INTERNATIONAL CHARTER SPACE & MAJOR DISASTERS

International Charter
‚Space and Major Disasters‘

Satellite-based support for disasters worldwide

Jens Danzeglocke (German Space Agency at DLR)

UN-SPIDER / ZFL Regional Virtual Expert Meeting for Southern Africa:
“Space-based Solutions for Disaster Risk Management and Emergency Response”,
13-15 July 2021

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).

Charter became operational in Nov. 2000

Purpose and scope

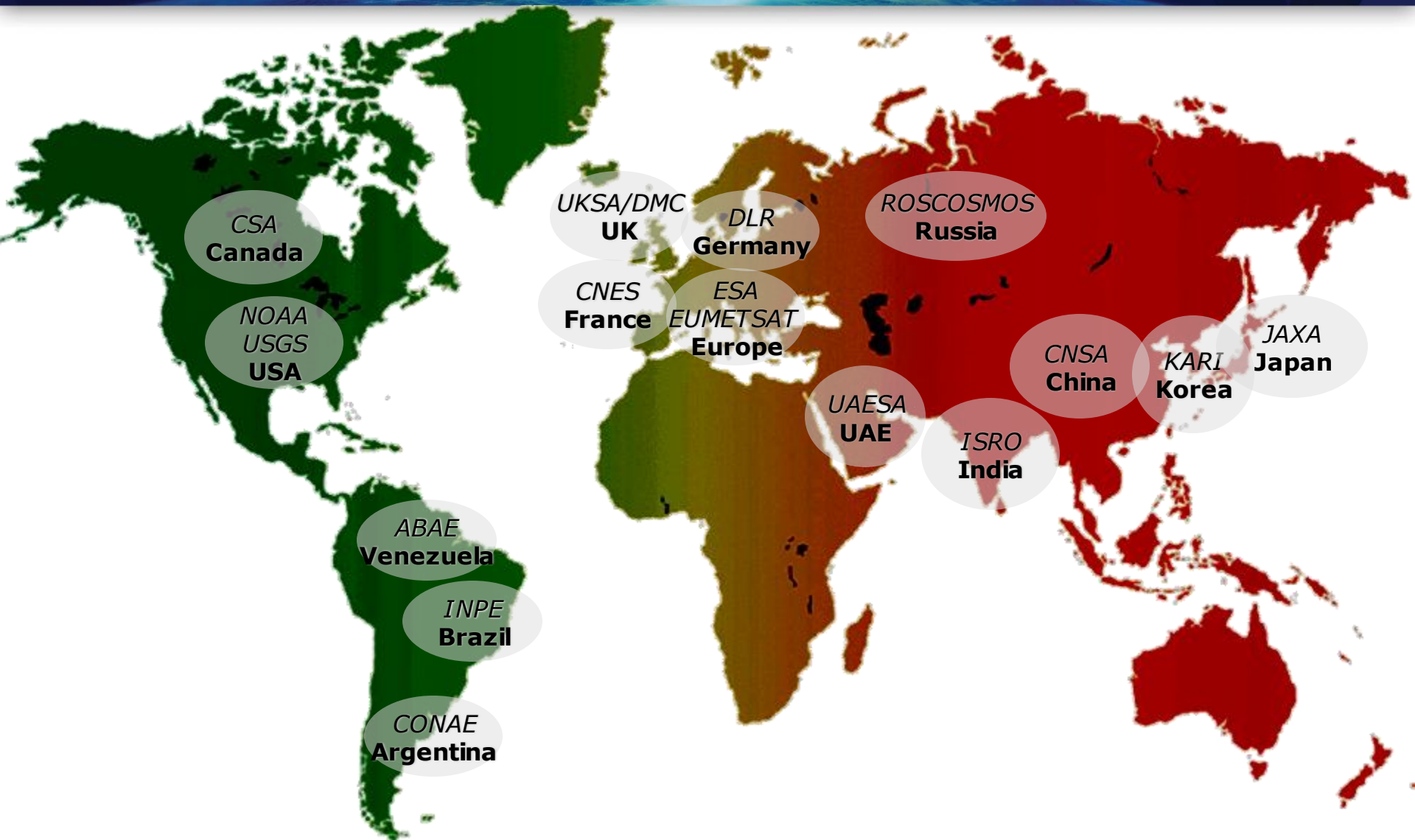
The Charter supports with space-based data and information emergency response after major disasters, such as

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

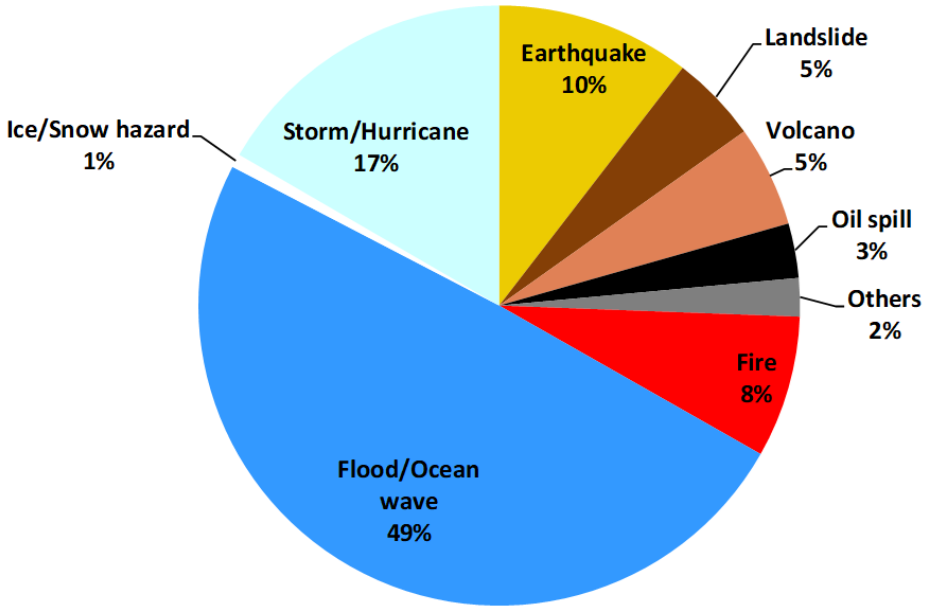
The Charter does not cover emergencies caused by armed conflicts.

