

N87-10333

INTERCOMPARISONS OF HIGH-RESOLUTION SOLAR BLIND
RAMAN LIDAR ATMOSPHERIC PROFILES OF WATER
VAPOR WITH RADIOSONDES AND KYTOON

K. PETRI & A. SALIK
NAVAL AIR DEVELOPMENT CENTER
WARMINSTER, PA.

J. COONEY
DREXEL UNIVERSITY
PHILADELPHIA, PA.

A report is given of measurements of atmospheric profiles of water vapor in the boundary layer by use of solar blind Raman lidar. These measurement episodes, occurring twice a day over a two-week period, were accompanied by a dense net of supporting measurements. The support included two radiosonde launches per measurement episode as well as a kytoon support measurement of water vapor using a wet bulb-dry bulb instrument. The kytoon strategy included ten minute stops at strategic altitudes. Additional kytoon measurements included ozone profiles and nephelometric extinction profiles in the visible. Typically, six or seven 1000 shot lidar profile averages were collected during a measurement episode.

Overall performance comparisons are provided and intercomparisons between auxiliary measurement devices are presented. Data on the accuracy of the lidar water vapor profiles are presented.