

# MILLENNIUM INSTITUTE ON VOLCANIC RISK RESEARCH, CKELAR VOLCANOES

Impact Area: Earth Sciences and Risk Management  
Speciality: Volcanology

Chile is one of the countries with the most significant number of volcanoes globally, with more than 1,500 throughout its territory. At least 90 of these volcanoes are active or potentially active (occurrence of eruptive activity in the last 10,000 years) and have been the focus of various catastrophic events, such as the eruptions of the Villarrica (1971), Navidad (1988; more than 12,000 heads of cattle died), Hudson (1991) and Chaitén volcanoes (2008; more than 5,000 people displaced and US\$50 million of losses). Although most of the eruptions during historical times have been concentrated in southern Chile, large-scale eruptions have also occurred in northern Chile, such as the Lascar volcano eruption in April 1993, where volcanic ash fell on Argentine, Brazilian, and Uruguayan territory.

Although the population that lives around active/potentially active volcanoes in northern Chile is smaller than in southern Chile, that population has a powerful link with the volcanoes due to cultural and economic factors. Additionally, there is a wide diversity of critical infrastructure and economic activities around these volcanoes (drinking water supply, electricity, border crossings, railways, mining, and tourism, among others). Due to the scarce knowledge of the recurrence rates and magnitudes of volcanic eruptions in northern Chile, and finally, the lack of knowledge of the impact of these eruptions on the communities and infrastructure surrounding active volcanoes, the Millennium Institute on Volcanic Risk Research - Ckelar Volcanoes vision is to form an advanced scientific team of excellence recognized worldwide to provide and communicate knowledge about volcanic processes and volcanic risk mitigation.

The general objective is to establish the factors that determine the recurrence rate and size of the eruptions throughout the Central Volcanic Zone of the Andes. The specific objectives include 1) establishing the physicochemical processes that control volcanic activity, 2) specifying the role of regional tectonic processes in magmatic and volcanic activity, 3) constraining the effects of volcanism

## Research lines:

- Physical and chemical processes
- Deformation in volcanic systems
- Volcanic hazards
- Infrastructure vulnerability
- Human resilience

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## >> SCIENTIFIC PRODUCTIVITY:

Recently awarded Millennium Institute, no publications have been reported.

\*Data updated by Millennium Institute to June 2023





>> CONTACT INFORMATION:

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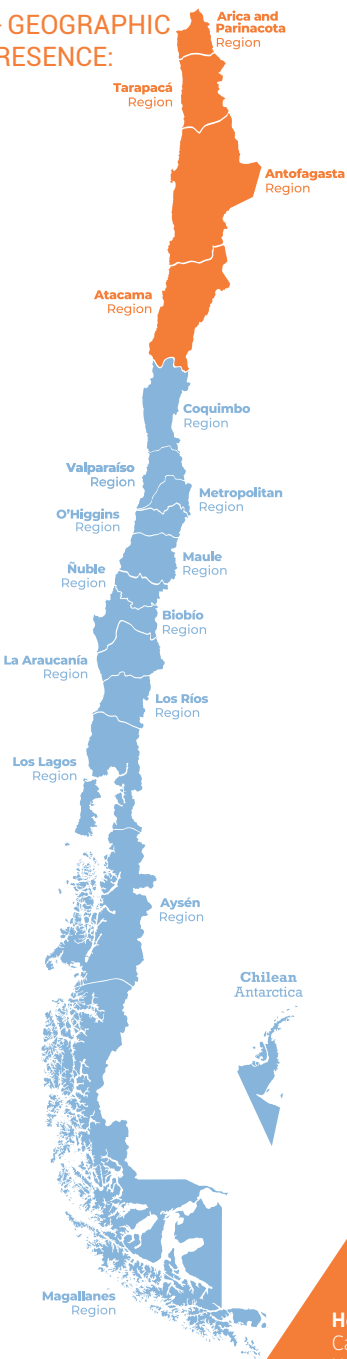
>> OUTREACH ACTIVITIES:

- Recently awarded Millenium Institute, no outreach activities have been reported.

>> RESEARCHERS:

**Main Researchers:**  
Joseline Tapia, Verónica Oliveros,  
Daniel Díaz, Rodrigo González,  
Mahesh Shrivastava.

>> GEOGRAPHIC PRESENCE:



>> MAIN ACHIEVEMENTS:

- Recently awarded Millenium Institute, no main achievements have been reported.