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.

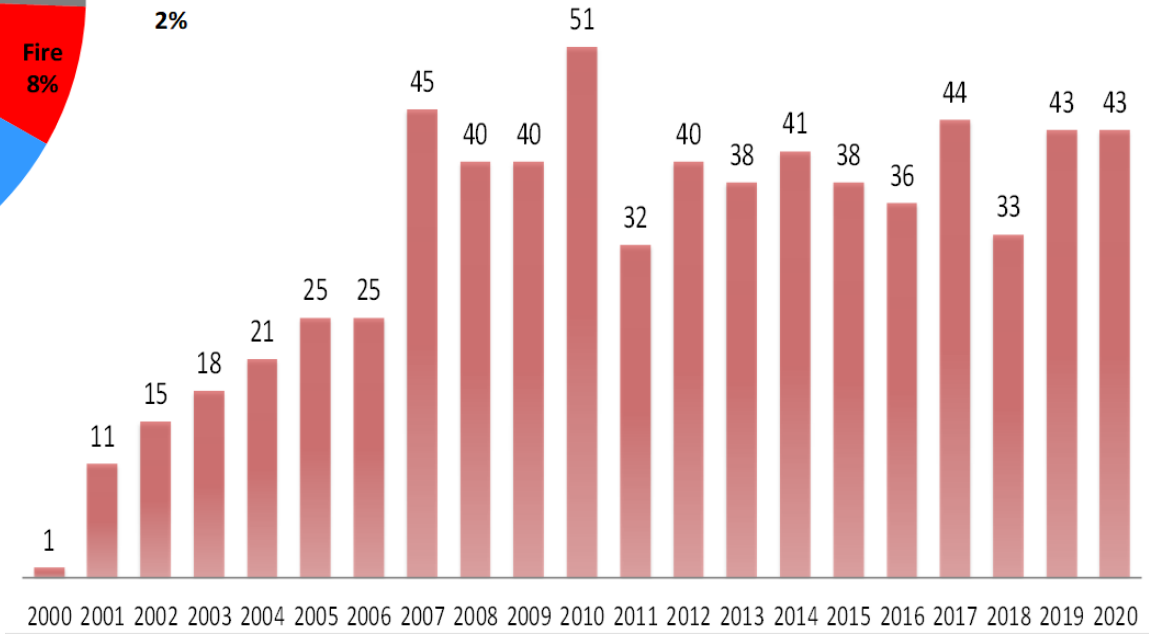
Membership


CSA
Canada
NOAA
USGS
USA
UKSA/DMC
UK
DLR
Germany
CNES
France
ESA
EUMETSAT
Europe
ROSCOSMOS
Russia
CNSA
China
KARI
Korea
JAXA
Japan
UAESA
UAE
ISRO
India
ABAE
Venezuela
INPE
Brazil
CONAE
Argentina

