

Comparison of meteor radar and Na Doppler lidar measurements of winds in the mesosphere above Maui, HI

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Simultaneous meteor radar and Na Doppler lidar measurements of horizontal winds were obtained in the mesosphere (80-100 km) over Maui, HI during July 7-17, 2002. These observations were carried out under the Maui Mesosphere and Lower Thermosphere (Maui/MALT) initiative. Comparisons of hourly-averaged winds with height resolution of 3 km show that the meteor radar and Na lidar horizontal wind components exhibit height-dependent rms differences ranging from approximately 8-10 m/s at altitudes near 90 km, where the data quality from both instruments is the highest, to 20 m/s at the upper and lower edges of the 80-100 km altitude range. Overall, meteor radar and lidar winds data are highly correlated, with correlation coefficient of approximately 0.9. The statistical distribution of wind shears measured by the lidar and radar will also be discussed and compared.