

Development of the Pulsation Index for Space Weather

KENTAROU KITAMURA¹, SHIN-ICHI WATARI¹, MANABU KUNITAKE¹,
TAKESHI SAKANOI², KIYOHUMI YUMOTO³

¹*National Institute of Information and Communications Technology*

²*Planetary Plasma and Atmospheric Research Center, Tohoku University*

³*Space Environment Research Center, Kyushu University*

Geomagnetic ULF pulsations have been studied by many investigators to clarify the generation and the propagation mechanism in terms of the space science. On the other hand, for some kinds of geophysicists and/or geologists who apply the MT method or aeromagnetic-survey need the information of the geomagnetic disturbance, because the resolution of these surveys depends on the background fluctuations of the geomagnetic fields (i.e. the MT method needs same magnetic fluctuations as a input, but large fluctuation of the magnetic field complicate the air-magnetic measurement.). Therefore we think development of the index of the periodic magnetic disturbances such as a geomagnetic pulsation will play an important role in the Space Weather. As a content of the Space weather services, we started a development of the geomagnetic index using the geomagnetic pulsations, especially for the Pc 5 pulsation. In this paper, we show the result of the statistical analysis using magnetic data from the auroral to low latitude stations from 2000 to 2005, in advance of the actual development of the index. As a result, the Pc 5 power in 2003 is much stronger than that in the other years. This result corresponds to the recurrent high-speed solarwind which continuously exist whole year round in 2003. This signature is appeared not only at the low latitude stations but also at the auroal-latitude station. Moreover the local time distribution of the Pc 5 power is much different between the high-latitude and the low-latitude stations. The results indicate that the spatial distribution and long-term temporal variations of magnetic pulsation should be carefully taken into account to develop the Pulsation index.