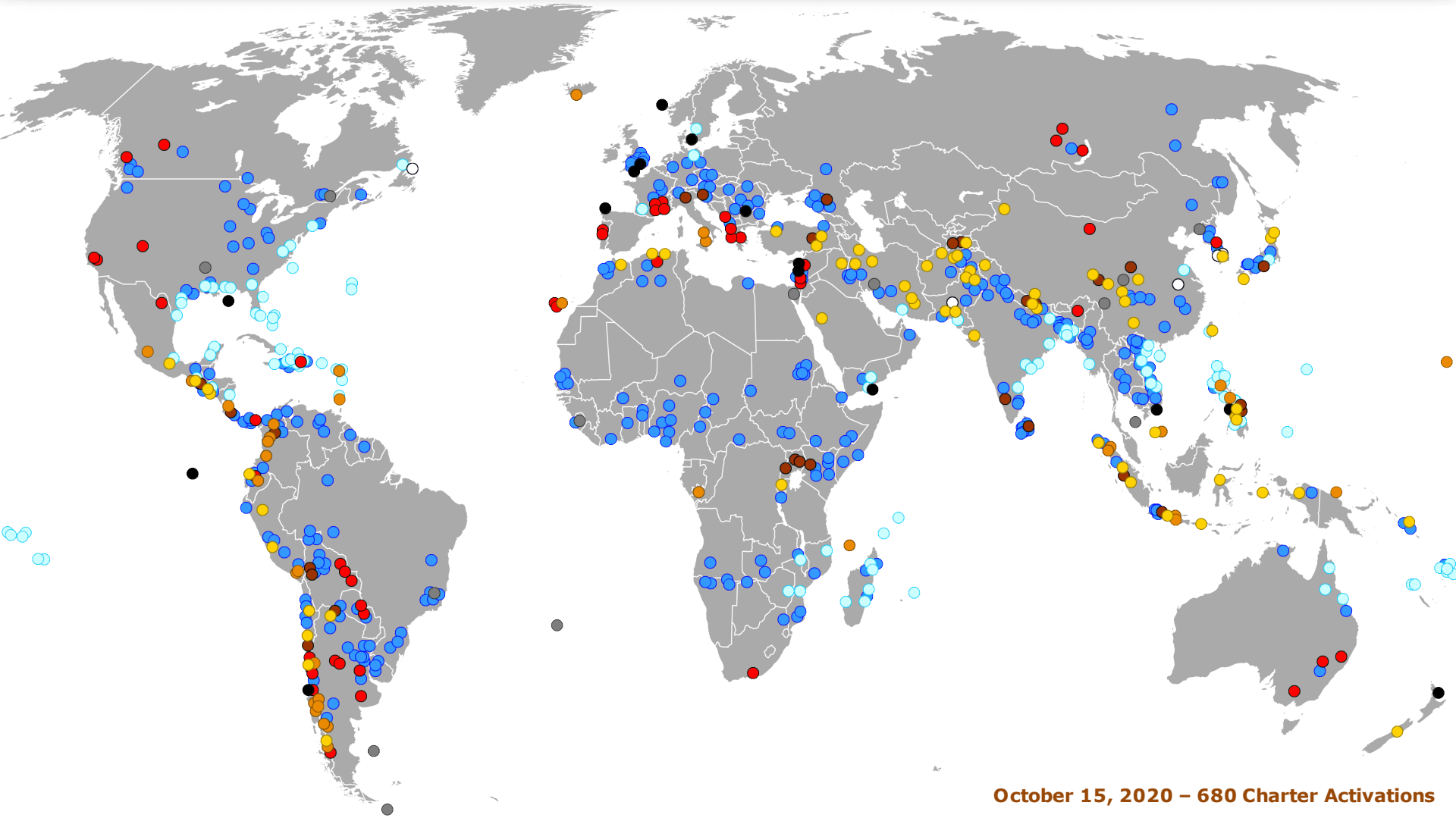
Activation Statistics



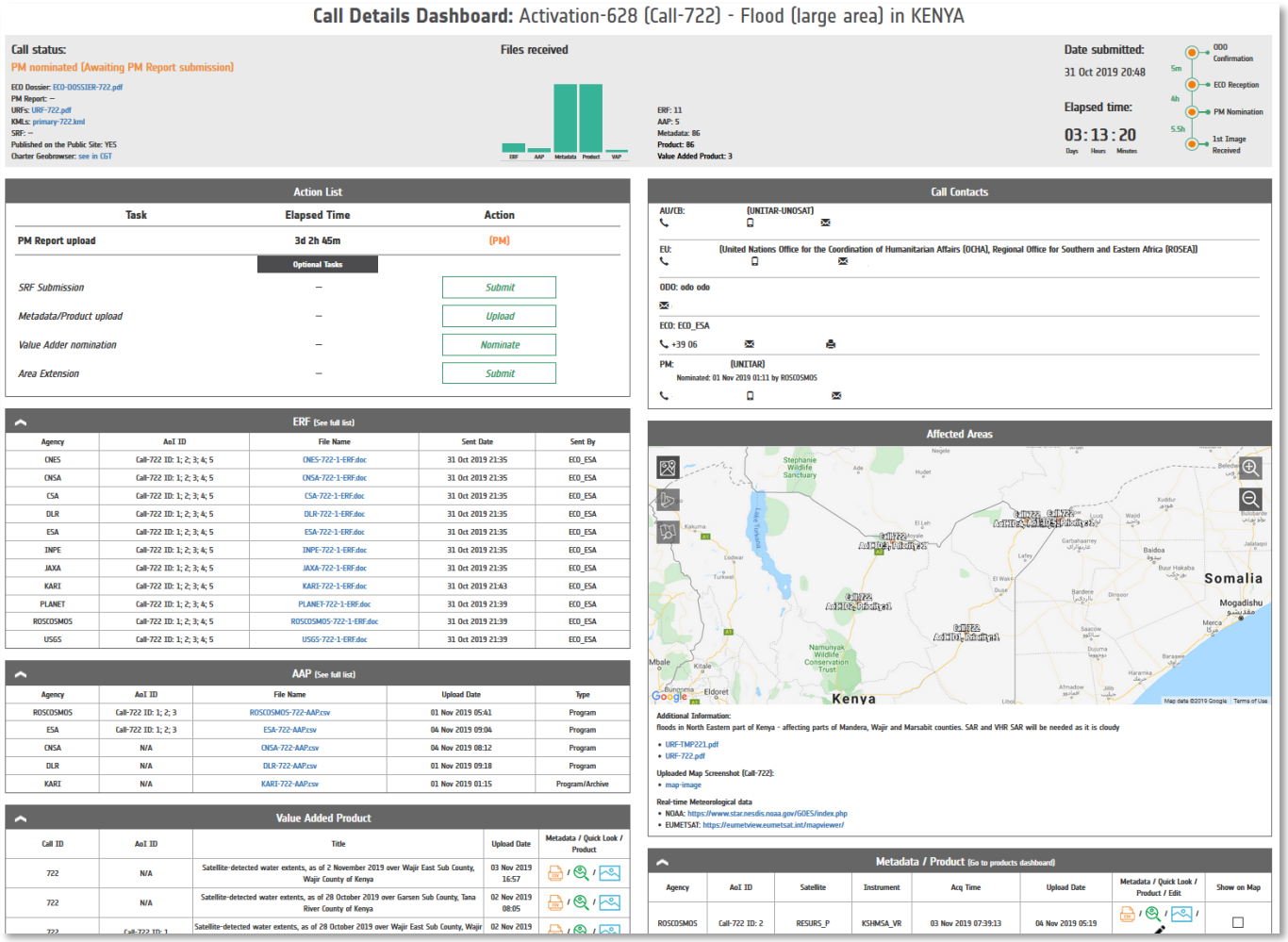
Activation statistics as of 15 Oct. 2020



Distribution of Charter activations: Support to disaster response in more than 120 countries



How the web-based of the Charter Operational System ("COS-2") supports activations



Call Details Dashboard: Activation-628 (Call-722) - Flood (large area) in KENYA

Call status:
PM nominated (Awaiting PM Report submission)
ECO Dossier: ECO-DOSSIER-722.pdf
PM Report: –
URFs: URF-722.pdf
KMLs: primary-722.kml
SRF: –
Published on the Public Site: YES
Charter Geobrowser: see in CGT

Files received
ERF: 11
AAP: 5
Metadata: 86
Product: 86
Value Added Product: 3

Date submitted: 31 Oct 2019 20:48
Elapsed time: 03:13:20 (Days Hours Minutes)
ODO Confirmation → (5m) → ECO Reception → (4h) → PM Nomination → (5.5h) → 1st Image Received

Action List

Task	Elapsed Time	Action
PM Report upload	3d 2h 45m	(PM)
Optional Tasks		
SRF Submission	–	Submit
Metadata/Product upload	–	Upload
Value Adder nomination	–	Nominate
Area Extension	–	Submit

Call Contacts
AU/CB: (UNITAR-UNOSAT)
EU: (United Nations Office for the Coordination of Humanitarian Affairs (OCHA), Regional Office for Southern and Eastern Africa (ROSEA))
ODO: odo odo
ECO: ECO_ESA
+39 06
PM: (UNITAR)
Nominated: 01 Nov 2019 01:11 by ROSCOSMOS

