The International Charter Space and Major Disasters NEWSLETTER

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Roscosmos takes the lead

The Russian State Space Corporation (Roscosmos) took over as the Charter's lead agency at the 42nd Charter Meeting

20th Anniversary of the Charter

October 20, 2020, will mark the 20th anniversary of the International Charter Space and Major Disasters.

Charter Project Manager Training in Germany

A training session for Charter Project Managers organized in Bonn by ESA, DLR and UN-SPIDER on November 5, 2019

Bringing together new and efficient space technologies to support disaster management

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Roscosmos becomes lead agency of the International Charter 'Space and Major Disasters'

The 42nd meetings of the Board, Executive Secretariat, Communications Group and ECO of the International Charter 'Space and Major Disasters' took place in October 2019 in Saint Petersburg, Russia. The meetings were hosted by the State Space Corporation 'Roscosmos', the Russian Space Agency which took over as the Charter's lead agency on October 11, 2019, succeeding the Canadian Space Agency (CSA). Roscosmos will hold the lead role until April 2020, at which time the Chinese National Space Administration (CNSA) will take over.

Forty-one representatives from the Charter member agencies as well as cooperating organizations, such as UNITAR/UNOSAT and UNOOSA, participated in the meeting and discussed various strategic, operational and organizational points in order to further improve the Charter's effectiveness in supporting disaster relief operations worldwide.

A new potential candidate applied to become a new Charter member – The National Academy of Sciences (Republic of Belarus) – whose representatives participated in the meeting and presented an overview of their current assets and capacities.

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Participants of the 42nd Charter Meeting in Saint Petersburg, Russia

During the 42nd Charter Meeting, Roscosmos also presented the Charter members a video from the International Space Station (ISS), which was recorded just several hours prior to the start of the Board Meeting.

Roscosmos cosmonauts Alexandr Skvortsov and Oleg Skripochka welcomed the Charter members and wished everyone a successful meeting.

The cosmonauts stressed the importance of natural and man-made disasters monitoring, which is also performed onboard the ISS, and highlighted the importance of the Charter's efforts to support disaster relief worldwide.

Alexandr Skvortsov and Oleg Skripochka welcoming the Charter

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20th Anniversary of the Charter

October 20, 2020, will mark the 20th anniversary of the International Charter Space and Major Disasters.

Following the UNISPACE III conference held in Vienna, Austria, in July 1999, the European Space Agency (ESA), France's space agency (CNES) and the Canadian Space Agency (CSA) founded the Charter on October 20, 2000. Their goal was to provide data from their satellites free of charge to aid disaster monitoring and response activities.

The International Charter was formally declared operational on November 1, 2000.

Today, the Charter is a worldwide collaboration of 17 members – most of which are space agencies – and 70 countries have direct access to the Charter through Universal Access.

The Charter members and countries with Authorized Users on the map in dark blue (as of 2019)

The International Charter cooperates with a broad range of disaster risk management organizations and the international humanitarian community. In addition, the Charter has strong links with the Earth Observation sector globally and welcomes collaborations with other organizations around the world that wish to use their space-based capabilities to support disaster response.

The Charter is user driven and assists relief teams everywhere in the world on a 24/7 basis. As of April 2020, the Charter has been activated 648 times for major disasters in 127 countries.

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20th Anniversary of the Charter

The Disasters Charter continuously increases its efforts to support disaster response worldwide. We began with one to three activations per month 20 years ago, but now it is normal for there to be up to eight activations per month, depending on the season, e.g. the monsoon season in the northern hemisphere or the hurricane and typhoon seasons.

To mark the 20th anniversary, we are publishing monthly features this year, offering insight into the different aspects of the Disasters Charter, including our history, our member agencies, the types of disasters we monitor, the partners we work with, and our future.

Join us as we commemorate this milestone and visit our anniversary page.

