



Gravity wave momentum flux variability in the high latitude northern hemisphere winter mesosphere/lower thermosphere

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A new SKiYMET meteor radar was installed in Trondheim, Norway (63°N, 10°E) and has been operational since August 2012.

The 30 kW transmitter array directs most of the radar power into eight beams at 45° azimuth increments with peak power around 35° off zenith, and a majority of meteor detections at zenith angles between 15° and 50°. High meteor count rates of up to 15000 per day are observed in the mesosphere and lower thermosphere region between 75 and 105 km altitude. The high meteor count rates, combined with the beam geometry, make the system particularly well suited for measuring horizontal winds at very high vertical and temporal resolution. The system is also optimized to derive the vertical flux of horizontal momentum carried by high frequency gravity waves through the mesosphere and lower thermosphere.

The radar has been used to study short term variability in the gravity wave momentum flux. Preliminary results on the gravity wave momentum flux variability in the MLT region for the 2012-2013 high latitude northern hemisphere winter season will be presented, together with a description of the system design.