Global lightning distribution by means of ELF transients observed at Moshiri, Japan

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Electromagnetic radiation from lightning discharge is ELF sferics. The attenuation of these ELFsferics is so small that they can encircle the globe a few times and we have the so-called 'Schumann resonances', When we have huge lightning in the equatorial region, they can be detected as 'ELF transients' whose intensity is about to times the Schumann resonance. By analysing the ELF transients data over a long period, we deduce the global distribution of lightning discharges and also the electric characteristics of major lightning chimneys.

The important aspects of these ELF sferics are (1)the use of lightning as a monitoring of global warming and (2)the relation with ionospheric optical emission(sprite etc.). We study the long-term data (one-year-data) of ELF waves observed at Moshiri, Hokkaido, Japan, and we deduce the electrical characteristics of these major source (polarity, charge moment, etc).