



# INTERNATIONAL CHARTER SPACE & MAJOR DISASTERS

## International Charter ,Space and Major Disasters‘

**Satellite-based support for disasters worldwide**

Jens Danzeglocke, DLR  
UNISPACE Symposium, 19 June 2018



# History

Following **UNISPACE III in 1999**, the International Charter 'Space and Major Disasters' was established by the Space Agencies of Europe (ESA), France (CNES), and Canada (CSA).

The Charter was declared operational as of November 2000.





# Purpose and scope

The Charter supports with space-based data and information emergency response after major disasters, such as

- **Sudden natural events:** storms, floods, landslides, fires, earthquakes, volcanic eruptions etc.
- **Man-made events:** large industrial accidents and oil spills

The Charter does not cover emergencies caused by armed conflicts.

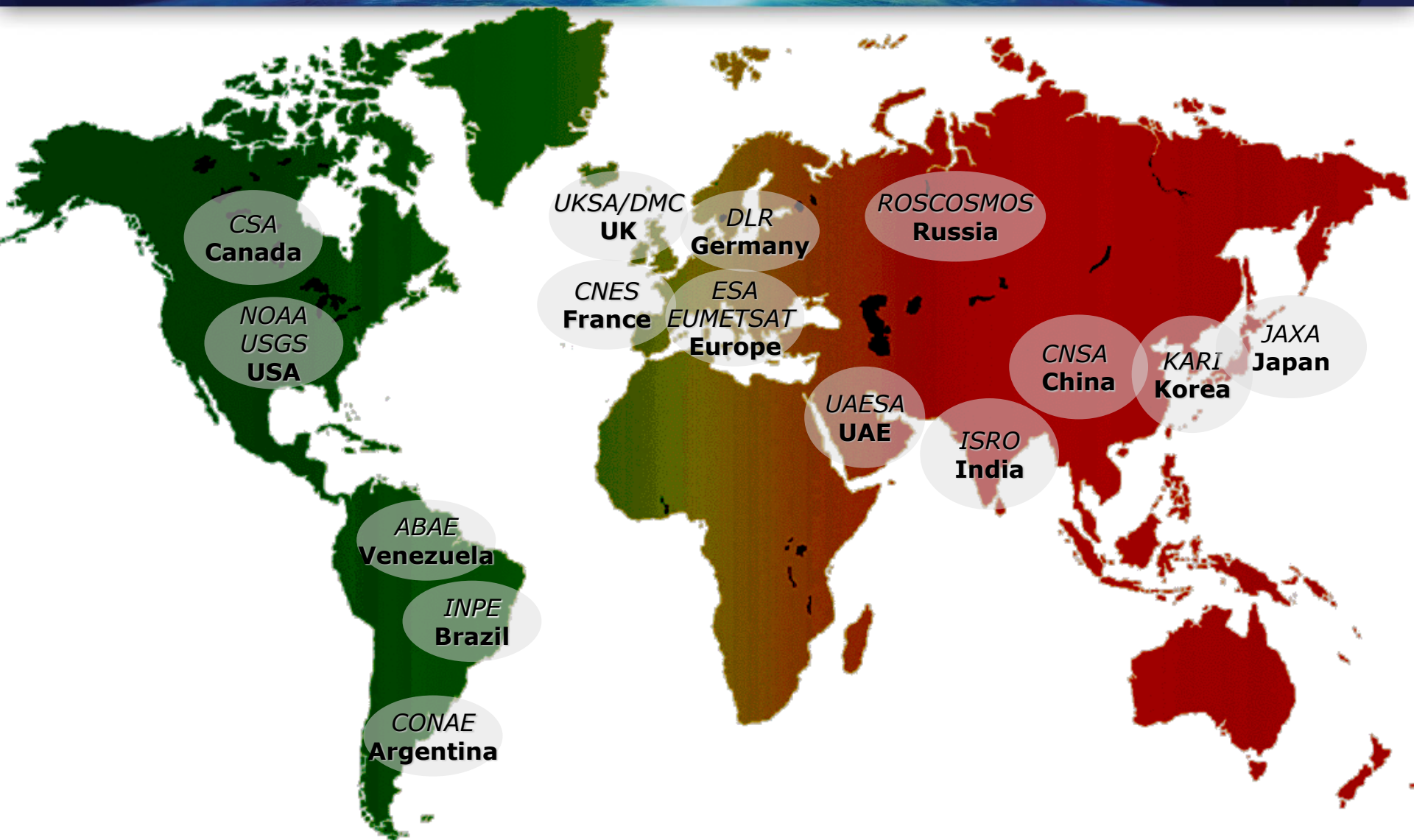


The Charter is **available 24/7**. When activated it executes **priority tasking** of numerous Earth-observing satellite missions in a rapid fashion and provides images and/or derived products.



