



## **Monitoring of volcanic emissions for risk assessment at Popocatépetl volcano (Mexico)**

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In January 2014, the Mexican Agency FOPREDEN (Natural Disaster Prevention Fund) accepted to fund a project to renew, upgrade and complement the gas monitoring facilities. The UNAM-CENAPRED (National Center for Disaster Prevention) gas monitoring system currently consists of:

- A COSPEC instrument and two mini-DOAS used for mobile traverse measurements
- An SO<sub>2</sub> camera used for punctual campaign
- A network of three permanent scanning mini-DOAS (NOVAC type 1 instrument) and one permanent mini-DOAS (NOVAC type II, currently under repair).

The activity planned in the framework of the new project, of which several of them are already successfully implemented, include:

- Completely refurbished permanent scanning mini-DOAS network consisting of four stations and the punctual deployment of three RADES (Rapid Deployment System) for assessing plume geometry and chemistry or for responding to emergency situations.
- Prolongation of the mobile traverse measurements in order to continuously update the 20 years-long SO<sub>2</sub> flux database obtained with the COSPEC, now coupled with a mobile DOAS for redundancy.
- The development and installation of a permanent SO<sub>2</sub> camera, for monitoring in real time the short timescale variations of the SO<sub>2</sub> emissions.
- The installation of two permanent FTIR spectrometers, one measuring the plume thermal emissions and the other measuring with the solar occultation geometry, for frequent measurements of molecular ratio between SO<sub>2</sub>, HCl, HF and SiF<sub>4</sub>
- The exploitation in near-real time of the satellite imagery (OMI, MODIS and ASTER) available for the volcano. A special attention will be paid to increase the reliability and graphical representation of these data stream in order to facilitate their use for decision-making by the civil protection authority in charge of the volcano.