Abstract

Space Weather effects to Satellite Communications

Written by: Mr. Singthong Khamone (Lao PDR) date: 12 June 2019

The Satellites in space have 3 types of the Earth orbital slots:

1. Low Earth Orbit (LEO) has the distance from the Earth surface 500-1,600 km;
2. Medium Earth Orbit (MEO) has the distance from the Earth surface between 10,000 km - 20,000 km;
3. Geostationary Earth Orbit (GEO) has the distance from the Earth surface about 35,800 km.

The Communications Satellites in general use Geostationary Earth Orbit (GEO). The satellites in this level would facing the damage from various activities of Space Weather such as Solar Activities**,** Electromagnetic Radiation, Solar Wind**,** Solar Flares**,** Cosmic Rays and Thermal Power.

The Communications via Satellites in general affect by Magnetic Field of the Earth, Magnetosphere, Shock Wave, Van Allen Radiation Belt and Electromagnetic Force
In conclusion Satellite Communications would affect by the Earth Atmosphere, Stellar Radiation, Space Debris and Space Particles.

It is very difficult to prevent this phenomenon perfectly. The wall of satellites and space crafts would produce by the material to protect invade from space weather.
Therefore the satellite controller has to consider the possibility occurs of this event, try to avoid and prevent this phenomenon.

Mr. Singthong Khamone,
Deputy Director of Satellite Communication Division
Department of Radio Frequency
Ministry of Post and Telecommunication
Dongphosy Street, Hadxayfong District
Vientiane Capital 01170, Lao PDR.
Telephone: (+856 20) 54494907
e-mail: skhamone@mpt.gov.la
skhamone@gmail.com