

Global lightning distributions estimated from 1-100 Hz magnetic field waveform data obtained by the ELF network stations

Mitsuteru Sato[1]; Yukihiro Takahashi[2]; Katsura Yamamoto[3]; Hiroshi Fukunishi[2]

[1] RIKEN; [2] Dept. of Geophysics, Tohoku Univ.; [3] Dept. of Geophysics, Tohoku Univ.

We have analyzed ELF magnetic field waveform data obtained at Syowa station (69.0° S, 39.6° E) in Antarctica, Onagawa observatory (38.4° N, 141.5° E) in Japan and ESRANGE (67.9° N, 21.1° E) in Sweden to study the relationship between transient Schumann resonances (SRs) and the global occurrence distributions of cloud-to-ground discharges. We have developed a new algorithm to estimate lightning locations using both direction finding method and a method of time of arrival. We will present the seasonal variation of lightning distributions and will discuss the estimation error of lightning locations.