

A study of medium-scale atmospheric gravity waves in the northern hemisphere using the Saskatoon SuperDARN HF radar and the analytic signal technique

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The analytic signal technique has been applied to the Saskatoon SuperDARN HF radar array to determine propagation property of medium-scale atmospheric gravity waves (MSAGWs) in the northern hemisphere. A case study showed that the propagation direction of MSAGWs changes from southwest to southeast at pre-noon and changes back to southwest at post-noon. It is speculated that this change was related to fore- and after-noon maxima in the distribution of field-aligned currents due to Joule heating.