



28 March 2013

Issue 5

## Presentation of the International Charter and the Universal Access initiative

During the annual session of the Scientific and Technical Subcommittee (STSC) of the Committee on Peaceful Uses of Outer Space (COPUOS) in Vienna, Steven Hosford, CNES Board member, presented the International Charter to the 72 participating member states, with some examples of recent activation results. He also explained the process for National Disaster management agencies to get direct access to the Charter.

The presentation was followed by more detailed explanations provided during a meeting for representatives of several countries interested in the Universal Access initiative.

Several representatives of the Charter member states also included the Charter in their declarations.



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## The RADARSAT Constellation

The RADARSAT Constellation is the evolution of the Canadian Space Agency's RADARSAT Program with the objective of ensuring data continuity, improved operational use of Synthetic Aperture Radar (SAR) and improved system reliability.

The three-satellite configuration will provide complete coverage of Canada's land and oceans offering an average daily revisit, as well as daily access to 95% of the world to Canadian and International users.

CSA's RADARSAT Constellation mission is being designed for three main uses:

- Maritime surveillance (ice, wind, oil pollution and ship monitoring)
- Disaster management (mitigation, warning, response and recovery)
- Ecosystem monitoring (forestry, agriculture, wetlands and coastal change monitoring)

In addition to these core user areas, there are expected to be a wide range of ad hoc uses of RADARSAT Constellation data in many different government applications, federally and provincially, and in the private sector, both in Canada and internationally.

The mission development began in 2005, with the launch of the satellites planned for 2018.



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### Recent Activations

- [Cyclone in Madagascar](#)
- [Flood in Seychelles](#)
- [Flood in Indonesia](#)
- [Floods in Mozambique](#)
- [Floods in Israel](#)
- [Flood in England](#)

### Charter Members

- [European Space Agency \(ESA\)](#)
- [Centre National d'Études Spatiales \(CNES\)](#)
- [Canadian Space Agency \(CSA\)](#)
- [Indian Space Research Organisation \(ISRO\)](#)
- [National Oceanic and Atmospheric Administration \(NOAA\)](#)
- [Argentina's Comision Nacional de Actividades Espaciales \(CONAE\)](#)
- [Japan Aerospace Exploration Agency \(JAXA\)](#)
- [US Geological Survey \(USGS\)](#)
- [DMC International Imaging \(DMCii\)](#)
- [China National Space Administration \(CNSA\)](#)
- [German Aerospace Centre \(DLR\)](#)
- [Korea Aerospace Research Institute \(KARI\)](#)
- [National Institute for Space Research \(INPE\)](#)
- [European Organisation for the Exploitation of Meteorological Satellites \(EUMETSAT\)](#)

Bringing together new and efficient space technologies to support disaster management



## Activations Statistics 2012

In 2012, the International Charter 'Space and Major Disasters' was activated 40 times. This number is close to the average of the preceding five years, with a peak of 51 activations in 2010 and relatively few activations in 2011 (Fig.1).

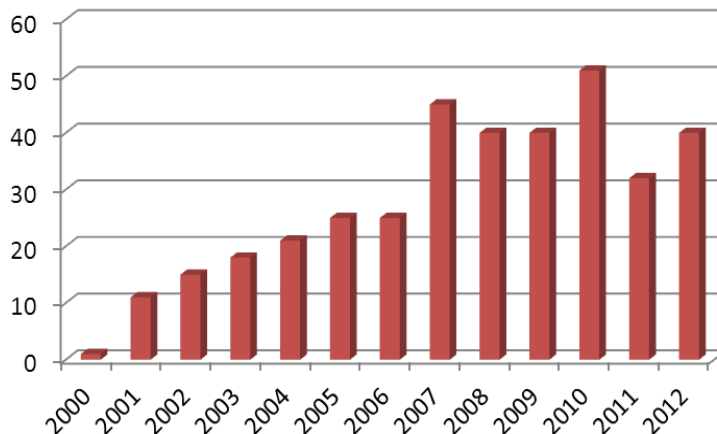
Looking at the distribution of Charter activations in 2012 (Fig. 2), there is a spike in activations in August and September.

While from January to July the Charter was activated for two disaster events per month on an average, there were 8 activations in August and 7 in September, many of which covered large flood events in Western and Central Africa.

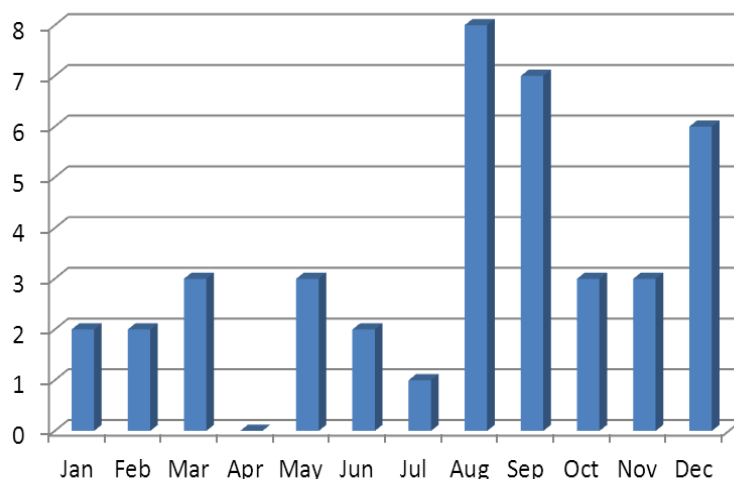
The extreme storm "Sandy" resulted in two Charter activations in October and November: the hurricane first devastated parts of Haiti and then caused extremely high damage to the East Coast of the US.

