

Volcanic Risk Assessment in Argentina

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A collaboration project between SEGEMAR-SMN (Servicio Geológico Minero Argentino-Servicio Meteorológico Nacional) began in 2015 in order to update and accomplish the Volcanic Risk Assessment that was previously carried out by SEGEMAR. The methodology applied in this evaluation is based on NVEWS (National Volcano Early Warning System) developed by the USGS and applied by SERNAGEOMIN in Chile. The main goal of this analysis is to identify the volcanoes that involve a higher risk for Argentina and, according to these results, organize and prioritize studies and monitoring activities.

In this collaboration project, a number of 38 volcanoes located in the Andean Cordillera totally in Argentine territory and on the International border were studied. According to NVEWS methodology, to obtain the risk, it is necessary to analyze a number of hazard and exposure factors. The hazard factors, which have been already analyzed in 2011 by SEGEMAR, were updated based on bibliographic data from different sources. The Hazard factors considers the volcano characteristics including type of volcano, Volcanic Explosivity Index, type of activity, Eruption Recurrence, type of Holocene products and processes and Historical Unrest Factors. The Hazard Value changed in several volcanoes respect to 2011 results. The exposure factors were analyzed from the compilation of data from different Institutions including: population data, transport and energy infrastructure, sensitive areas, aviation routes and air traffic information. Finally the Risk Analysis is the result of the product of the Hazard and Exposure values. It is very important to remark the lack of base data for many volcanoes, mostly those without Historical Record of activity.