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The Doppler observations of the night sporadic E- layer during the sunrise passage at the magnetic conjugated atmosphere.

Y.Ya. Ruzhin, V.Yu. Kim, V.A. Panchenko, V.P. Polimatidi, I.N. Bershadskaya, I.I. Shagimuratov, and V.V. Shpakovsky

IZMIRAN, Troitsk town, Moscow region, Russian Federation (ruzhin@izmiran.ru)

There are some new evidences of the observed relationship between the night ionosphere disturbances and sunrise at the conjugate point. Here we present the results of the experimental research of the plasma motion and variations of the night-time ionospheric Es layer by the Doppler sounding (along with the total electron content measurements) during the winter solstice at northern ionosphere. Doppler measurements in a mode of vertical sounding simultaneously on the four frequencies were carried out by the IZMIRAN (Moscow, the latitude of 55ºN) ionospheric facility "Bazis-M". To have the total electron content variations (TEC) the data of GPS net were used.

The data analysis has shown that during the night-time (from 03 to 06 LT) the Es signal amplitude increase was about 10 – 15 dB and it was proportional to the growth of the plasma electron density. The Doppler measurements have shown the horizontal drifts (more than 10 m/sec) and upward movements of the sporadic plasma clouds. The TEC measurements have indicated a complex behavior of the night ionosphere during the sunrise passage in the opposite hemisphere.

Being combined these data definitely support the hypothesis (Abramchuk @ Ruzhin, 1987) about partially reflected downward propogating Alfven waves that were generated in the magnetic conjugated ionosphere by the turbulence of the supersonic terminator motion.