International Charter:

Space and Major Disasters

Annual Report 2024

V4

Contents

1. Introduction

1.1 Purpose and scope of this document

This document describes the activities of the ‘International Charter: Space and Major Disasters’ (the Charter) that took place in 2024.

1.2 Structure of the report

This report is based on the following inputs:

- Working documents, notes and actions of the Charter’s Executive Secretariat and Board
- Input from the Charter’s Communications Group
- Input from each Charter member concerning EO resources and publications
- Project Managers’ reports for each activation
- Data, statistics and reports from EM-DAT and other reports on disasters prepared by Insurance companies.

This report adheres to the following structure:

Chapter 1 – Introduction

Chapter 2 – The ‘International Charter: Space and Major Disasters’; overview and lead agencies of the Charter in 2024

Chapter 3 – Charter operations: depicts internal business regarding operations, resource consumption and technical updates (in particular the development of COS-2).

Chapter 4 – Assessment of the Charter operations: provides an assessment of the overall impact of the Charter as a service in supporting disaster response, and details the operational system performance, including generation of products and services, user appraisal and communication.

Chapter 5 – External relations: discusses the integration of new members, the Universal Access process, and relationships with Cooperating Bodies.

Chapter 6 – Communication: reports on all communication activities undertaken throughout the reporting period.

Chapter 7 – Conclusions: outlines the significant achievements and outcomes throughout the reporting period.

1.3 Applicable documents

[AD1] Text of the Charter ‘Space & Major Disasters’ - http://www.disasterscharter.org
[AD2] Charter Implementation Plan, RSCSA-PL0098
[AD3] Project Manager Procedure, RSCSA-PR0419
[AD4] Emergency On-Call Officer Procedure, RSCSA-PR0418

1.4 List of figures

1.5 List of tables

1.6 List of acronyms

ABAE	Bolivarian Agency for Space Activities
AOI	Area of Interest
ADRC	Asian Disaster Reduction Centre
AU	Authorized User (of the Charter)
CB	Coordinating Body
CEMADEN	Centro Nacional de Monitoramento e Alertas de Desastres (Brazil)
CEMS	Copernicus Emergency Management Service
CENAD	Centro Nacional de Gerenciamento de Riscos e Desastres (Brazil)
CEPREDENAC	Coordination Centre for the Prevention of Natural Disasters in Central America
CEOS	Committee on Earth Observation Satellites
Charter	The ‘International Charter: Space and Major Disasters’
CNES	Centre National d’Etudes Spatiales (French space agency)
CNSA	China National Space Administration

CONAE	Comisión Nacional de Actividades Espaciales (Argentina)
CONIDA	National Commission for Aerospace Research and Development (Peru)
CONRED	Coordinadora Nacional para la Reducción de Desastres (Guatemala)
COS-2	Charter Operational System-2
CRED	Centre for Research on the Epidemiology of Disasters
CSA	Canadian Space Agency
DLR	Deutsches Zentrum für Luft und Raumfahrt (German Aerospace Centre)
DLR/ZKI	DLR Zentrum für Satellitengestützte Kriseninformation (Center for Satellite Based Crisis Information)
DRM	Disaster Risk Management
ECO	Emergency On-Call Officer (of the Charter)
EM-DAT	Emergency Events Database
EO	Earth Observation
ERF	Emergency Request Form
ERS	Emergency Response Service
ESA	European Space Agency
ESRIN	ESA Centre for Earth Observation
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
GDACS	Global Disaster Alert and Coordination System
GEO	Group on Earth Observations
GIC	Geoinformatics Center – Asian Institute of Technology
HDDS	(USGS) Hazards Data Distribution System
HR	High Resolution
ICT	Information and Communication Technology
IFRC	International Federation of Red Cross and Red Crescent Societies
INDECI	Instituto Nacional de Defensa Civil (Peru)
INPE	National Institute for Space Research (Brazil)
ISRO	Indian Space Research Organization
JAXA	Japan Aerospace Exploration Agency
KARI	Korea Aerospace Research Institute
MBRSC	Mohammed Bin Rashid Space Centre
MPP	Mission Planning Personnel
MR	Medium Resolution
NADMO	National Disaster Management Organization (Ghana)
NASDRA	National Space Research and Development Agency (Nigeria)
NDRCC	National Disaster Reduction Centre of China

NOAA	National Oceanic and Atmospheric Administration
NRSC	National Remote Sensing Centre (India)
ODO	On-Duty Operator
PA	Partner Agency
PHIVOLCS	Philippine Institute of Volcanology and Seismology
PM	Project Manager (of the Charter)
RGB	Red-Green-Blue
ROSCOSMOS	Russian State Space Corporation
ROWCA	Regional Office West and Central Africa (UNOCHA)
SA	Sentinel Asia
SAR	Synthetic Aperture Radar
SARE	Semi-Annual Refresher Exercise
SERTIT	Service Régional de Traitement d'Image et de Télédétection (France)
UA	Universal Access
UAESA	United Arab Emirates Space Agency
UCL	Université Catholique de Louvain
UKSA	UK Space Agency
UNITAR/UNOSAT	United Nations Institute for Training and Research/ United Nations Operational Satellite Applications Program
UNDAC	United Nations Disaster Assessment and Coordination
UNOCHA	United Nations Office for the Coordination of Humanitarian Affairs
UNOOSA	United Nations Office for Outer Space Affairs
UNRCO	United Nations Resident Coordinator Office
UN-SPIDER	United Nations Platform for Space-based Information for Disaster Management and Emergency Response
URF	User Request Form
USGS	United States Geological Survey
VAR	Value-Added Reseller
VAP	Value-Added Provider
VHR	Very High Resolution

1.7 Authors of the report

The report has been prepared by CNES, DLR, ESA, EUMETSAT, and ROSCOSMOS based on contributions and reviews by all the Charter members.

2. The ‘International Charter: Space and Major Disasters’

2.1 Overview

The Charter is an international collaboration among space agencies and space operators – the Charter members. Initiated by the European Space Agency (ESA), the French Space Agency (CNES) and the Canadian Space Agency (CSA) in 2000, 14 other space agencies joined between 2000 and 2018, named below in chronological order:

- U.S. National Oceanic and Atmospheric Administration, NOAA
- Comisión Nacional de Actividades Espaciales, Argentina, CONAE
- Indian Space Research Organization, ISRO
- Japan Aerospace Exploration Agency, JAXA
- United States Geological Survey, USGS
- UK Space Agency, UKSA
- China National Space Administration, CNSA
- German Aerospace Centre, DLR
- Korea Aerospace Research Institute, KARI
- Instituto Nacional de Pesquisas Espaciais, Brazil, INPE
- European Organization for the Exploitation of Meteorological Satellites, EUMETSAT
- Russian State Space Corporation, ROSCOSMOS
- Bolivarian Agency for Space Activities, ABAE
- United Arab Emirates Space Agency, UAESA / Mohammed Bin Rashid Space Centre, MBRSC

The lead agency function rotates among all Charter members on a six-month basis. The lead agency has the overall responsibility of the implementation of the Charter to oversee and coordinate its operations, administration, communications and external relations. Additionally, at the start of each lead period, the new lead agency hosts the meetings of the Charter Board and Executive Secretariat.

The founding agreement of the Charter is intentionally limited in scope and thus is not intended to serve the entire disaster management cycle (mitigation, preparedness, alert, response and recovery, rehabilitation and reconstruction). Satellite-based information is provided at no cost to nationally mandated disaster management authorities and humanitarian aid organizations to specifically support the immediate response to major natural or man-made disasters. The Charter provides a mechanism for the rapid tasking of satellites for sudden emergencies, including but not limited to earthquakes, storms, landslides, volcanic eruptions, and flooding.

The ability of the Charter to support disaster response with space technology on a global level, when requested by users, is based on carefully defined policies and rules. Natural or man-made disasters that are slow onset events such as droughts are beyond the scope of the Charter; for these events, satellite-based monitoring can be provided with other EO capabilities and services that do not require rapid response. Furthermore, the Charter does not support humanitarian emergencies beyond those related to natural or man-made hazards; for example: acts of war, refugee crises, etc. are not covered.

The Charter can be activated by a predefined list of appointed users, known as 'Authorized Users' (AUs). Before 2013, AUs were typically national disaster management authorities from countries of Charter member agencies. They were able to request Charter support for emergencies in their own country or in a country with which they cooperate for disaster relief. In an effort to expand the number of users who can benefit from the Charter, the Universal Access initiative was created and formally adopted in 2012 (see section 5.2).

The Charter has consistently demonstrated a strong commitment to expanding its number of users. Initiatives include collaboration with UNOOSA and UNITAR/UNOSAT, both of which are active in many disaster-prone countries and can submit requests to support in-country UN relief agencies. Another collaboration is with Sentinel Asia, a regional network for Earth Observation-based Emergency response that is active in 29 countries. Additionally, Sentinel Asia's partner, the Asian Disaster Reduction Centre can submit activation requests on behalf of Sentinel Asia users.

Based on the requester, four activation modes are in place since 2010:

- Mode 1: direct activation by an Authorized User (AU) for a disaster occurring in their country.
- Mode 2: activation by an Authorized User on behalf of a user from another country.
- Mode 3: activation by UNOOSA or UNITAR/UNOSAT for UN users.
- Mode 4: activation for national users from the Asia-Pacific region via Sentinel Asia's partner, the Asian Disaster Reduction Centre.

Since its inception in 2000, **the Charter has been triggered for 941 disasters in 147 countries. In 2024 alone, the Charter was activated 85 times for disasters taking place in 52 countries.**

The Charter provides access to a virtual constellation of satellites equipped with radar and optical sensors.

In 2024, active satellites included (see Table 1):

- Radar (high resolution and very high-resolution sensors): RADARSAT-2, RCM -1/2/3 TerraSAR-X, TanDEM-X, Sentinel-1A/B, ALOS-2, KOMPSAT-5, GF-3, ICEYE-X2, ICEYE-X4/X5, OHS-2A/B/C/D, Iceye-X7, SAOCOM-1A and SAOCOM-1B.
- Optical (high resolution and very high-resolution sensors): NewSat, Planetscope, Landsat 8/9, WorldView-1, WorldView-2, Worldview-3, GeoEye-1, VRSS-2 SPOT-6, PLEIADES 1A /B, PNEO 3/4, GF-1/2/4, FY-3D, FY-3C, FY-2H, FY-4A, CBERS-4, CBERS-4A, KOMPSAT-3, KOMPSAT-3A, Cartosat-2S, Cartosat-3, EOS-04, Geosat-2, Resourcesat-2/2a, Kanopus-V, Kanopus-V-IK, Resurs-P, Dubaisat-2, Khalifasat, VISION-1, BKA, OHS-2A/B/C/D, JILIN-01, OVS-1A/B, OVS-2A, Beijing-2 and Sentinel-2A/B.
- Optical (medium and low-resolution sensors): JPSS Series, GOES-R Series, Metop series, Meteosat Second Generation (MSG) and Meteor-M.

Specific agreements with other entities allow the Charter to access additional products (both high and very high resolution) from satellites such as GeoEye and WorldView.

In 2024, the list of third-party data contributors is the following : BlackSky, Iceye, Maxar, Planet, Satellogic, Geosat and CONIDA.

Table 1. List of Charter 2024 operational satellites [optical (in light blue) and radar (in light grey)]

Agency/Company	Satellite (operational)	Agency/Company	Satellite (operational)
ABAE	VRSS-2	ISRO	Resourcesat-2 / 2A Cartosat-3 Cartosat-2S
BLACKSKY	Blacksky Global Constellation		
CNES	PLEIADES 1A/1B SPOT-6, SPOT-7, PNEO 3/4		EOS-4
CONAE	SAOCOM-1A, SAOCOM-1B	JAXA	ALOS-2
CONIDA	PeruSAT-2 (in integration in COS-2)		
CSA	RADARSAT-2, RCM-1, RCM-2, RCM-3	KARI	KOMPSAT-3 KOMPSAT-3A CAS500
CNSA and Chinese data contributors (21AT, Zhuhai Orbita Aerospace, ChangGuang)	GF-1 , GF-2, GF-4 FY-3D, FY-3C, FY-2H, FY-4A JILIN-01 3/4/5/6/7/8 OVS-1A/B, OVS-2A Beijing-2 OHS-2A/B/C/D		KOMPSAT-5
		NAS	BKA
		NOAA	JPSS Series GOES-R Series
	GF-3	PLANET	Planetscope
DLR	TerraSAR-X / TanDEM-X	SATELLOGIC	NewSat
ESA	Sentinel-1A/1B	ROSCOSMOS	Kanopus-V, RESURS-P Kanopus-V-IK Meteor-M
	Sentinel-2A/1B		
EUMETSAT	Metop Series		
	Meteosat MSG		
GEOSAT	Geosat-2	UAESA	Dubaisat-2, Khalifasat
INPE	Amazonia-1	UKSA	VISION-1
INPE/CNSA	CBERS-4, CBERS-4A	MAXAR	WorldView-1/2/3, Quickbird, GeoEye-1
		USGS	Landsat 8 and 9
ICEYE	ICEYE-X2, ICEYE-X4, ICEYE-X5, ICEYE-X7		

2.2 Lead agencies of the Charter in 2024

During this period, the lead agencies on a biannual rotational basis have been EUMETSAT/CSA (October 2023 – April 2024), DLR (April 2024 – October 2024) and INPE (October 2024 – April 2025).

Figure 1. 51st Charter Board and Executive Secretariat members. This meeting was hosted by DLR in Bonn (Germany), from 23 to 26 April 2024.

Figure 2. 52nd Charter Board and Executive Secretariat members. This meeting was hosted by INPE from 8 to 11 October 2024 in INPE premises in Sao José Dos Campos (Brazil).

3. Charter operations

3.1 Charter activations

In 2024, the Charter was activated 85 times in 52 different countries. This is the second year in a row where the Charter treated its highest number of activations ever seen in a single year, showing a clear tend upwards in Charter activation requests. The new average number of activations per year is 38 since 2000, and 46 since 2007 (when the Charter began consistently handling more activations). The range of activations per year since 2007 ranges from 32 in 2011 to 85 in 2024 (see Figure 3).

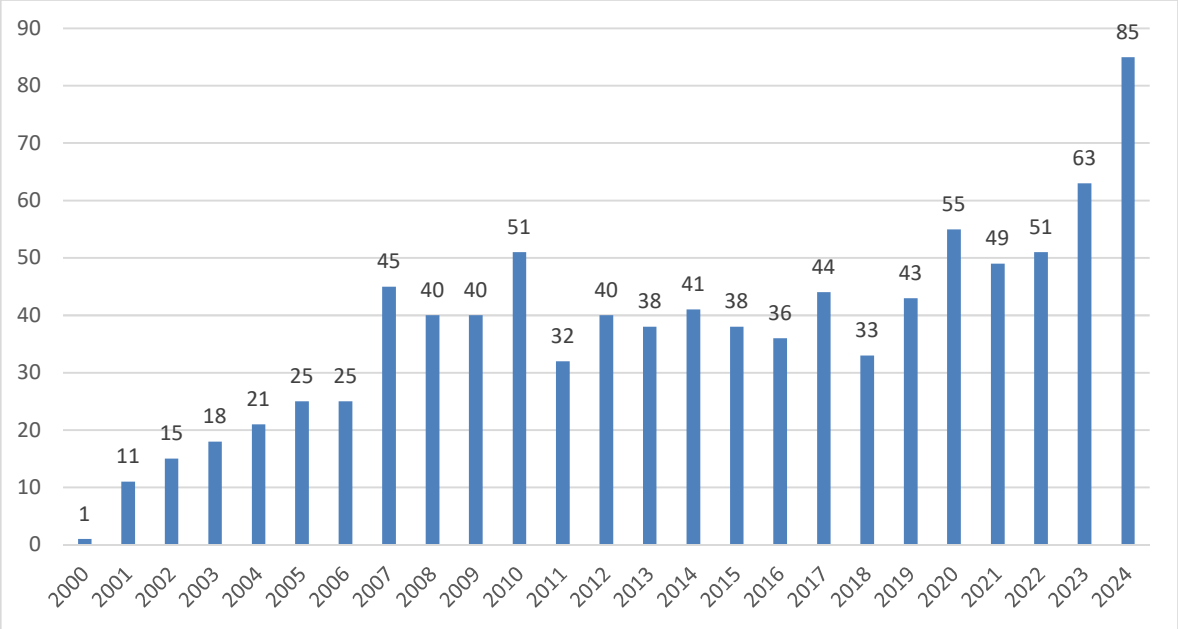


Figure 3. Number of Charter activations per year since 2000

This year, the Charter was triggered six times for man-made disasters, all of which were oil spills. They were located in the following countries:

- Trinidad and Tobago
- Yemen
- Philippines
- Samoa
- Russia
- Peru

By the end of 2024, the Charter had been triggered for 941 disasters in 147 countries since 2000. In 2024, 8 activations occurred in countries which had never had an activation before. Below are graphs showing the amount of times individual countries have activated the Charter (Figure 4, Figure 5 and Figure 6).