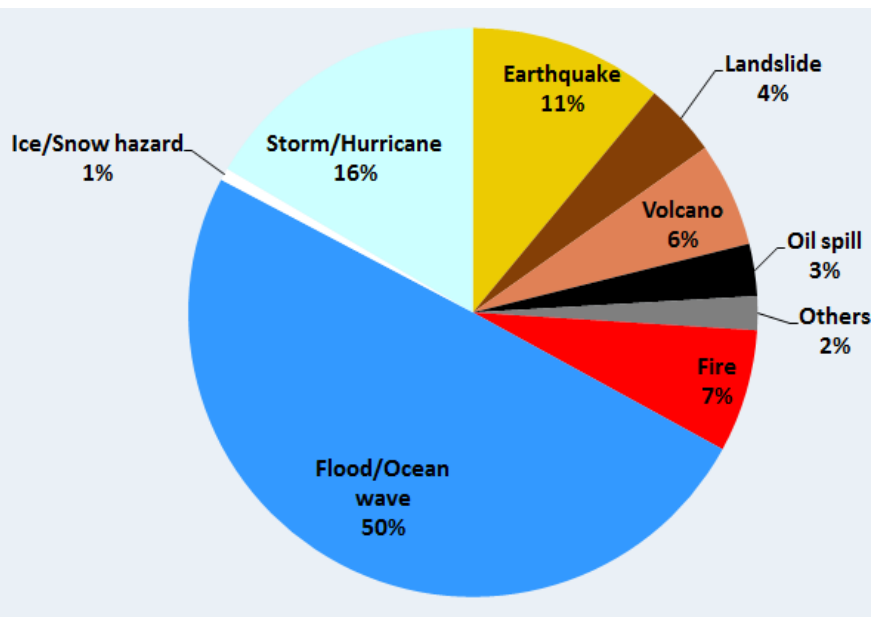


# Success in 2000 – 2018: Growth in Membership

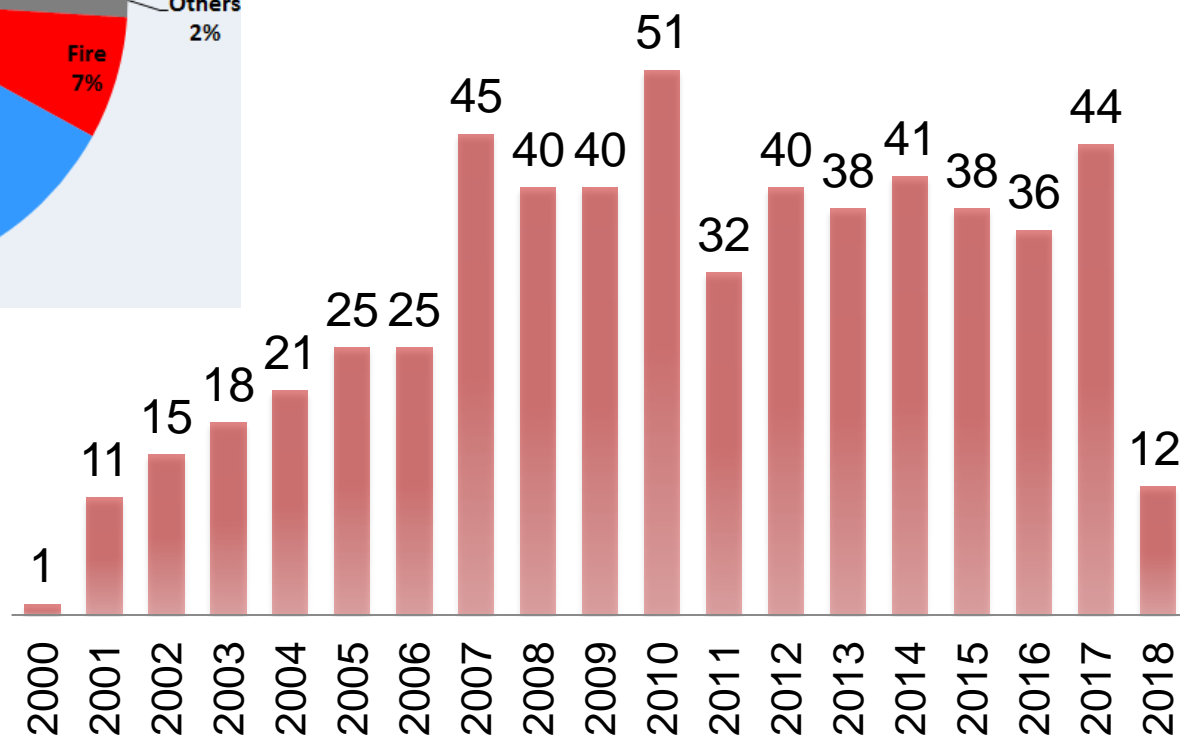




# Success in 2000 – 2018: Activation Statistics

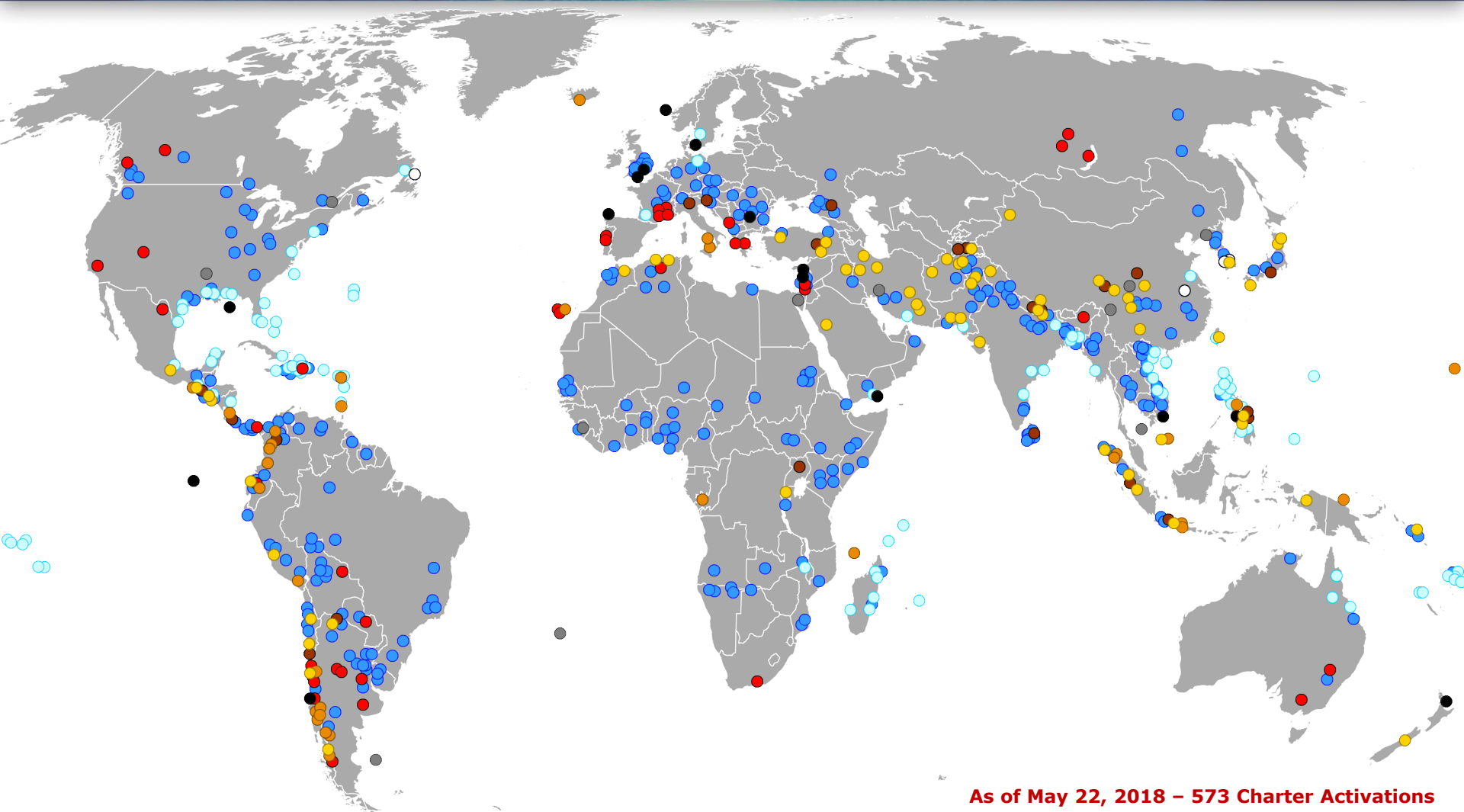


## Activation statistics as of May 22, 2018





# Success in 2000 – 2018: Support to disaster response in more than 120 countries



As of May 22, 2018 – 573 Charter Activations

Legend: ● Earthquake ● Landslide ● Volcano ● Storm/hurricane ● Flood/ocean wave ○ Ice/snow hazard ● Fire ● Oil spill ● Other





## Success in 2000 – 2018: Authorized Users in 60 countries



The Charter works with Authorized Users – these entities are able to directly trigger a Charter activation.



## Success in 2000 – 2018: Additional Access Mechanisms

In addition, there are agreements with entities allowed to use/trigger the Charter in certain cases:

- UNOOSA
- UNITAR/UNOSAT
- ADRC (Sentinel Asia)
- EC-ERCC / Copernicus Emergency Management Service





# Universal Access

## **Any national disaster management authority can become a Charter User!**

The following conditions apply:

- The entity must be a national disaster management authority or its delegated agency in that country.
- It must have the capacity to download and use maps.
- It must be able to submit and pursue an activation request in English.

An official letter of the organisation and a filled **Registration Form** (available at <https://disasterscharter.org>) needs to be sent to [ExecutiveSecretariat@disasterscharter.org](mailto:ExecutiveSecretariat@disasterscharter.org).