ERF (See full list)

Agency	AoI ID	File Name	Sent Date	Sent By
CNES	Call-722 ID: 1; 2; 3; 4; 5	CNES-722-1-ERF.doc	31 Oct 2019 21:35	ECO_ESA
CNSA	Call-722 ID: 1; 2; 3; 4; 5	CNSA-722-1-ERF.doc	31 Oct 2019 21:35	ECO_ESA
CSA	Call-722 ID: 1; 2; 3; 4; 5	CSA-722-1-ERF.doc	31 Oct 2019 21:35	ECO_ESA
DLR	Call-722 ID: 1; 2; 3; 4; 5	DLR-722-1-ERF.doc	31 Oct 2019 21:35	ECO_ESA
ESA	Call-722 ID: 1; 2; 3; 4; 5	ESA-722-1-ERF.doc	31 Oct 2019 21:35	ECO_ESA
INPE	Call-722 ID: 1; 2; 3; 4; 5	INPE-722-1-ERF.doc	31 Oct 2019 21:35	ECO_ESA
JAXA	Call-722 ID: 1; 2; 3; 4; 5	JAXA-722-1-ERF.doc	31 Oct 2019 21:35	ECO_ESA
KARI	Call-722 ID: 1; 2; 3; 4; 5	KARI-722-1-ERF.doc	31 Oct 2019 21:43	ECO_ESA
PLANET	Call-722 ID: 1; 2; 3; 4; 5	PLANET-722-1-ERF.doc	31 Oct 2019 21:39	ECO_ESA
ROSCOSMOS	Call-722 ID: 1; 2; 3; 4; 5	ROSCOSMOS-722-1-ERF.doc	31 Oct 2019 21:39	ECO_ESA
USGS	Call-722 ID: 1; 2; 3; 4; 5	USGS-722-1-ERF.doc	31 Oct 2019 21:39	ECO_ESA

Affected Areas
Somalia
Mogadishu
Kenya
Additional Information:
floods in North Eastern part of Kenya - affecting parts of Mandera, Wajir and Marsabit counties. SAR and VHR SAR will be needed as it is cloudy
URF-TMP221.pdf
URF-722.pdf
Uploaded Map Screenshot (Call-722):
map-image
Real-time Meteorological data
NOAA: https://www.star.nesdis.noaa.gov/GOES/index.php
EUMETSAT: https://eumetview.eumetsat.int/mapviewer/

AAP (See full list)

Agency	AoI ID	File Name	Upload Date	Type
ROSCOSMOS	Call-722 ID: 1; 2; 3	ROSCOSMOS-722-AAP.csv	01 Nov 2019 05:41	Program
ESA	Call-722 ID: 1; 2; 3	ESA-722-AAP.csv	04 Nov 2019 09:04	Program
CNSA	N/A	CNSA-722-AAP.csv	04 Nov 2019 08:12	Program
DLR	N/A	DLR-722-AAP.csv	01 Nov 2019 09:18	Program
KARI	N/A	KARI-722-AAP.csv	01 Nov 2019 01:15	Program/Archive

Value Added Product

Call ID	AoI ID	Title	Upload Date	Metadata / Quick Look / Product
722	N/A	Satellite-detected water extents, as of 2 November 2019 over Wajir East Sub County, Wajir County of Kenya	03 Nov 2019 16:57	
722	N/A	Satellite-detected water extents, as of 28 October 2019 over Garsen Sub County, Tana River County of Kenya	02 Nov 2019 08:05	
722	Call-722 ID: 1	Satellite-detected water extents, as of 28 October 2019 over Wajir East Sub County, Wajir	02 Nov 2019	

Metadata / Product (Go to products dashboard)

Agency	AoI ID	Satellite	Instrument	Acq Time	Upload Date	Metadata / Quick Look / Product / Edit	Show on Map
ROSCOSMOS	Call-722 ID: 2	RESURS_P	KSHMSA_VR	03 Nov 2019 07:39:13	04 Nov 2019 05:19		☐

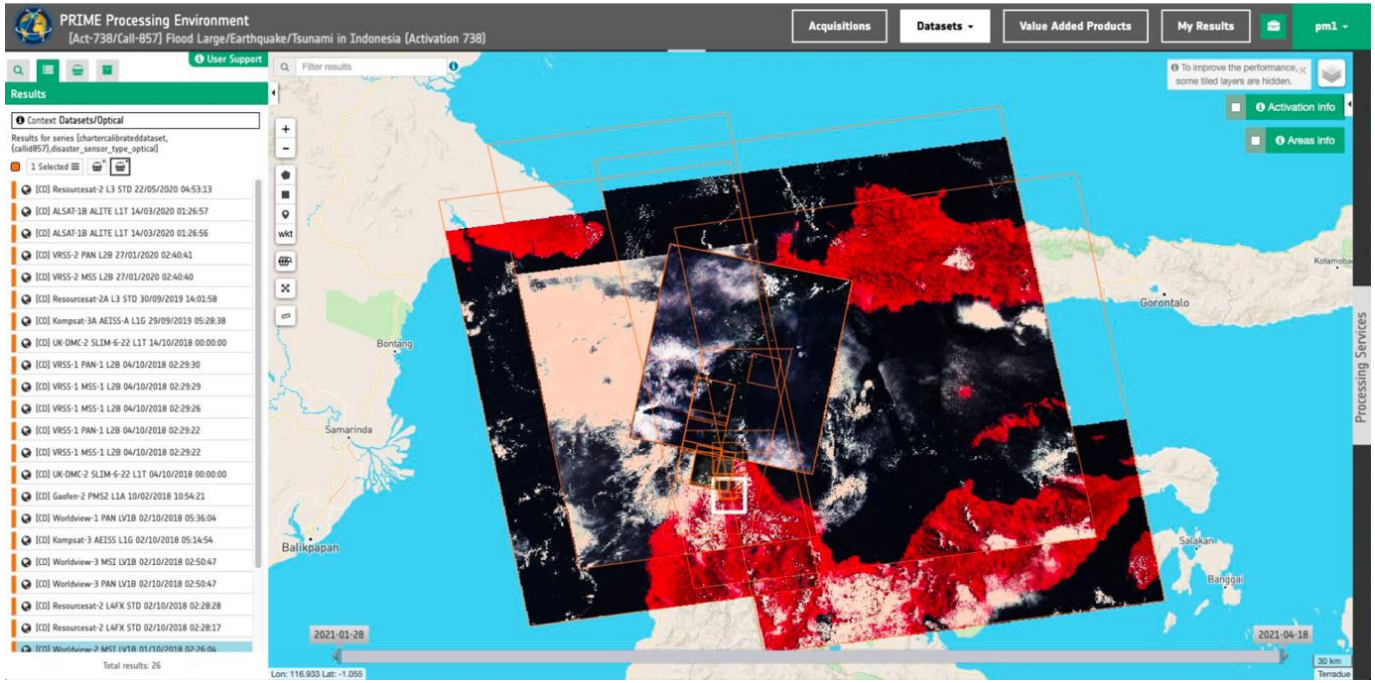
COS-2 provides a lot of information for the Project Manager and Value Adders in one place, e.g.:

