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CACGP ABSTRACT:

Shipboard Sunphotometer Measurements of Aerosol Optical Depth Spectra during ACE-2

The NASA Ames six-channel airborne tracking sunphotometer (AATS-6) was operated aboard the Research Vessel Vodyanitskiy during the North Atlantic Regional Aerosol Characterization Experiment (ACE-2) in summer 1997. Although shipboard operation presented new challenges to the instrument's automatic tracking and data acquisition capabilities, careful analysis of the measurements has resulted in the calculation of useful aerosol optical depth data for at least ten days during the period 22 June - 23 July. Aerosol optical depth spectra derived from AATS-6 measurements acquired during a variety of lower tropospheric aerosol loading conditions will be discussed. Comparisons with coincident optical depth spectra derived from airborne and/or satellite radiometer measurements will be shown. Special emphasis will be given to data acquired on 10 July, when coincident measurements were obtained with the NASA Ames fourteen channel airborne tracking sunphotometer (AATS-14) on the Pelican (modified Cessna) aircraft of the Center for Interdisciplinary Remotely Piloted Aircraft Studies (CIRPAS) and with the spaceborne Advanced Very High Resolution Radiometer (AVHRR). For selected cases, sunphotometer aerosol optical depth spectra calculated for the marine boundary layer will be compared with corresponding values calculated from coincident in-situ aerosol size distribution measurements taken with a suite of shipboard NOAA particle sampling instruments.