

30日周期雷活動変動の地域依存性

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Regional dependences of 30-day variation of lightning activities

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In order to study the periodicity of global lightning activity and the regional dependences of the periodic lightning activity changes, we have analyzed ELF magnetic field waveform data obtained at Syowa station in Antarctica, Onagawa observatory in Japan and ESRANGE in Sweden for the period between February 2000 and December 2004. We have estimated day-to-day variation of the magnitude of the global lightning activity derived from Schumann resonance (SR) spectral power and have estimated the periodicity of the SR spectral intensity variations. The periodogram showed steep spectral peak at ~28-day in the solar maximum, which is comparable to the solar rotation period. On the other hand, in the solar minimum the power spectra showed steep spectral peaks at ~35-day and ~15-day. Using the transient SR waveform data and newly developed geolocation method, we have also estimated the occurrence locations of intense lightning discharges. We will discuss the relationship between the periodic changes of regional lightning occurrence numbers and periodic changes of the regional lightning activity magnitude.