

Imaging observation of the Earth's upper atmosphere by the IMAF satellite

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<http://www-step.kugi.kyoto-u.ac.jp/IMAF/>

The IMAF (Ionosphere, Mesosphere, upper Atmosphere, and Plasmasphere mapping) satellite is planned for the imaging observation of the Earth's upper atmosphere. Five scientific instruments are designed to detect the phenomena in the mesosphere, thermosphere, ionosphere and plasmasphere at mid- and low-latitudes. The imagers using visible light, far ultra-violet, and extreme ultra-violet will observe the optical emission from these regions. A GPS receiver will conduct the remote sensing with radio wave. A thermal electron detector measures the in-situ electron density and temperature. Although the four regions are connected and overlapped each other, they have been mostly studied separately. That is a reason that this upper atmospheric region has four names. In these years, it has been widely accepted that the coupling processes are important to understand the physical process in this region. To study the inter-regional coupling, observation of wide field-of-view and multi-parameters are crucial. The scientific objectives, development of instruments, and engineering application will be discussed in the presentation.