New strategies for chemistry-transport modelling of volcanic plumes: application to the case of Mount Etna eruption on March 18, 2012

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ITS2.14 / GMPV 10.3: Volcanic Plumes: Insights into Volcanic Processes, Impacts on the Environment and Health Hazards

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An observation: 3D models seems to poorly reproduce plumes' vertical spreading



Test on a practical case : March 2012 Etna volcanic eruption



Instruments and model :



IASI Instrument SO₂ Columns









(cc)



Results





Impact of injection height







- \succ SO₂ max column vertical profile time evolution
- Higher vertical resolution allows better representation of plume's features

DL scheme strongly mitigate SO₂ dispersion



In discussion in GMD https://doi.org/10.5194/gmd-2020-62



Evaluate the impact on plume trajectory







A combinaton of the new developpements and an acceptable increase of vertical resolution provide an optimal modelling solution for long range transports.

