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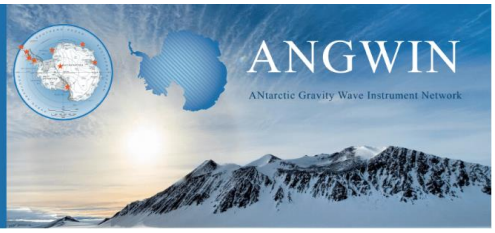

NONLINEAR INTERACTION BETWEEN AN ULTRAFAST KELVIN WAVE AND THE DIURNAL TIDE AND THEIR EFFECTS ON THE MLT AIRGLOW

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ABSTRACT

From ground-based airglow and neutral wind measurements we investigated the presence of an ultrafast Kelvin wave (UFKW) and its interaction with the diurnal tide in the MLT. We identified sings of a nonlinear interaction between the ultrafast Kelvin UFKW and the diurnal tide. The amplitude of the diurnal tide was found to be modulated by the 3.5-day UFKW. A 1.33-day secondary wave was observed and found to propagate upward with a vertical wavelength of approximately 44 km, which may allow it to penetrate into the ionosphere. Additionally, the nonlinear interaction, by changing the tidal amplitudes, may have modified the observed airglow variability in the scale of days.

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