

Long-term variation of Schumann resonance parameters at Kuju station

*Akihiro Ikeda¹, Teiji Uozumi², Akimasa Yoshikawa³, Akiko Fujimoto², Shuji Abe², Hiromasa Nozawa¹

1. NIT, Kagoshima College, 2. ICSWSE, Kyushu Univ., 3. Department of Earth and Planetary Sciences, Kyushu Univ.

The Schumann resonance (SR) is the global resonance of electromagnetic waves generated by global lightning activity. The resonance is formed by the Earth-ionosphere cavity and the specific resonance frequency appears in ground magnetic field variation. Expectations for the SR have increased recently as an indicator of global and regional lightning activity. In order to use the SR parameters for studying such earth's climate, we need a better understanding of the long-term variations of the SR. In this study, we focused on the long-term variation of the SR at Kuju, Japan (KUJ; M.Lat. = 23.4 degree, M. Lon. = 201.0 degree).

The ground magnetic field variation in the extremely low frequency (ELF) range has been measured by an induction magnetometer at KUJ since 2003. The observation is a part of activities by International Center for Space Weather Science and Education Kyushu University.

The fundamental mode of the Schumann resonance (SR1) around 8 Hz can be seen at KUJ. The peak frequency of SR1 correlates with F10.7. Also the correlation between SR1 amplitude and F10.7 reveals. The SR parameters seem to be affected by the ionospheric conditions which change depending on solar activity.

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