew Newman, Lead PI), Lamont (Sphar Webb), Scripps (Dave Chadwell), Missouri (Noel Bartlow), and University of Washington (Dave Schmidt), with additional membership TBA.
What: Workshop planned in Atlanta, likely late summer 2018, aimed at ~50 participants, with substantial support for emerging scientists and graduate students.
Status: Proposal is still in planning stage, submission should be in (Jan./Feb. 2018.). We are hopeful to gain support from NSF-OCE/EAR,NASA
Contact: Andrew Newman (anewman@gatech.edu)

IODP Proposal: Understanding Past, Present, and Future Earthquakes in the Cascadia Subduction Zone

Purpose: To utilize the Mission Specific Platform to dramatically improve our understanding of the earthquakes and deformation in the Cascadia subduction zone through a multi-pronged effort that includes establishing borehole observatories while lengthening the paleoseismic record.
Who: Jeff McGuire (Lead Proponent) with Chris Goldfinger, John Collins, Patrick Fulton, Janet Watt, Matt Wei, Emily Brodsky, Jay Patton, Guillaume St-Onge, Rachel Lauer, Tianhaozhe Sun, Susan Schwartz, Robert Harris, Roland Burgmann, Evan Solomon, Jenna Hill, Paul Segall, Wenyuan Fan
What: Proposal to IODP
Status: Proposal submitted April 2018. Future workshop planned
Contact: Jeff McGuire (jmcguire@whoi.edu)

SZ4D International

Purpose: To promote international capacity building to catalyze subduction zone science.
Who: Anne Meltzer (Lehigh Univ.), Sergio Barrientos (Univ. Chile), Xyoli Perez Campos (IG-UNAM), Philippe Charvis (Univ. Nice, CNRS, IRD), Bob Detrick (IRIS), Karen Fischer (Brown Univ.), Andy Frassetto (IRIS), Jeff Freymueller (Univ. Alaska), Gavin Hayes (USGS), Stephen Holtkamp (Univ. Alaska), Shuichi Kodaira (JAMSTEC), Meghan Miller (ANU), Meghan Miller (UNAVCO), Mario Ruiz (IG-EPN), Kerry Sieh (EOS), Frederik Tillman (GFZ), Harold Tobin (Univ. Wisconsin), Doug Wiens (Washington Univ.), Bob Woodward (IRIS).
What: Build partnerships internationally to leverage, enhance, and develop human and technical infrastructure to catalyze subduction zone science. Infrastructure is defined broadly to include technical capabilities for observation and analysis (instrumentation, telemetry, computation), data (archiving, management, dissemination, integration), and people.
Documents: Kick-off meeting summary
(https://drive.google.com/file/d/1kMW21bKvw2_d0iK4moaDcgWaABuMw2D_/view?usp=sharing)
Status: Under development. NSF RCN proposal submission planned for 2018.

Interested in participating? Contact: Anne Meltzer (ameltzer@lehigh.edu)

Mini-SZ4D-IRIS Workshop

Purpose: To discuss and plan for IRIS-related SZ4D activities
Who: Harold Tobin (Wisconsin) and Doug Wiens (Washington Univ St Louis)
What: Half day workshop adjacent to IRIS Annual Meeting
Documents:
Status: Contact: Harold Tobin (htobin@wisc.edu)

Osa, Costa Rica, International Subduction Zone Observatory

Continental Drilling, Osa Peninsula, borehole observations over the long term
Marino Protti

On the Horizon:

GeoPrisms Synthesis Theoretical and Experimental Institute (TEI)
Planned for February 2019
Contact: Demian Saffer (dms45@psu.edu)

Town Halls

IAVCEI (August 2017) - Terry Plank (SZ4D), Michael Manga (ERUPT), Michelle Coombs (USGS), Mike Ramsay (NASA)

GSA (October, 2017 - Joan Gomberg (USGS), Harold Tobin (SZ4D)

AGU (December, 2017) - Harold Tobin (SZ4D), Michael Manga (ERUPT), Jenna Hill (USGS), Gerald Bawden (NASA)

National Academies' Committee on Seismology and Geodynamics (COSG)

Fall Meeting on November 7 at Keck Center in DC
"Integrative Subduction Zone Science: Moving into the Next Decade"
Richard Allen (UC Berkeley), committee chair
SZ4D presentations - Terry Plank (LDEO), Diana Roman (Carnegie), Thorsten Becker (U. Texas), and Tobias Fischer (U. New Mexico)
6 NSF program leaders, 3 each from USGS, NASA and NOAA

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