The International Charter Space and Major Disasters
NEWSLETTER

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Activations on map @DisastersChart

EUMETSAT and CSA – Charter Leadership

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RADARSAT+: Ensuring continuity of essential satellite EO data

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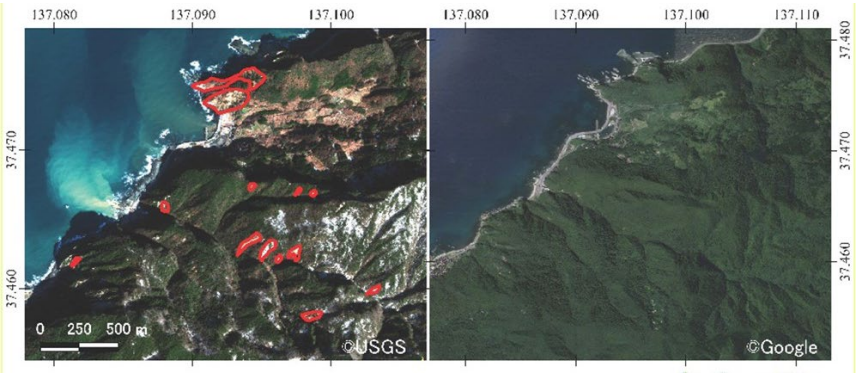

Charter activation for Noto earthquake in Japan

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SATELLITE DATA TO SUPPORT DISASTER RESPONSE WORLDWIDE

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EUMETSAT and CSA lead the International Charter: Space and Major Disasters, and hand over to DLR

In October 2023, the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) and the Canadian Space Agency (CSA) had the privilege to jointly take over the leadership of the International Charter: Space and Major Disasters (the Charter) from the UK Space Agency, for a 6-month period.

Under the joint leadership arrangement, the CSA was in charge of monitoring calls and coordinating Charter members' responses, while EUMETSAT undertook the administrative tasks of the leadership role.

Representatives from the Charter member agencies met at EUMETSAT headquarters in Darmstadt, Germany, in the third week of October 2023. This meeting - the 50th since the Charter was founded - involved a week of discussions about the operations and status of the Charter. Two days in that week were also dedicated to training project managers to ensure they can make best use of the satellite data they receive in their role coordinating Charter activations.

During the EUMETSAT/CSA leadership period, there were a total of 28 activations for which the Charter members collectively offered their support and services, the most recent activation being for the Mount Ruang volcano eruption in Indonesia which occurred on 17 April.

In this period, the National Disaster Risk Management Office (NDRMO) of Tonga successfully applied for being an Authorised User of the Charter, under the principle of Universal Access. Under this principle, which allows the Charter members to further strengthen the Charter's contribution to disaster management worldwide, any national disaster management authority is able to submit requests to the Charter for emergency response.

This brings the total of Charter's Authorised Users to 99 in 88 countries.

The German Aerospace Centre (DLR) has taken over the reins of the Charter leadership, starting from 24 April 2024. It hosted the 51st Meeting of the Charter in Bonn, Germany, in the week of 22 April.

The Charter membership in Darmstadt, Germany, October 2023

The Charter membership in Bonn, Germany, April 2024

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RADARSAT+: Ensuring continuity of essential satellite EO data

In a world increasingly vulnerable to natural disasters, the importance of efficient disaster management cannot be overstated. Nations across the globe rely on advanced satellite technologies to monitor, assess, and respond to emergencies swiftly and effectively. Among these nations, Canada has long been at the forefront, leveraging its expertise in space technology to support international efforts through the International Charter: Space and Major Disasters.

The Canadian Space Agency's RADARSAT Constellation Mission (RCM) plays a pivotal role in disaster management within the Charter framework. Equipped with synthetic aperture radar technology, RCM satellites can penetrate cloud cover, darkness, and inclement weather conditions, providing imagery of affected areas regardless of the environmental conditions. This capacity is invaluable for assessing damage, monitoring disaster progression, and coordinating response efforts.

In late 2023, the Government of Canada allocated $1.012 billion to the Canadian Space Agency to support immediate and future satellite Earth observation (EO) data needs.

This funding will be used to:

- design and develop a replacement satellite for the RCM
- design a fourth-generation satellite system to succeed the RCM

The initiative, called RADARSAT+, will ensure continuity of essential satellite EO data to numerous stakeholders, collaborators and international partners. The enhanced capabilities provided by RADARSAT+ will have a profound impact on Canada's contributions to the Charter.

With improved imaging resolution, increased coverage capacity, and faster data delivery, Canada will be better equipped to respond to disasters promptly and effectively, both domestically and internationally. Whether it's assessing the extent of damage caused by hurricanes and floods, oil spills, monitoring seismic hazards, or aiding in search and rescue operations, RADARSAT+ will enable Canada to further enhance its crucial support to Charter activities during times of crisis.