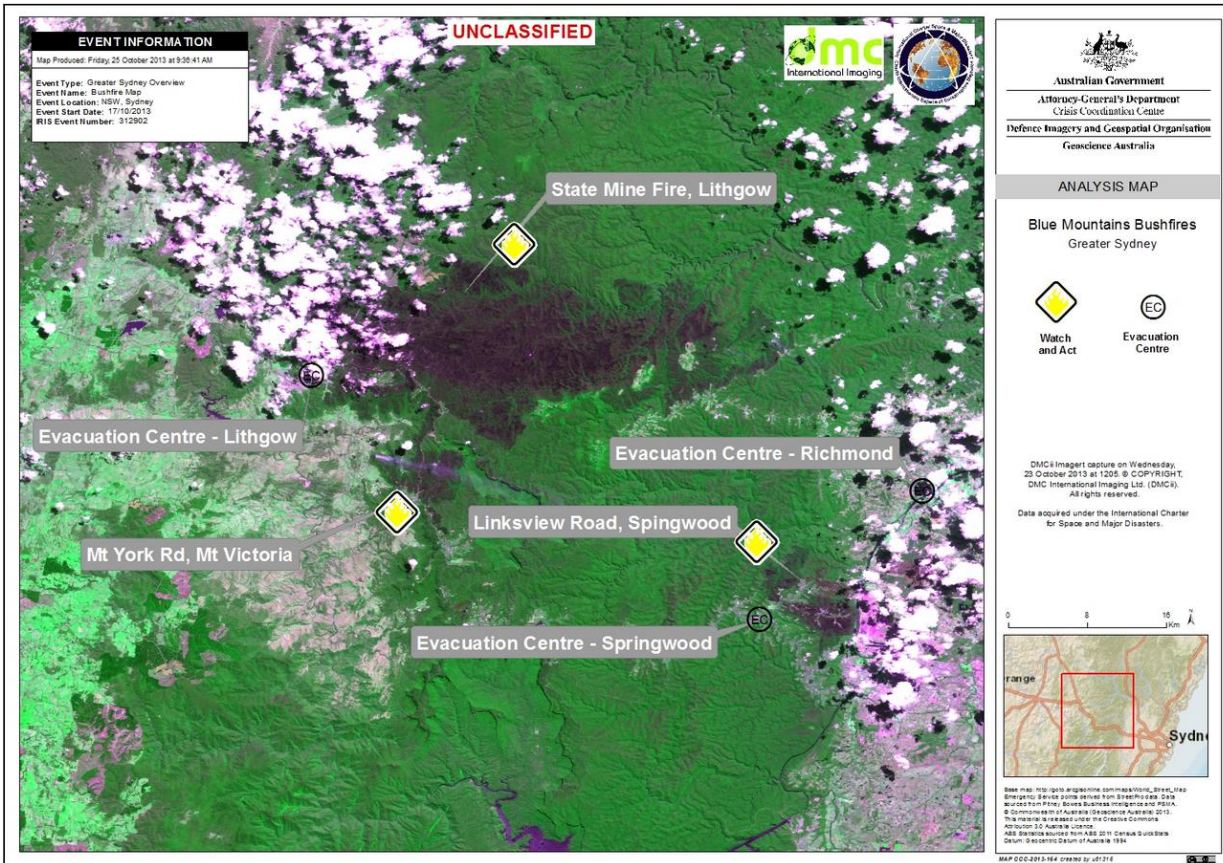
Becoming an Authorized User does not happen from one day to the next, but involves an assessment by the Charter members as well as a training and simulation exercise.



# Examples: Australia

Geoscience Australia (as delegate of Emergency Management Australia) became an Authorized User in 2013.

The Charter was activated in 2013 due to almost 100 wildfires raging across New South Wales.



Resident stands in front of his 1958 bus after fighting a fire at the historic township Newnes Junction north of Lithgow.

Source: AAP





# Examples: Malawi

Malawi's Department of Disaster Management Affairs became an Authorized User in 2014. It activated the Charter in 2015 due to major flooding impacting half of the country.

