

Abstract Submitted
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Reconfiguration of the Receiver System for Sodium Doppler Wind/Temperature Lidar VARDAN SEMERJYAN, Student, Utah State University, TAO YUAN, Research Assistant Professor, Utah State University — The newly established USU Na Lidar has the capability to measure neutral temperature and horizontal winds in the mesopause region (80-110 km in altitude) under clear sky condition in full diurnal cycle. Current system setup allows the observations of zonal (east-west) and meridional (north-south) winds, but lacks the coverage of the wind speed in zenith direction, which is essential to estimate the vertical wind perturbations. Since such perturbations are most likely associated with the atmospheric gravity waves (bouncy waves) breaking events and the related energy, momentum transfer, this upgrade of the Na Lidar system will provide further detailed information to the ongoing studies of such gravity wave dynamics and the induced atmospheric instabilities in the MLT (mesosphere and lower thermosphere) region. The proposed addition of the fourth channel and the associated new design of the Lidar receiving system will not only enable the data acquisition of the zenith channel but, the same time, will produce a more compact and robust structure than the current design. The new design will accommodate four high quantum efficiency(40%) Hamamatsu PMTs in the Lidar receiver, therefore, increase the system signal/noise(S/N) ratio by a factor of two.

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