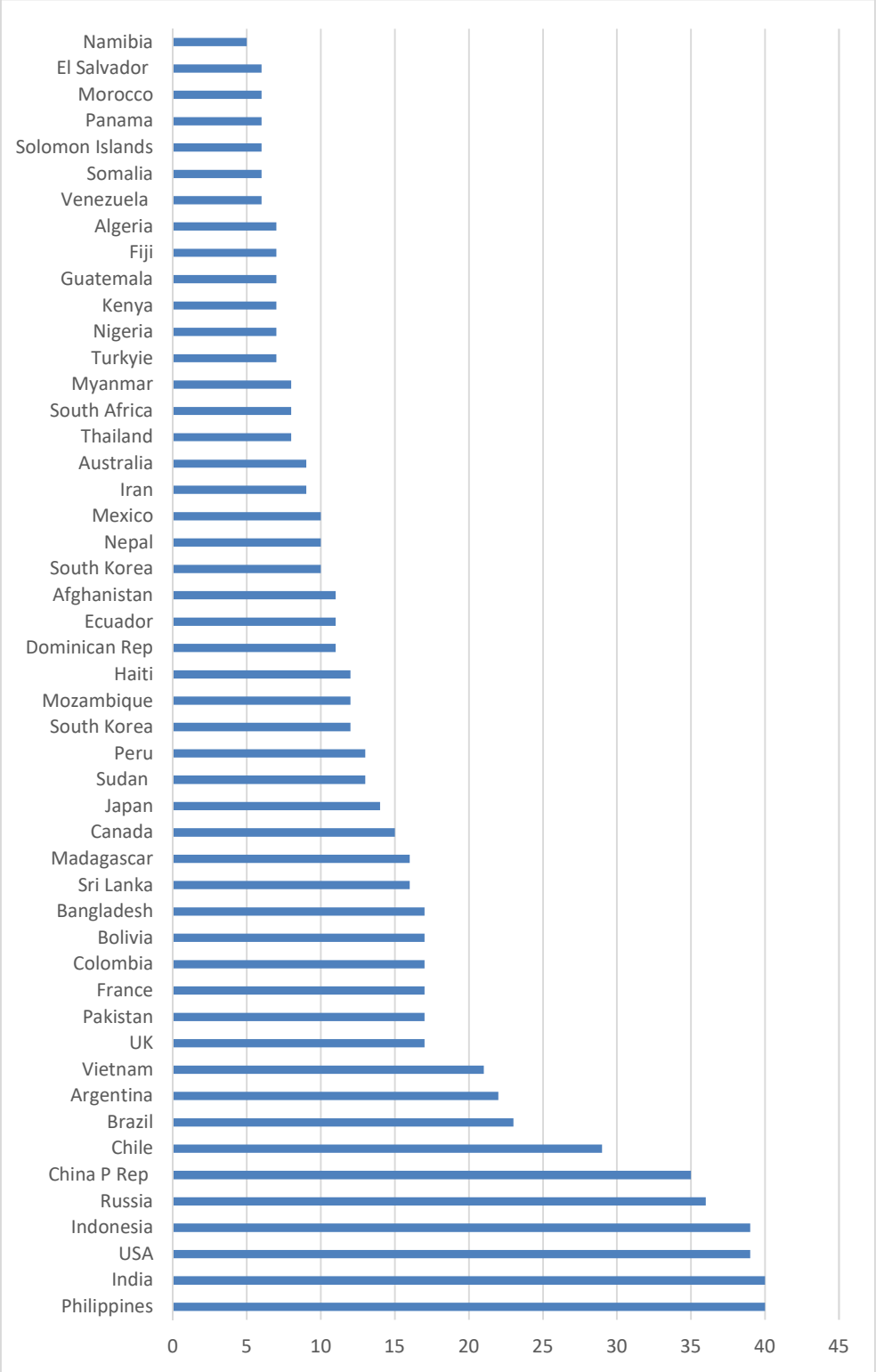


Figure 4. 2000-2024 breakdown of Charter activations by beneficiary country (countries with 5 or more disasters covered by the Charter)

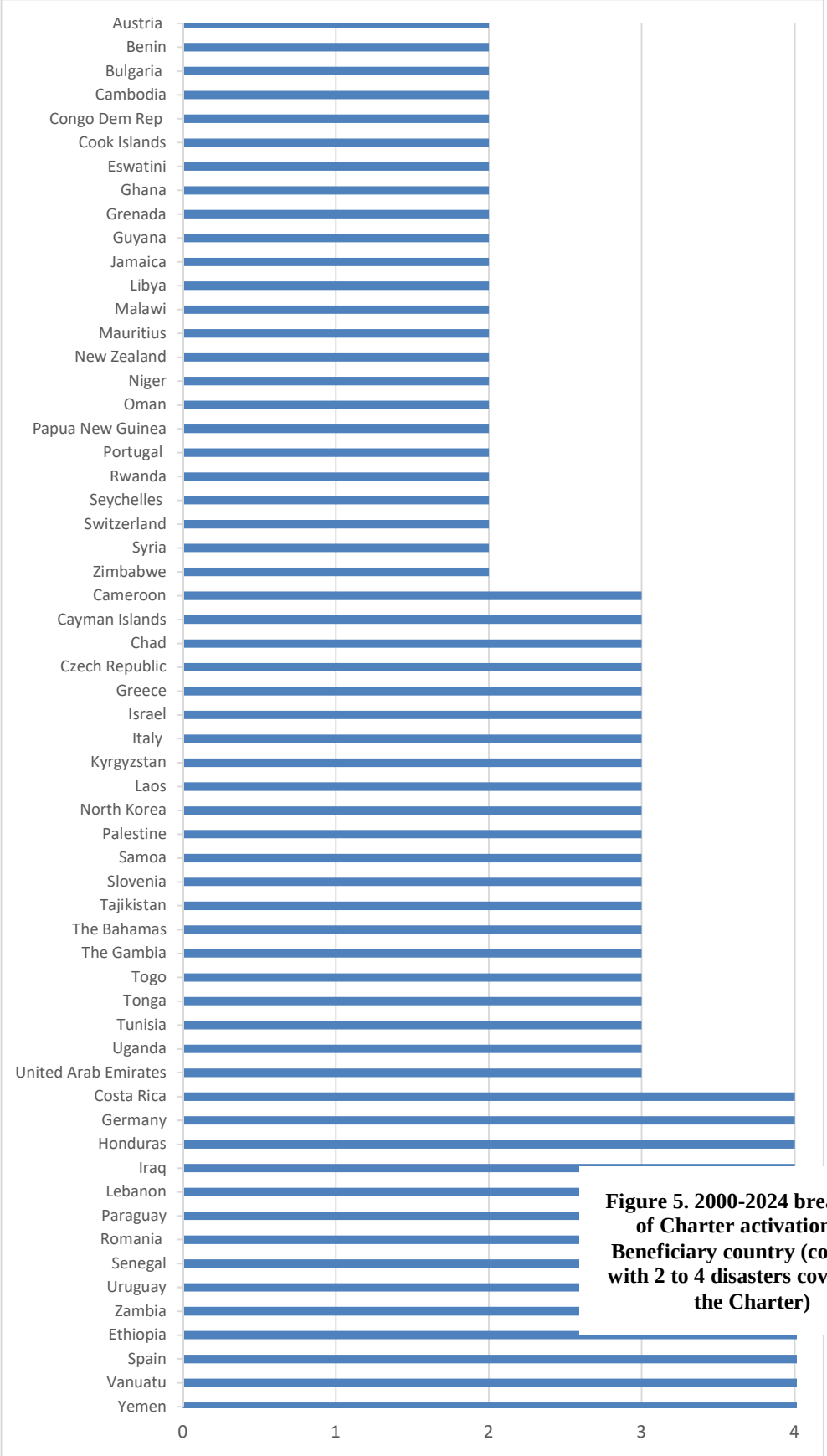


Figure 5. 2000-2024 breakdown of Charter activations by Beneficiary country (countries with 2 to 4 disasters covered by the Charter)

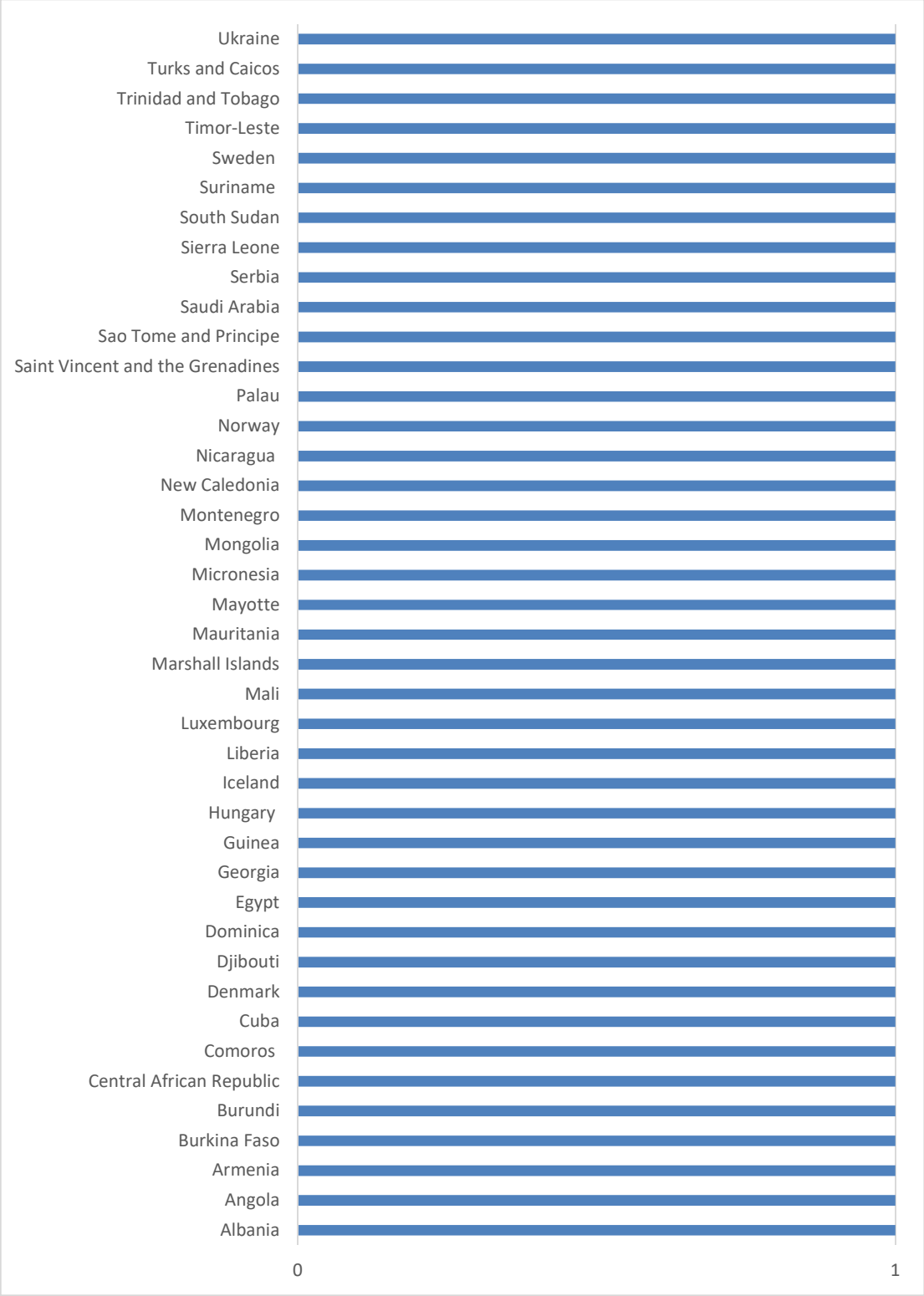


Figure 6. 2000-2024 breakdown of Charter activations by Beneficiary country (countries with one disaster covered by the Charter)

Since 2000, 149 Countries and territories worldwide have benefited from the International Disasters Charter. Forty nine countries have had five or more activations, 58 countries and one territory have had between 2-4 activations, and 38 countries and 3 territories have had one activation.

The USA, India, Indonesia, Russia, Chile, Philippines, Brazil, Vietnam, and Argentina are countries often affected by hazards for which the Charter has been activated most often (≥20 times) to cover major disasters occurring over the past 25 years.

All the activations in 2024 are listed below in Table 2.

In total, 89 requests were received in 2024. In one case, two calls were merged into one activation, as this request had been made for the same disaster event:

Call 1067 was received for a storm that had just hit Mozambique. Call 1069 was received upon landfall of the storm in Malawi; thus, the calls were merged. In three other cases, calls were withdrawn:

- Call 994 for flooding in Bolivia was withdrawn as it was submitted by mistake as a duplicate of call 993.
- Call 1024 was requested by mistake and was withdrawn after clarification with the AU.
- Call 1055 for a storm in the Dominican Republic was initially requested as a pre-emptive activation. Later, it was determined that the course of the storm had changed, thus the call was withdrawn as it no longer posed a major disaster threat.

Table 2. List of 2024 Activations

Act. No	Type of disaster	Country	Charter Activation Date
857	Earthquake	Japan	2024-01-02
858	Flood	Marshall Islands	2024-01-22
859	Wildfire	Chile	2024-02-03
860	Flood	Libya	2024-02-06
861	Oil Spill	Trinidad and Tobago	2024-02-10
862	Flood	Ecuador	2024-02-20
863	Wildfire	Guatemala	2024-02-22
864	Oil Spill	Yemen	2024-02-28
865	Flood	Brazil	2024-02-29
866	Flood	Bolivia	2024-03-06
867	Storm	United Arab Emirates	2024-03-08
868	Storm and hurricane	Mozambique	2024-03-14
869	Snow hazard	Mongolia	2024-03-15
870	Storm and hurricane	Madagascar	2024-03-29
871	Flood	Russia	2024-04-04

Act. No	Type of disaster	Country	Charter Activation Date
872	Storm and hurricane	South Africa	2024-04-07
873	Volcano	Indonesia	2024-04-19
874	Flood	Kenya	2024-04-30
875	Flood	Brazil	2024-04-30
876	Flood	Dominican Republic	2024-05-08
877	Flood	Indonesia	2024-05-12
880	Flood	Argentina	2024-05-13
878	Flood	Afghanistan	2024-05-13
879	Landslide	Indonesia	2024-05-14
881	Flood	Uruguay	2024-05-14
882	Flood	Russia	2024-05-17
883	Flood	Colombia	2024-05-23
884	Storm and hurricane	Bangladesh	2024-05-28
885	Landslide	Papua New Guinea	2024-05-30
886	Flood	Armenia	2024-05-29
887	Flood	Sri Lanka	2024-06-03
888	Flood	Bangladesh	2024-06-25
889	Landslide	Kyrgyzstan	2024-06-25
890	Wildfire	Russia	2024-07-02
891	Storm and hurricane	Venezuela	2024-07-02
892	Storm and hurricane	Cayman Islands	2024-07-02
893	Storm and hurricane	Jamaica	2024-07-02
894	Storm and hurricane	Dominican Republic	2024-07-05
895	Flood	Nepal	2024-07-08
896	Flood	South Korea	2024-07-17
897	Oil Spill	Philippines	2024-07-25
898	Flood	Kyrgyzstan	2024-07-25
899	Landslide	Ethiopia	2024-07-29
900	Landslide	India	2024-07-30
901	Flood	Nepal	2024-08-17
902	Landslide	Kyrgyzstan	2024-08-20
903	Flood	Guinea	2024-08-25
904	Flood	Chad	2024-08-26

Act. No	Type of disaster	Country	Charter Activation Date
905	Flood	Bangladesh	2024-08-27
906	Flood	Sudan	2024-08-28
907	Flood	India	2024-09-03
908	Wildfire	Bolivia	2024-09-07
909	Storm and hurricane	Vietnam	2024-09-09
910	Flood	Nigeria	2024-09-11
911	Storm and hurricane	Myanmar	2024-09-12
912	Flood	Thailand	2024-09-12
913	Flood	Morocco	2024-09-13
914	Wildfire	Peru	2024-09-16
915	Wildfire	Argentina	2024-09-20
916	Flood	Cayman Islands	2024-09-23
917	Flood	Sudan	2024-09-24
918	Storm and hurricane	Mexico	2024-09-28
919	Flood	Nepal	2024-09-29
920	Storm and Hurricane	United States	2024-10-09
921	Flood	Sri Lanka	2024-10-12
922	Oil Spill	Samoa	2024-10-16
923	Storm and hurricane	Philippines	2024-10-23
924	Flood	Spain	2024-11-01
925	Storm and Hurricane	Cayman Islands	2024-11-04
926	Flood	Dominican Republic	2024-11-05
927	Volcano	Indonesia	2024-11-07
928	Flood	Colombia	2024-11-14
929	Flood	Costa Rica	2024-11-14
930	Storm and Hurricane	Philippines	2024-11-17
931	Flood	Palestine	2024-11-26
932	Storm and Hurricane	Sri Lanka	2024-11-26
933	Flood	Sri Lanka	2024-12-02
934	Landslide	Indonesia	2024-12-10
935	Storm and Hurricane	Madagascar	2024-12-13
936	Storm and Hurricane	Mozambique	2024-12-13
937	Oil Spill	Russia	2024-12-16
938	Earthquake	Vanuatu	2024-12-17
939	Storm and Hurricane	Mayotte	2024-12-17
940	Oil Spill	Peru	2024-12-23
941	Flood	United Kingdom	2024-12-30

3.1.1 Monthly activations

During 2024, the monthly average of activations was 7.08, nearly two full activations higher than the average for 2022 (5.25) and significantly higher than the average since 2007 (3.87 activations per month for the period 2007-2024). Figure 7 shows the monthly distribution of activations throughout 2024. The number of activations is distributed throughout the year in a less uniform way than in previous years. Despite 2024 having the most activations of any previous year, the number of activations during January and October were less than the average since 2007. The highest number of activations occurred in September. No quarter of the year corresponds to a significant amount of the total number of activations; however, it should be mentioned that July to October accounted for 35% of the year’s activations. June remains as the only month which averages less than 3 activations since 2007 (2.61).