Canada remains committed to leveraging its space technology capabilities for the greater good of humanity. With these advancements, Canada stands ready to continue playing a vital role in mitigating the impact of natural disasters and supporting communities in their time of need, both at home and abroad.

Image credit: Canadian Space Agency

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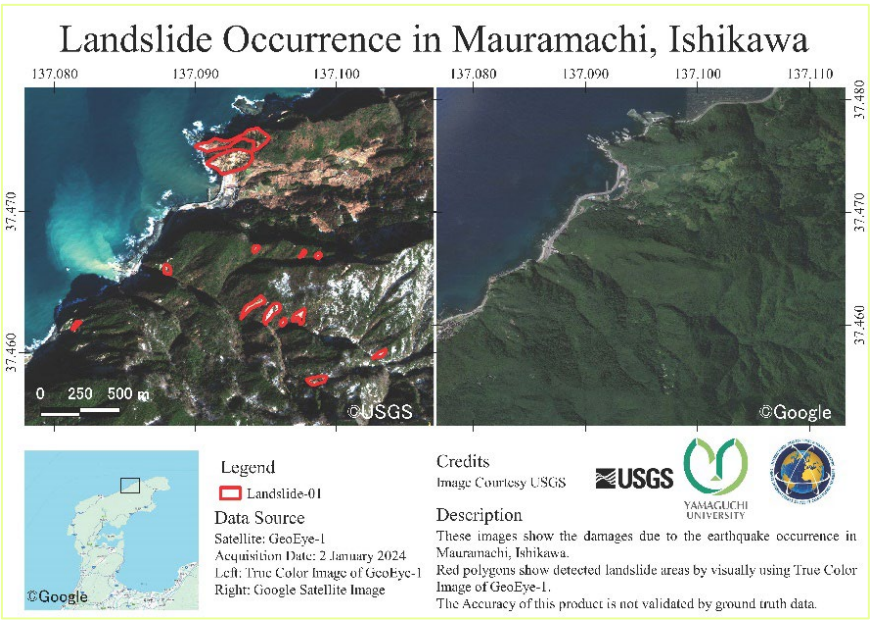
Charter activation for Noto earthquake in Japan

On January 1, 2024, at 4:10 pm (Local Time, 07:10 UTC), a magnitude 7.6 earthquake struck the Noto peninsula of Ishikawa prefecture, Japan. The quake was centered around 30 kilometers east-northeast of Wajima, Ishikawa prefecture, with a provisional depth of 16 km. As of February 6, the quake and subsequent tremors left 240 people dead, 12 people missing, and damaged buildings across wide areas. Also, the quake led to landslides and the collapse of multiple buildings, sparked a large-scale fire in several places, and triggered a tsunami warning for the length of the nation's west coast. There were more than 46,000 houses in the prefecture severely damaged or destroyed.

ADRC (Asian Disaster Reduction Center) requested to activate the International Charter: Space and Major Disasters as an escalation of Sentinel Asia. Dr. Masahiko Nagai of Yamaguchi University took the role of Project Manager (PM) of the activation, and 13 Value Adders (VAs) were nominated to produce maps assessing the impact of the disaster. These VAs are from the network of universities and public institutions in Japan who typically respond to major disasters in the country.

The Charter provided 353 satellite data products from 18 satellites, including optical and SAR satellites, which were delivered to the end users to support their response to the earthquake. Value added products produced from these data are available on the Charter activation page, and examples of these follow.

Yamaguchi University produced this delineation map of Mauramachi, in Ishikawa, using a satellite image of GeoEye-1 captured on January 2nd. The red polygons show detected landslide areas.



