Micro-Satellite Constellation for Earthquake Precursor Study

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Short-term Earthquake Prediction

- Prediction
  - Where?
  - When?
  - How large?

- Precursor is needed !

Reported Precursors

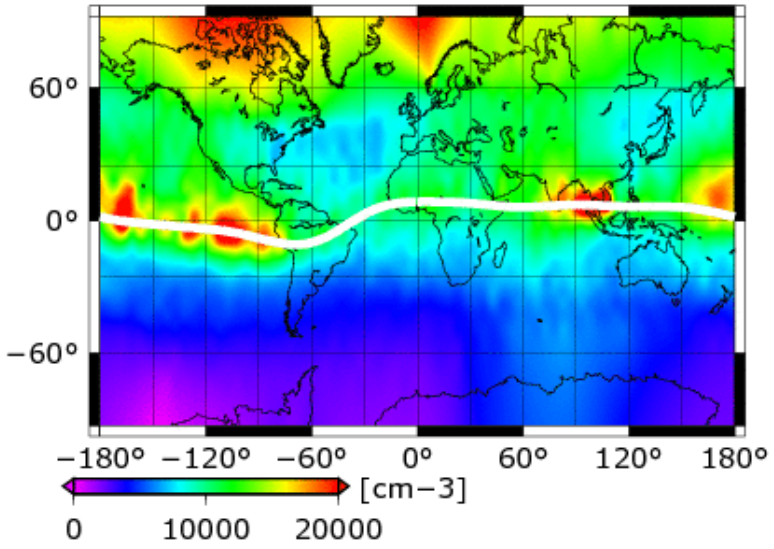
Uyeda, Nagao &Kamogawa (2011)

- Animal behavior?
- Radon emission?
- Ground water?
- Geo-electric current?
- Ionospheric disturbance?

Some of them may be scientifically real,
but it is difficult to statistically prove it.

How to identify a precursor?

We should know standard ionosphere .
So, we construct standard ionospheric model.



Example of electron density map
during geomagnetically quite period

Model depends on..

Local time
Latitude
Longitude
Altitude
Solar flux
Geomagnetic activity
etc....

Precise model requires one solar cycle (11 years) observation.

Mission Objectives

- Investigate two plausible ionospheric precursors
- Observe 100 M≥7 earthquakes
- Sustain 11-year observation

- Satellite successive operation and constellation

Concluding remarks

- Verify the reported precursor and find a real and practical precursor.
- Detailed mission requirements.
- Forwarding prediction.
- Data share (open source)