

Observations of Ionosphere with Mini/Microsatellites – Problems and Solutions-

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Abstract :

DC Langmuir probe is one of the key in-situ instruments to study ionosphere. It needs a counter electrode whose conductive surface area is at least 1000 times larger than that of surface area of the electrode. This requirement is usually fulfilled for large satellites which have been launched so far for ionosphere study. Now we are jumping into an era to use tiny satellites. Then we will encounter serious problems if we try to use DC Langmuir probe. One of the problems is related to a small ratio of conductive surfaces of counter electrode to that of the electrode. The second serious problem is associated with contamination of electrode as well as satellite surface. These two factors make it impossible to use DC Langmuir probe as an instrument of tiny satellite. We review problems which appear for the ionosphere measurement by using tiny satellites, and propose ways avoid the problems to accomplish accurate measurements.