In December, the Charter was triggered several times to monitor the impact of different cyclones which have devastated islands in Oceania and the Pacific.

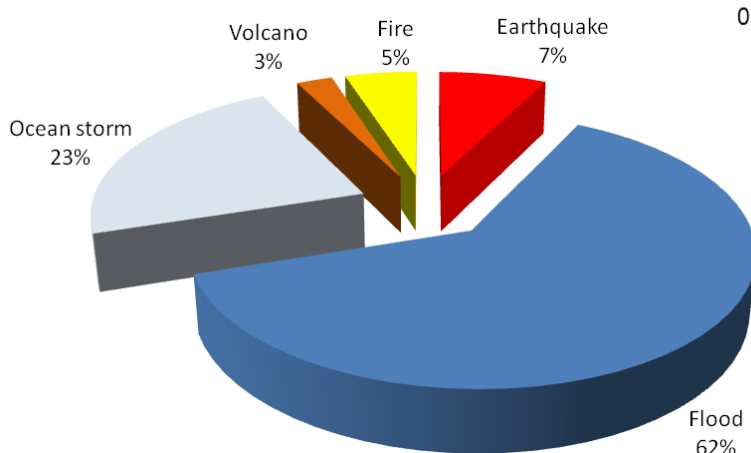
Among these events was typhoon "Bopha", the 2012 natural disaster with the worst humanitarian impact, killing more than 1000 people in the Philippines.



**Fig. 1: Charter activations per year**



**Fig. 2: 2012 monthly breakdown of activations**



**Fig. 3: 2012 breakdown of Charter activations by hazard**

The majority of Charter activations were related to flood events, extreme storms, or a combination of both (Fig. 3).

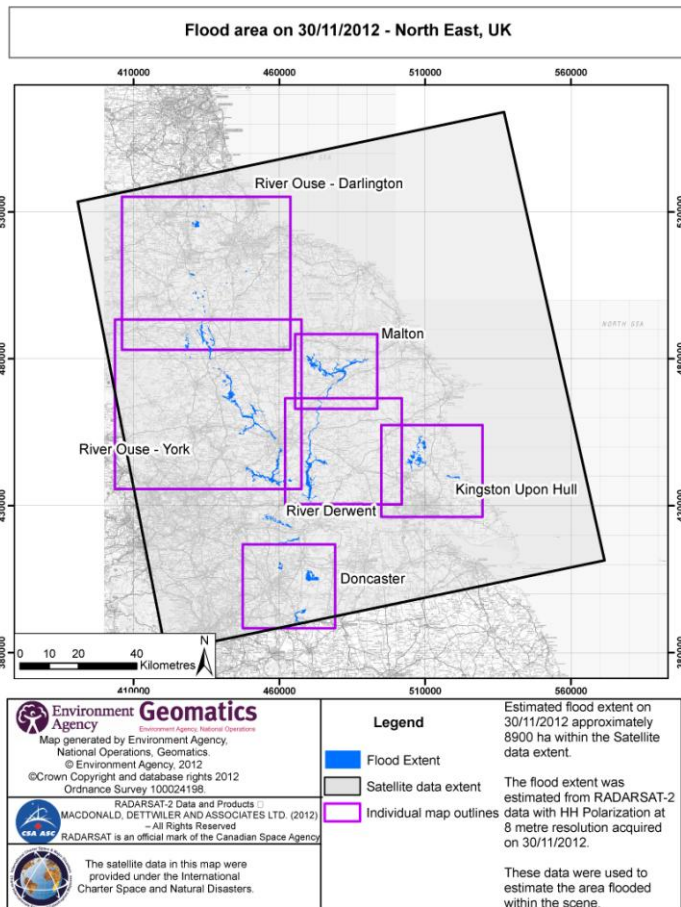
The remaining cases were due to earthquakes, wild fires, and a volcanic eruption. Almost one third of these disasters took place in Asia/Oceania, and a similar number on the African continent.

For further information, details on Charter activations, maps, etc. visit the Charter website <http://www.disasterscharter.org/web/charter/activations>.



# INTERNATIONAL CHARTER NEWSLETTER

## Flooding in the UK



Following persistent heavy rainfall in parts of Britain, the UK Government's Cabinet Office activated the Charter twice towards the end of last year. The first activation on 27 November was for flooding over south-western counties, while the second activation on 21 December included this area as well as areas in Yorkshire in the north-east.

The week of 20-26 November was one of the wettest weeks in the last 50 years. Thousands of properties were flooded and there was widespread inundation of agricultural land. Data was received from Charter assets within 48 hours, and due to the time-lag between rainfall and large system river response, the Environment Agency was able to use these data during the ongoing management of the flooding incident.

