

GEOMAGNETIC ACTIVITY ON WEEKENDS VS WORKING DAYS STUDIED BY PLANETARY AND LOCAL 3-HOURLY INDICES

A. **Karinen** (1), K. Mursula (1), Th. Ulich (2), J. Manninen (2), and J. Kultima (2)

(1) Department of Physical Sciences, P.O. Box 3000, FIN-90014 University of Oulu, Finland

(2) Sodankylä Geophysical Observatory, Tähteläntie 62, FIN-99600 Sodankylä, Finland

In the 1970s it was found that the geomagnetic field had become more active during weekends than during working days. Before the 1930s, activity was rather equal throughout the week and no particularly active days could be identified. After the 1930s, however, the weekends had become more active. This so-called "weekend effect" was suggested to be due to power line harmonic radiation (PLHR), i.e. due to electromagnetic waves in VLF range emitted by power lines. The consumption of electric power is different on weekends and weekdays leading to different PLHR intensities. This, in turn, could possibly cause the "weekend effect" in global geomagnetic activity.

In the present paper we reanalyze the suggested "weekend effect" in global geomagnetic activity using the 69-year planetary geomagnetic Ap index, the 131-year antipodal aa index, as well as the local geomagnetic data of Sodankylä. In particular we focus on the possible dependency of this phenomenon on local time (its diurnal variation) as well as during and around special days of presumably low (industrial) consumption of power like, e.g., Christmas.