

電離圏研究の為の小型衛星コンステレーション計画—衛星システムへの要求と観測器

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Tiny satellite constellation for ionosphere study -Requirements to the system and the instrumentation-

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Constellation of tiny satellite is expected to be applied to many scientific field. We propose to launch at least 6 tiny satellites and one small satellite for ionosphere study, especially to study the precursor feature of large earthquakes by working together with earthquake suffering countries (Oyama et al., 2008; Oyama et al., 2010). Although our main target is to find the concrete evidences for the ionosphere modification by large earthquake, expecting further application to the prediction of large earthquakes, the satellite mission itself is purely ionosphere study. The data obtained from constellation mission, which makes it possible to distinguish time and space variation of the parameter to be measured, can be used in many ionosphere studies which could not be studied by single satellite, such as simultaneous look at of 4 cell structures, the effect of sudden stratosphere warming and, seeding of plasma bubble and so on.

A small satellite accommodates 1. electron density, electron temperature by TeNeP (Oyama et al., 2015), 2. Major ion composition by Retarding potential analyzer, 3 components plasma drift by a drift meter, neutral wind by a baffled mass spectrometer, height profile of electron density by a topside sounder, and an optical instrument to measure velocity and direction of neutral wind at the height of -100km. All tiny satellite accommodate electron density and temperature probe.

Several disciplines for the mission are discussed also to get the maximum output from the mission (Oyama et al., 2009).

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