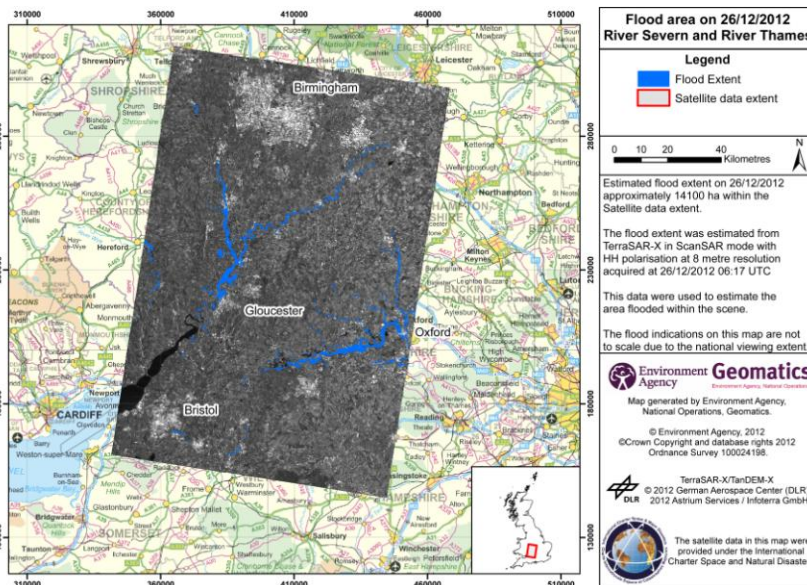
**Flood areas in the North East of the UK, including the River Ouse and River Derwent**

The second activation was pre-emptive, since there was a reliable forecast for further heavy rainfall on already-saturated ground. This meant that the data reception was extremely timely.

This data was useful to strategic incident managers in enabling immediate assessment of hectares under water and associated estimates of time taken to pump water out.

Charter products were also released via Twitter and used by local area responders using application softwares to accurately identify flood outlines. The Charter data complemented the Environment Agency's aerial campaigns.

In both instances, most data used were radar data either from Germany's TerraSAR system or Canada's RADARSAT system.



**Flood areas on the River Severn and River Thames on 26 December 2012**

## The International Charter 'Space and Major Disasters' develops a geographic tool

The "Charter Geographic Tool" was developed by CNES in order to establish a comprehensive record of all images acquired by the Charter members in response to Charter activations. Over and above the utility of such a record as an internal tool to the Charter, the main user requirement driving the development came from actors across the disaster management cycle to know where image data had been acquired during a given activation.

Since the creation of the International Charter 'Space and Major Disasters' in 2000, images have been acquired by around 20 different Earth Observation satellites. Of this, over 4000 metadata files have been ingested in the catalogue by the Charter agencies.

The Charter Geographic Tool consists of three main components:

- An image metadata catalogue based on PostgreSQL
- A FTP site which manages the harvesting of the metadata files uploaded by the Charter agencies
- A web interface based on the mapshup framework. This user-friendly interface allows to search and browse the metadata catalogue by activation, date and hazard type.

The tool is accessible through the Charter website or directly at the following address:

<http://engine.mapshup.info/charternrg/>

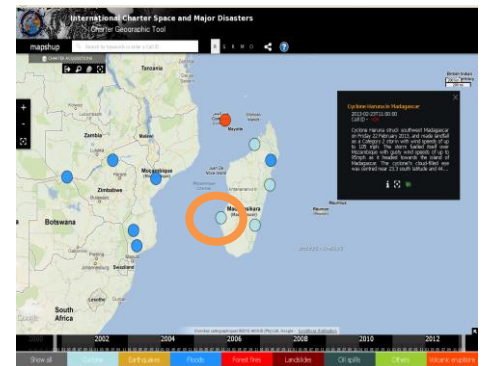
Currently this tool provides an historical record of images acquired thanks to the Charter; however, the Charter agencies aim in the mid-term to update the tool simultaneously to the availability of the images to the Project Manager. When this update is operational for all satellites, the system (as it is, with no development) will automatically provide a real-time vision of images available during the Charter activation.



Home page of the tool with display of all activations



Focus on a geographical area (eg. Madagascar)



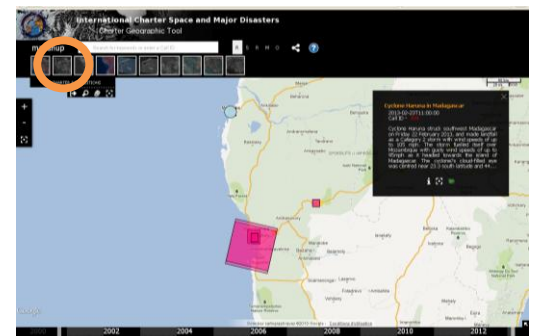
Selection of an activation (eg. Cyclone Haruna in Madagascar)



Quicklook and acquisition parameters



Selection of an image



View of Charter acquisitions and display of their layouts