

WHAT IS SPACE WEATHER?

Space weather describes the conditions and processes occurring on the sun, magnetosphere, ionosphere and thermosphere that can affect the performance and reliability of space-borne and ground-based technological system as well as endanger human lives. Most of the space weather starts around the sun environment, where changes in the interplanetary magnetic field, coronal mass ejections from the sun and disturbances in the Earth's magnetic field contribute to the development of this weather.

Some of the physical phenomena associated with space weather include **geomagnetic storms, solar radiation storms, ionospheric disturbances, energization of the Van Allen radiation belts, aurora and geomagnetically induced currents at the Earth's surface**. Geomagnetic storms can affect and damage satellites, induced current in power grids and cause blackout. Radiation storms can affect the health of trans-polar aircraft crews and passengers. The X-rays and radio communication interference are example of fast and direct effect from solar radiation storms.

The major concern of possible effect of space weather will be primarily on its impact on telecommunications, navigation of satellites, aviation industries, spacecraft operations, and electricity supply networks. Thus, to address this possible effect the National Oceanic and Atmospheric Administration (NOAA), USA has come out with three categories of descriptive scales for space weather that is the geomagnetic storms, solar radiation storms and radio blackouts.