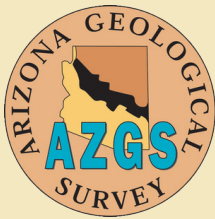


Success Stories

Establishing Directions in Postfire Debris Flow Science Conference



Background:

Postfire debris flow (PFDF) hazards have increased as the Wildland-Urban interface expands and wildfires become larger and more severe. Recent research has advanced understandings of PFDF hazards, but many critical questions remain, especially as PFDF hazards emerge in new geographic regions (e.g., wetter and more arid regions). Identifying and prioritizing avenues for future research is critical for developing operational products that meet decision support needs, and for decision makers who coordinate emergency and mitigation efforts with limited resources.

Project:

In May of 2024, 91 government, academic, and practitioner scientists, representing diverse disciplines, convened for the Establishing Directions in Postfire Debris Flow Science Conference. The conference featured presentations, breakout groups, poster sessions, and a panel discussion that aimed to identify major research and operation hurdles, prioritize research objectives to address those hurdles, and establish directions for future PFDF science.



Attendees pose for a group photo in front of Lake Tahoe.



Attendees work through a breakout session on identifying successes, challenges, and paths forward.

Results

During the conference, attendees identified ten priority research areas (Fig. 1), with in-depth discussions focusing on the top three. First, meeting attendees identified the need for more research into the processes driving PFDFs across different geographic and climatic regions. A process-based understanding of PFDF initiation and growth is essential for developing generalizable or region-specific models, thresholds, and tools to enhance situational awareness, evaluate mitigation strategies, and improve early warning systems. Second, the group suggested that having a centralized data hub with standardized collection protocols could accelerate research by providing reliable, consistent data to improve understanding of PFDF processes and facilitate model development and testing. Lastly, because the geographic areas subject to PFDF hazards are expanding, the group identified the need for increased science communication and outreach to provide actionable information to decision makers and emergency managers regarding the triggers, potential impacts, and mitigation strategies of PFDFs.

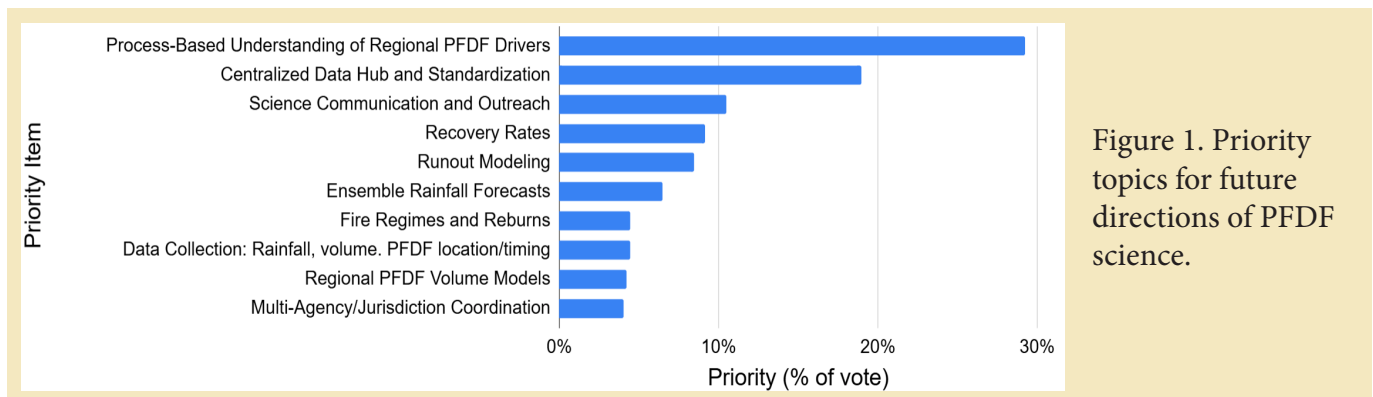


Figure 1. Priority topics for future directions of PFDF science.

Actions

By identifying major PFDF research priorities, this group was able to establish research directions given the current state of the science. Addressing these research priorities lays the groundwork for future modeling and forecasting advances to help reduce the overall PFDF hazards to communities. This conference serves as a model for how interdisciplinary teams can effectively identify shared priorities, integrate diverse expertise, and co-create actionable research agendas, an approach other multidisciplinary research areas could adapt.

Additional Resources

Research Article:
Confronting Debris Flow
Hazards After Wildfire



Recordings:
Presentations from
PFDF Conference



Contact

For questions, information, or more resources like this, please contact the California Fire Science Consortium.

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