1 .IDAR MEASUREMENTS 01' STRATOSPIIERIC OZONE AND TEMPERATURE AT TABLE MOUNTAIN, CA, AND MAUNA LOA, 111, AND COMPARISON WITH UARS RESULTS.

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Two high power lidar systems are located at Table Mountain in southern California (34.4° N, 117.7° W, elevation 2300 m) and Mauna Loa, Hawaii (1 9.5° N, 15S0 W, clm'alien 3400 m). These similar systems usc the differential absorption lidar (DIAL) technique to measure ozone profiles from ~15 km to >50 km altitude and usc Rayleigh scattering to measure temperature profiles from -30 km to >70 km altitude. After the eruption of Mt. Pinatubo in June 1991, the TMF lidar was not able to make accurate measurements of the ozone concentration in the layers of high aerosol loading. The newer system at MLO can measure ozone in regions of' high aerosol by using a Raman augmentation to the DIAL technique. The method of measuring temperature is also valid only in regions where the aerosol concentration is negligible. The TMF lidar has been in routine operation since. February 1988 and thus has been operating throughout the UARS mission. The new system at MLO was installed in July 1993.

The results from the lidars have been compared with those from several of the UARS instruments. This paper concentrates on the intercomparisons with the Microwave Limb Sounder (Ml S). Both Table Mountain and Mauna Loa are within the latitude boundaries for UARS measurements when the spacecraft is looking either north or south. There is therefore a continuous record for intercomparison and several hundred profiles of both ozone and temperature (from TMF) have been compared. While there have been some problems caused by the differing primary units of measurement, I. C., lidar measures number density versus absolute altitude and MLS measures mixing ratio versus pressure altitude, the ozone profiles generally agree at about the 10% level. The temperature profiles also agree well and the Ml .S and lidar results appear to show slightly greater seasonal variations than are indicated by the NMC data.

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