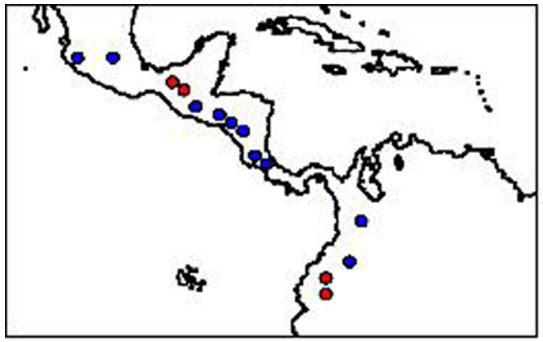
LIST OF VOLCANOES



Map of volcanoes forming part of the NOVAC project in Central America. Blue dots represent original partners, red dots indicate volcanoes added to the network during 2006.

The following volcanoes form part of NOVAC:

Piton de la Fournaise (REUNION ISLAND)

La Soufrière (GUADELOUPE)

Mount Etna (ITALY)

Popocatépetl, Fuego de Colima (MEXICO)

San Cristóbal, Masaya (NICARAGUA)

Arenal, Poas (COSTA RICA)

Galeras, Nevado del Ruiz (COLOMBIA)

Santa Ana, San Miguel (EL SALVADOR)

Nyiragongo, Nyiamuragira (D.R. CONGO)

Tungurahua, Cotopaxi (ECUADOR)

Pacaya, Santiaguito (GUATEMALA)

NOVAC PARTNERS

Chalmers University of Technology, Sweden

Heidelberg University, Germany

Belgian Institute for Space Aeronomy, Belgium

Cambridge University, United Kingdom

IFM-GEOMAR Research Center, Germany

Instutut de Physique de Globe du Paris, France

Istituto Nazionale di Geofisica e Vulcanologia, Italy

Universidad Nacional Autonoma de Mexico, Mexico

Instituto Nicaragüense de Estudios Territoriales, Nicaragua

Observatorio Volcanologico y Sismologico de Costa Rica, Costa Rica

Instituto Colombiano de Geologia y Mineria, Colombia

Servicio Nacional de Estudios Territoriales, El Salvador

Observatoire Volcanologique de Goma, D.R. Congo

Massachusetts Institute of Technology, USA

University of Maryland, Baltimore County, USA

Escuela Politecnica Nacional, Ecuador

Instituto Nacional de Sismologia, Vulcanologia, Meteorologia e Hidrologia, Guatemala

New partners are welcome to join,

please contact Project Coordinator

Project Coordinator

Bo Galle

bo.galle@rss.chalmers.se

Chalmers University of Technology

Phone: +46 (0) 31 7725654

Fax: +46 (0) 31 7721844

http://www.novac-project.eu

Project funded by The European Union, FP6

Global Change and Ecosystems, Natural Disasters Program.

NOVAC

Network for Observation of Volcanic and Atmospheric Change

Network for Observation of Volcanic and Atmospheric Change

PROJECT SUMMARY

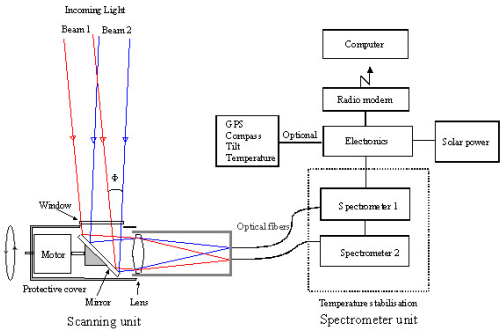
San Cristóbal Volcano, Nicaragua.

The idea of the NOVAC project is to establish a global network of stations for the quantitative measurement of volcanic gas emissions by UV absorption spectroscopy making use of a novel type of instrument, the Scanning Dual-beam miniature – Differential Optical Absorption Spectrometer (Mini-DOAS) developed within the EU-project DORSIVA.

Primarily the instruments will be used to provide new parameters in the toolbox of the observatories for risk assessment, gas emission estimates and geophysical research on the local scale. In addition to this, data are exploited for other scientific purposes than local volcanic gas emissions, e.g. global estimates of volcanic gas emissions, large scale volcanic correlations, studies of climate change, studies of stratospheric ozone depletion.

In particular large scale validation of satellite instruments for observing volcanic gas emissions will be possible for the first time, allowing to bring observation of volcanic gas emissions from space a significant step forward.

INSTRUMENT DESCRIPTION



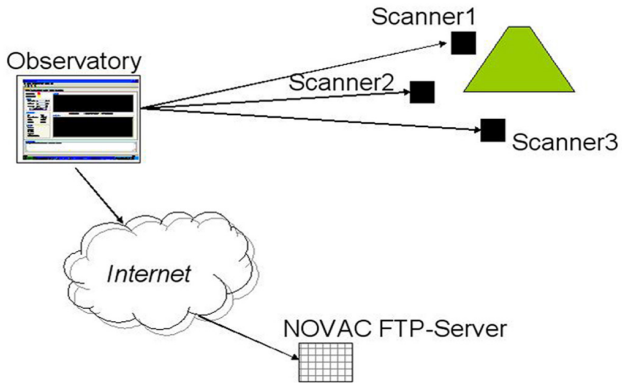
Schematic view of the Double Beam Scanning mini-DOAS instrument

The Scanning Dual-beam Mini-DOAS instrument represents a major breakthrough in volcanic gas monitoring. It is capable of real-time automatic, unattended measurement of the total emission fluxes of SO_2 and BrO from a volcano with better time resolution than 5 minutes during daylight. The high time-resolution of the data enables correlations with other geophysical data, e.g. seismic data, thus significantly extending the information available for real-time risk assessment and research at the volcano.

By comparing high time resolution gas emission data with emissions from neighbouring volcanoes on different geographical scales, or with other geophysical events (earthquakes, tidal waves) mechanisms of volcanic forcing may be revealed.

The spectra recorded by the instrument will also be used to derive data that complement global observation systems related to climate change and stratospheric ozone depletion research. These data are particularly valuable due to the fact that many volcanoes are located in remote areas sparsely covered by existing networks.

DATA TRANSMISSION



The software running in the observatory downloads the recorded spectral data from the instruments in real-time. The data can be transferred either using radio-modems or a wireless network.

The spectral data is together with the evaluated results uploaded in real-time to a central data server, where is readily available for the partners to consult. At the server, the uploaded data is automatically inserted into a database, from which the partners can easily search for data.