To commemorate the occasion, we have produced a special calendar for 2020 that showcases a selection of imagery acquired by Charter member satellites. The images were all provided to support past relief efforts and highlight the variety of disaster types for which the Charter has been activated.

Download the calendar

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Charter Project Manager Training in Germany

On November 5, 2019, a training session for Charter Project Managers (PMs) was organized in Bonn by ESA, DLR and UN-SPIDER who kindly hosted the event on the German UN Campus in Bonn. The event took place on the day before the start of the UN-SPIDER Bonn International Conference on "Space-based Solutions for Disaster Management in Africa: Challenges, Applications, Partnerships", where the Charter was also represented.

More than 20 practitioners from Belarus, Brazil, Ethiopia, France, Germany, Ghana, Kenya, Mexico, South Africa, Sudan and Tunisia attended the Project Manager training. One of the focal points was to discuss ways to more strongly involve regional actors, and in particular African institutions, in Charter activations and satellite-based support to disaster response.

Juan Carlos Villagran de Leon, head of the UN-SPIDER Bonn Office (left), with the participants and trainers of the Charter Project Manager Training (photo: UNOOSA 2019)

For each Charter activation, a PM is selected to coordinate the activation and consult with both the Charter member agencies and the involved users. The PM also delivers maps that have been produced by the PM or by Value Adders.

Soon after the training, some participants were involved in Charter activations: The National Disaster Management Organization (NADMO) of Ghana activated the Charter twice, on behalf of the national disaster management authorities of the Central African Republic and Kenya, respectively, after flooding and landslides in these countries. NADMO also took the PM role for these activations. UE Geoinformation Systems of Belarus and the Regional Centre for Mapping of Resources for Development (RCMRD), based in Kenya, both supported one of these activations by contributing satellite-based situational maps.

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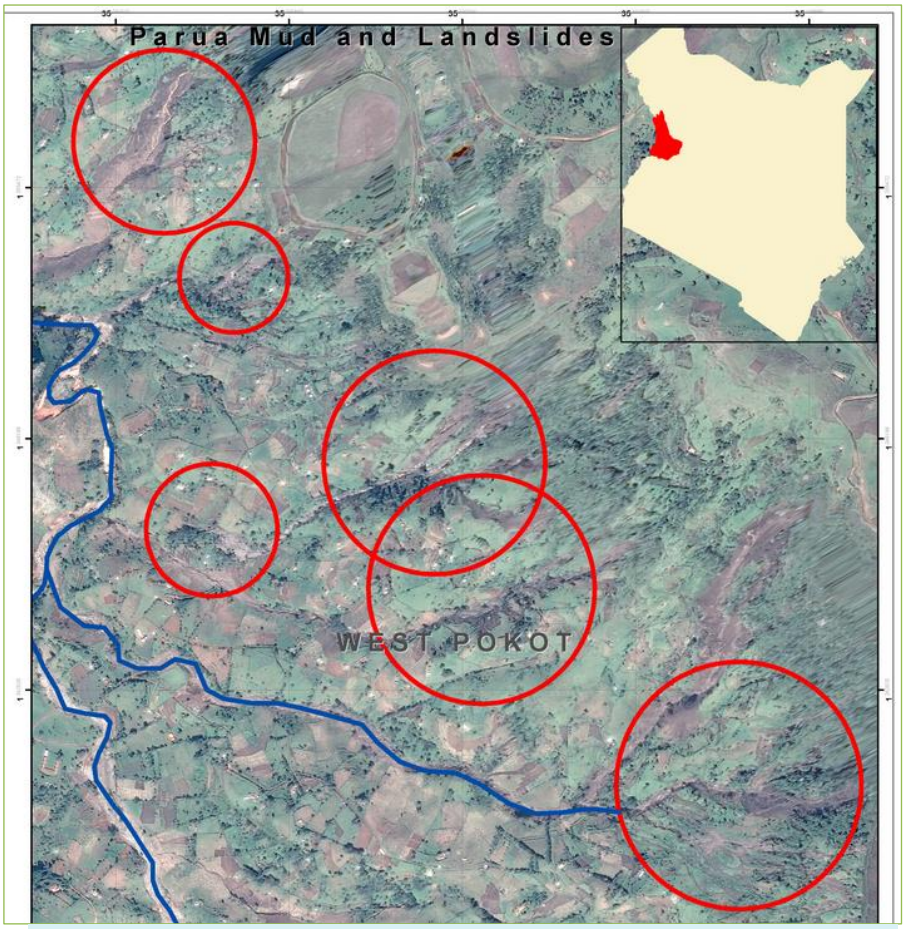
Charter Project Manager Training in Germany

