

IONOSPHERIC REFLECTION OF THE MAGNETIC ACTIVITY DESCRIBED BY THE NEW INDEX η

BEATA DZIAK-JANKOWSKA 1, Iwona Stanislawska 1, Tomasz Ernst 2

- 1 Space Research Centre of the Polish Academy of Sciences, ul. Bartycka 18A, 00-719 Warsaw, Poland, bdziak@cbk.waw.pl
- 2 Institute of Geophysics, Polish Academy of Sciences, ul. Ksiecia Janusza 64, 01-452 Warsaw, Poland

Differences in the external part of the vertical geomagnetic component point to the existence of local inhomogeneities in the magnetosphere or the ionosphere. The correlations between the new magnetic index η and the ionospheric characteristics - foE (E layer critical frequency) monthly median deviations - are analysed. The analysis was based on one-minute data recorded at each of 20 European Magnetic Observatories working in the INTERMAGNET network and from 18 ionosondes for 2004. The high peaks (2-2.7) of the new magnetic index correlate in time with large (+1.6 MHz and -1.1 MHz) punctual median deviations of foE. Such punctual deviations can suggest local inhomogeneities (vertical drifts) in the ionosphere. The correlation in space is not trivial. The strong peak of η is situated on the map between the positive and negative deviations of foE. Additional observation is connected with correlation in time of the high η value with the negative median deviations of h'F2 (in some cases up to -90 km). The increase of the electromagnetic activity can cause lightnings in troposphere. Ionospheric data are sparse in time and in space in opposite to the magnetic data. The map of the magnetic indices can suggest the behaviour of ionospheric characteristics in the areas where we have no data.

ionosphere, indices

Beata Dziak-Jankowska, Space Research Centre PAS, ul. Bartycka 18A, 00-719 Warsaw, Poland, tel. +48 22 840 37 66 ext. 381,
e-mail: bdziak@cbk.waw.pl