

Comparison of short-period gravity waves observed by CCD imagers at Shigaraki and Rikubetsu for 1998 - 2000

Mitsumu Ejiri[1], Kazuo Shiokawa[2], Tadahiko Ogawa[3], Kiyoshi Igarashi[4], Takuji Nakamura[5]

[1] STEL, Nagoya Univ, [2] STE Lab., Nagoya Univ., [3] STE Lab., Nagoya Univ, [4] CRL, [5] RASC, Kyoto Univ.

Simultaneous observation of short-period gravity waves has been carried out using three all-sky cooled-CCD imagers at Shigaraki and Rikubetsu. OH and 557.7nm images are obtained since October, 1998.

Previous studies have been reported that similar wave structures are observed simultaneously at separated stations. Possible reason of this broad distribution of gravity waves are 1) the background wind that filters out upward-propagating waves is uniform over the extent and 2) the waves propagate horizontally through the Doppler duct.

In this presentation, we will classify the characteristics of the gravity waves observed at the two stations for 1998-2000. The horizontal wind data obtained by the two MF radars at Wakkanai and Yamagawa will be also used to show background wind profiles.

Simultaneous observation of short-period gravity waves has been carried out using three all-sky cooled-CCD imagers at Shigaraki and Rikubetsu. They have five filters on a wheel, a fish-eye lens which has a field-of view of 180 degrees, and a back-illuminated cooled-CCD camera with 512x512 pixels. OH and OI-557.7nm images are obtained with a time resolution of 2.5-5.0 min at Shigaraki and 5.5 min at Rikubetsu. The two sites are separated in a horizontal distance of about 1200 km. These imagers are operated automatically since October, 1998.

Taylor et al. [GRL, p.1797, 1998] has been reported that similar wave structures are observed simultaneously at separated stations with a horizontal distance of 660 km based on the data obtained during the SEEK campaign. Possible reason of this broad distribution of gravity waves are 1) the source of gravity waves in lower altitudes has large geographical extent and the background wind that filters out upward-propagating waves is uniform over the extent, and 2) the waves propagate horizontally through the Doppler duct.

In this presentation, we will classify the characteristics of the gravity waves observed at Shigaraki and Rikubetsu from October 1998 to February 2000. The horizontal wind data obtained by the two MF radars at Wakkanai and Yamagawa will be also used to show background wind profiles.