UNOOSA (United Nations Office for Outer Space Affairs), with its program UN-SPIDER, is an important partner of the Charter. UN-SPIDER (United Nations Platform for Space-based Information for Disaster Management and Emergency Response) has been promoting the Charter's Universal Access policy effectively since the inception of Universal Access in 2012. Frequently, the Charter has organized PM trainings back-to-back with conferences or workshops organized by UN-SPIDER, as these events often bring together disaster management authorities as well as remote sensing practitioners from many countries.



Extract from a map produced by RCMRD highlighting landslides in the west of Kenya as detected in a Pleiades image from November 27, 2019

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Canada's newest Earth observation satellites: improved support of disaster relief around the world

On June 12, 2019, Canada launched its newest Earth observation (EO) satellites – the RADARSAT Constellation Mission (RCM). The latest evolution of the RADARSAT program, the RCM is a trio of EO synthetic aperture radar (SAR) satellites capable of scanning the Earth day or night in any weather conditions. The three-satellite configuration allows for daily revisits of Canada's vast territory and maritime approaches, as well as daily access to 90% of the world's surface and the Arctic up to four times a day. The constellation is designed to be effective for maritime surveillance, ecosystem monitoring and disaster management.

Canada's new generation of Earth observation satellites, the RCM consists of three satellites, evenly spaced on the same orbital plane at an altitude of 600 km.
(Credit: Canadian Space Agency)

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Canada's newest Earth observation satellites: improved support of disaster relief around the world

The RCM provides a number of improvements compared to its still operating predecessor RADARSAT-2. It enables better response to disaster events due to its ability to observe daily a chosen point on 90% of the world's surface and features 4-hour fast tasking. It allows for a shorter revisit time to measure changes – 4-day exact repeat, as opposed to 24 days with RADARSAT-1 and 2 – for coherent change detection. In addition, the RCM allows for better detection of surface features due to multi-polarization, and particularly the circular compact polarization, which is available for all imaging modes, including at very high resolutions.