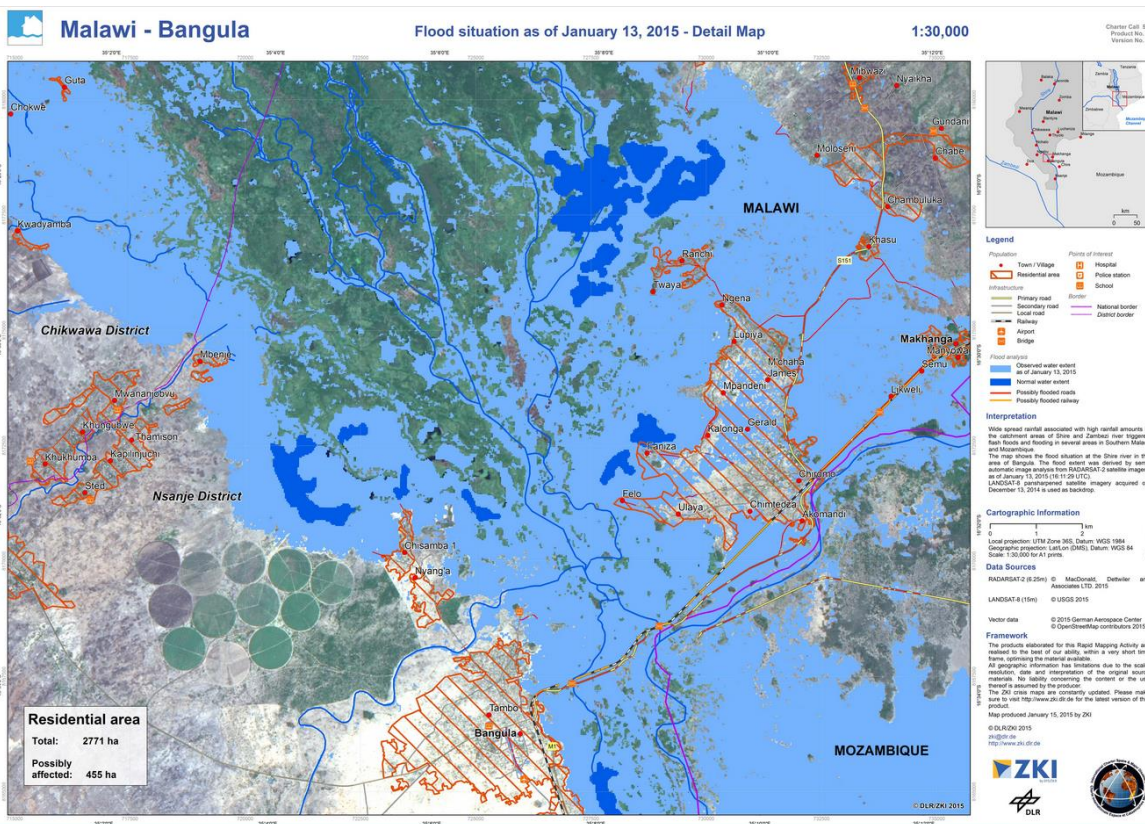


© Shiraz Mohamed/AP



© UNICEF

Left: map based on RADARSAT-2 and LANDSAT imagery

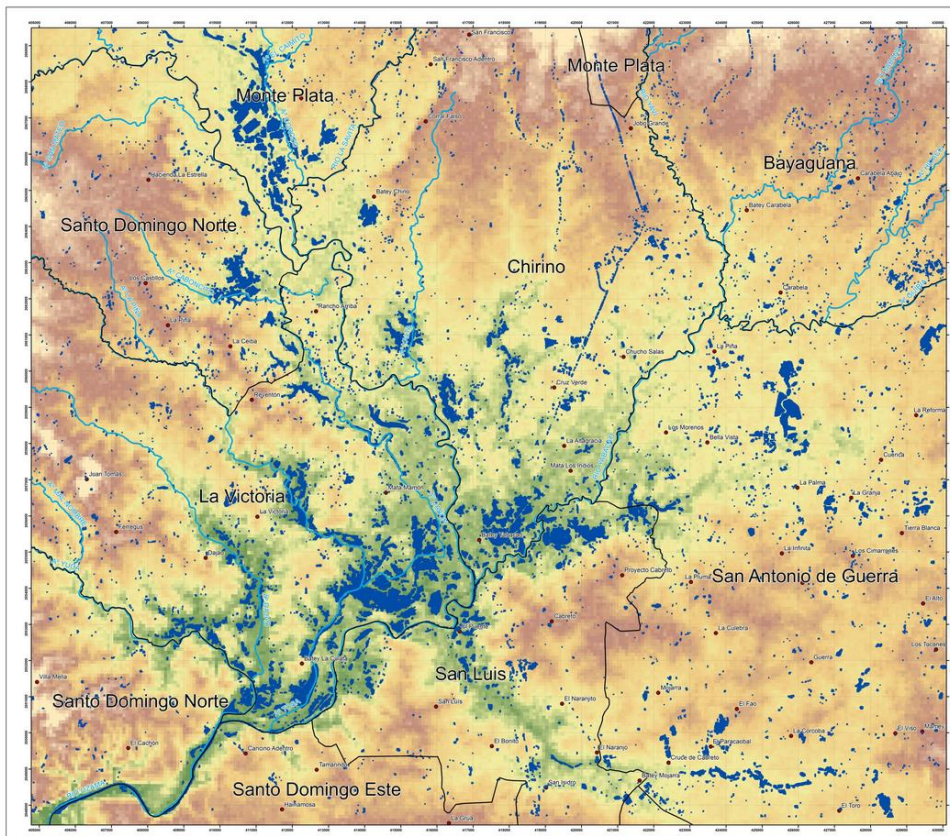






# Examples: Dominican Republic

The National Commission of Emergencies and Civil Protection (CNE) of the Dominican Republic became an Authorized User in 2015 and activated the Charter in 2016 due to flooding caused by Hurricane Matthew.