- Contact Information
- Data acquisitions planned by Charter agencies
- Available image data (metadata, quick looks, full data)
- Areas of Interest
- Derived products (maps)

Further Evolution: Charter Processing Environment

The Charter Board approved the implementation of a Charter Processing Environment proposed by ESA. The Processing Environment:

- aims to **support Charter Project Managers and Value-Adding providers with on-line processing services** during the activations.
- currently **in pre-operational phase**



The Geobrowser of the Charter Processing Environment, looking at optical datasets over a Charter activation in Indonesia.

Authorized Users in >70 countries

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

Authorized Users in >70 countries

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.

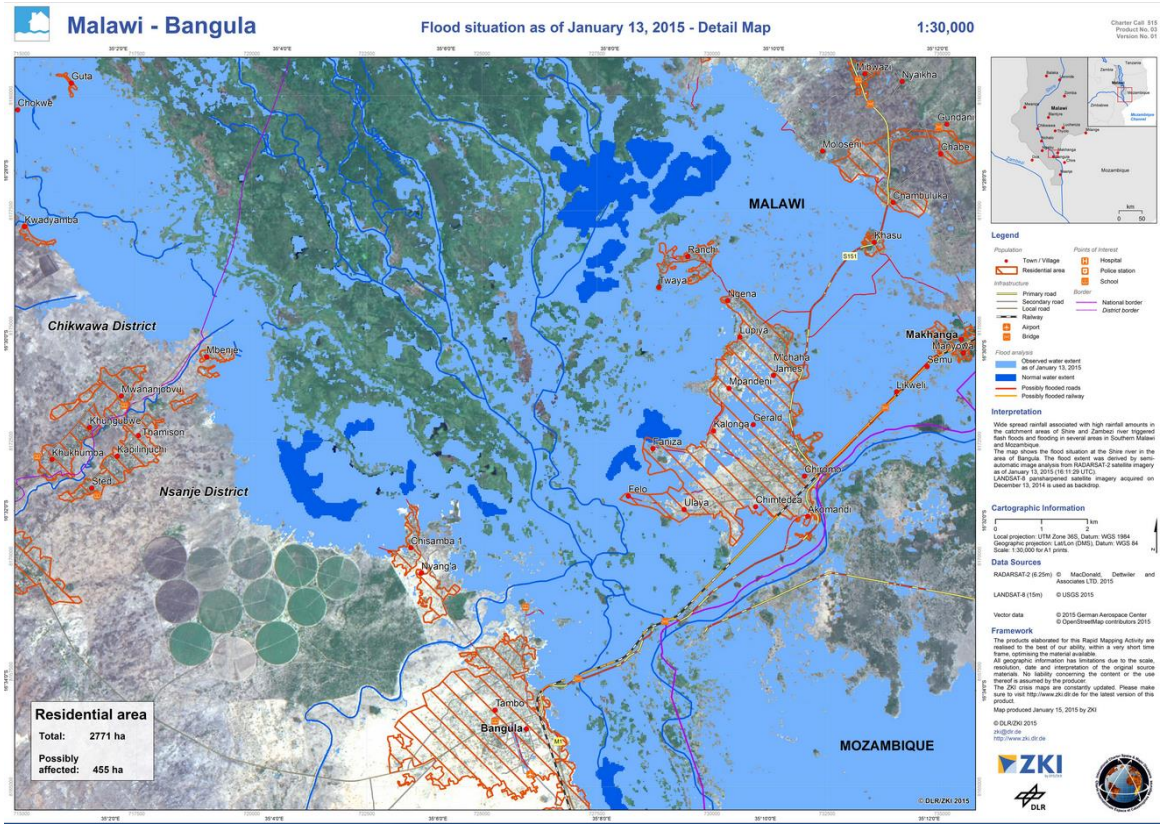
An official letter of the organisation and a filled Registration Form (available at https://disasterscharter.org) needs to be sent to ExecutiveSecretariat@disasterscharter.org.

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: 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.