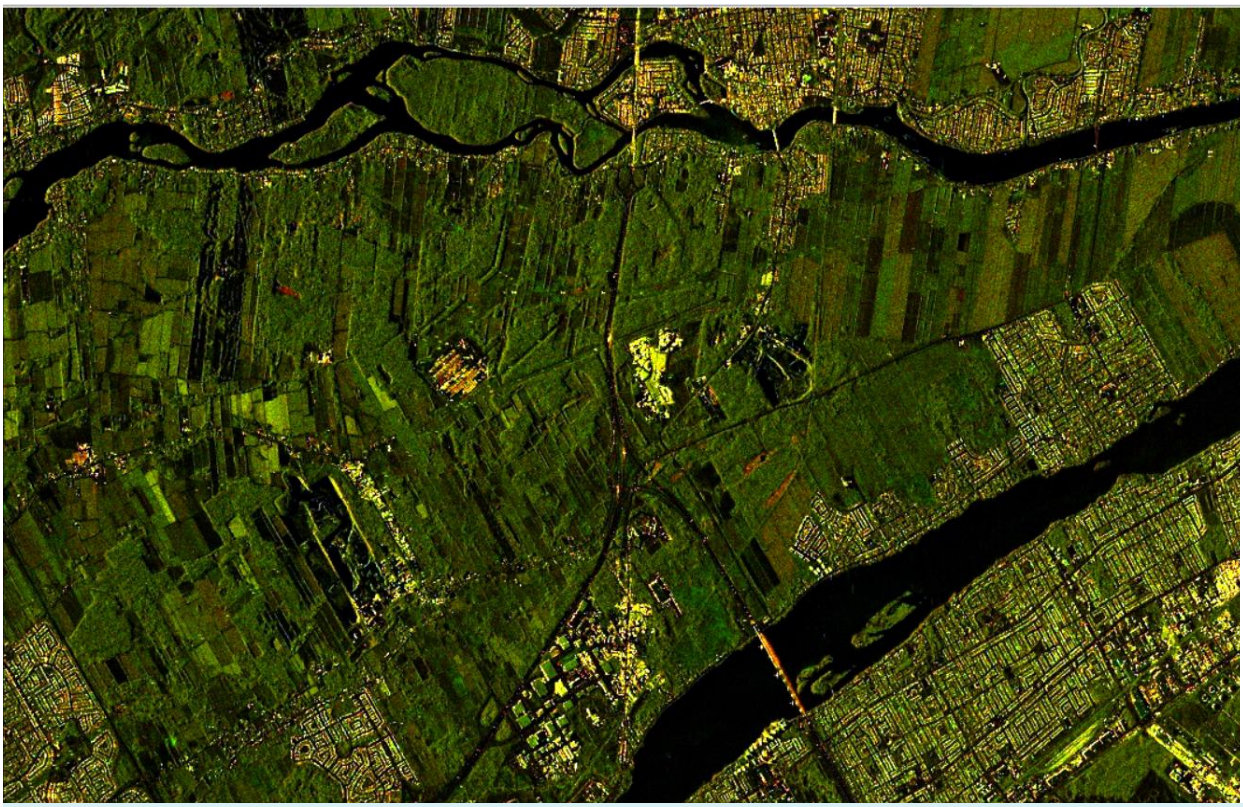

Image of Laval, Canada, taken by the RCM
This image was among the first multi-polarization high-resolution (3-m and 5-m) images from a Canadian satellite. More specifically, this image of Laval uses compact polarization, also a first for a Canadian satellite. RADARSAT Constellation Mission Imagery © Government of Canada (2019). RADARSAT is an official trademark of the Canadian Space Agency.

Since becoming a founding member of the Disasters Charter in 2000, the Canadian Space Agency (CSA) has been providing data from its RADARSAT satellites to support relief efforts around the world. RADARSAT-1 operated until 2013 and contributed to relief operations in 244 disaster events. It was succeeded by RADARSAT-2, which is still in good working order after more than a decade in orbit. The RCM became operational in December 2019 and will soon begin supplying data to assist search and rescue teams all over the world.

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Five examples of Charter activations

Since 2007, the Charter has been activated 40 times per year on average, with 43 activations in 2019. Learn more about five recent activations, which were some of the most visited on the Charter website in the last few months.

1. Fires in Australia

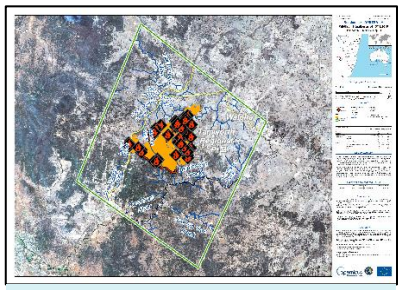
Bushfires spread across parts of southeast Australia from June 2019 until January 2020, burning over 18.6 million hectares of land. More than 150 fires fed off tinder-dry conditions coupled with high temperatures, unpredictable winds and lightning.

