

# GeoPRISMS Synthesis & Integration TEI

San Antonio, February 26-March 1, 2019

A warm thanks to:

GeoPRISMS Office, Demian Saffer, Anaïs Ferot, Jo Ann Lehtihet, for all advice and hard work making this TEI happen.

Current and past chairs and members of GSOC for their guidance.

NSF for their support of this community.

Our allied organizations, USGS, NASA, IODP for sharing an interest in the science of Earth's plate boundaries.

For everyone here that is contributing from their perspective to the synthesis TEI.



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## GeoPRISMS Program:

Successor of MARGINS. A decade of community-driven, interdisciplinary research on the origin, evolution, and active processes at margins.

## Two Initiatives:

- Subduction Cycles and Deformation (SCD)
- Rift Initiation and Evolution (RIE)



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## Some important questions addressed in SCD:

What governs the size of great subduction earthquakes?

How do subduction zones initiate?

How are melts released and stored in a subduction system?

What feedbacks exist between surface processes and subduction mechanics?



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## Important questions addressed in RIE:

Where and why do rifts initiate?

How does deformation evolve in space and time?

What controls the architecture of rifts?

What are the mechanisms and consequences of volatile exchange at rifts?



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The SCD and RIE initiatives help us understand how two different types of plate boundaries develop as a system. What are the most general outcomes of our research?

## Cross-cutting themes:

Theme 1: Deformation at all time scales

Theme 2: Mass Fluxes

Theme 3: Geohazards

This synthesis TEI gives the opportunity to look across all margins.



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## Agenda in a nutshell:

Early-Career Symposium (Tuesday)

Introductions

Summaries of ECS, RIE and SCD Initiatives.

Vision talks from partner organizations.

Theme 1: Deformation at all time scales

Theme 2: Mass Fluxes

Theme 3: Geohazards

Synthesis: Achievements and future directions



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## The rifting (RIE) and subduction (SCD) Initiatives

Strategies and funding model developed to implement RIE and SCD.

Community-driven science, crossing the shoreline.

In workshops for SCD in Redondo Beach (2015) and for RIE in Albuquerque (2017), our community discussed progress on research.

Summaries of the SCD and RIE Initiatives will be presented this morning by Donna Shillington and Sarah Penniston-Dorland



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### Strategy for each of the 3 themes of the TEI:

- Introduction
- Four science overview **talks**, with discussion.
- **Breakout session.** Participants, divided in four groups, will address the same questions regarding our science progress, goals and needs for the near future and beyond the GeoPRISMS program.
- On Friday afternoon we will review your feedback in a synthesis.





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## Breakout sessions:

The participants will be divided in four equal-size groups.

Each group has a discussion leader and a scribe (already assigned).

Rooms: Ballroom, Cavalier, Patio, Renaissance

Hour-long discussion:

**Position the GeoPRISMS community and its substantial intellectual momentum for what's next: - beyond just listing questions. Define and articulate future science and what's needed to make it happen.**



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### Charge for the breakout session:

- What studies are necessary for synthesis for a GeoPRISMS synthesis?
- Where do we have gaps in our understanding?
- What kind of infrastructure does our community need?
- Is an amphibious research program required to accomplish our goals?
- How do we capture the momentum of the GeoPRISMS community?
- **Anything else that you think is important**



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### Agenda for this morning:

08:30-08:45: NSF program managers update. **Jenn Wade**

08:45-09:00: Discussion

09:00-09:20: Summary of SCD Initiative. **Sarah Penniston-Dorland**

09:20-09:40: Summary of RIE Initiative. **Donna Shillington**

09:40-10:00: *Coffee break.*



## Agenda for this morning:

10:00-10:30: Outcome of Early-Career symposium (**Eric Mittelstaedt & Taryn Lopez**).

10:30-10:50: Presentation from NASA Earth Science. **Ben Phillips**

10:50-11:10: Vision talk from USGS. **Joan Gomberg**

11:10-11:30: Vision talk from IODP. **Susan DeBari**

11:30-11:45: Discussion.

***Lunch provided*** (11:45-13:00).

**Group Photo** at the Alamo (13:00)

