

# **LONG PERIOD MODULATION OF THE IMPEDANCE TENSOR AT NAGYCENK GEOPHYSICAL OBSERVATORY AND ITS STATISTICAL RELATION TO MAGNETOSPHERIC PROCESSES AND SOLAR WIND PARAMETERS**

ISTVÁN LEMPERGER 1, Michel Menvielle 2, Viktor Wetztergom 1, László Szarka 1

1. Geodetic and Geophysical Research Institute of the Hungarian Academy of Sciences,  
Sopron, Hungary, email: [lempi@ggki.hu](mailto:lempi@ggki.hu) , [wv@ggki.hu](mailto:wv@ggki.hu), [szarka@ggki.hu](mailto:szarka@ggki.hu)

2. CETP/IPSL, CNRS UMR Observatoire de Saint-Maur et Université Paris-Sud, Orsay,  
FRANCE, email: [michel.menvielle@cetp.ipsl.fr](mailto:michel.menvielle@cetp.ipsl.fr)

In the Széchenyi Istvan Geophysical Observatory at Nagycenk, a parallel monitoring and registration of geomagnetic and telluric variations has been carried on for more than fifty years. The impedance tensor's variation spectra has been calculated covering four years. Based on the plane wave assumption some stable behavior of the transfer function is expected. On the contrary certain periods have been found in the time variation of certain spectral components. This modulation was recognized both in the amplitude and partly in the phase of the tensor elements. Further analysis covers also some of the tensor invariants. Dominant spectral peaks have been shown at periods of 27 days, 6 months and 1 year related to the Carrington-rotation and the Earth orbiting respectively. The relation of impedance function variation in time domain to solar wind and magnetospheric parameters has also been analyzed. Digitization of the whole analogue telluric and magnetic records has been started so as to extend our examination on longer time interval (on solar cycle scale). The investigation of the deviation of estimated apparent resistivity curves resulting from the above variation of the impedance tensor is also proposed.

source, response

ISTVÁN LEMPERGER, Geodetic and Geophysical Research Institute of the Hungarian  
Academy of Sciences, Sopron, Hungary, email: [lempi@ggki.hu](mailto:lempi@ggki.hu)