ELMOS : Electric and Magnetic Field Observation Satellite for seismo-electormagnetic study

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http://www.jaxa.jp/spacebiz/topics/2005/img/topics_20050325_01.pdf

The first concept of ELMOS (Electric and magnetic field observation satellite for seismo-electormagnetic study) was born as a small satellite mission for J-1 solid rocket in 1994. After that, several satellite projects have been realized such as Kompass, Quakesat, DEMETER, and Sich-1M.

The satellite system is basically similar to that of the DEMETER. ELMOS, however, is specific to seismo-electromagnetic observation, because the orbit is optimized to encounter a number of large earthquakes. For instance, in sun-synchronous orbit a few days (or even one day) of the recurrent period is selected. Alternatively, in non sun-synchronous orbit with 50 degree inclination one day is selected as well. Either orbit substantially traces the active seismic zones such as Kamchatka-Japan-Taiwan line.

From 2003, we have been analyzing the relationship between earthquakes and electron temperature anomalies observed by Hinotori (Astro-A) satellite. As a preliminary result, the ionospheric electron temperature was found to decrease a few days before some of large earthquakes. It is hopeful but the number of seismic events is not enough for statistical analysis. Thus, ELMOS requires focusing on pre-seismic events.