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Aerosol from mid-latitudes influencing arctic atmosphere – a case study.

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MACRON (Maritime Aerosol, Clouds and Radiation Observation in Norway) project took place during summer 2007 in ALOMAR observatory on Andoya island (69N, 16E). This measurement campaign involved passive and active remote sensing of atmosphere in order to investigate the properties of aerosols observed in arctic region and the interaction between atmosphere and sea surface.

We present a case study of influx of a highly polluted (possibly containing mineral dust from Northern Africa) airmass from the south (August 7 – 8, 2007). Such events have an important impact on radiative properties of arctic atmosphere. The sun-photometer measurements show an increase of aerosol optical depth by a factor of approximately five in comparison to the period before the outbreak. Continuous ceilometer profiles show a distinct aerosol layer, descending and then mixing with boundary layer. Also satellite lidar (CALIPSO) measurements performed over northern Norway and Atlantic region on the 7 th August indicate a presence of such layer.