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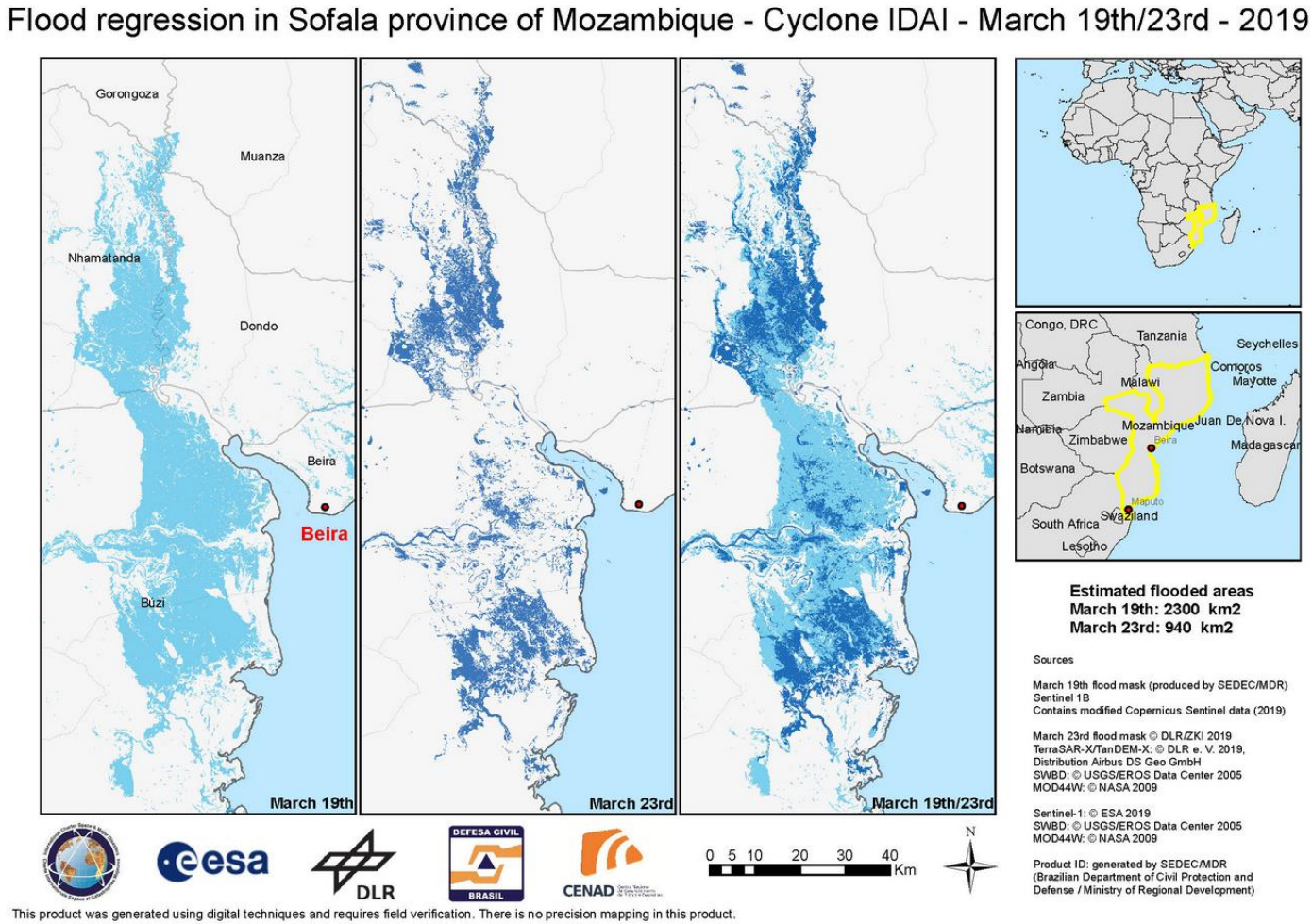
Left: map based on RADARSAT-2 and LANDSAT imagery

Examples: Mozambique

Cyclone Idai brought torrential rain and flooding to Mozambique in March 2019. The Charter received activation requests from CENAD and UNOSAT

