Local air vapor distribution in the atmosphere caused by mountain wave at the Miyakejima

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We observed the water vapor distribution using the GPS measurements, radiosonde and water vapor radiometer measurements at the Miyakejima Island. Radiosonde and WVR measurements are made at the two observation sites in the southwest and northeast side at the island simultaneously for two days. Low density of water vapor distribution at the windward side and high density distribution on the leeward are observed when mountain wave is caused by the strong east wind. The distribution is also detected from the GPS measurements in the dense GPS network. We conclude that the heteroginic distribution of the water vapor in the atmosphere should be caused by the mountain wave at the Miyakejima Island.