THE DIURNAL AND SEASONAL VARIATIONS OF MAGNETIC FIELD ACTIVITY RECORDED AT NAGYCENK GEOMAGNETIC STATION, AND THE SIMILARITY WITH EARTHQUAKE DISTRIBUTION OCCURRED IN 50KM VICINITY OF THE STATION

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The diurnal variations of the Earth's magnetic field are larger in summer than in winter. These variations are believed to be caused by electric currents induced in the Earth from an external source. These electric currents in the ionosphere are driven by solar activity. Two different approaches were analysed in this poster.
1) It has recently been pointed out that the probability of earthquake occurrence in many earthquake regions strongly depends on the time of day, and it has been pointed out that diurnal geomagnetic variations correlate well with diurnal changes in earthquake activity. This correlation has been shown to be global, and a model to explain this possible correlation has also been proposed by Duma and Ruzhin (Natural Hazards and Earth System Science, 2003). This model points out that the current vortices induced by Sq variations in the lithospheric layer flowing across, the horizontal component of the geomagnetic field generate a torque which can be added to the tectonic loading stress and may help trigger instability in a fault approaching the failure threshold. This correlation has been tested in detail with Hungarian seismicity data.
2) In many cases the H component of magnetic field shows differences consistently from the normal variation before 15 days of the strong earthquake event. In some cases strong ultralow-frequency (ULF; ≤10 hertz) magnetic field disturbances were observed in 1-2 hours before the earthquake.
The poster analyses the diurnal and seasonal variations of geomagnetic field recorded at NAGYCENK station between 1995.12 - 2008.12, and shows similarity with the distribution of earthquake activity in 50 km vicinity of station.

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