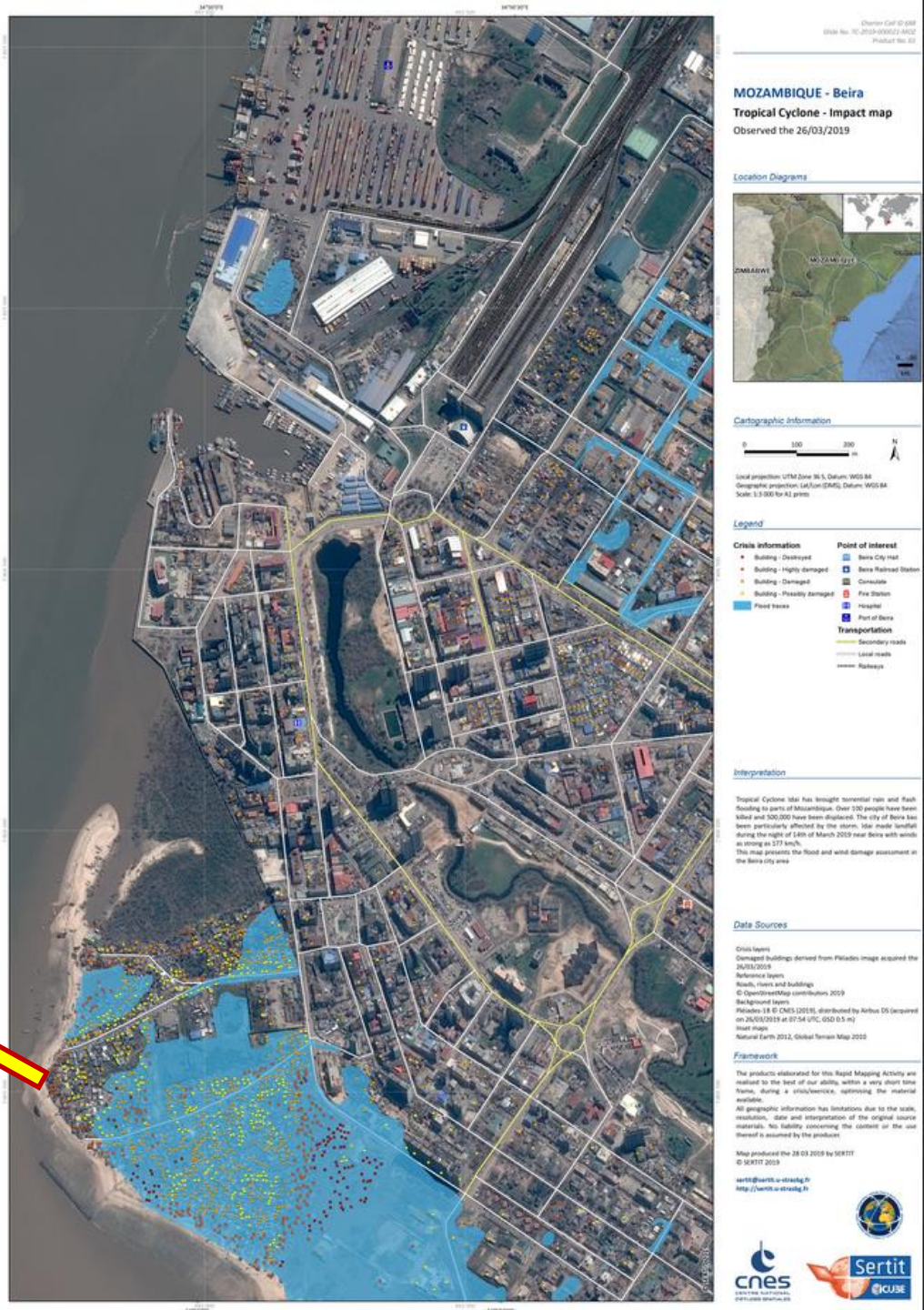


Map produced by SEDEC/MDR based on Sentinel-1 and TerraSAR-X imagery

Examples: Mozambique

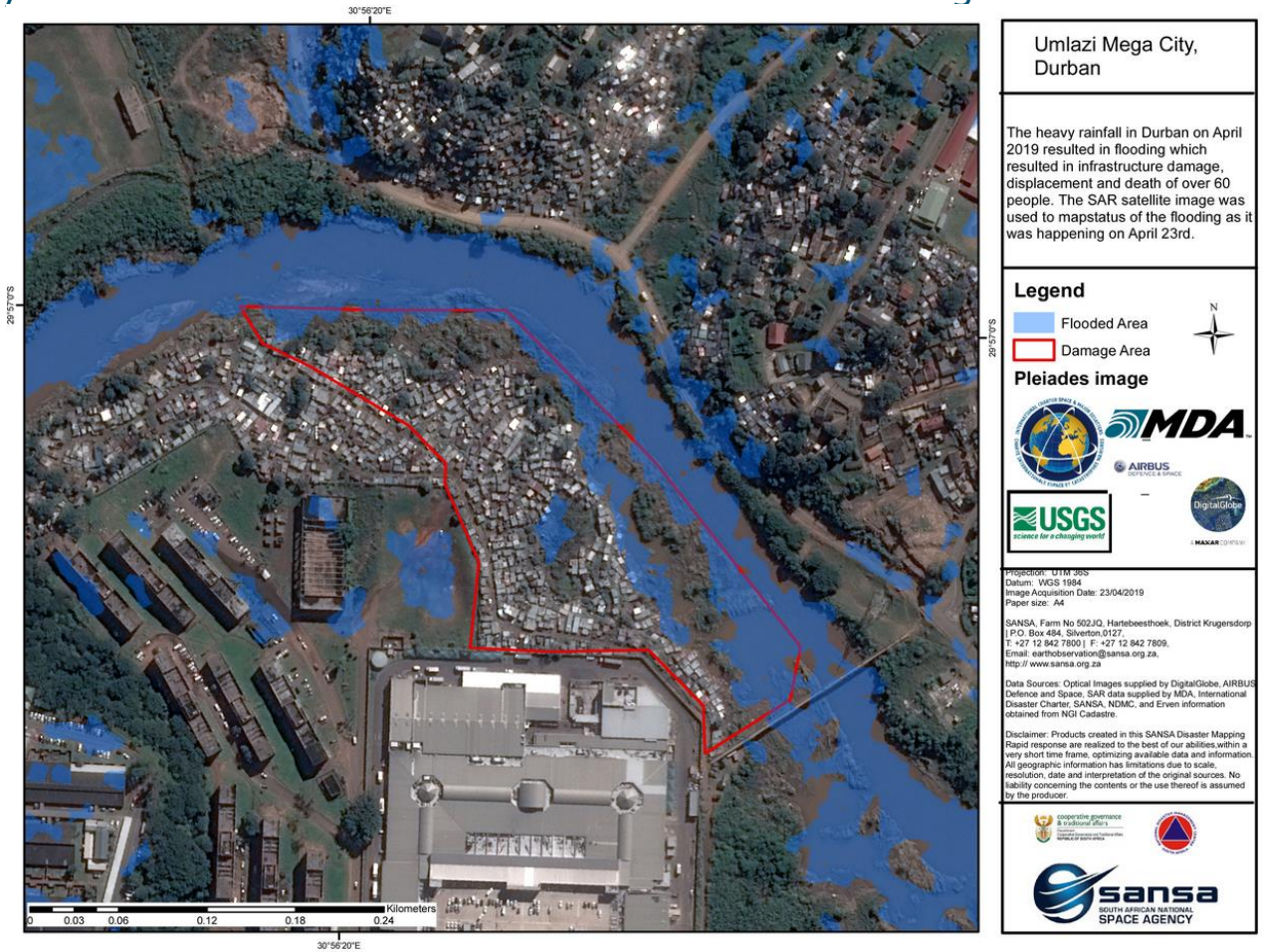
Several Value-adders contributed to the provision of maps for this Charter activation.

