

12.1 AN OVERVIEW OF MILLIMETER WAVE CLOUD RADAR OBSERVATIONS AT THE DOE-ARM OLIKTOK POINT SITE

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The US Department of Energy (DOE) Atmospheric Radiation Measurement (ARM) program operates a mobile field site on the north slope of Alaska, above the Arctic circle at Oliktok Point to study high latitude clouds and radiative processes. Among the many instruments at the site, ARM operates two multi-frequency millimeter wave cloud radars; a scanning K_a /W band fully polarimetric radar, and a vertical pointing polarimetric K_a -band radar. These radars have high sensitivity and small beam width, providing for high-resolution observations of cloud processes. The combination of high sensitivity and unique location has provided a new look at the internal structure of arctic clouds. There are more than two years of collocated data by the two radars, as well as a longer dataset with just the vertically pointing radar, so patterns and statistics of cloud structures are beginning to emerge. This presentation will show some of the more interesting and surprising examples of arctic cloud structure and dynamics. Ongoing future activities to collect and analyse these data will be discussed.