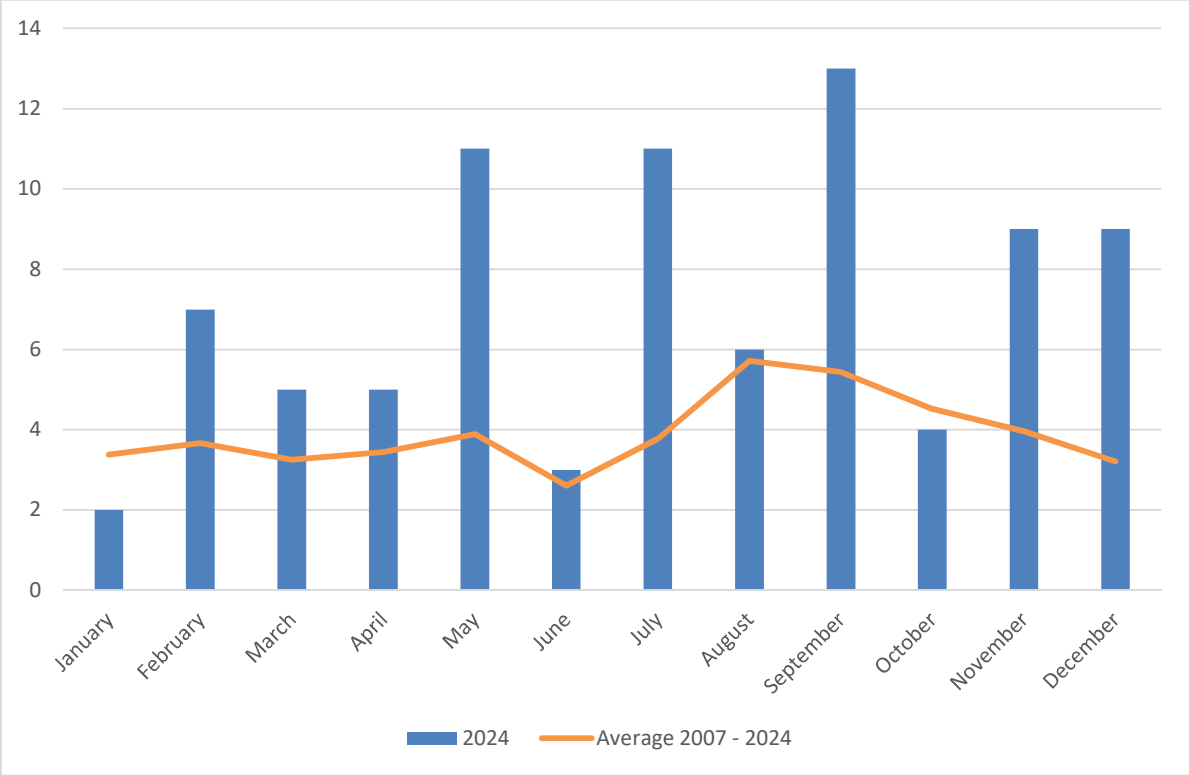


Figure 7. Distribution of the Charter activations by month in 2024 and the monthly average number of activations for 2007-2023

Peaks in activations at the end of summer (northern hemisphere) have occurred regularly since 2007, and in 2024 this was very pronounced. September of 2024 became the month with the most activations in the Charter’s history, with 13 activations, beating the previous record of 11 from September of 2022. Natural disasters occurring during this period of the year are mainly attributed to meteorological events such as intense rains; ensuing floods and landslides; tropical storms; in Asia (5), Africa (3), and Latin America and the Caribbean (4).

The spike in activations in May of 2024 was but not completely unprecedented, as there have been recent years with many activations in May. The spike of activations in November and December, however was quite unprecedented in the Charter, with 9 activations each, this is three times more than the average for these months.

This figure also shows the overall trend through the years, with the monthly average number of activations for the period 2007-2023. The trendline clearly shows the peak of activations at the end of summer (August and September), as well as a dip in activations in June. The 2024 diagram mostly agrees with the average, as there was a dip in activations in June with then a peak in late summer. The exception is the high number of activations at the end of the year.

3.1.2 Geographical distribution

In 2024, the activation breakdown per region was as follow ((Figure 8 and Figure 9):

- 34 activations in Asia (i.e., 40% of 2024 activations);
- 24 activations in Latin America and the Caribbean (28%);
- 15 activations in Africa (18%);
- 6 activations in Europe (7%),
- 4 (5%) in Oceania,
- 2 (2%)in North America

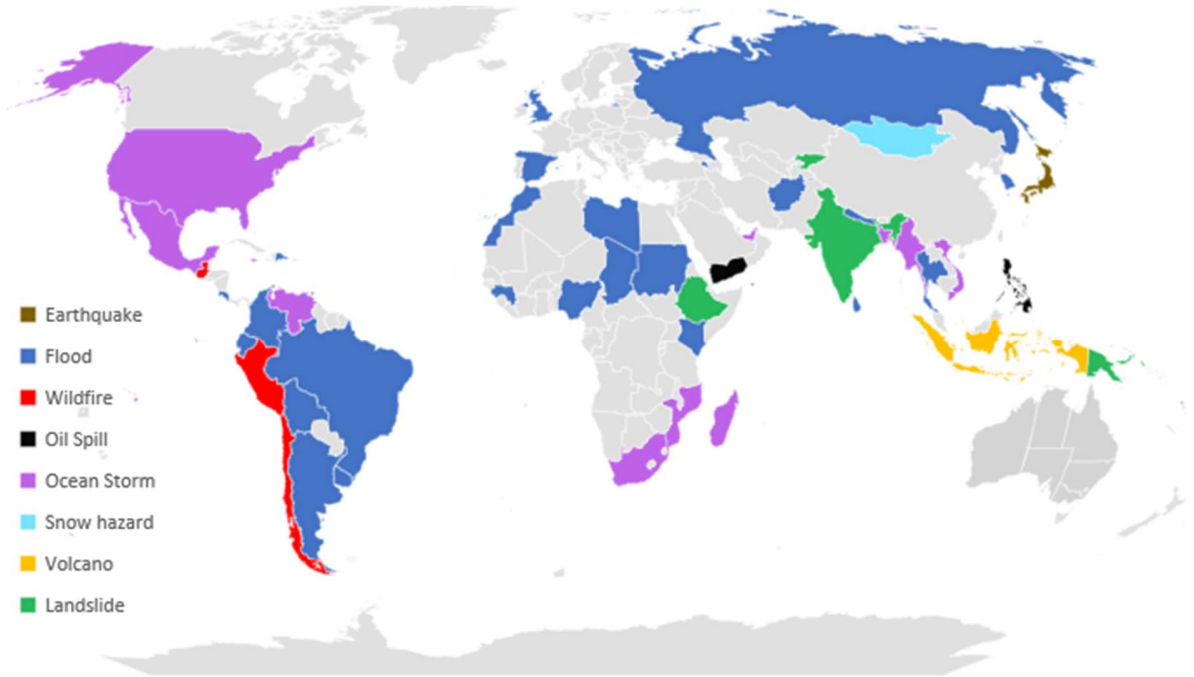


Figure 8. Location of the 2024 activations (by hazard type)

Note: Several different types of activations occurred in Argentina, Bangladesh, Bolivia, India, and Russia. See Table 2 above for the full list of activations.

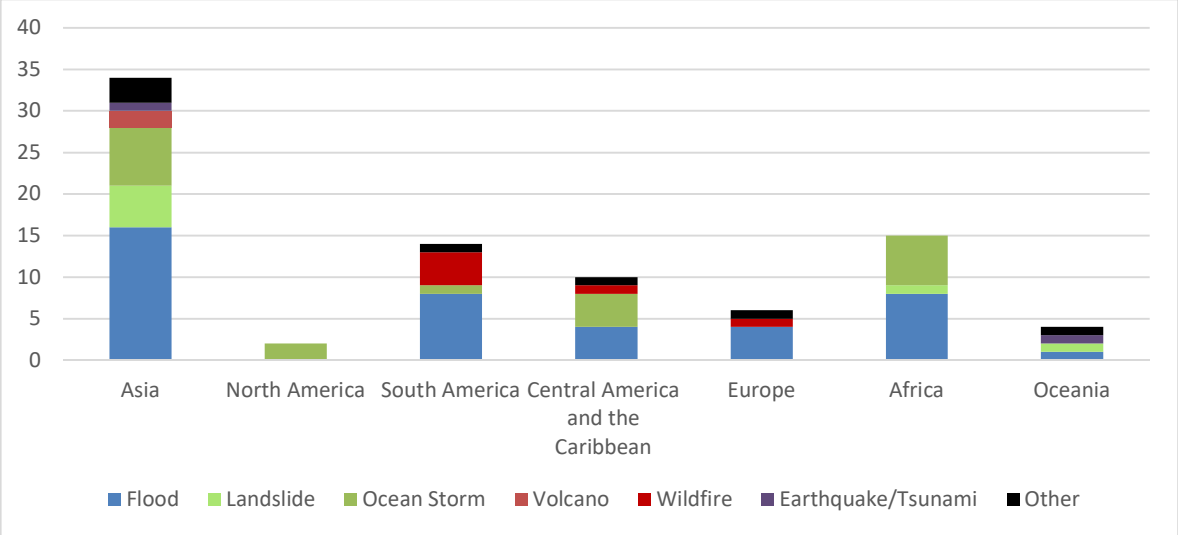


Figure 9. 2024 - Number of activations by continent/subcontinent and hazard type

The most frequent hazard types being floods (48%), and ocean storms (24%) with Miscellaneous Events (oil spills, search and rescue, snow and ice hazards) (8%) and landslides (8%) being the 3rd and 4th most common hazards. Lastly, wildfires and represented 7%, and volcanoes and earthquakes represented just 2.5% (Figure 10).

However, it should be noted that it is not always a straightforward process to classify Charter activations by disaster type. Activations are often multi-hazard events, such as floods or earthquakes causing landslides, or ocean storms potentially resulting in direct damages as wells as floods and landslides, etc. To simplify this classification, any activation made for a storm of any kind (cyclone, typhoon, tropical/extratropical storm, or windstorm) will be considered a storm. Any earthquake will be considered an earthquake even if landslides occur, and a flood which cases a severe landslide will be considered a landslide activation. This is done to ensure accurate representation of hazards in the statistics.

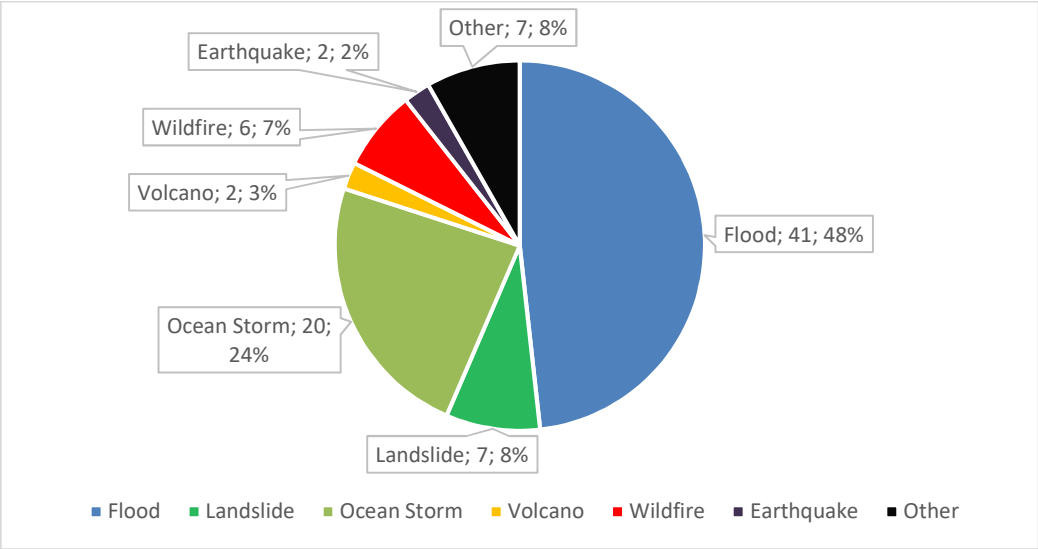


Figure 10. 2024 Number of activations by hazard type

As shown below (Figure 11), since 2000 the Charter has been frequently activated for weather-related disasters such as floods, ocean storms, landslides, wildfires, ice/snow hazards – representing 79% of all Charter activations - while solid earth-related hazards (e.g., earthquakes, volcanic eruptions) represent 16% of all Charter activations.

Activations for oil spills, search and rescue of aircraft and industrial accidents are marginal. See also the Figure 12and Figure 13 showing the geographical distribution of Charter activations by weather-related hazards and solid earth-related hazards for the 2000-2024 period.

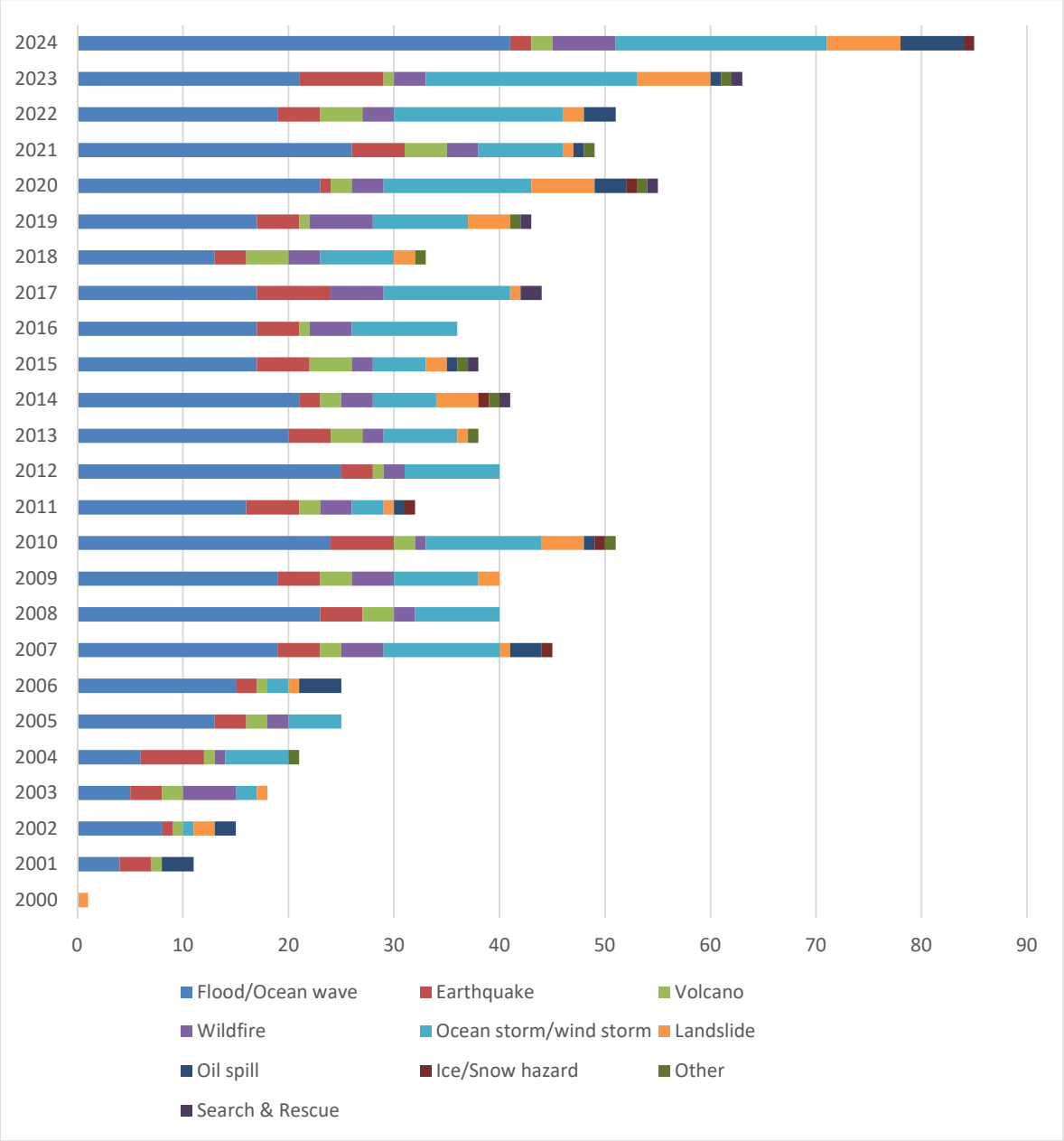


Figure 11. 2000-2024 Distribution of activations by hazard type

The following map (Figure 12) shows by country the number of Charter activations caused by hydro-meteorological related events for the period 2000-2024 (763 activations out of 942 activations in total = 80.1%).

In total, 129 countries have benefited from the Charter service for hydro-meteorological disasters since 2000. The USA, India, Argentina, China, Russia, France, Philippines, Bolivia, and Vietnam have used the service the most frequently.

