

57th IISL COLLOQUIUM ON THE LAW OF OUTER SPACE (E7)  
Recent Developments in Space Law (5)

Author: Dr. Yuri Takaya-Umehara  
Kobe University, Japan, yuritakaya\_japan@hotmail.com

COMPUTER NETWORK ATTACKS IN OUTER SPACE: THE CASE OF HARMFUL  
INTERFERENCE TO SATELLITE-BASED COMMUNICATIONS

**Abstract**

Does harmful interference, caused by a malicious code to the satellite-based radio communications, fit in the definition of “force” as prohibited in Article 2(4) of the UN Charter? Due to the nature of satellite operation highly dependent on computer systems, it is obvious that satellite-based communication is vulnerable to Computer Network Attacks (hereinafter: CNA). Recent legal studies on the applicability of the law of armed conflict to CNA have highlighted several issues that are also relevant to and need to be examined in space law.

The principle of the prohibition of harmful interference to the radio services or communications (hereinafter: the principle of non-interference) is established in Article 45 of the Constitution of the International Telecommunication Union (ITU), and the prevention of harmful interference is reiterated in Article 48 as a duty in the context of military radio installations. The principle requires states to establish and operate all stations, whatever their purpose, in such a manner as not to cause harmful interference to the radio activities of other member states or agencies which operate in accordance with the provisions of the radio regulations.

While the existing space treaties have encouraged states parties to enhance international cooperation towards peaceful uses of outer space, it is undeniable that both states and non-state actors may access to other states’ space operation control systems through CNA. Considering the difficulty in proving which state is attributable for the damage caused by CNA, the scope of the principle needs to be clarified carefully.

Taking the dual-use nature of space technology into consideration, the article considers the principle of non-interference in satellite-based communications with two critical questions: whether harmful interference caused by CNA consists of “force” prohibited in international law; and whether communication satellite could be a target for CNA in armed conflict.

Under those legal considerations, the author aims to clarify legal constraints on disrupting space-based communications for “purely” military purposes, namely, in hostilities.