

## **Donations for the Fuego volcano observatories.**

My name is Rüdiger Escobar-Wolf. I am from Guatemala and am currently studying to obtain a PhD in geology at Michigan Technological University in the United States. My research topic is about Fuego Volcano in Guatemala. Before coming to Michigan Tech to study, I worked for five years at the Guatemalan Coordination Agency for Disaster Reduction (CONRED), which is the government agency in charge of risk management and reduction linked to natural hazards, including those caused by volcanic activity. During my time working for CONRED and the following years that I have been in grad school, I have had a long-standing relationship of collaboration with the Guatemalan Institute of Seismology, Vulcanology, Meteorology, and Hydrology (INSIVUMEH), and especially with the volcano observatories at Fuego volcano: OVFUEGO-1 in the village of Panimache I, and OVFUEGO-2 in the village of Sangre de Cristo. This relationship has led me to appreciate the undisputable value of having both observatories, and allows me to testify on the excellent work that the observers (Amilcar Calderas and Edgar Antonio Barrios from OVFUEGO-1, and Saraí Pérez from OVFUEGO-2) have done throughout these years, both from the applied risk management perspective and from a more academic, scientific research point of view.

From the point of view of risk management, the Fuego volcano observatories play a crucial role in the monitoring that INSIVUMEH does of the volcanic activity. In one sense, the observers use simple but useful techniques, which along with the seismic monitoring, provide the information that forms the “backbone” of the monitoring and forecasting process. The routine monitoring that the observers do is transmitted on a daily basis to the INSIVUMEH headquarters in Guatemala City, and is based primarily on visual observations, still photography, and weather station data gathering at the observatories. During eruptive crises the information flow becomes nearly constant and in real-time with continuing visual observations and photographic documentation.

But the tasks of the observers are not limited to visual monitoring from the observatories. After large eruptions, like the one that happened on September 13, 2012, the observers perform field inspections to characterize and map the volcanic deposits generated by the eruptions. The information that the observers collect during such field work, although very valuable, is limited by the instruments available to them. It is when performing these monitoring and field evaluations that the need for better equipment becomes most evident. Such field evaluations sometimes require hikes that last several days, and therefore include camping on the mountain; and even the shorter trips are usually on very rugged terrain. And so, the observers do not only need the technical equipment to collect volcanological data, but they also need the basic equipment necessary for camping and undertaking long hikes.

Additionally, the observatories also play an important role as a link between the INSIVUMEH authorities in Guatemala City and the communities where the observatories are located. By employing local people from these villages, INSIVUMEH has created a communication link which becomes very important in the communication process with the communities, especially during volcanic crises. In fact, the people in these communities see the observatory as an important resource to where they can go during a crisis looking for information and to discuss what actions should be taken. The trust that people have in the observatory and the credibility of the observers is undoubtedly linked to the leadership role they play in their communities. But it is also influenced by the credentials that come with working with INSIVUMEH, including the training and technical capacity building. Providing the observers with equipment to increase their technical monitoring and field surveying capacity will certainly contribute to legitimize their role as experts in the topic within their communities.

And from the academic point of view of volcanological research, the contribution by the observatories is also undeniable. The daily records of the volcanic activity, and the reports of the many field evaluations

that the observers carry out should be seen as a volcanological information treasure, which can be used by researchers and educators. In my case, I have been able to use a large amount of this information for my doctoral research, and I hope to be able to publish the results of such an analysis in scientific journal articles, with the observers as co-authors. This source of information would be augmented if the observers are provided with adequate equipment.

In a similar way, the observers have played also a fundamental role in the research done by volcanologists from different parts of the world that have gone to Guatemala to study Fuego volcano. Due to their superb knowledge of the volcano, the observers have been volcanological guides for scientific expeditions organized to collect samples and monitor the volcano's activity. And this has also been the case for my project, as my work on Fuego volcano would have not been possible without the help and advice of the observatories. Finally, the observatory has also hosted groups of students from different universities from around the world, who have visited Fuego volcano to see its activity.

Despite the material limitations that the observatories face, the observers have always been very enthusiastic about the job they have, and they have not lost the opportunities to build their skills and capacities as observers. For instance, Amilcar Calderas recently participated in a course about risk and disasters in Japan, thanks to the support of the Japanese government. However, to maximize the benefit the energy, the dynamism, and the work efforts by the observers, they need to have the right tools to do such work properly. Through the IVM-Fund we have the opportunity of helping the observatories to increase their technical capacity by providing them with modern equipment that they can use for their volcano monitoring and field survey work. If you think that the work done by the observatories is valuable, and that the information they generate could benefit if they had better equipment, please consider making a donation for the Fuego volcano observatories.

Sincerely,

Rüdiger Escobar Wolf