

2026 SZ4D Science Community Meeting

Summary and Next Steps

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The 2026 SZ4D Science Community Meeting brought together researchers from across the subduction zone community to explore the processes that connect earthquakes, volcanoes, landscapes, hazards, and society. Through keynote talks, breakout discussions, lightning talks, posters, and networking events, participants worked to identify shared scientific challenges and develop new interdisciplinary approaches to galvanize the SZ4D community around novel research directions.



The meeting opened with vision talks highlighting the need to view subduction zones as integrated systems rather than as collections of isolated processes. Discussions throughout the meeting reinforced the importance of linking observations, experiments, and modeling to understand better how subduction systems evolve and how geohazards emerge from interactions among system components. Through breakout sessions, poster discussions, lightning talks, and plenary synthesis, participants explored connections among earthquakes, volcanoes, landscapes, hazards, fluids, stress, and climate; as opposed to focusing on individual disciplines, discussions were organized around processes and feedbacks that connect multiple components of subduction systems that require transdisciplinary planning and collaboration.

Activities also included a dedicated Early Career Symposium, early-career keynote presentations, lightning talks, poster sessions, and opportunities for early-career researchers to participate in scientific discussions and community building activities. These efforts helped foster new connections across career stages and disciplines.

Several recurring themes emerged from the meeting. Participants emphasized the importance of understanding how stress evolves and how a system's state influences its response to external forcing. The role of structural complexity and heterogeneity emerged as another common topic, with discussions focusing on how variations in fault geometry, slab structure, and magmatic systems influence system behavior. Fluid and magma transport were identified as fundamental processes linking deep-Earth dynamics to earthquakes and volcanism. Participants also highlighted the need to understand better surface–deep Earth interactions, including the influence of erosion, sediment transport, and climate-driven processes on tectonic and magmatic systems. These themes reflect common scientific interests that surfaced repeatedly across breakout groups and plenary discussions and provide a foundation for future interdisciplinary collaboration within SZ4D.

To maintain momentum following the meeting, participants were invited to complete a post-meeting survey indicating their interest in contributing to one or more of the identified science themes. Responses will help identify potential leaders and participants for future science groups and will guide the development of collaborative activities around these themes. We hope to build on the ideas generated during the meeting, and support continued community-driven development of interdisciplinary science questions, observational strategies, modeling efforts, and broader impact activities.

The enthusiasm, creativity, and engagement throughout the meeting highlighted the strength of the SZ4D community, the thirst for solutions to multidisciplinary research problems, and the opportunities at the intersections of typically disparate disciplines. We look forward to continuing these discussions as the community works together to advance a systems-level understanding of subduction zones and their associated geohazards.

For more details about the meeting, including photos & presentations, visit the [SZ4D website](#).