**EIGEO**

Áreas inundadas por el Huracán Matthew en el Gran Santo Domingo y Monte Plata  
Ref.: 0000002

Elaborado por el Equipo Interinstitucional Geoespacial  
Fuente: Imágenes Radar RADARSAT-2, 8 oct. 2016 y modelo de terreno SRTM a 90m.  
Derechos de la fuente: MDA, 2016 y SRTM, 2016  
Derechos del mapa: EIGEO, 2016  
Proyección: WGS84 UTM 18N

Interpretación del mapa:  
El mapa fue elaborado en base a imágenes radar de RADARSAT-2 gestionados por el International Charter Space and Major Disasters.

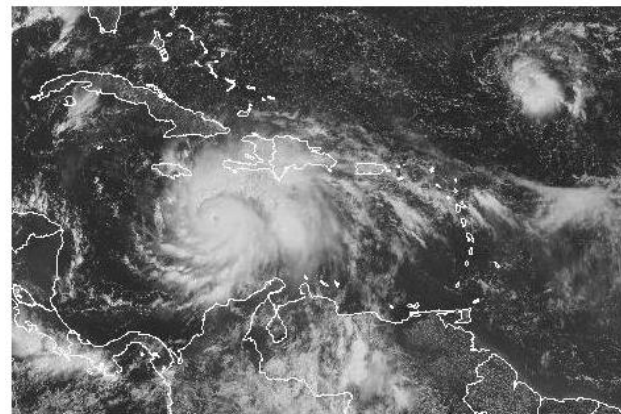
Las áreas inundadas fueron identificadas por la baja retroreflexión del agua con relación a las ondas emitidas por el satélite.

El mapa presenta las áreas inundadas el día 8 de octubre. Sin embargo las lluvias cayeron entre los días 3 y 5 de octubre. Por lo tanto, las áreas inundadas que aparecen en este mapa eran más extensas durante el evento.

0 1 2 4 Km.

- Poblados
- Ríos principales
- Áreas inundadas
- Municipios y Distritos Municipales

Altitud en m  
Año: 94  
Escala: 1:7



Hurricane Matthew imaged from space (NOAA)



A flood in Santo Domingo, capital of the Dominican Republic  
Photograph: Erika Santelices/AFP/Getty Images

