



VOLC-5: Caracterización, evaluación y comunicación de peligros y riesgo volcánico

Polystyrene 3D Volcano Models with projected geological information as a tool to teach communities about geohazard

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The Chilean Andes range is characterized by 95 active volcanoes where various cities have been established nearby, exposing the population to possible volcanic hazards. Though these volcanoes have been studied, it is necessary to convey the information to the communities that may be affected to raise awareness in case of emergency. Creating 3D polystyrene models represents an innovative way to show information that has been conventionally displayed in bidimensional maps. In these models, hazards such as lahars and pyroclastic flows can be better understood as they are closely related to the geomorphology of the area. Due to the white of the material, it is possible to project different layers over the volcano, as satellite images, geological maps and hazard maps, which visualize the information in a creative way. A DEM is necessary to build the volcano, where a better resolution of the DEM translates to a finer detail in the results. Using 3D Leapfrog software, it is possible to adjust the design to the Router CNC (computer numeric control) specifications that cut the polystyrene. Amongst the advantages of the procedure are the low cost of the materials and light weight of the model, it is simple, not time-consuming and that it can be made at different scales and dimensions. A 3D model of the Nevados de Chillán volcano will be shown in the city of Chillán at the next Volcanic Divulcation Exhibition, which is organized by the National Volcanic Surveillance Network to educate the community about the volcano in an interactive and visual way. Results will assess if these models are a suitable method for explaining risks to communities. This project responds to the need to engage people with geo-science and raising awareness about potential volcanic risks to reduce vulnerability in possible emergency situations.