



Volcanic gas surveillance in Colombia using NOVAC ScanDOAS instruments

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Volcano surveillance in Colombia was formally initiated just after reactivation of Nevado del Ruiz volcano, when over 23,000 people were killed and approximately 5,000 were injured by four thick lahars that raced down river valleys on the volcano's flanks. The Armero tragedy was the second-deadliest volcanic disaster in the 20th century, being surpassed only by the 1902 eruption of Mount Pelée, and is the fourth-deadliest volcanic eruption in recorded history.

Gas monitoring on Colombian volcanic fumaroles started as in situ sampling with chemical lab analyses, later a gas telemetry system was developed and finally, from year 2007 and onwards, we are using optical remote sensing instruments for volcanic gas monitoring developed in the European projects DORSIVA and NOVAC.

NOVAC (Network for Observation of Volcanic and Atmospheric Change) today encompasses 64 scanDOAS (plus mobileDOAS) systems at 24 active volcanoes in four continents. SO₂ data from NOVAC technology at active Colombian volcanoes, will be presented together with all cases of explosive eruptions from 2007 until 2012.

Special attention will be given on periods of volcanic eruptions, when magma body is transported from the deep to the surface and a clear increase of sulphur dioxide is detected at NOVAC stations located at 4 - 8 km distance from the volcanic fumaroles.