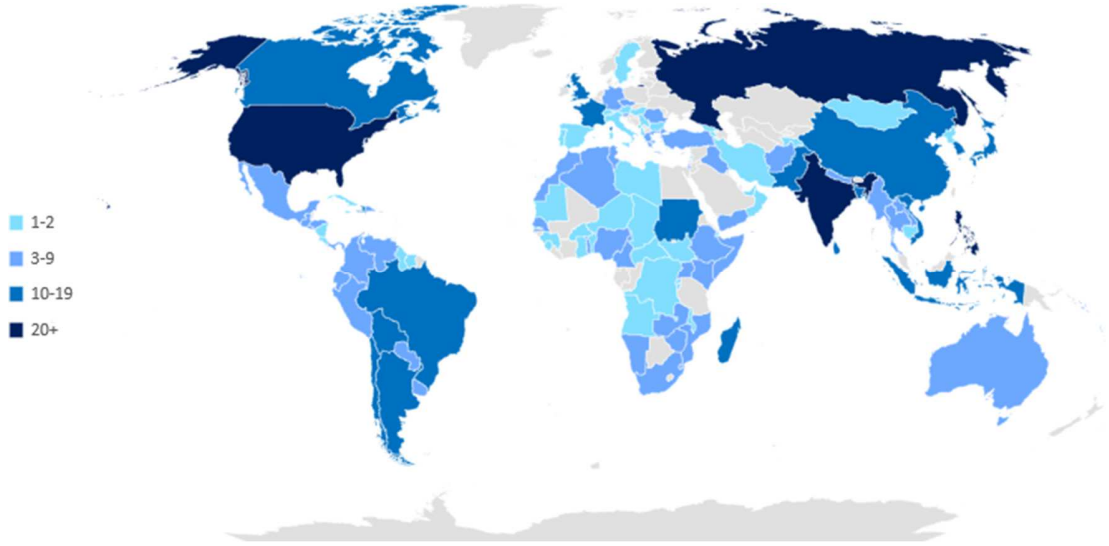


Figure 12. 2000-2024 Number and geographical distribution of Charter activations due to hydrometeorological events (floods, ocean storms, windstorms, landslides caused by heavy rains, wildfires, snowfall, and ice jam)

The following map (Figure 13) shows the number of Charter activations by country (140 activations out of 942 activations in total = 14.9%) caused by solid earth-related events for the period 2000-2024.

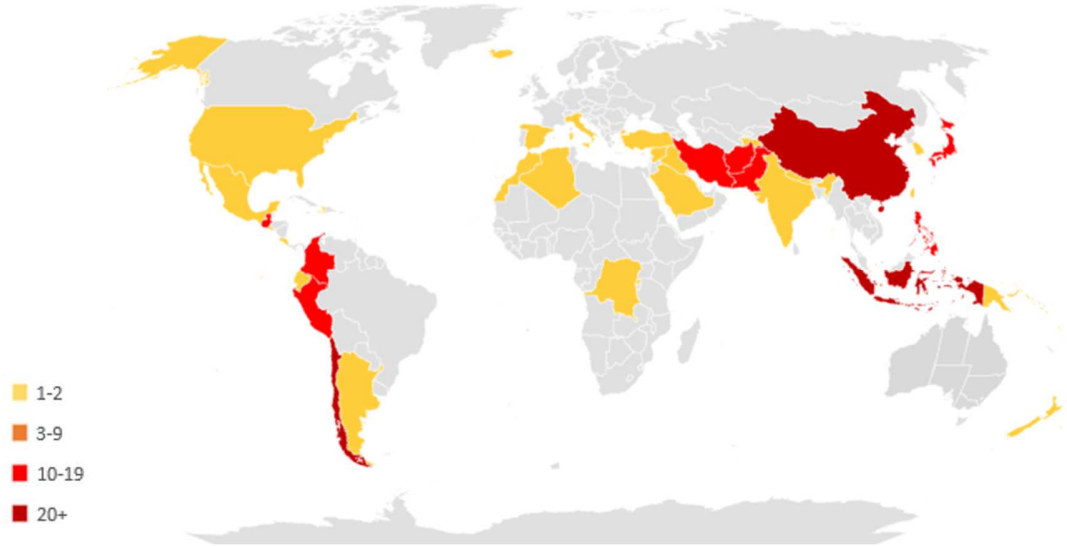


Figure 13. 2000-2024 Number and geographical distribution of Charter activations due to solid earth-related events (earthquakes, tsunamis, volcanic eruptions, landslides caused by earthquake)

In total, 43 countries have benefited from the Charter service for solid-earth events since 2000. Indonesia, Chile and China are countries for which the Charter was activated the most frequently (more than 10 activations) and they are located along important active seismic faults.

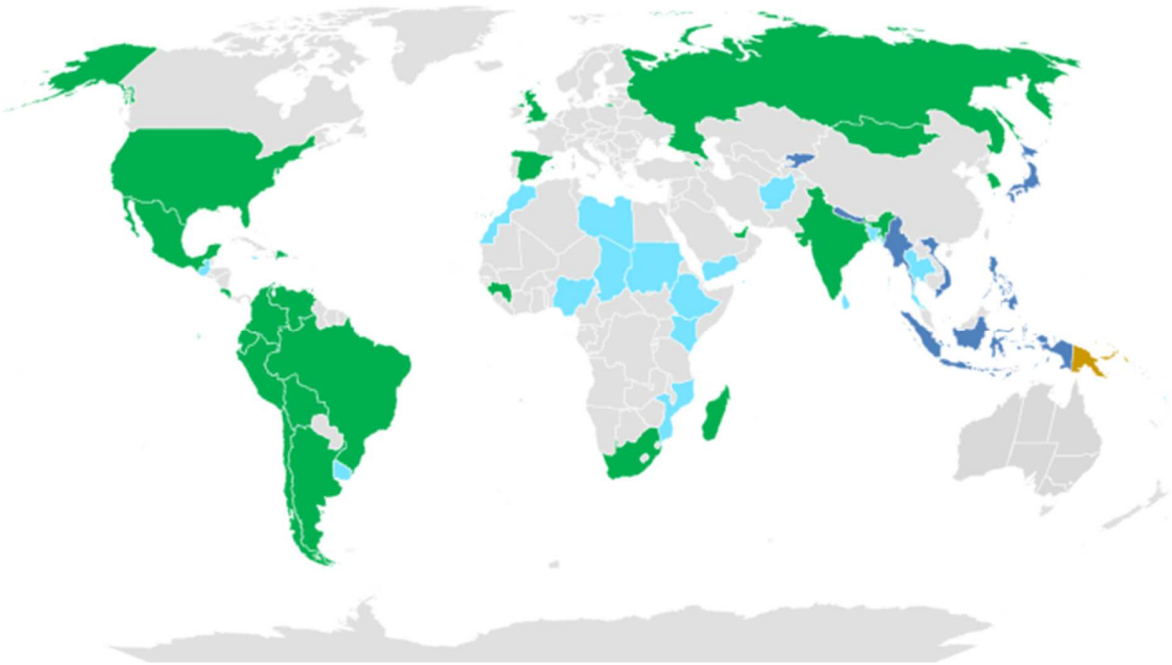


Figure 14 shows the geographic distribution of activations by access mode. Since 2010, there are 4 access modes that can be used:

- Mode 1: direct activation by an Authorized User (AU) for a disaster occurring in their country.
- Mode 2: activation by an Authorized User on behalf of a user from another country.
- Mode 3: activation by UNOOSA or UNITAR/UNOSAT for UN users.
- Mode 4: activation for national users from the Asia-Pacific region via Sentinel Asia's partner, the Asian Disaster Reduction Centre.

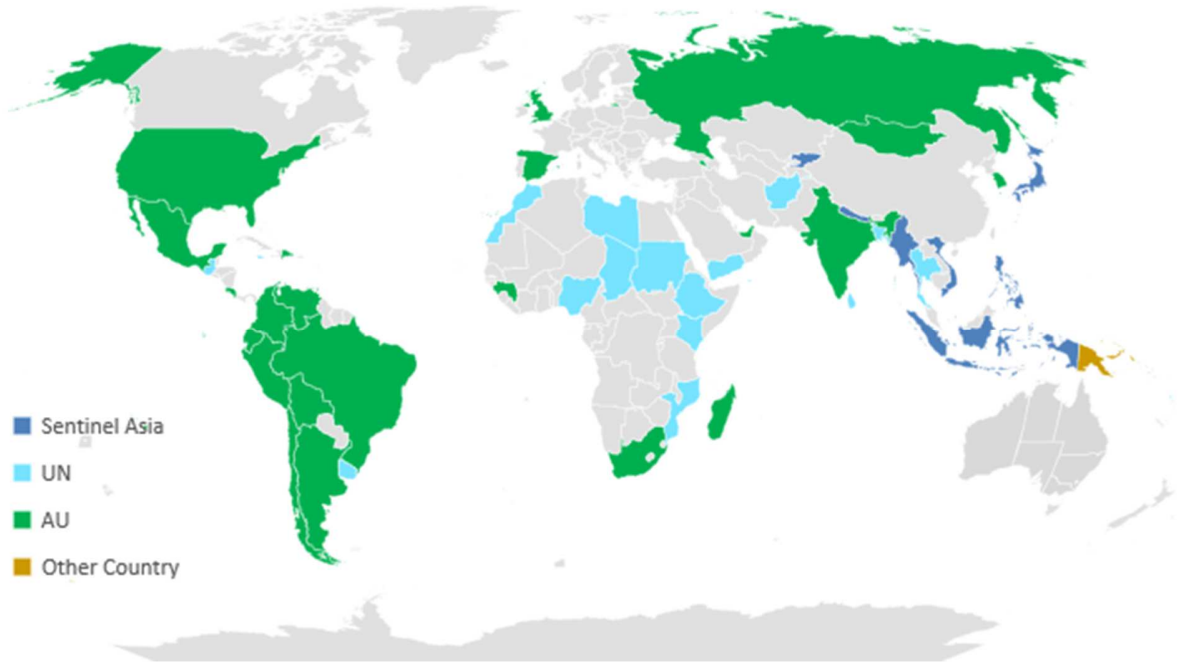


Figure 14. Location of the 2024 activations (by mode)

In 2024, Mode 1 was mainly used for disasters in “Continental” Asia, Europe, South America, and partially in Africa; Mode 2 was used only twice by New Zealand, to Activate for its Pacific neighbours (Samoa and Papua New Guinea); Mode 3 was used for disasters in Africa, the Middle East, and Asia. By definition, Mode 4 was used for disasters occurring in Southeast Asia, resulting in an escalation from Sentinel Asia (

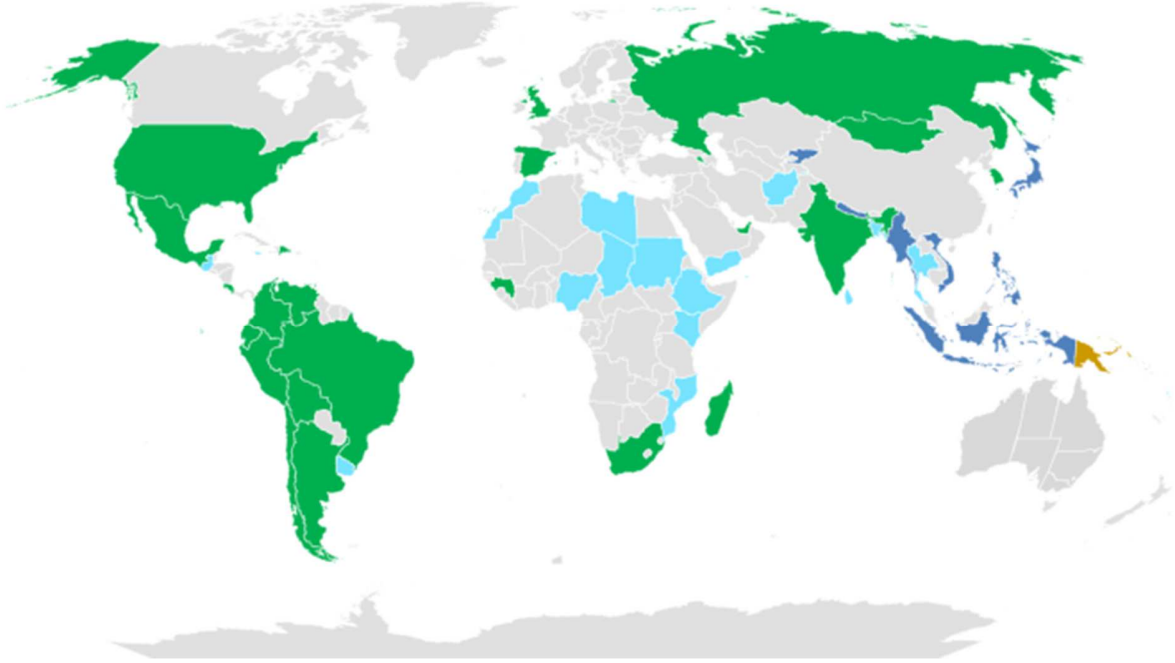


Figure 14). Armenia and Cayman Islands activated the Charter independently in 2024 for the first time, thanks to their AU status achieved through the Charter’s Universal Access initiative.

In 2024, direct activation by an AU (Mode 1) was the main access mode (48% in total). Over the past four years, there have only been four activations using Mode 2. This shows that Universal Access has been a success. However, Mode 2 is still possible in the rare case it is needed.

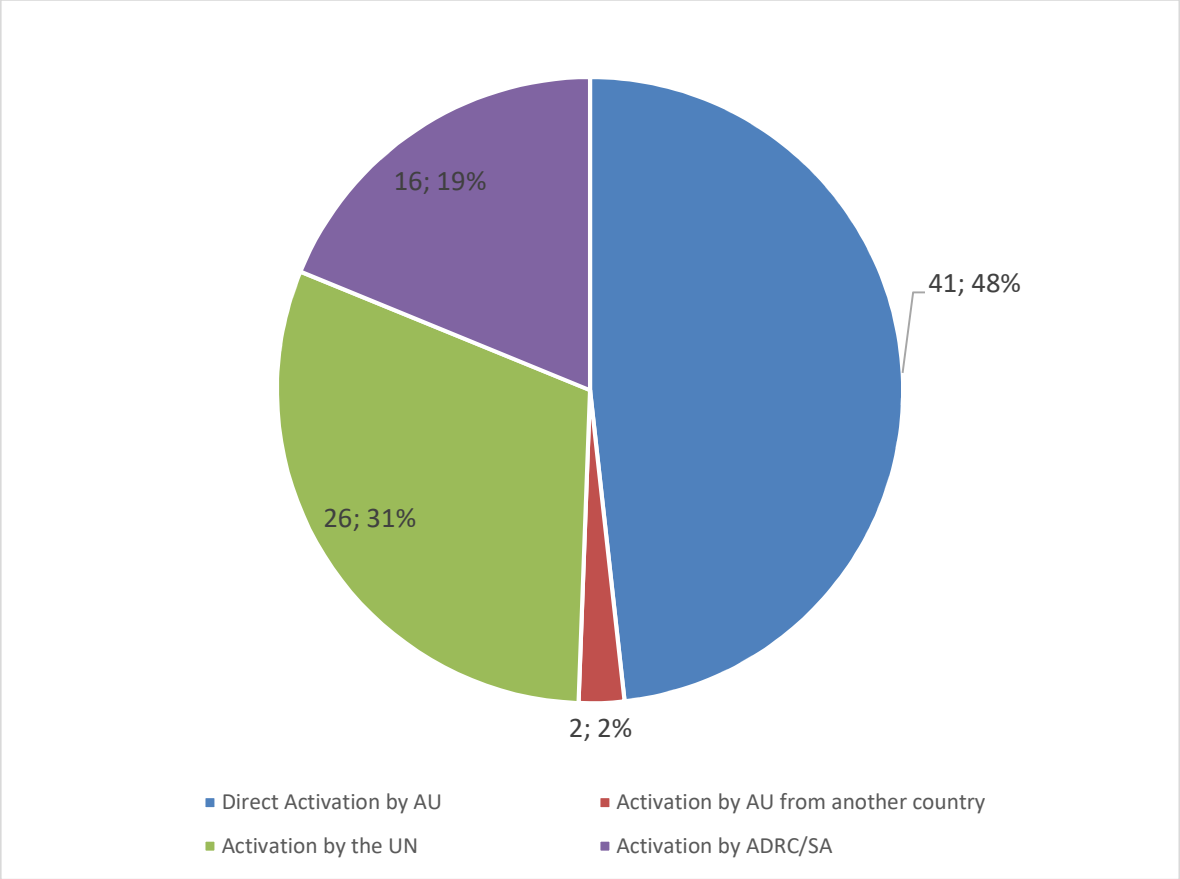
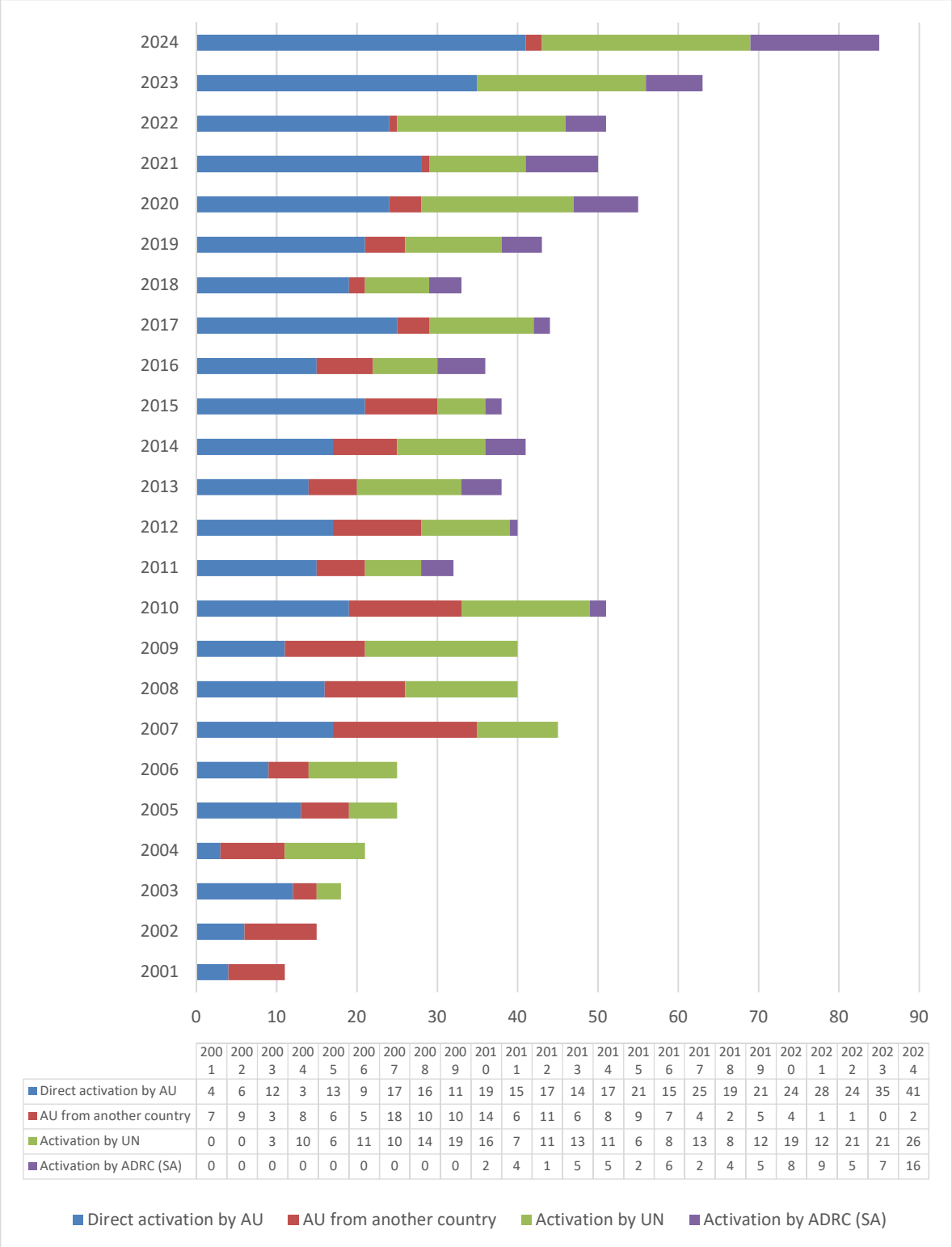


