

Cloud Properties across the Arctic: An Existing Arctic Observing Network

Matthew Shupe, Von Walden

Clouds and cloud-related processes play key roles in global and polar climates through their interactions with atmospheric radiation and the hydrological cycle. In the recent past, a number of atmospheric observatories with capabilities to measure clouds have been established in the Arctic. All of these observatories provide information on cloud occurrence fraction, while a subset of the stations have sufficient instrumentation to observe the vertical profile of cloud occurrence as well as a more detailed characterization of cloud phase and microphysical properties. This collection of observatories represents an existing Arctic Observing Network for cloud properties. Observations from this network are used to conduct a comparative analysis of cloud fraction, vertical distribution, phase occurrence, boundaries, and microphysical properties that indicates variability on spatial, seasonal, and diurnal scales.