

A18a **Science and Operational activities of NICT Space Weather**

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We have a long history of space weather activities; Solar radio has continuously observed at Hiraiso observatory since 1952, and Ionosphere observation also since 1957, International Geophysical Year (IGY). In addition, we start space weather forecast as routine work on 1988.

Nowadays, space weather information increase its importance for communication, broadcast and positioning satellite operation, and HF communication. It is necessary for us to provide precise and useful information for them as soon as possible.

The significant differences between the space and usual weather forecast is (1) observing points for space weather is sparse comparing with usual weather observing points; and (2) many of space weather mechanism is still unknown. Developing simulation code is necessary for compensate the former issue, and developing empirical models is for the later.

Our present targets are follows; (1) forecast of high energy particle distribution along the gestational orbit, and (2) forecast of ionospheric perturbation for precise satellite positioning. We have developed observation technique, empirical model and numerical simulation code to achieve these goals. In addition we have been discussing the forecast of sun and solar wind which is important for longer lead time.

I will present some scientific results in addition to our business activities.