Figure 15. 2024 breakdown of Charter activations by mode

The diagram in Figure 16 compares the relative weight of the different access mechanisms adopted from 2001 to 2024, to request the International Charter service. Since its inception, 45% of Charter activations have come from the direct activation by the AU of the country where the disaster has occurred. Countries without AUs have benefited from 55% of Charter activations (AUs from another country, UN, or Sentinel Asia).

The International Charter continues to support users worldwide, including countries without direct access. At the same time, the number of AUs is increasing thanks to the Universal Access initiative, which changed the relative weight between the activation modes. By the end of 2024, mandated organisations of 43 countries prone to natural disasters have become AUs after a registration and training process under the Charter’s Universal Access initiative (see chapter 5.2).



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Direct activation by AU	4	6	12	3	13	9	17	16	11	19	15	17	14	17	21	15	25	19	21	24	28	24	35	41
AU from another country	7	9	3	8	6	5	18	10	10	14	6	11	6	8	9	7	4	2	5	4	1	1	0	2
Activation by UN	0	0	3	10	6	11	10	14	19	16	7	11	13	11	6	8	13	8	12	19	12	21	21	26
Activation by ADRC (SA)	0	0	0	0	0	0	0	0	0	2	4	1	5	5	2	6	2	4	5	8	9	5	7	16

Figure 16. 2001-2024 number of Charter activations per mode

3.2 Resource report

3.2.1 EO data delivered in 2024

General information

In 2024, **a total of 28,359 images** were provided as shown in Table 3.

In 2024, a total of **12,090 optical and radar post-crisis** images for 85 activations (2023: 16,883 for 63 activations; 2022: 7,790 for 51 activations; 2021: 10,993 for 50 activations; 2020: 5,877 for 55 activations) were provided by the Charter members (Table 3, Figure 17 and Figure 18).

Regarding EO sensors (without U.S. commercial figures), a total of 8,386 optical images and 3,704 SAR programmed images were provided. Regarding **archive images (pre-event), 2,120 optical images** and **703 SAR images** were also provided **(a total of 2,823).** Regarding **programmed images (post-event),** 6,266 optical images and 3,001 SAR images were also provided **(a total of 9,267).**

Table 3. 2024 Statistics for Charter EO sensors (U.S. comm. sats. separate)

	Optical data	Radar data	U.S. data	Total
Archive (pre-event)	2120	703	7000	**9823**
Programmed (post-event)	6266	3001	9269	**18536**
Total	8386	3704	16269	**28359**

This is complemented **by 16,269 images (9,269 post-crisis and 7000 pre-crisis images) of U.S. VHR** (GeoEye, Quickbird and WorldView1/2/3) **and HR** (Planet and Global) optical satellite images that were supplied (Table 4, Figure 17 and Figure 18) (2023: 15,800; 2022: 5,412; 2021: 4,558; 2020: 2,980; 2019: 15,031; 2018: 18,293). These figures were processed out of the general statistics table as the huge difference between the number of products provided prevented from accessing details. More details about U.S. statistics are provided below in the paragraph "U.S. VHR and HR data delivered".

Table 4. 2024 Statistics for U.S. Commercial satellites

	WorldView 1/2/3	Planet	Global	GeoEye	Quickbird	Total
Archive (pre-event)	4746	1198	9	1031	16	**7000**
Programmed (post-event)	3939	4143	626	561	**0**	**9269**
Total	**8685**	**5341**	**635**	**1592**	**16**	**16269**

Figure 17 and Figure 18 show the total number of EO data from the Charter Earth Observation (EO) constellation and the U.S. optical data provided in 2024 by disaster type.

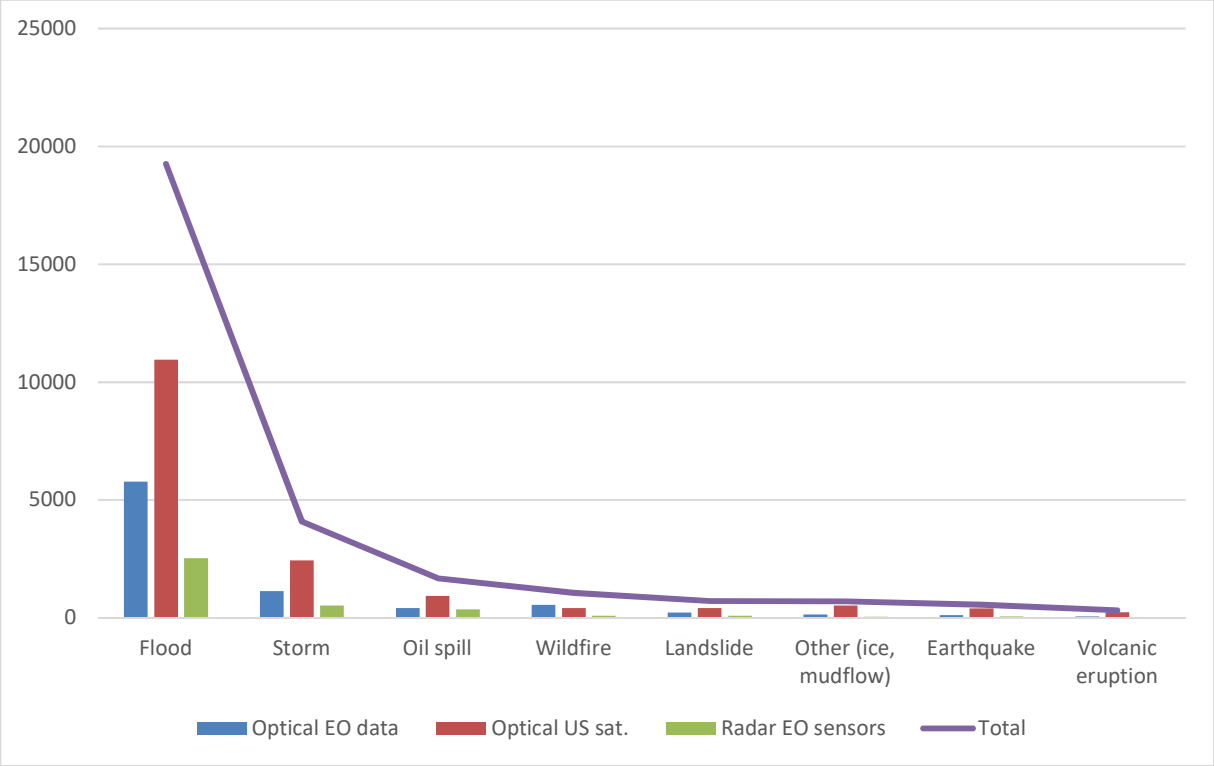


Figure 17. 2024 EO data of the Charter EO constellation (optical and radar) and U.S. optical data grouped by disaster type

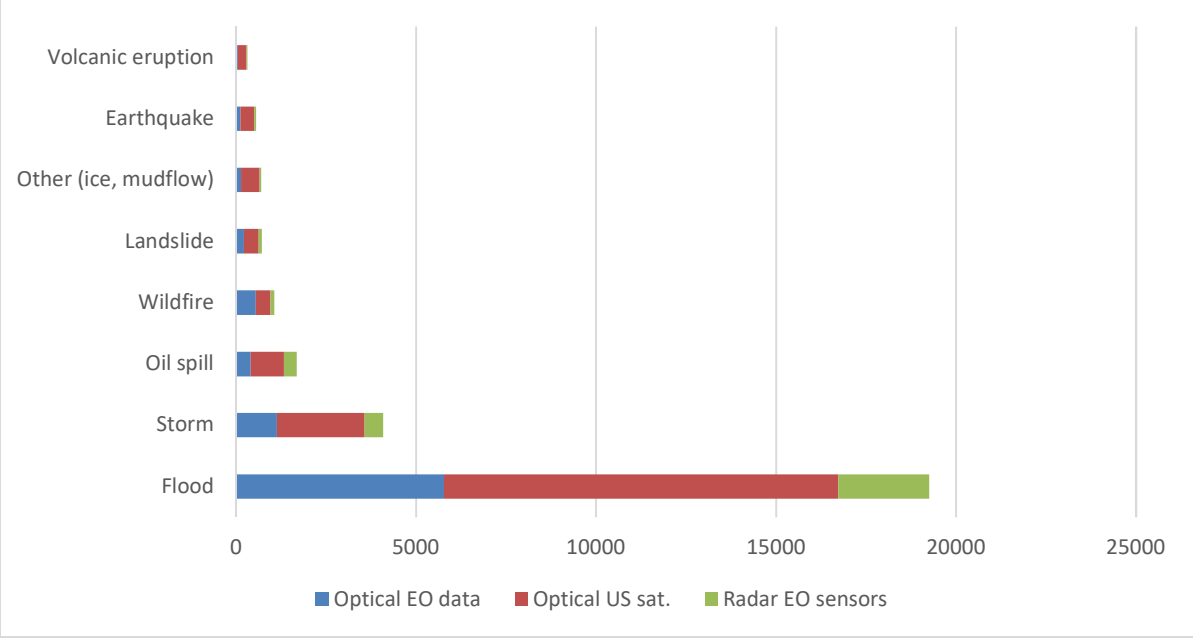


Figure 18. Another representation of 2024 EO data of the Charter EO constellation (optical and radar) and U.S. optical data grouped by disaster type

The amount of EO data delivered by the agencies each year is linked to the annual number of activations, the type of disasters, the sizes of the AOIs (Areas of Interest), the size of the image tiles, the duration and severity of certain disasters, and the change in the Charter constellation (decommissioning of satellites and new satellites entering the constellation). It should be noted that due to different characteristics of EO systems - such as spatial and temporal resolution, cloud screening procedures, etc. – the total number of images of the different satellites alone does not adequately express the relative importance and contribution of a system to the overall capacity provided by the Charter.

Table 5. Number total of images in 2024 (Optical EO sensors, U.S. optical sensors and radar EO sensors) provided per disaster type

	Optical EO sensors	Optical U.S. sat	Radar EO sensors	Total
Flood	5776	10951	2525	**19252**
Storm	1139	2432	518	**4089**
Oil spill	403	925	356	**1684**
Wildfire	545	414	96	**1055**
Landslide	221	403	90	**714**
Other (ice, mudflow)	141	511	42	**694**
Earthquake	114	392	53	**559**
Volcanic eruption	47	241	24	**312**

Table 6 aims to show if the distribution of Charter activations and the provision of Charter data are consistent per disaster type. In the end, it is highly dependent on the sensors. Floods are the major disasters covered by all sensors, followed by storms and earthquakes. This is in line with activations repartition but in different proportions.

Table 6. Percentage of 2024 Charter activations and Charter data (Optical EO sensors, U.S. optical sensors and radar EO sensors) provided per disaster type

	Charter activations	Optical EO sensors	Optical U.S. sat	Radar EO sensors
Flood	**65,9%**	30,0%	56,9%	13,1%
Storm	**9,4%**	27,9%	59,5%	12,7%
Oil spill	**7,1%**	23,9%	54,9%	21,1%
Wildfire	**5,9%**	51,7%	39,2%	9,1%
Landslide	**4,7%**	31,0%	56,4%	12,6%
Other (ice, mudflow)	**2,4%**	20,3%	73,6%	6,1%
Earthquake	**2,4%**	20,4%	70,1%	9,5%
Volcanic eruption	**2,4%**	15,1%	77,2%	7,7%

It is important to remember that all provided images are not systematically used, and therefore the image count is not related to the quantity of images used for generating value-adding products.

Optical resources consumption (excluding U.S. VHR and HR data)

Table 7 and Figure 19 describe the optical data resources consumption for 2024. A total of 8,386 optical images were provided by the Charter members. Figure 20 shows 2023 optical sensors statistics for comparison.

2,120 archived optical images were provided by the Charter members, which is more than 2023 (2023: 2,598; 2022: 969; 2021: 879; 2020: 1,042).

6,266 programmed optical images were provided by the Charter members, which is stable compared to 2023 considering more activations (2023: 5,159; 2022: 3,471; 2021: 3,489; 2020: 3,547; 2019: 2,776 images).

Around 51,5% of the total number of optical images (archived and programmed) were provided by 3 satellites: Pleiades (18,7%), Landsat 8/9 (17,9%) and Sentinel-2 (14,7%), Most of programmed optical images are provided by Pleiades (25%), Landsat 8/9 (17%) and Sentinel-2 (11,7%). Most of the archived optical images are provided by Sentinel-2 (23,5%) and Landsat 8/9 (20,7%).

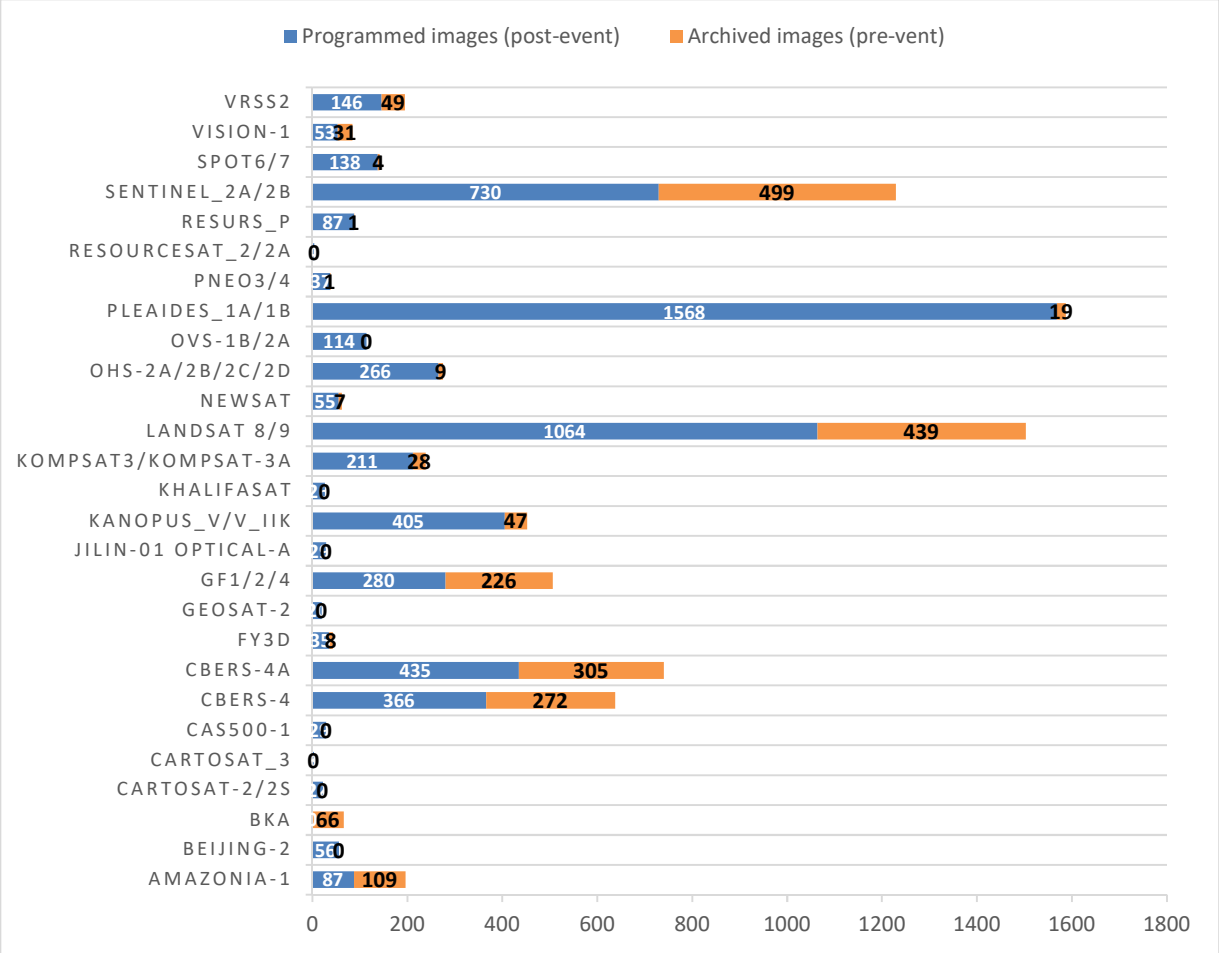


Figure 19. 2024 optical data delivered

Please note that Figure 19 is built on figures extracted from COS-2. As a consequence, satellite data provided by members or data providers by other means are not reflected in totality. For example, in 2024, ISRO has supported 48 activations and provided 241 satellite datasets through ftp.

