

Measurements of the neutral wind in the auroral zone

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Neutral vertical wind velocity in the E-layer of ionosphere was measured with Fabry-Perot interferometer (FPI) in Lovozero (68.0 N, 35.1 E). FPI was thermostabilized and isolated from outer pressure. It was regularly calibrated with 557.0 nm Kr emission. Observations during one night show the vertical velocity of the neutral gas may have a very big variation. Its magnitude may be more than 100 m/s and it is dependent on the aurora intensity. Moreover, vertical wind velocity is varied from one night to another. During the quiet conditions vertical winds have very small variations as during a night as from one night to another. It allows us to use this value as reference point corresponding to zero wind velocity. However, using this reference point for calculation of horizontal wind velocities, which are measured along line of sight at the angle of 30° above the horizon, we have very divergent airflow. It means that vertical airflow gives the big impact to the velocity measured along line of sight and as a result it is impossible to measure horizontal wind velocity during disturbed conditions by one Fabry-Perot interferometer.

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