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## Overview of the MOSAiC expedition – Snow and Sea Ice

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Year-round observations of the properties and processes that govern the ice pack and its interaction with the atmosphere and the ocean were the key element of the MOSAiC field experiment. The aim was to completely characterize the properties of the snow and ice cover across different spatial scales over an entire annual cycle. This was done by monitoring snow and ice mass balance, observing the evolving energy budget, studying dynamical features, and by documenting snow and ice dynamics over nested spatial scales. We conducted in-situ observations at multiple scales, which will be integrated in numerical models and remote sensing methods. Overall, we performed the most comprehensive snow and sea ice program to date. Here, we summarize the observational snow and sea ice program during the drift from October 2019 to September 2020. We will present improved concepts and diagnostics of the field program and show relationships to satellite retrievals and numerical models. We will highlight individual events and characteristics of the snow and ice pack during the different seasons based on time-series that were obtained from numerous sea-ice programs of the MOSAiC ICE team. We will discuss the various activities with respect to the coupled system and the life cycle of sea ice along the transpolar drift.

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