

TITLE: Synergy for volcano eruption detection and characterization

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MAIN OUTPUTS:

- 1) Identification of 3 events of volcanic plumes from Tajogaite volcano (Cumbre Vieja rift in La Palma Island) over the Iberian Peninsula using satellite remote sensing (Fig. 1)
- 2) Retrieval of volcanic aerosol volume concentration and backscatter and extinction coefficient profiles (Fig. 2) for the 3 events using the GRASP (Generalized Retrieval of Aerosol and Surface Properties) algorithm applied to different combinations of lidar/ceilometer + sun-photometer measurements taken at several sites distributed across the Iberian Peninsula. The layer aerosol optical depth (Fig. not show) was calculated using the GRASP extinction coefficient profiles.

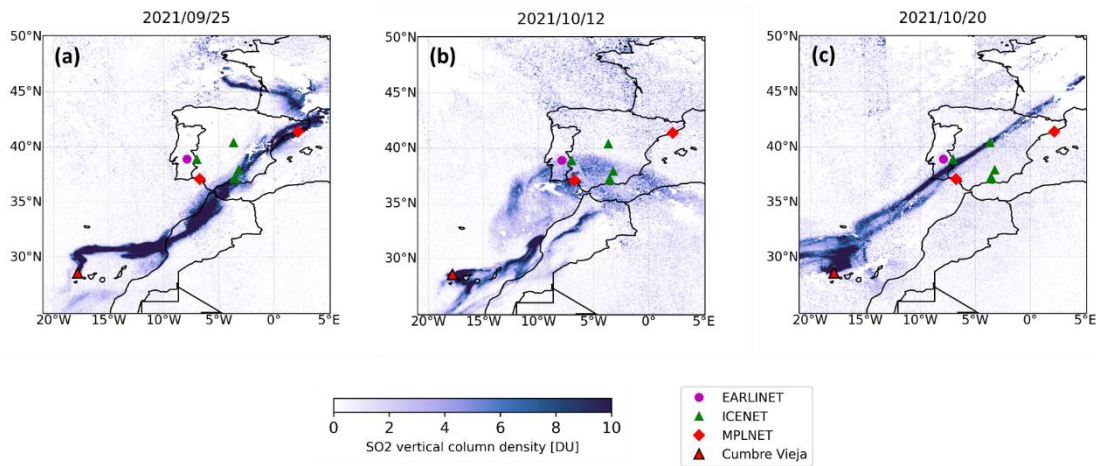


Figure 1. TROPOMI SO₂ tropospheric column concentration observed: (a) 25 September, (b) 12 October and (c) 20 October. The symbols for EARLINET, ICENET and MPLNET represent the sites with lidar/ceilometer that integrate the different networks.

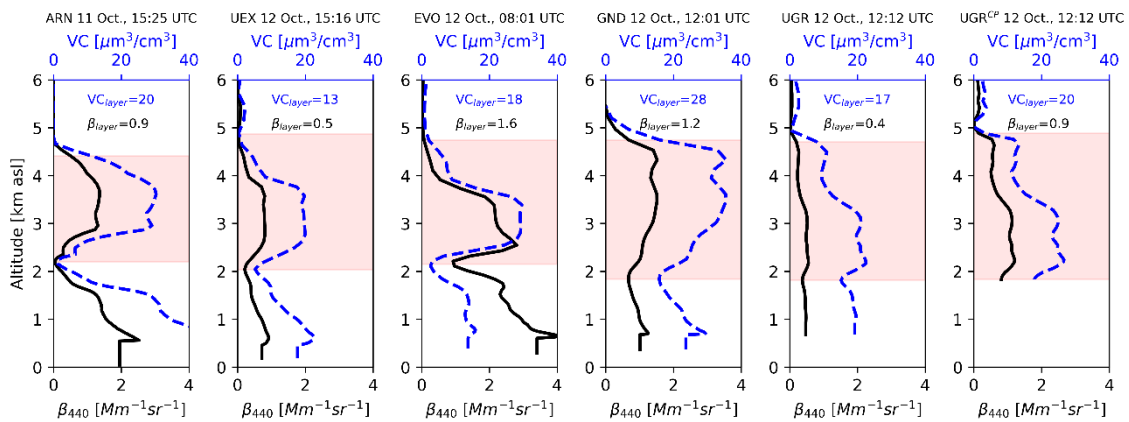


Figure 2. Examples of backscatter coefficient and total volume concentration profiles obtained from GRASP retrievals in the sites where the retrievals are available during the event II. The layers are highlighted by the shadow areas and the VC_{layer} and β_{layer} correspond to the layer mean values.