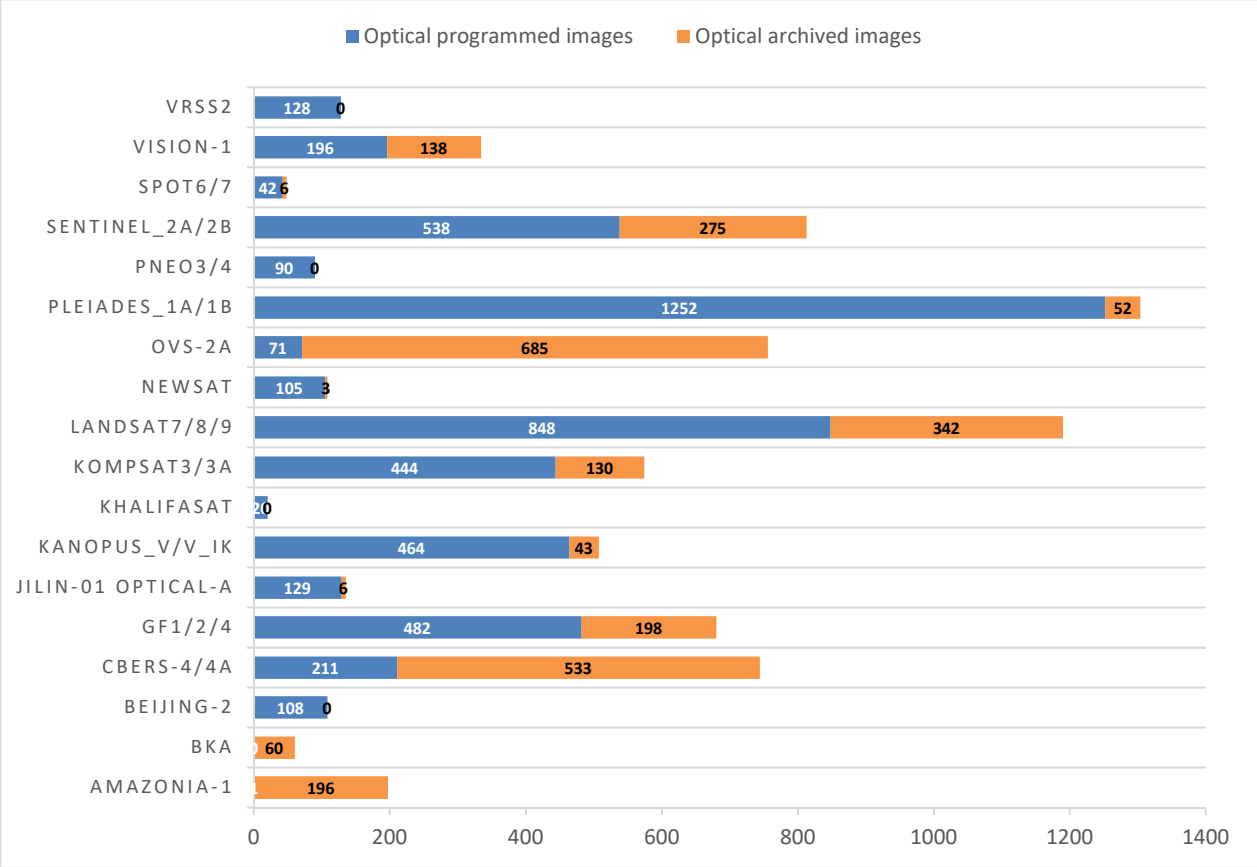


Figure 20. For comparison, 2023 optical data delivered

Table 7. 2024 Statistics for Optical sensors

	AMAZONIA-1	Beijing-2	BKA	CARTOSAT-2/2S	CARTOSAT_3	CAS500-1	CBERS-4	CBERS-4A	FY3D	GEOSAT-2	GF1/2/4	JILIN-01 Optical-A	KANOPUS_V	KANOPUS_V_IK	KhalifaSat	KOMPSAT3	KOMPSAT3A
Programmed images	87	56	0	22	3	29	366	435	35	20	280	0	0	29	363	42	26
Archived images	109	0	66	0	0	0	272	305	8	0	226	0	0	0	37	10	0
Total number of images provided	**19**	**56**	**66**	**22**	**3**	**29**	**63**	**74**	**43**	**20**	**50**	**0**	**0**	**29**	**40**	**52**	**26**

	LANDSAT8	LANDSAT9	NewSat	OHS-2A/2B/2C/2D	OVS-1B	OVS-2A	PLEAIDES_1A/1B	PNEO3/4	RESOURCESAT_2	RESOURCESAT_2A	RESURS_P	SENTINEL_2A/2B	SPOT6/7	VISION-1	VRSS2
Programmed images	539	525	55	266	1	113	1568	37	2	2	87	730	138	53	146
Archived images	222	217	7	9	0	0	19	1	0	0	1	499	4	31	49
Total number of images provided	**761**	**742**	**62**	**275**	**1**	**113**	**1587**	**38**	**2**	**2**	**88**	**1229**	**142**	**84**	**195**

The provision of meteorological satellites (Metop, Meteosat, METEOR-M, SUOMI-NPP) has not been detailed, but imagery is made available to assist in the assessment of cloud cover and to support events, such as storm activations, which are considered useful for the value-adders.

Radar data resources consumption

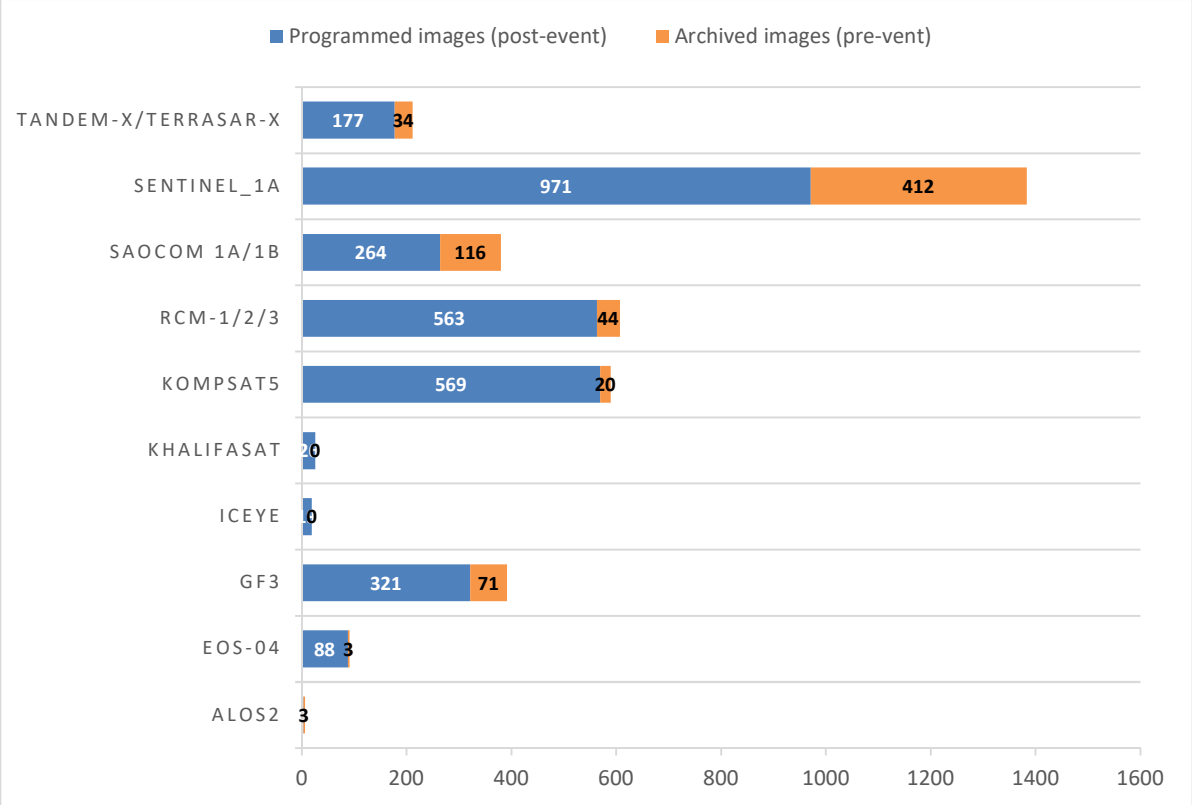


Figure 21 and Table 8 describe the radar data resources consumption for 2024.

The total number of newly acquired images (3,704) provided by the Charter members is a little bit higher compared to 2023 (2,354 in 2023; 1,984 in 2022; 2,067 in 2021; 2,330 in 2020). Figure 22 shows radar sensor 2023 statistics for comparison.

A total of 703 archived images were provided by the Charter members, which is more than last year (612 in 2023; 415 in 2022; 210 in 2021; 646 in 2020).

Around 69,6% of the total number of radar images (archived and programmed) were provided by the following satellites: Sentinel-1A/1B (37,3%), RCM-1/2/3 (16,4%) and Kompsat-5 (15,9%).

Most of the programmed radar images are provided by Sentinel-1A/1B (32,4%), Kompsat-5 (19%) and RCM-1/2/3 (18,4 %). While most of archived radar images are provided by Sentinel-1A/1B (58,6%) and Saocom-1A/1B (16,5%).

In the case of a flood disaster, radar satellite imagery often brings the most benefit to emergency response, because radar systems are able to monitor the extent of flooded areas independent of weather conditions. Nevertheless, in 2024, only 13,1% of radar data (2525 out of 19,252) were used to monitor 56 flood events (30,1% in 2023; 37% in 2022).

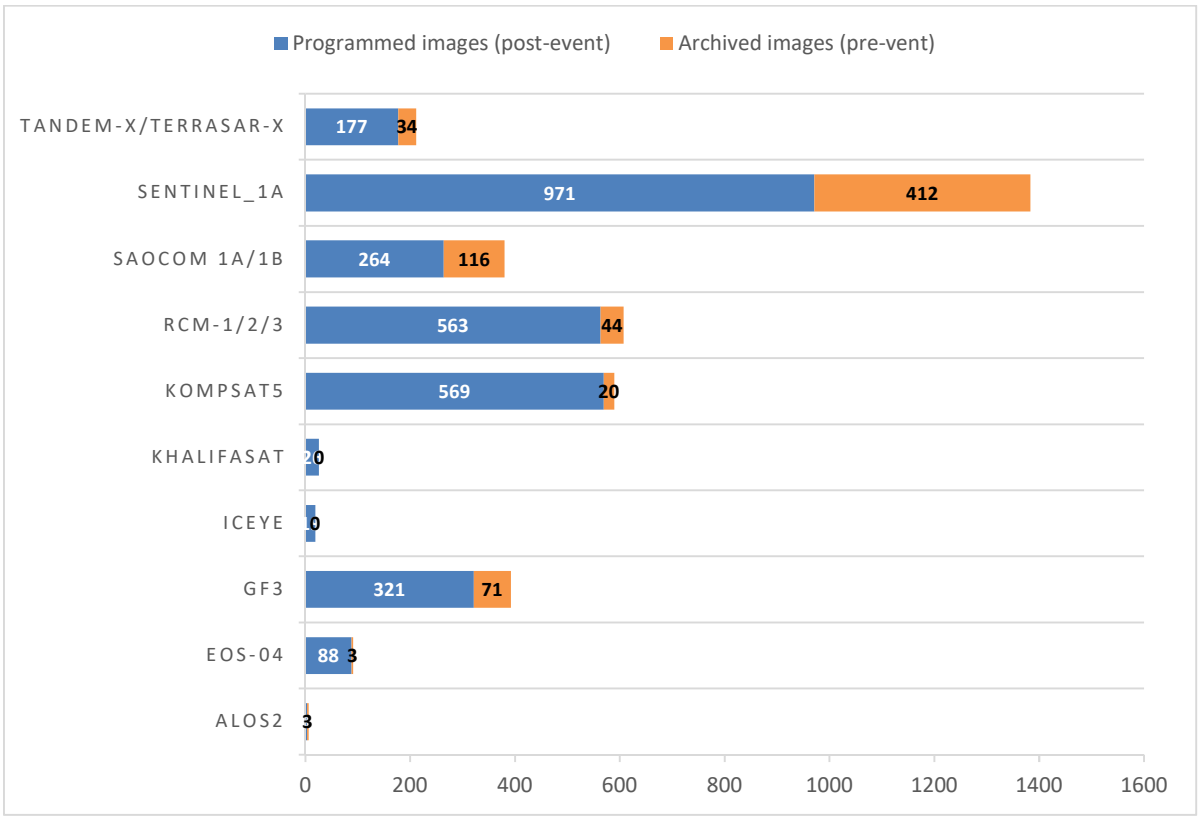


Figure 21. 2024 delivered data (number of archive images (pre-event) is in orange and number of programmed newly acquired images (post-event) is in blue) – Radar EO sensors

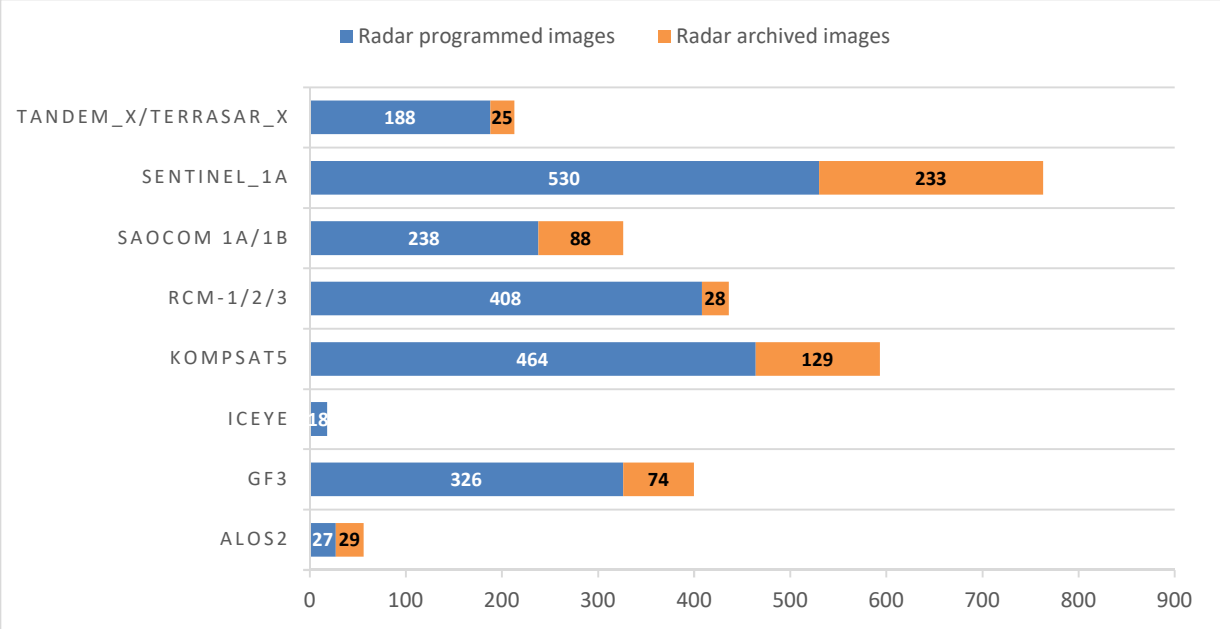


Figure 22. For comparison, 2023 delivered data (number of archive images (pre-event) is in orange and number of programmed newly acquired images (post-event) is in blue) - Radar EO sensors

Table 8. 2024 Statistics for Radar sensors

	ALOS2	EOS-04	GF3	ICEYE	KhalifaSat	KOMPSAT 5	RCM-1/2/3	Saocom 1A/1B	SENTINEL _1A	Tandem-X/TERRAS AR-X
Programmed images provided	3	88	321	19	26	569	563	264	971	177
Archived images provided	3	3	71	0	0	20	44	116	412	34
Total number of images provided	**6**	**91**	**392**	**19**	**26**	**589**	**607**	**380**	**1383**	**211**

U.S. VHR and HR data delivered

As already presented, U.S. VHR satellites provided 9,269 newly acquired images (GeoEye-1 – 561 images, WorldView-1, 2 and 3 – 3,939 images) and HR (Planet – 4,143 images, and Global – 626 images) - optical satellites in 2024.

