



SO₂ forecasts and data assimilation experiments with the MACC system

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MACC (Monitoring Atmospheric Composition and Climate) is the current pre-operational atmospheric service of the European GMES programme. The service combines a state-of-the art transport and chemistry model with satellite data from various sensors to provide consistent analyses of 3-dimensional fields of atmospheric trace gases, including SO₂.

The MACC system can be used to make plume forecasts of SO₂ for case studies of volcanic eruptions. Assumptions have to be made about the amount of gas and ash, particle size and weight, and the height of the injection of these constituents into the atmosphere. In addition to the plume forecasts, data assimilation experiments can be run with the MACC system in which satellite retrievals of SO₂, e.g. from the OMI instrument on AURA, are assimilated.

Here, we present results of SO₂ forecast and assimilation runs with the MACC system for some recent volcanic eruptions, including the eruption of Eyjafjallajökull in 2010.