Australian authorities issued 'catastrophic' threat levels across Queensland and New South Wales, after which Geoscience Australia requested help from the Charter on behalf of the Emergency Management Australia Crisis Coordination Centre (CCC) and New South Wales Rural Fire Service (NSWRFS).

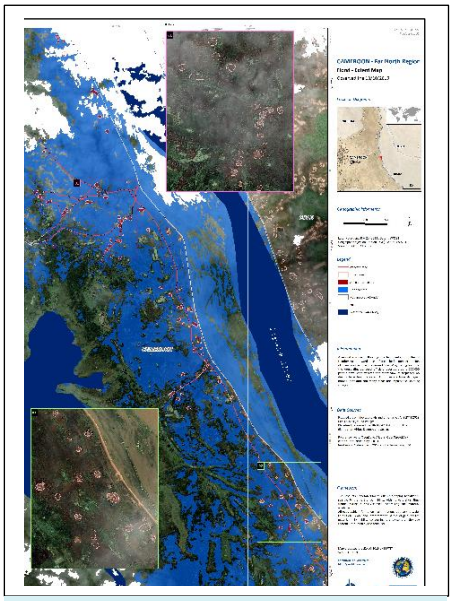
Thirty-four deaths were confirmed and almost 5900 buildings were destroyed including 3500 homes. An estimated one billion animals were killed. Koala habitats were destroyed with vulnerable populations severely affected.

Geoscience Australia was appointed as the Project Manager for the Charter activation and value-adding support to produce the maps was provided by the Copernicus EMS.

Within the scope of this activation, the Charter provided more than 2,000 satellite images.



Wildfire Situation at Bendemeer, Australia
Sentinel-2 © Contains modified Copernicus Sentinel data (2019)
Landsat 8 data and products © USGS (2019) - All rights reserved
Map produced by Copernicus EMS



Flood extent map of Far North Region, Cameroon
Pleiades © CNES (2019) - Distribution: Airbus Defence and Space, all rights reserved
Map produced by SERTIT

2. Flood in Cameroon

In early October 2019, flooding struck the far northern region of Cameroon, with areas around Lake Maga, Mayo-Danay and Logone-et-Chari departments being the worst affected. Local officials reported around 100,000 people were affected and many families were displaced.

Floodwaters damaged homes, farmland and made many roads impassable, isolating some villages. Cameroon's military was deployed to assist with relief efforts.

The Charter received requests for help from UNOSAT (UNITAR's Operational Satellite Applications) on behalf of the Department of Civil Protection of Cameroon. UNOSAT performed the Project manager functions and value adding was done by SERTIT and UNOSAT.

Charter members provided 86 images of the disaster from different satellites mapping the flood extent.

Data acquired during the disaster enabled the production of flood duration maps and reports on the evolving situation.

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3. Earthquake in Indonesia

A 6.5 magnitude earthquake struck Indonesia's Maluku Islands on September 26, 2019, killing at least 41 people and injuring 1578. Hundreds of thousands of people were evacuated to sheltered accommodation. More than 6000 structures were damaged or destroyed.

The earthquake was centered 33 kilometers northeast of Ambon at a depth of 18 kilometers, according to the U.S. Geological Survey.

Hundreds of houses, roads, public facilities, including the main bridge in the city of Ambon were damaged. The earthquake destroyed buildings and triggered landslides in the eastern part of Ambon Island.

The Charter activation was requested by UNOSAT on behalf of the United Nations Economic and Social Commission for Asia and the Pacific (UNSECAP). UNOSAT performed Project Manager functions as well as value adding. Copernicus EMS also produced value-added products within the scope of this activation.