U.S. VHR provided 7,000 archived images (GeoEye-1 – 1,031 images, WorldView-1, 2 and 3 – 4,746 images) and HR (Planet 1,198 images; Quickbird 16 images and Global – 9 images) - optical satellites in 2024.

In total, **10,277 images of U.S. VHR optical satellites** (GeoEye-1, WorldView-1, 2 and 3) and **5,992 images** of U.S. HR optical satellites (Planet) were supplied in 2024 (Figure 24). For comparison, in 2023, the figures were: 10,666 images of U.S. VHR optical satellites (GeoEye-1, WorldView-1, 2 and 3) and 4,780 images of U.S. HR optical satellites (Planet).

Table 9. 2024 statistics concerning U.S. commercial optical satellites

	GEO_EYE_1	GLOBAL	Quickbird	PlanetScope	WORLDVIEW_1/2/3
Programmed images provided	561	626	0	4143	3939
Archived images provided	1031	9	16	1198	4746
Total number of images provided	**1592**	**635**	**16**	**5341**	**8685**

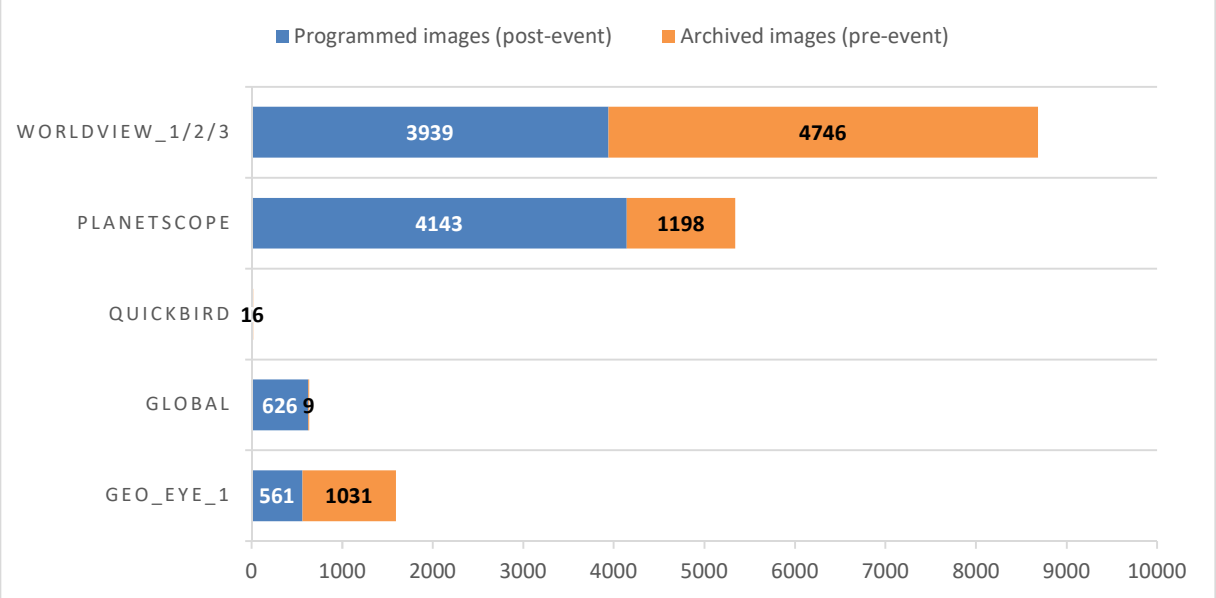


Figure 23. 2024 Data Consumption – U.S. Commercial optical satellites (number of archive images (pre-event) are in orange and the number of programmed images (post-event) is in blue)

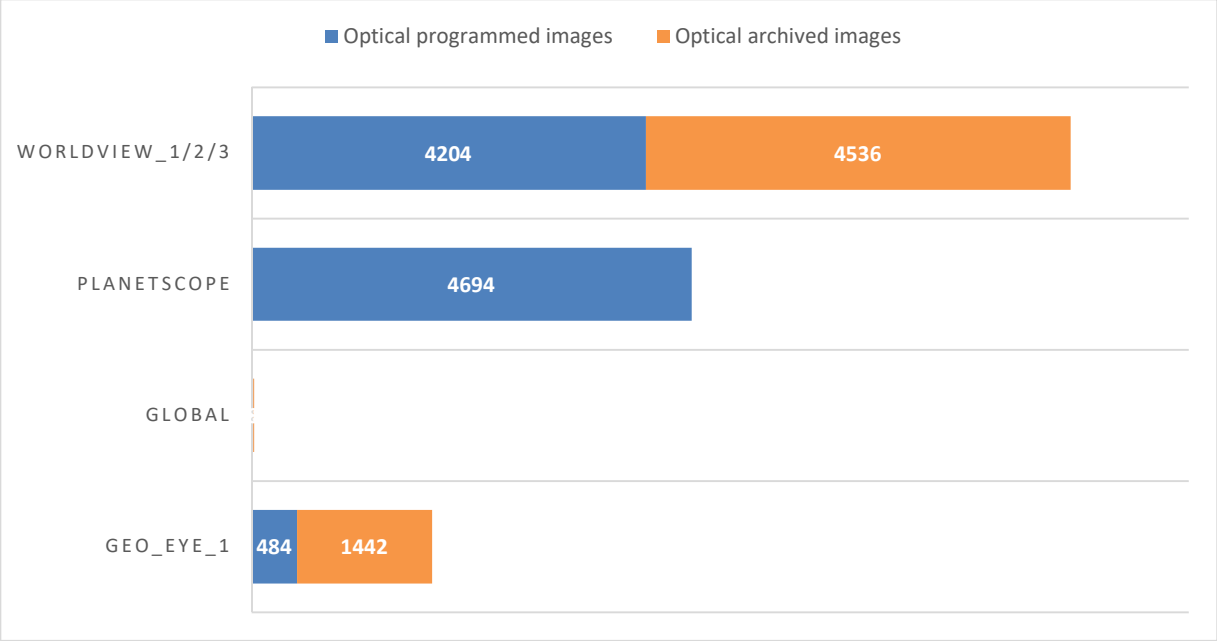


Figure 24. 2023 U.S. Data Consumption for comparison

Overview of data consumption per activation

Figure 25 and Figure 26 respectively depict the number of programmed (post-event) and archived (pre-crisis) data for EO Charter sensors (except U.S. VHR and HR data) by activation.

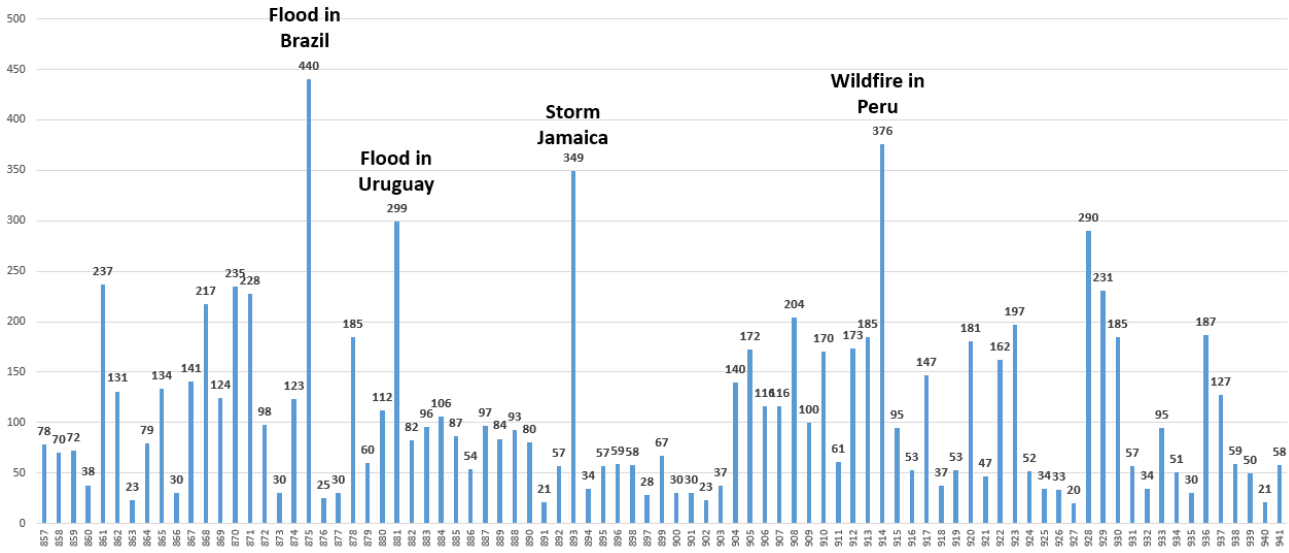


Figure 25. Number of delivered programmed images (radar and optical) by activation in 2024

The average number of programmed images provided by activation in 2024 is 109 (compared to 119 in 2023, 108 in 2022, 107 in 2021, 102 in 2020).

The activations with the highest number of programmed data provided (Optical & radar sensors) are:

- **Act 875,** Flood in BRAZIL, 440 images
- **Act 881**, Flood in URUGUAY, 299 images
- **Act 893,** Storm in JAMAICA, 349 images
- **Act 914**, Wildfire in PERU, 376 images

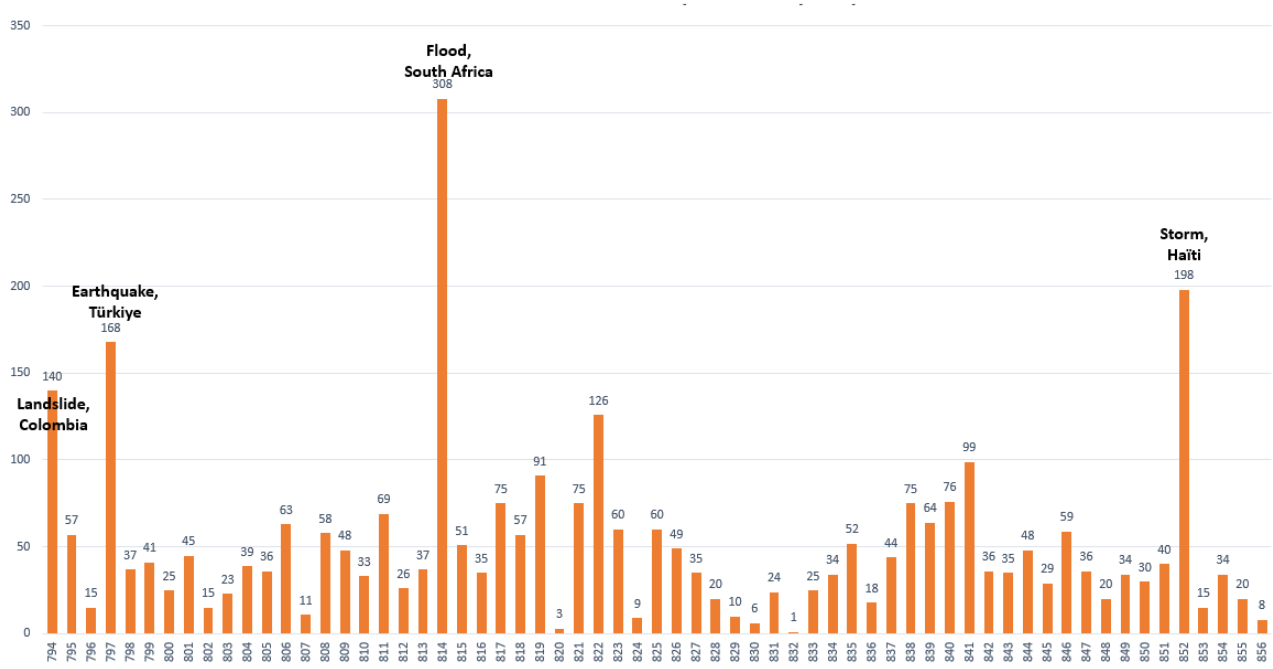


Figure 26. Number of delivered archived images (radar and optical) by activation in 2024

The average number of archived images provided by activation in 2024 is 33 (51 in 2023, 27 in 2022, 22 in 2021, 31 in 2020, 28 in 2019). The activations with the highest numbers of archived data which were provided (Optical & radar sensors) are:

- **Act 868,** Storm in MOZAMBIQUE, 98 images
- **Act 870,** Flood, Landslide, Storm & Hurricane in MADAGASCAR, 109 images
- **Act 875,** Flood in BRAZIL, 151 images
- **Act 881**, Flood in URUGUAY, 299 images
- **Act 936,** Storm & Hurricane in MOZAMBIQUE, MALAWI, 105 images

Figure 27 and Figure 28 respectively depict the number of optical and radar data for EO Charter sensors (except U.S. VHR and HR data) by activation, and Figure 30 shows the number of U.S. VHR and HR programmed images by activation.

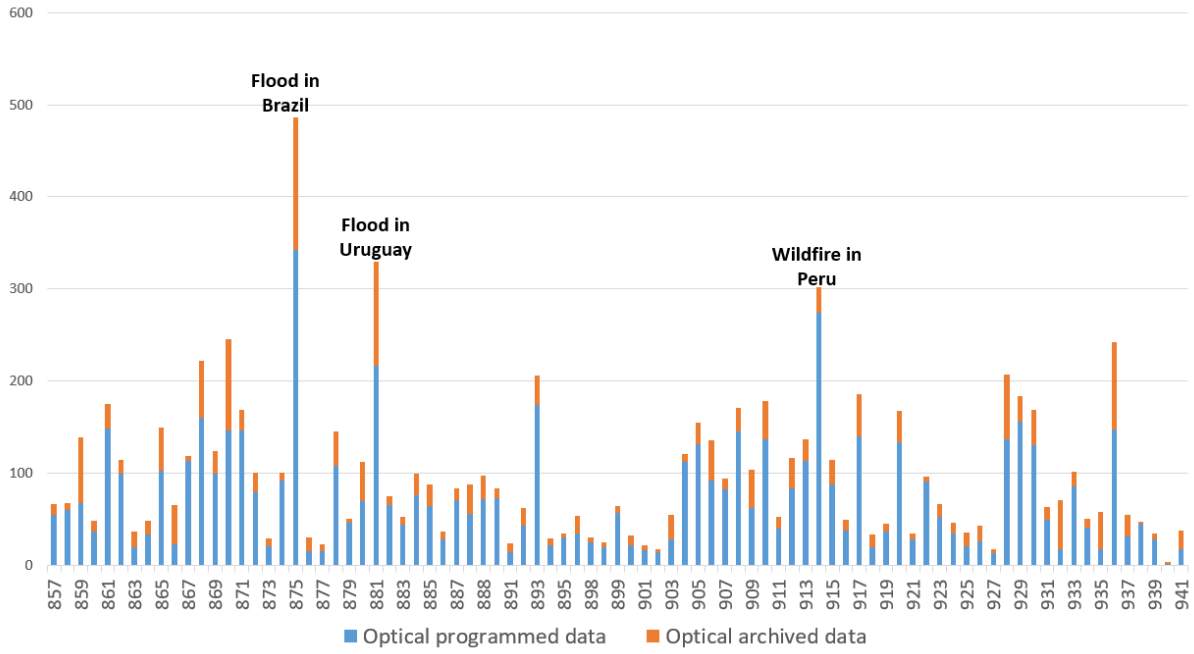


Figure 27. Number of delivered optical images (archived and programmed) per activation in 2024

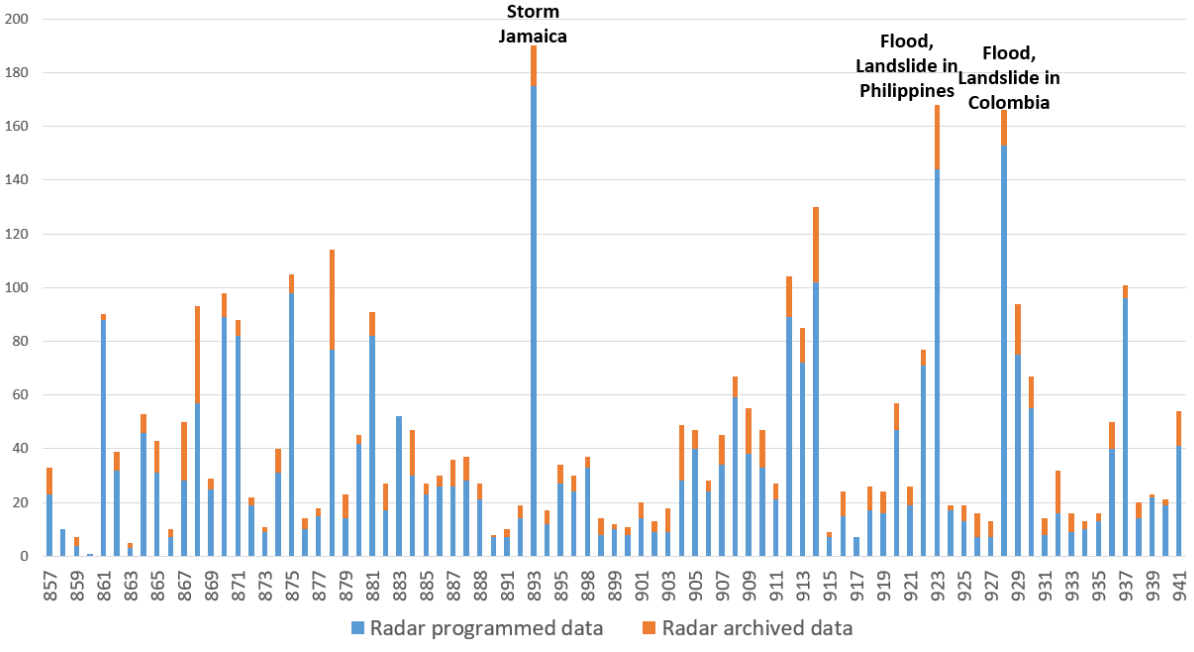


Figure 28. Number of delivered radar images (archived and programmed) per activation in 2024

