



Inventory of aerosol episodes in Ny-Ålesund (Svalbard) in the period 2017-2020 by sun photometry

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Atmospheric aerosols are an important forcing agent in the estimation of radiative budget, being the Arctic an area of special weakness. The Group of Atmospheric Optics, University of Valladolid and the Alfred Wegener Institute for Polar and Marine Research, installed in 2017 a CE-318T Sun-sky-Moon photometer (Cimel Electronique S.A.S) in the Arctic station Ny-Ålesund (79°N, 12°E). This study presents an inventory of all high-turbidity aerosol episodes recorded in the period 2017-2020 (data of level 1.5-validated from AERONET). This inventory is based on the separate analysis of coarse and fine mode aerosol optical depth. Aerosol episodes are attributed to coarse, fine or mixture of aerosols. Complementary information provided by HYSPLIT air mass back trajectories, MODIS images, forecast aerosol models, CALIOP/CALIPSO satellite data, and other collocated instruments on the station are also used. Special focus is given to long-range transport of aerosols from big forest fires in Canada, United States and Russia.