Damage Assessment of Tulehuarea, Eastern Salahutu District, Maluku Province, Indonesia
WorldView-2 © DigitalGlobe Inc.
Pleiades © CNES (2018) - Distribution: Airbus Defence and Space, all rights reserved
Map produced by UNITAR/UNOSAT

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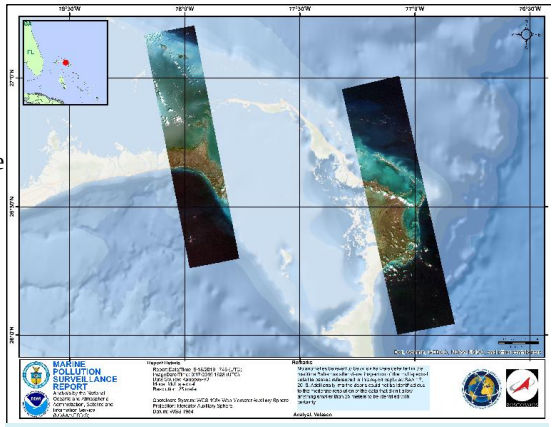
4. Hurricane Dorian in Bahamas

Hurricane Dorian made landfall in the Bahamas on September 1, 2019 as a Category 5 storm bringing strong wind speeds of 185 mph and heavy rainfall. Seventy people were killed with 282 declared missing, and many more injured and displaced.

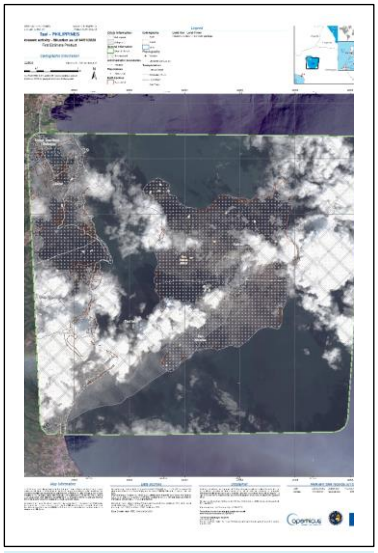
The Abaco Islands and Grand Bahama, in the north of the archipelago were battered by the storm for two days and decimated whole areas, leaving houses without roofs, scattered debris and flooding as up to 35 inches of rain fell.

The International Red Cross estimated 45% of homes (13,000) on Grand Bahama and the Abacos were destroyed. Bahamas Prime Minister Hubert Minnis described the storm as a "historic tragedy" for the archipelago. Damages are estimated at US$3.4 billion.

Rescue teams reached the worst affected areas of the northern Bahamas to begin search, rescue and recovery. UN officials reported 60,000 people would require food aid and clean water.



Marine pollution surveillance, Bahamas
Kanopus-V © All rights reserved ROSCOSMOS 2019
Map produced by NOAA



Taal Volcano activity assessment on January 14, 2020
Sentinel-2 © Contains modified Copernicus Sentinel data (2020)
Pleiades © CNES (2020) - Distribution: Airbus Defence and Space, all rights reserved
Map produced by Copernicus EMS

5. Taal Volcano in Philippines

The Taal volcano erupted on January 12, 2020, pushing streams of lava, dark ash clouds and steam 14 km into the air. Authorities in the surrounding province of Batangas, declared a "state of calamity".

The Philippine Institute of Volcanology and Seismology (PHIVOLCS) raised the alert level to four, meaning an "explosive eruption". Level 5 is the only higher category, for a hazardous eruption that is occurring. PHIVOLCS requested a total evacuation of everyone within a 17 km radius of the volcano, affecting around half a million people.

The Asia Disaster Risk Reduction Center requested the Charter activation on behalf of PHIVOLCS, who also acted as Project Manager for this activation. Several organizations were involved in producing maps.

Thirty-nine people were killed and almost 20,000 people sought refuge in temporary shelters. The provinces of Batangas and nearby Cavite were the hardest hit with 8,000 villagers forced to leave their homes. Military helicopters were placed on standby to assist with the evacuation.

Volcanic ash spread 100 km and as far north as Quezon City forcing the airport to close temporarily. More than 25 million people live within 100 km of the volcano and were affected with contaminated air and water.

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