

**Abstract for Session 13 –  
Atmospheric Structure, Composition, Aerosols, and Clouds:**

**MOSAIC-Accompanying Atmospheric Airborne Measurements with *Polar-5* in  
August/September 2020**

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The airborne campaigns ACA (Atmospheric Airborne observations in the Central Arctic) with the AWI research aircraft Polar 5 aimed to complement the measurements obtained during the MOSAiC drift across the Arctic Ocean with the German research vessel Polarstern. The campaign was conducted out of Longyearbyen, Spitsbergen in August/September 2020. The major aim of the airborne operation during MOSAiC was to support the year-round surface-based measurements of atmospheric processes in the vicinity of Polarstern by aircraft measurements covering a wide geographic area ranging from the open ocean to sea ice covered regions. The assisting aircraft campaign, thus provided additional airborne observations to the MOSAiC expedition with a total of 68 flight hours during 10 research flights.

The following research questions were investigated: Spatial and seasonal variability of ABL processes, surface property maps, macro- and microphysical properties of clouds and precipitation, and air mass intrusion into the Arctic.

ACA is embedded in the Transregional Collaborative Research Centre TR 172 project “Arctic Amplification: Climate Relevant Atmospheric and Surface Processes, and Feedback Mechanisms” (AC)<sup>3</sup>, which is a joint project of different German universities and research institutes.