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Thermospheric vertical wind and temperature observed by a Fabry-Perot imager

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Vertical wind and temperature in the mesopause and lower thermosphere were measured with a Fabry-Perot Imager (FPI) at Tachikawa, Tokyo. The FPI observed the OI 557.7 nm and OI 630.0 nm airglow. An all-sky camera (ASC) simultaneously observed OI 557.7 nm airglow. The data were obtained in the night of January 18/19, 2013, and reveal atmospheric gravity waves with periods of ˜1 hour and vertical wind amplitudes of up to ˜7 m/s. These values and the values obtained in the night of December 22/23, 2011 are consistent with past studies [cf. Mitchell and Howells, 1998] and the Cospar International Reference Atmosphere (CIRA-86). The FPI will be used in observations of slight perturbations in vertical wind and temperature due to gravity waves or local energy input in the auroral zone.

Keywords: lower thermosphere, mesopause, atmospheric gravity wave, Fabry-Perot imager