



Advances in scientific understanding of the Central Volcanic Zone of the Andes: a review of contributing factors

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Abstract

The Central Volcanic Zone of the Andes (CVZA) has been the focus of volcanological research for decades, becoming a very important site to understand a number of volcanic processes. Despite most of the research in the CVZA being carried out by foreign scientists, the last two decades have seen a significant increase in contributions by regional researchers. This surge has been facilitated by the creation of new volcanic observatories, improvement of the monitoring networks, creation of postgraduate programs where new local volcanologists are trained, creation of specialized research nuclei or groups, and increasing investment in research. This article presents a review of the evolution of the contributions of the regional volcanological community to the knowledge of the CVZA in the last 20 years (2000–2019), both from research and monitoring institutions in Peru, Bolivia, Argentina, and Chile. Based on updates made by the regional groups, a new list of active/potentially active volcanoes of the CVZA is presented, as is a complete database for article published on the CVZA. We find that a significant motivator has been regional volcanic unrest that has triggered new investment. Perú is the country with the highest investment in monitoring and research and is the best instrumented, Argentina is the country with the highest number of local participation in published papers in the domain of volcanology and magmatic systems, and Chilean volcanoes are the focus of the highest number of articles published. The current situation and general projections for the next decade (2020–2030) are also presented for each country, where we believe that the over the next 10 years, will be increased the monitoring and research capabilities, improved the scientific knowledge with more participation of regional institutions, and strengthen the collaboration and integrated work between CVZA countries, especially in border volcanoes.

Keywords Regional volcanology · Monitoring networks · Volcanological research

Resumen

La Zona Volcánica Central de los Andes (ZVCA) ha sido uno de los focos principales de la investigación en volcanología, transformándose en un sitio muy importante para entender una gran diversidad de procesos volcánicos. Aunque la mayoría de la investigación que se ha realizado en la ZVCA ha sido llevada a cabo por investigadores extranjeros, en las últimas dos décadas se ha observado un significativo incremento en las contribuciones realizadas por investigadores locales. Lo anterior ha sido consecuencia de la creación de nuevos observatorios volcanológicos, mejoramiento de las redes de monitoreo, creación de programas de postgrado donde nuevos volcanólogos locales han sido formados, creación de núcleos y grupos de investigación, y por el incremento de la inversión en investigación. Este artículo presenta una revisión de la evolución de las

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