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Author: Mr. George Anthony Long
United States

THE LEGAL IMPLICATIONS OF SPACE WEATHER AWARENESS AND THE NEED FOR
INTERNATIONAL DISSEMINATION OF SPACE WEATHER FORECASTS

Abstract

This paper will examine the legal implications of space weather awareness and the feasibility of the international space community developing or recognizing an authority with the responsibility for developing and disseminating space weather forecasts.

Disruption of satellite services due to space weather is part of the everyday reality of the satellite world. The long term human engagement in space activities not only escalates the hazards of space weather and increases the need for awareness of space weather. Space weather encompasses events such as solar wind, coronal holes, coronal mass ejections and solar flares. It can also include geomagnetic storms and plasma clouds. The electrostatic discharge caused by coronal mass ejections, solar storms, and solar flares present external risk to satellites. Similarly, the ionized discharges and disturbances of plasma clouds and geomagnetic storms can adversely affect the operation of satellite systems and subsystems. The need for awareness of space weather is reflected by the United States enactment of 42 U.S.C. §18388.

Articles III and IV(1)(b) of the Convention on International Liability for Damages Caused By Space Objects ("Liability Convention") impose fault based liability for damage one space object causes to another space object situated in outer space. This raises the concept of fault liability being assigned to a launching state based on its space object damaging another space object due to a malfunction resulting from a forecasted space weather occurrence. Similarly, first party in-orbit insurance policies generally require the insured to exercise due diligence in avoiding injury or damage to a satellite. This duty suggests that an insured may not have exercised due diligence if the damage or injury to its space object results from a space weather occurrence. Given that space weather may not be "force majeure" in certain circumstances under the Liability Convention or first party insurance coverage, the international community designating an entity or entities for developing and disseminating space weather forecasts is a viable goal to assist in regulating and operating space activities.