

Space System based Disaster Management Support

Madam Chair and Distinguished delegates,

India is prone to natural disasters such as floods, landslides, cyclones, earthquakes and forest fire. Government of India through its space research wing Indian Space Research Organisation (ISRO) strives to make effective use of space and allied technologies for disaster risk reduction in India. Under its Disaster Management Support Programme, the Decision Support Centre (DSC) centralises the delivery of space based products and services. The National Database for Emergency management (NDEM) and geoportals such as Bhuvan; MOSDAC and NER-DRR, complement disaster management endeavours in India.

Madam Chair,

India effectively uses Earth Observation data for monitoring of flood situation. Optical and SAR imaging data are used for near-real time flood inundation mapping, and for assessing the flood progression; recession & duration. In 2024, major floods were monitored & mapped near-real time in 16 States using satellite data. Flood alerts and about 300 flood inundation maps & value added products were disseminated to the concerned disaster management departments.

Madam Chair,

India released the updated version of the National Database for Emergency Management (NDEM), incorporating disaster alerts from nodal departments for floods, avalanche, cyclones, storm surge, tsunami etc. It provides real-time disaster outlook for the country and also disseminates disaster related services such as flood risk, forest fire vulnerability, lightning hotspots, etc. ISRO is also extending its services for the Integrated Control Room for Emergency Response (ICRER) through space based products and disaster recovery site.

India witnessed a disastrous debris flow event in the southern state; Kerala, which was triggered by heavy rainfall. Many precious lives were lost, and properties and natural resources were destroyed by the event. International Charter Space and Major Disasters was activated for satellite data support. India is developing a technique for integrating InSAR based slope movement into landslide early warning system which incorporates rainfall threshold, geological information and terrain data.

Madam Chair,

India has implemented automated system for the detection of active forest fire incidents and daily 6 to 8 detections are being carried out using satellite data during

the forest fire season. These detections are transmitted to the nodal department for ground validation and management measures.

Cyclones along the Indian coasts are monitored using satellite data, in addition to providing early warning on cyclogenesis, track; intensity and landfall. India is also engaged in developing advanced techniques for ingesting space based data for early warning of tropical cyclones.

A network of long range lightning detection sensors (LDS) are established across the country and this network is used to generate Atmospheric lighting Essential Climate Variable (ECV). Research is ongoing for utilising machine learning methods for improved forecasting of lightning disaster.

Madam Chair,

ISRO contributes to the Satellite Aided Search and Rescue (SASAR) Programme, which provides operational services to the users in India and seven neighbouring countries. During 2024, a total of 322 alerts were received and search & rescue (SAR) supports were provided to 11 distress incidents in Indian service area. It contributed in saving 16 human lives. The programme has so far supported rescue of 2434 lives in 192 SAR incidents till 2024.

India is an active stakeholder in various international disaster management initiatives. During 2024, India supported International Charter Space and Major Disasters by responding to 41 requests. 209 Indian Remote Sensing (IRS) products are provided to the Charter towards management of the disaster events that occurred globally. In addition, 46 emergency management requests from Sentinel Asia were also processed and 113 IRS products were provided.

Madam Chair,

India is ready to extend its support and cooperation on the use of Space Technology for Disaster Management at Global level.

Thank you Madam Chair and Distinguished delegates.