P1.35 CLOUD PROPERTIES DERIVED FROM AVHRR DURING FIRE ACE

Patrick W. Heck*, Patrick Minnis[2], David. F. Young[2], Robert A. Arduini[3], Louis Nguyen[1]
William L. Smith, Jr. [1], J. Kirk Ayers[1], David R. Doelling[1], and Douglas A. Spangenberg[1]

[1]Analytical Services and Materials, Inc., Hampton, VA
[2] Atmospheric Sciences Division, NASA Langley Research Center, Hampton, VA
[3]Science Applications International Corporation, Hampton, Virginia

Over polar regions, cloud properties are often difficult to determine from satellite data because of the bright, cold surfaces, inversion-laden atmosphere, and polar cloud morphology. This paper uses 1-km multispectral Advanced Very High Resolution Radiometer (AVHRR) data taken during the First ISCCP Regional Experiment (FIRE) Arctic Clouds Experiment (ACE) to determine cloud fraction and height as well as cloud optical depth, phase, and effective particle size. The data were taken from three satellites during the period encompassing May through July 1998. The results are compared to surface instruments deployed at Point Barrow Alaska and on the SHEBA ice breaker in the Arctic Ocean. In situ measurements by FIRE ACE aircraft are used to validate the microphysical properties. These analyses represent an important step in the effort to monitor clouds in the Arctic.

*Corresponding author address: Patrick W. Heck, NASA Langley Research Center, MS 936, Hampton, VA 23681-2199. email: p.w.heck@larc.nasa.gov.