

# Observation of anomalous Schumann resonance phenomena observed in Japan, in possible association with earthquakes in Taiwan

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## Abstract

Schumann resonance is a resonance phenomenon in the Earth-ionosphere cavity, which is triggered by the background lightning activities in the three lightning centers (Africa, Asia and America) (Nickolaenko and Hayakawa, 2002). The fundamental frequency is 8 Hz and its harmonics are 14, 20, 24 Hz or so. The stability of these fundamental and higher harmonics is so stable that it can be used exactly like the VLF/LF transmitter signal.

We have found the anomalous Schumann resonance phenomena observed in Japan, which are thought to be associated with the earthquakes in Taiwan. Hayakawa et al. (2005) have found the 1st event for the Chi-Chi earthquake in Taiwan (M = 7.6) on September 21, 1999. The anomaly in Schumann resonance in Japan, was characterized by (1) an enhancement in the fourth harmonic and (2) the frequency of this 4th harmonic is significantly shifted from the conventional value by about ~1.0 Hz. This anomaly is interpreted between the direct signal from South America and the wave scattered from the ionosphere over Taiwan associated with this earthquake. Then, this experimental result has been further confirmed by a much larger data set during 6 years observation in Nakatsugawa, Japan. As the result, land earthquakes in Taiwan are found to trigger the anomalous Schumann resonance in Japan (Ohta et al., 2006), and further improvement in model computations has been done (Nickolaenko et al., 2006).

## References

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