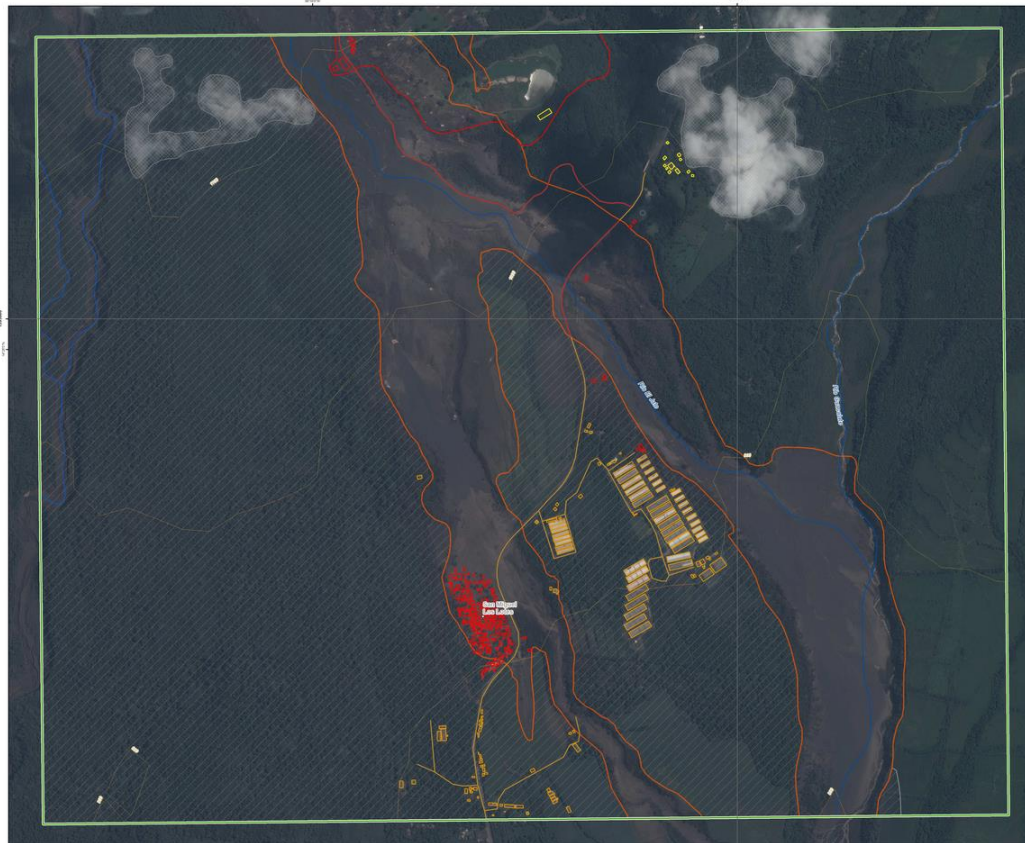




# Examples: Guatemala

The National Coordinating Agency for Disaster Reduction (CONRED) of Guatemala became an Authorized User in 2016.

The Charter was activated in 2018 due to the eruption of Fuego Volcano.



GLDCE number: VO-2018-00006-GTM Activated ID: EMR02018  
Producer: OPERNICUS/ELISABETH DE SPINER

### San Miguel Los Lotes - GUATEMALA

Volcanic activity - Situation as of 06/06/2018  
Grading Map

**Cartographic Information**  
Scale: 1:5000  
Full color (30 x A1, medium resolution) (200 dpi)

**Legend**

<b>Crisis Information</b>	<b>Placenames</b>
Destroyed	Destroyed
Probably destroyed	Probably destroyed
<b>Transportation</b>	<b>Hydrography</b>
Road - Damaged	Road
Road - Damaged	Road
<b>Object Description</b>	<b>Physical Information</b>
Pyroclastic flow	Pyroclastic flow
Area of interest	Area of interest

**Map Information**

**Keywords**

Keyword	Value
Topic	04020101 - 04020102 - 04020103
Category	04020101 - 04020103

**Data Sources**

**Disclaimer**

Map produced by Copernicus Emergency Response Group (ERG) on 06/06/2018.

Copernicus  
Europe's eyes on Earth

Top: Pyroclastic flow on the flank of Fuego volcano. © AFP

Left:  
This map, produced by Copernicus EMS based on Pleiades data provided by the Int. Charter, shows damage information (buildings, roads) as well as the extent of the pyroclastic flow.





# Conclusions / Societal benefit achieved by the Charter

- The International Charter Space and Major Disasters is a rush-mode mechanism **supporting emergency response by providing quick access to satellite data and/or derived products.**
- The Charter has grown much between UNISPACE III and UNISPACE+50, covering almost **600 emergencies** caused by disasters **in more than 120 countries.**
- **Universal Access** encourages disaster management authorities from all countries to become Authorised Users after training.
- The Charter encourages **in-country capacities** to act as “Project Managers” and “Value Adders” (producers of satellite-based maps)
- It is the intention of the Charter members to **help save lives, property, infrastructure, and the environment** in cases of major disasters worldwide.
- In fruitful **collaboration with UNOOSA/UN-SPIDER, UNITAR/UNOSAT, Sentinel Asia, and the Copernicus Emergency Management Service**, the Charter intends to help filling the gap between space faring and space emerging nations.





Find the Charter at

<https://disasterscharter.org>

<https://twitter.com/disastersChart>

and meet us in the UNISPACE Exhibition Hall

