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Wind and Gravity Wave Observations with ERWIN-II

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The ERWIN-II (improved E-Region Wind Interferometer) is a Michelson interferometer, located at the Polar Environment Atmospheric Research Laboratory (PEARL) in Eureka, Nu. It measures the airglow irradiance and winds via Doppler shifts in the airglow emissions –green line (557.7 nm) at a height of $^{\circ}97$ km, O2 (560 nm) at $^{\circ}94$ km, and OH (543 nm) at $^{\circ}87$ km. These measurements are made at a very high cadence ($^{\circ}3$ minutes) and precision ($^{\circ}1$ m/s for green line and OH, and $^{\circ}4$ m/s for O \neg); this allows for measurements of both the larger scale phenomena (e.g. tides) and smaller scale phenomena (e.g. gravity waves). Observations of both the tides and gravity waves will be presented. In addition, a study of the correlations between the irradiance and vertical wind, showing a correlation between the irradiance and the height of the airglow layer, will be presented.

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