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## Characteristics of Small-scale Atmospheric Gravity Waves Observed during the WAVE2000 Campaign

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On January 2000, the WAVE 2000 (Waves in Airglow Structures Experiment over Kagoshima in 2000) campaign was carried out in Kagoshima. The purpose of this experiment is to understand the mechanism of small-scale gravity wave structures in airglow image. The group velocity of the gravity wave derived from two images was downward. The dispersion relation indicated the existence of a critical level below the OH airglow emission layer.

On January 2000, the WAVE 2000 (Waves in Airglow Structures Experiment over Kagoshima in 2000) campaign was carried out in Kagoshima. The purpose of this experiment is to understand the mechanism of small-scale gravity wave structures in airglow image and to compare the altitude of the airglow emission layer estimated by ground-based triangulation with the altitude obtained from in-situ measurement by the rocket. The ground observations by all-sky imagers were carried out at three site; Kagoshima Space Center (31.25N, 131.08E), Yamagawa Radio Observatory (31.20N, 130.62E), and Osumi Athletic Field (31.59N, 131.00E). The group velocity of the gravity wave derived from two images was downward, which means the gravity waves propagated downward. The dispersion relation indicated the existence of a critical level below the OH airglow emission layer. The double-peak structure of O density observed by the rocket is inconsistent with the vertical structure calculated by the dispersion relation, which means that the double-peak structure was not produced by small-scale gravity waves.