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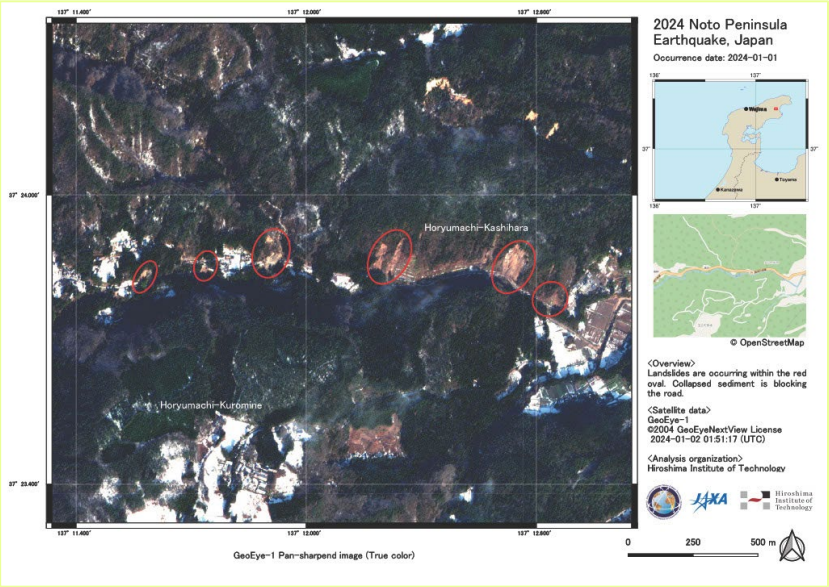
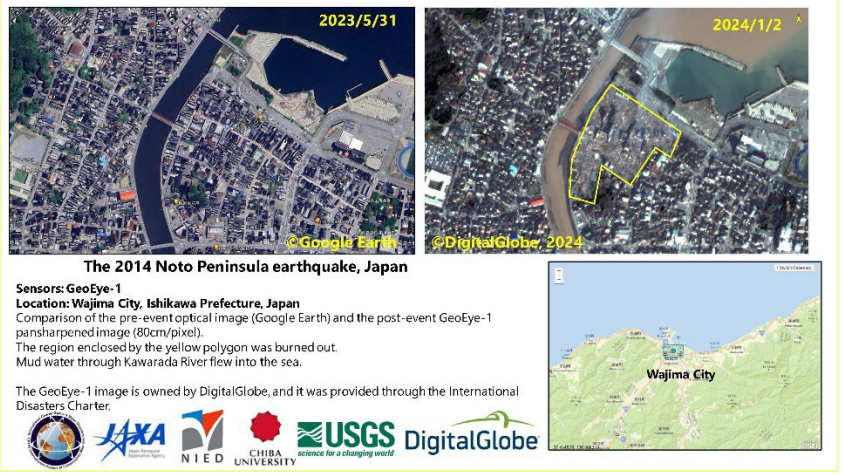
This delineation map produced by the Hiroshima Institute of Technology shows affected areas by landslides at Suzu City detected by GeoEye-1.



Chiba University produced a delineation map by utilizing a GeoEye-1 image of Wajima City, and compared it to a pre-disaster image of the same location. The yellow polygon indicates an estimated area that was burnt in a fire following the earthquake. In the map, mud displaced by landslides upstream, can be seen flowing through the Kawarada River out into the sea.



Observation data from Disasters Charter satellites, in addition to satellite images and value-added products from Sentinel Asia, supported monitoring damage caused by the quake. The escalation mechanism from Sentinel Asia to the Charter continues to respond to disasters in the Asia and Pacific region, demonstrating both organization's ongoing commitment to provide international support for humanitarian purposes in times of major disasters.

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Project Managers Training at EUMETSAT

The training event was organized by ESA and EUMETSAT and held at the EUMETSAT premises in Darmstadt, Germany in advance of the 50th Charter meeting. Representatives from the International Charter, comprised of ESA staff and contracted agencies (Terradue and ARGANS) led the two-day training.

The training began on the 16th of October when attendees from various nations such as the UK, Brazil, France, Japan, Switzerland, and Germany arrived to attend the workshop. The attendees were representatives of various agencies with the capability to produce value-added products, such as the geological survey of Brazil, ICube-SERTIT, the Geological Survey of Northern Ireland, the British Geological Survey, and UNITAR/UNOSAT. The first day focused on introductions, where the objectives of the Charter were presented by EUMETSAT and the different disaster scenarios covered by the Charter was presented by INPE.

UKSA then presented how to get started as a PM and what is expected concerning the duties of the PM. To conclude day one, The Charter Mapper was introduced to the PM trainees. A brief introduction to the Charter Mapper was given by Terradue, explaining the different visualization tools and EO processing services available on the platform. The representative from ARGANS then concluded the day by showing examples of processing and visualization methods for each type of disaster covered by the Charter.

For the second day of the training, the participants were divided into working groups based on their thematic backgrounds to perform hands-on training using the Charter Mapper. Use cases were selected and a follow-along tutorial document was provided to each group, starting with basic visualization and moving to advanced processing. Before the groups began working, the use cases and tutorial documents were introduced so the groups understood the objective of the training. The tutorial documents were designed so that the groups could gradually learn the functions of the Mapper, starting from basic visualization and moving to advanced processing. The groups worked on their specific use cases with the guidance of the training leaders (ESA, Terradue, and ARGANS) who walked around the room to take questions and assist with any issues encountered with the Mapper. Upon completing their respective thematic tutorials, the groups were given time to prepare a short presentation of their results and feedback from their experience.

The groups then presented their results to the organizers and other participants, showing that the training was successful as all groups were capable of generating useful results within the mapper.

The last part of the training was dedicated to discussion where the participants asked final questions as well as giving their feedback, consisting of both positive feedback and suggestions for improvements.

Attendees and trainers after the groups presented their results