



## **Program for Volcanic Risk Reduction in the Americas: Translation of Science into Policy and Practice**

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In 2013, the United States Geological Survey (USGS) and the U.S. Agency for International Development/Office of Foreign Disaster Assistance (USAID/OFDA) inaugurated Volcanic Risk Reduction in the Americas, a program that brings together binational delegations of scientists, civil authorities, and emergency response managers to discuss the challenges of integrating volcano science into crisis response and risk reduction practices. During reciprocal visits, delegations tour areas impacted by volcanic unrest and/or eruption, meet with affected communities, and exchange insights and best practices.

The 2013 exchange focused on hazards at Mount Rainier (Washington, USA) and Nevado del Ruiz (Caldas/Tolima, Colombia). Both of these volcanoes are highly susceptible to large volcanic mudflows (lahars). The Colombia-USA exchange allowed participants to share insights on lahar warning systems, self-evacuation planning, and effective education programs for at-risk communities. [See Driedger and Ewert (2015) Abstract 76171 presented at 2015 Fall AGU, San Francisco, Calif., Dec 14-18].

The second exchange, in 2015, took place between the USA and Chile, focusing on the Long Valley volcanic region (California, USA) and Chaitén volcano (Lagos, Chile)—both are centers of rhyolite volcanism. The high viscosity of rhyolite magma can cause explosive eruptions with widespread destruction. The rare but catastrophic "super eruptions" of the world have largely been the result of rhyolite volcanism.

Chaitén produced the world's first explosive rhyolite eruption in the age of modern volcano monitoring in 2008-2009. Rhyolite eruptions of similar scale and style have occurred frequently in the Long Valley volcanic region, most recently about 600 years ago.

The explosivity and relative rarity of rhyolite eruptions create unique challenges to risk reduction efforts. The recent Chaitén eruption was unexpected—little was known of Chaitén's eruptive history, and because of this, monitoring instrumentation and response protocols were nonexistent. Though devastating to the community, no lives were lost during the eruption—largely due to the impromptu, yet decisive, actions by local leaders. The situation at Long Valley is at the other end of the preparedness/response spectrum—the eruptive history is well known, and because of sporadic, intense volcanic unrest over the last three decades, sophisticated monitoring networks are in place to detect eruption precursors. The challenge for the Long Valley community is thus maintaining readiness in the face of waxing and waning unrest without eruption.

Collectively, the stories heard by delegates visiting Chaitén and Long Valley confirm that communities are not prepared for natural disasters unless both risk awareness and risk reduction efforts become an integral and ongoing part of community life. Each delegate left with new perspectives on how best to achieve this.