

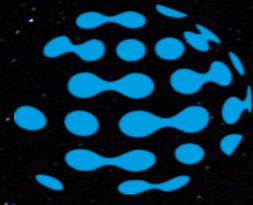


The Use of Space Technologies in Enhancing International Regimes & Disaster Preparedness

Space Technologies in a Time of Change

*Dr. Nikita Chiu FRSA
Centre for Technology and Global Affairs
University of Oxford
Centre for the Study of Existential Risk
University of Cambridge*

nikita.chiu@politics.ox.ac.uk



CENTRE FOR
TECHNOLOGY &
GLOBAL AFFAIRS

THE DYNAMICS BETWEEN TECHNOLOGY AND INTERNATIONAL RELATIONS

- *ROBOTICS*
- *OUTER SPACE*
- *AI*
- *BLOCKCHAIN*
- *NUCLEAR ISSUES*

A photograph of Earth from space, showing the aurora borealis (Northern Lights) in shades of green and purple. The Earth's surface is visible, with city lights glowing in orange and yellow. The horizon is curved, and the sky is dark with some stars.

Space Technologies Integral in Global Governance

Multiple regimes rely on the satellite infrastructure

UNHCR

WHO

IAEA

CTBTO

Comprehensive Nuclear-Test-Ban Treaty

Seismic, hydroacoustic, infrasound, radionuclide data



INTERNATIONAL MONITORING SYSTEM



The location, organization of stations in the IMS is described in the International Monitoring System (IMS) Manual, Volume 1: Station Locations and Organization, published by the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO PrepCom) in Vienna, Austria.

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) of 1996 bans nuclear explosions in all environments. Explosions in the atmosphere, under water and in outer space were banned in 1995. CTBT prohibits tests underground as well. Under CTBT, a global system of monitoring stations, using four complementary technologies, is being established to meet data necessary to verify compliance with the Treaty. Supported by 36 radionuclide laboratories, this network of 121 monitoring stations will be capable of registering shock waves emanating from a nuclear explosion underground, in the sea and in the air, as well as detecting radioactive debris released into the atmosphere. The location of the stations has been carefully chosen for optimal and non-discriminatory global coverage.

The monitoring stations will transmit, via satellite, the data to the International Data Centre (IDC) within CTBTO PrepCom in Vienna, where the data will be used to detect, locate and characterize events. These data and IDC products will be made available to the States Signatories for their analysis. Check out a list of the 121 facilities of the international monitoring system and brief descriptions of their characteristics and capabilities.

- Seismic primary array (PSN)
- Seismic primary three-component station (PSN)
- Seismic auxiliary array (ASN)
- Seismic auxiliary three-component station (ASN)
- Hydroacoustic (hydrophone) station (HAS)
- Hydroacoustic C-ghost station (HGS)
- Infrasound station (ISN)
- Radionuclide station (RNS)
- Radionuclide laboratory (RL)
- International Data Centre (CTBTO PrepCom, Vienna)

Photo: CTBTO

*FROM DISARMAMENT TO
APPLICATIONS IN DISASTER AND EMERGENCY SCENARIOS*

PREPARATORY COMMISSION FOR THE COMPREHENSIVE TEST-BAN TREATY 1996 (CTBTO)

*INTERNATIONAL MONITORING SYSTEM (IMS)
GLOBAL COMMUNICATIONS INFRASTRUCTURE (GCI)
INTERNATIONAL DATA CENTRE (IDC)*

*RECOMMENDATIONS –
SPACE 2030 – UNITING US ALL*

- Convene a Global Forum gathering major International Organizations (IOs), Academic Institutions, and Civil Society to evaluate the Use of Space Technologies in their daily operations
- Facilitate the Conduct of foresight exercises – Enable entities engaged to identify scenarios & strategies to further make use of the Satellite Infrastructure
 - Identify ways to further strengthen the Satellite Infrastructure, inc. space debris mitigation guidelines, improvement of on-orbit servicing technologies

*Dr. Nikita Chiu FRSA
Centre for Technology and Global Affairs
University of Oxford
Centre for the Study of Existential Risk
University of Cambridge*

nikita.chiu@politics.ox.ac.uk