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PLANETARY MODULATION OF TIDAL ACTIVITY IN THE MESOSPHERE/LOWER THERMOSPHERE REGION AT SANAE

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The variation of tidal amplitudes in the mesosphere/lower thermosphere region were investigated using data from the SANAE HF radar which forms part of the Super Dual Auroral Radar Network (SuperDARN). Tidal activity is observed to have fluctuations with time scales of ~5-10 days. The results of bispectral analysis suggest that the planetary scale modulation of tides is probably linked to non-linear interactions between the tides and planetary waves. More specifically, non-linear interactions between tides and planetary waves of periods in the range ~0.1-0.2 cpd accounted for more than 50% of the spectral power at corresponding secondary waves. Most of the frequency components involved in non-linear interactions also contributed in time asymmetric wave patterns.