

Geospace and Planetary Environment (RP 4.1.18)

Sun: The quiet Sun – general features, sunspots, ionizing radiations, solar radio emissions
The active Sun – Flares, radio emissions, CME, CIR (2)

The interplanetary medium: Solar wind, observed properties of the solar wind, Interplanetary magnetic field and sector structure, Coronal hole and fast solar streams, Solar wind-planet interaction (3)

Magnetosphere: Formation of the cavity, Geomagnetic field near the earth, Magnetopause, Magnetosheath and shock, Polar cusps, Magnetotail, Charged particle motion in the geomagnetic field, Plasmasphere, Van Allen particles, Magnetospheric current systems: ring currents (10)

Planetary atmosphere: Solar heating and energy transport, Thermal profile, Atmospheric composition, Greenhouse effect, Photoionization, Airglow and Aurora, Magnetic field configuration, particle motions in the magnetosphere (10)

Techniques for observing geospace and planets: Direct sensing of the gaseous medium using Langmuir probe, Mass spectrometers, Radiation Sensors using optical and other electromagnetic receivers, magnetometers, Indirect sensing of the neutral atmosphere for measurement of upper atmospheric winds, SOHO, STEREO, ACE, interplanetary spacecraft, Observing techniques using spectroscopy, satellite missions (5)