

## Estimation of global lightning activity and occurrence rate of sprites using ELF waveform data obtained from Syowa station

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We have analyzed ELF magnetic field waveform data obtained at Syowa station (69.0S, 39.6E), Antarctica to study the relationship between transient Schumann resonances (SR) and the global occurrence rate of sprites. It was found that transient SR characterized by a sharp impulse with damped oscillations coincided with sprite events detected at Colorado, USA. The average charge moments of the causative lightning discharges was estimated to be 1150 C km. This value is enough to trigger conventional breakdown and to induce sprites in 60-100 km altitude. Using the ELF data obtained at Syowa station and Onagawa observatory (38.4N, 141.5E) between February 2000 and January 2002, transient SR events were selected statistically. It was found that about 1300 transient SR events occurred a day. We will show the global maps of lightning activity and sprite occurrence.