

## The SCOPE mission

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SCOPE is a mission concept in PrePhaseA at ISAS, JAXA and will perform simultaneous multi-scale measurements of plasma dynamics in the Earth's magnetosphere. The emphasis of the mission objectives is not only in the deeper understanding of the magnetospheric dynamics but rather in the Plasma Universe concept. Space plasmas are attractive because of their dynamic behavior. The large-scale explosive phenomena arises because dynamics of various scales, MHD, ion and electron scales, couple in a collective manner. Towards our goal of fundamental understanding of the Plasma Universe, in-situ measurements of plasma dynamics

in the magnetosphere, with coupling among dynamics of various scales being revealed, is crucial. While formation flying formations has been done by Cluster and will be done by MMS, a pyramid of spacecraft covers only one scale at a time. Simultaneous multi-scale measurements require more than one-pyramid. In the original plan of SCOPE, a pair of spacecraft is supposed to cover the electron scale while three more spacecraft are supposed to cover the ion-MHD scale. Now with the international collaboration with Cross-Scale, an ESA project in Assessment Phase as of now, SCOPE can concentrate on electron-scale as Cross-Scale spacecraft cover the boundary condition for and the large-scale consequences of the key electron dynamics embedded in the as-a-whole MHD scale phenomena. In this talk, the shape of space plasma physics that will be brought in by the SCOPE mission will be discussed.