case study

Volcanic Research

Funding– British Embassies of Costa Rica and Nicaragua

Consultants –Brian Evans and Deborah Duffy,
Exeter Environmental Consulting Services,
Centre for Water Systems

Objectives – To measure soil contamination surrounding active volcanoes and to develop techniques to improve prediction of volcanic eruptions.

A group of researchers from the Centre for Water Systems (CWS) in the school of Engineering and Computer Science was invited to collaborate with the Open University's Volcano Dynamics Group to study active volcanoes in Central America.

The project, funded by grants from the British Embassies of Costa Rica and Nicaragua and linked to national earth sciences institutes in both countries, had two objectives: to measure soil contamination caused by continuous low-level gas emissions; and to develop innovative techniques for the forecasting of eruptions. Each was based on techniques of gas measurements in soils, combined with water chemistry analysis. Field techniques developed by the researchers have also been successfully applied to studies on the Reunion Island volcano in the Indian Ocean and to seismic hazard assessments in Eastern Turkey and Venezuela.

Project Impact

- Detailed study of two active volcanoes: Poas in Costa Rica and Masaya in Nicaragua
- Researchers used sophisticated equipment to carry out microgravity and gas emission measurements, to monitor the volcanoes and design techniques to mitigate the danger of volcanic eruptions near cities
- Researchers trained a team of local academics to carry out future investigations independently
- The British team trained local professionals to help them secure necessary funds to buy their own measuring instruments for future independent work
- In addition to this project, three new research centres have been established: one in Turkey and two in Venezuela, as a result of previous training by the British researchers.

"The British Embassy in San Jose was very pleased to be associated with this innovative and challenging project. The ideas and expertise that Brian Evans and his team shared with the Costa Rican scientists of OVSICORI have contributed to strengthening research links and promoting the importance of hazard mitigation. I greatly enjoyed accompanying the team into the crater of Poas volcano and learning more about magma and fumaroles. I hope the funding can be found to continue this valuable work".

Georgina Butler
HM Ambassador to Costa Rica and Nicaragua