Map produced by SERTIT based on Pleiades very-high resolution imagery



Examples: South Africa

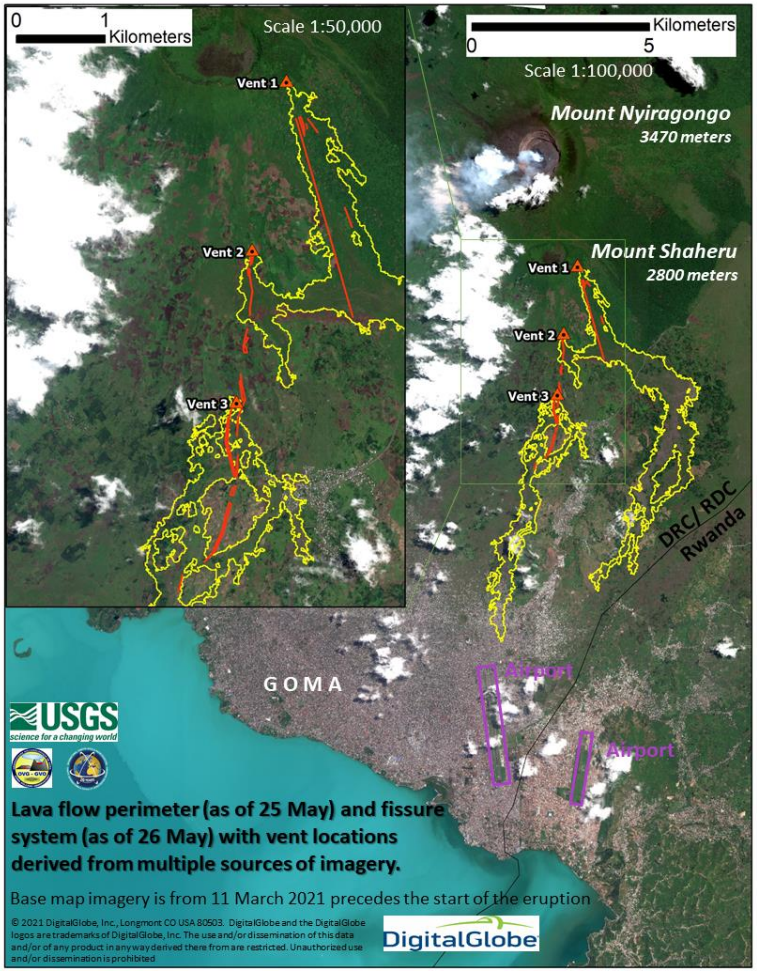
Floods and mudslides in Durban and the surrounding KwaZulu-Natal province of South Africa have killed over 60 people and displaced more than 1000 in April 2019. Charter was activated by UNOOSA on behalf of the National Disaster Management Centre of South Africa.

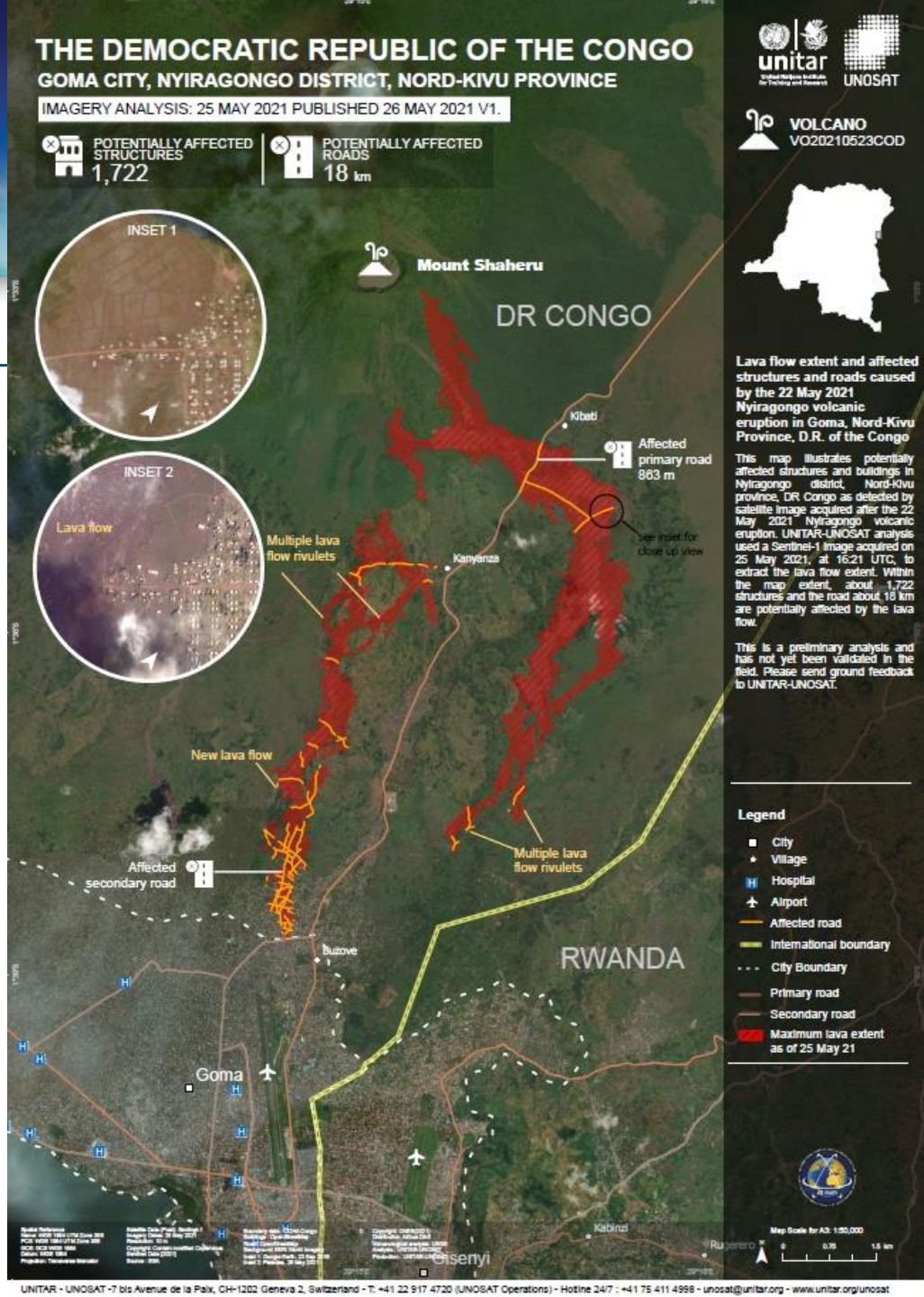


Map produced by SANSA based on Pleiades imagery

Examples: DR Congo

Eruptions of Mount Nyiragongo in May 2021.
Maps produced by USGS and UNITAR/UNOSAT





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 – with the intention to help save lives, property, infrastructure, and the environment in cases of major disasters worldwide.
- The Charter has covered >700 emergencies caused by disasters in >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)
- 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

How the Charter works and how users can benefit (5min Video):
https://www.youtube.com/watch?v=ZvExM-Z3E2w