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The Lampedusa supersite of ChArMex: observing aerosol-radiation interactions and gas phase chemistry in the Mediterranean

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Within the frame of the ADRIMED (Aerosol Direct Radiative Impact in the regional climate in the MEDiterranean region) project of the Chemistry-Aerosol Mediterranean experiment (ChArMex), the ENEA Laboratory for Climate Study "Roberto Sarao" (WMO/GAW/NDACC) on the Island of Lampedusa (35°31'N, 12°37°E) has been augmented to one of the supersites of the first phase of the Special Observing Period 1 by the measurements of the in situ properties of aerosols and trace gases by the of the PortablE Gas and Aerosol Sampling Units (PEGASUS) mobile station. The ground-based measurements have been completed by several coordinated overpasses of the ATR-42 and the F20 of SAFIRE.
In this paper we present the first highlights of operations, which took place between June 6 and July 8 2013.
Insights on the data provide with an unprecedented characterisation of the physico-chemical and properties aerosols and gas phase chemistry on air masses of various origins (pollution, marine, mineral dust, ...).
The effect of aerosols on radiation fields is ascertained by coupling ground-based and aircraft measurements during dedicated overpasses providing with measurements of upwelling and downwelling shortwave and longwave radiation fluxes together with the properties of the aerosol load resolved on the column. Coordination with CALIPSO overpasses will also be explored.