

Category

AC Atmosphere, Climate

Session Number

AC-1

Session Title

Polar and high altitude atmosphere: clouds, aerosols, climate and interactions

Session Description

Clouds and aerosols are critical and strongly interconnected components of the climate system in polar and high altitude regions. As these regions undergo rapid change, with warming temperatures, melting sea ice, surface albedo reduction, and shifts in large scale atmospheric dynamics, the formation and properties of clouds will change, further altering the energy balance and resulting in poorly quantified feedbacks on the climate system. Changes in aerosol formation and transport are likely to strongly influence cloud properties as aerosols constitute a unique intermediary, linking processes occurring at the earth's surface, as well as in the biosphere, the atmosphere, cryosphere and the hydrosphere.

In this session we invite contributions exploring processes related to clouds and aerosols, their variability, their links and their interactions with other aspects of the polar and high altitude environments. Topics may include, but are not limited to: air-sea-land exchanges of aerosols, biogeochemical processes related to aerosol formation, the influence of anthropogenic emissions on aerosol formation, as well as interactions between clouds, cloud phase, dynamic and thermodynamic processes at large and small scales, radiation, boundary layer turbulence, temperature, and humidity characteristics.

We welcome contributions that employ numerical models and satellite, ground-based, and field campaign observations.

Keywords: clouds, microphysics, precipitations, climate, radiative effect, aerosol interaction, Arctic, Antarctic

Lead Convener: Takashi Yamanouchi

Email: yamanou@nipr.ac.jp

Affiliation lead-convener: National Institute of Polar Research

Co-convener 1: Patrick Taylor

Email: patrick.c.taylor@nasa.gov

Affiliation: NASA Langley Research Center

Co-convener 2: Christopher R. Hoyle

Email: christopher.hoyle@psi.ch

Affiliation: Paul Scherrer Institute

Co-convener 3: Manuel Dall'Osto

Email: dallosto@icm.csic.es

Affiliation: ICM-CSIC Barcelona

Co-convener 4: Eija Asmi

Email: Eija.Asmi@fmi.fi

Affiliation: Finland Meteorological Institute

Co-convener 5: Linette N. Boisvert

Email: linette.n.boisvert@nasa.gov

Affiliation: University of Maryland