In total, 67 out of the 85 activations have benefited from U.S. VHR and HR data. The four cases with the highest number of U.S. VHR and HR data provided are:

- **Act 861,** Oil spill, in TRINIDAD and TOBAGO, 691 images
- **Act 870,** Flood, Landslide, Storm & Hurricane in MADAGASCAR, 588 images
- **Act 875,** Flood in BRAZIL, 1002 images
- **Act 928,** Flood, Landslide in COLOMBIA, 811 images

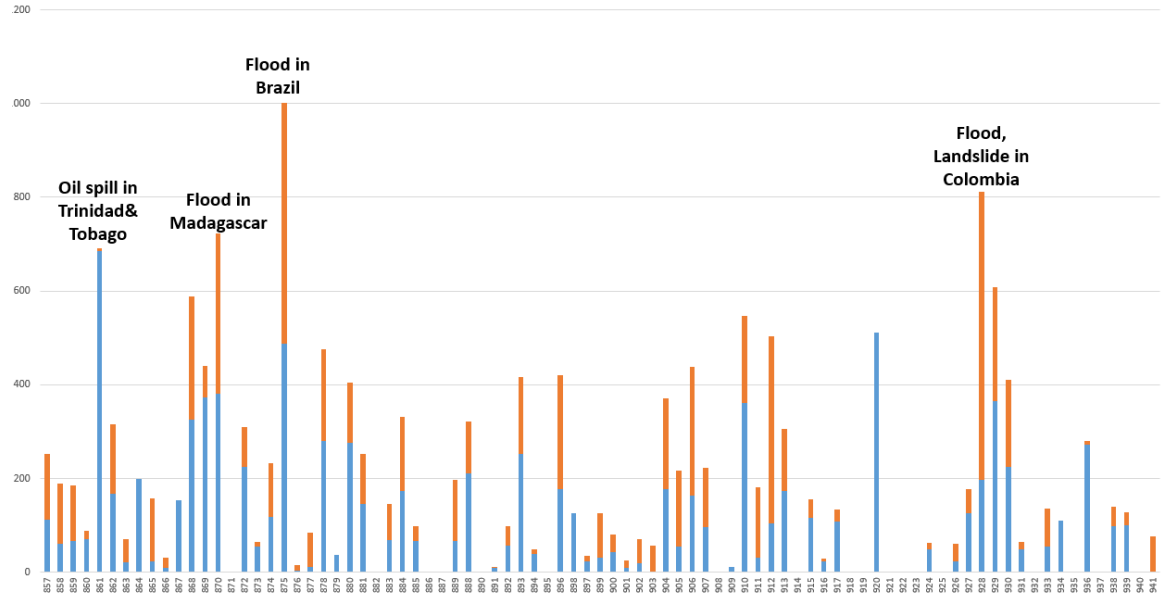


Figure 29. Number of delivered archived (orange) / programmed (blue) images per activation in 2024 for U.S. VHR & HR commercial satellites.

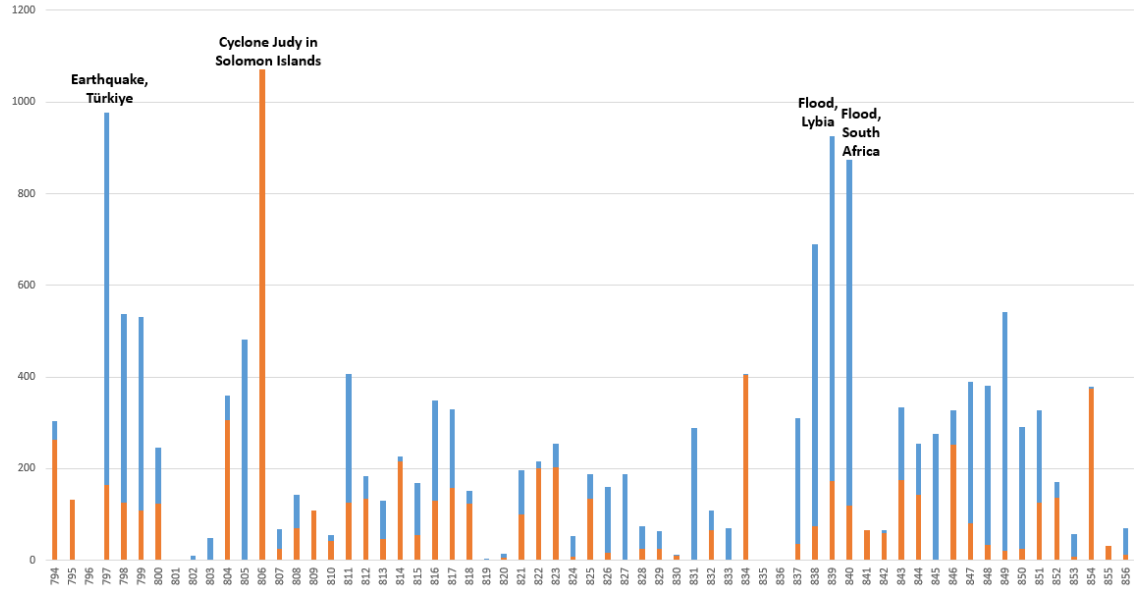


Figure 30. Number of delivered archived (orange) / programmed (blue) images per activation in 2024 for U.S. VHR & HR commercial satellites.

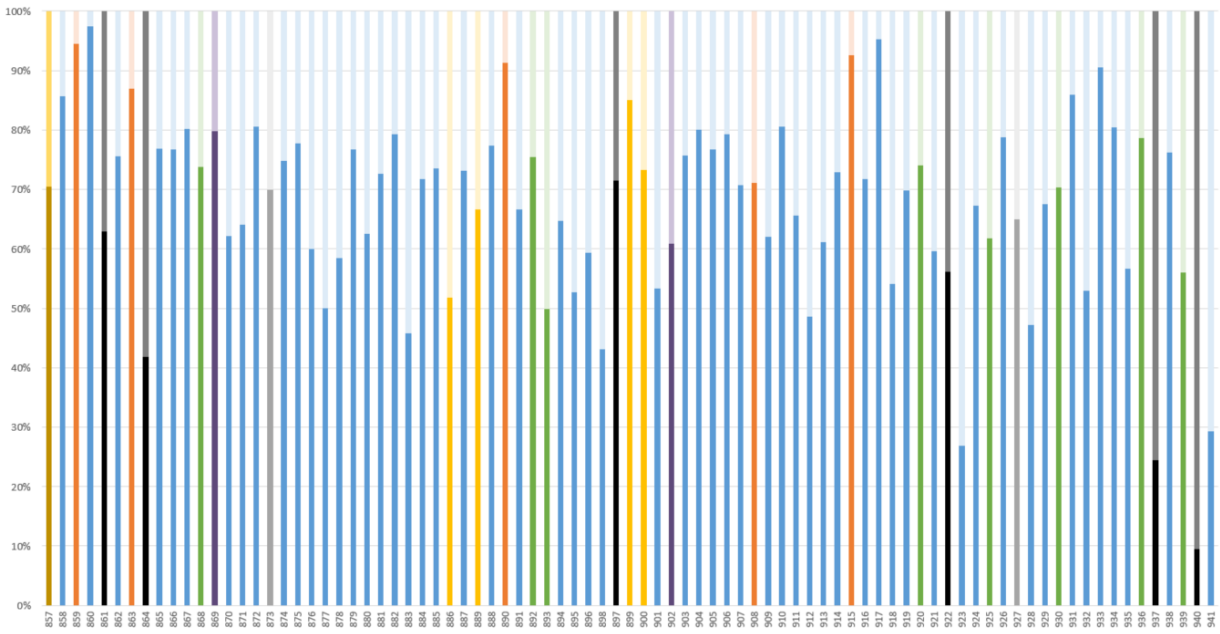


Figure 31. Repartition (in percentage) between optical and radar programmed images for 2024 per activation and disaster type

The legend of the Figure 31 is available below. It describes the radar/optical repartition of newly acquired images by activation. This shows that radar and optical images are provided for all types of events, but more optical data than radar data are provided for earthquakes, landslides, wildfires and to some extent ocean storms events. Radar images are mainly provided for the flood events compared to optical data.

Disaster type	Optical	Radar
Flood		
Wildfires		
Oil Spill		
Storm		
Earthquake		
Landslide		
Volcanic eruption		
Others (ice, mudflow)		

3.2.2 Human resource contribution (ECO and PM) in 2024

ECO resources

The Emergency On-Call Officer (ECO) services were provided on a weekly rotational basis by 9 Charter members agencies: CNES, CNSA, CONAE, CSA, DLR, UKSA, ESA, ISRO/NRSC, and ROSCOSMOS as shown in Figure 32.

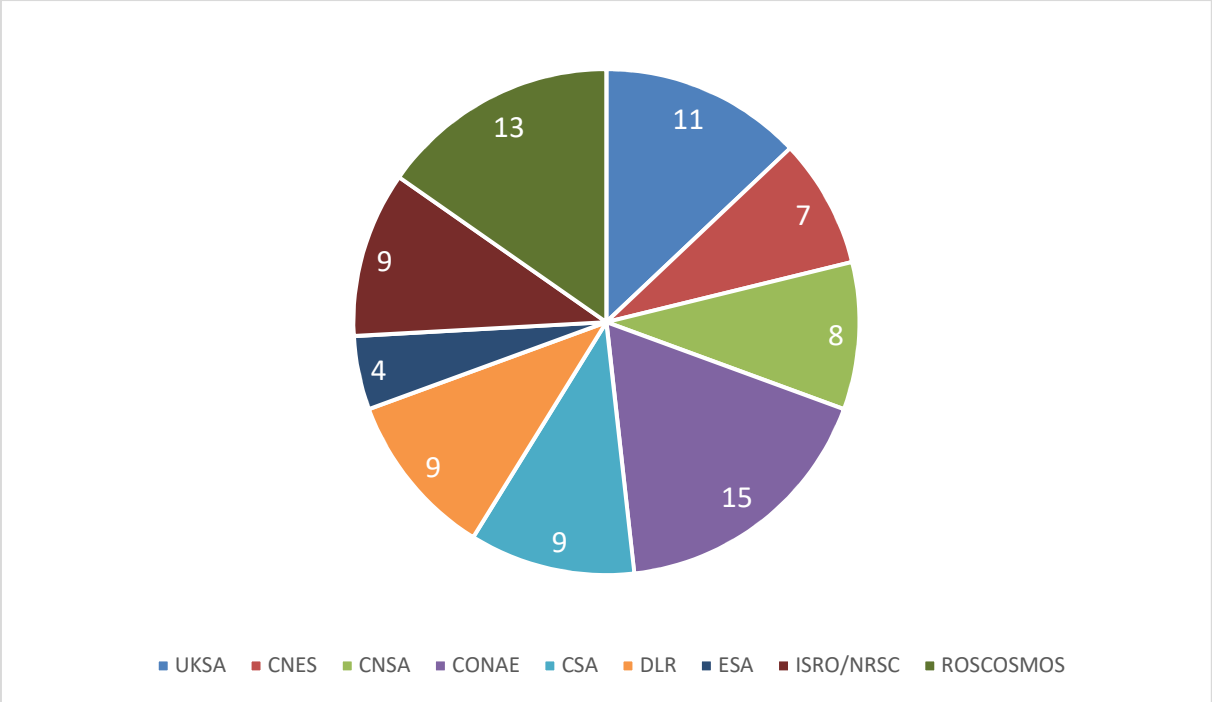


Figure 32. Distribution of Charter Parties responsible for the ECO services in 2024

The random nature of calls and scheduled rotation of ECOs usually results in an uneven workload distribution for the members. In 2022 and 2023, the workload was more evenly dispersed than usual, with most members handling 6 or 7 calls each. This year, we see that the workload is again relatively uneven as CONAE and ROSCOSMOS handled the most calls with 15 and 13 respectively, followed by UKSA with 11 calls. ESA only handled 4 calls.

Distribution of Charter members responsible for the PM services delivered in 2024

For each activation, a Project Manager (PM) is required. In 2024, Charter members nominated 85 PMs. As shown in Figure 33, DLR and INPE, as agencies that acted as Charter lead during 2024, were responsible for 21 and 13 PM nominations respectively. In total, these two agencies covered 40% of the activations. Twelve other Charter member agencies also took responsibility for PMs nominations in 2024, with JAXA being responsible for 20% of all nominations, due to the high number of Sentinel Asia Escalations in 2024.

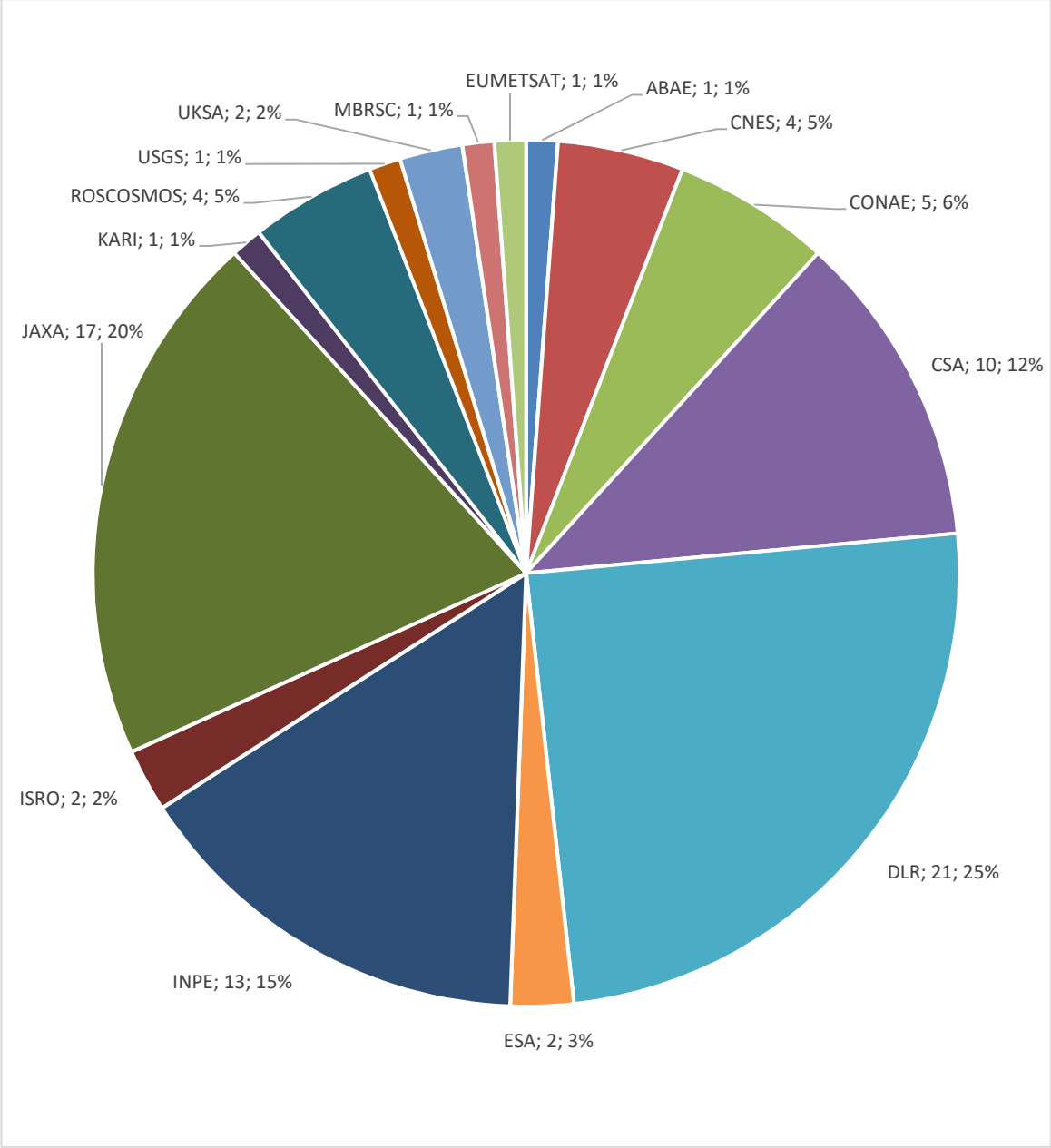


Figure 33. Distribution of Charter Parties responsible for the PM services in 2024

Distribution of organizations providing PM resources in 2024

PMs may be sourced from a Charter member agency or an external entity. Figure 34 shows the breakdown of all organizations that have contributed to Charter activations by assuming the PM role in 2024. In the case of external organizations, it is required that a Charter member nominates them and takes responsibility for the service they provide. During this reporting period, 36 different organizations contributed their PM services to Charter activations.

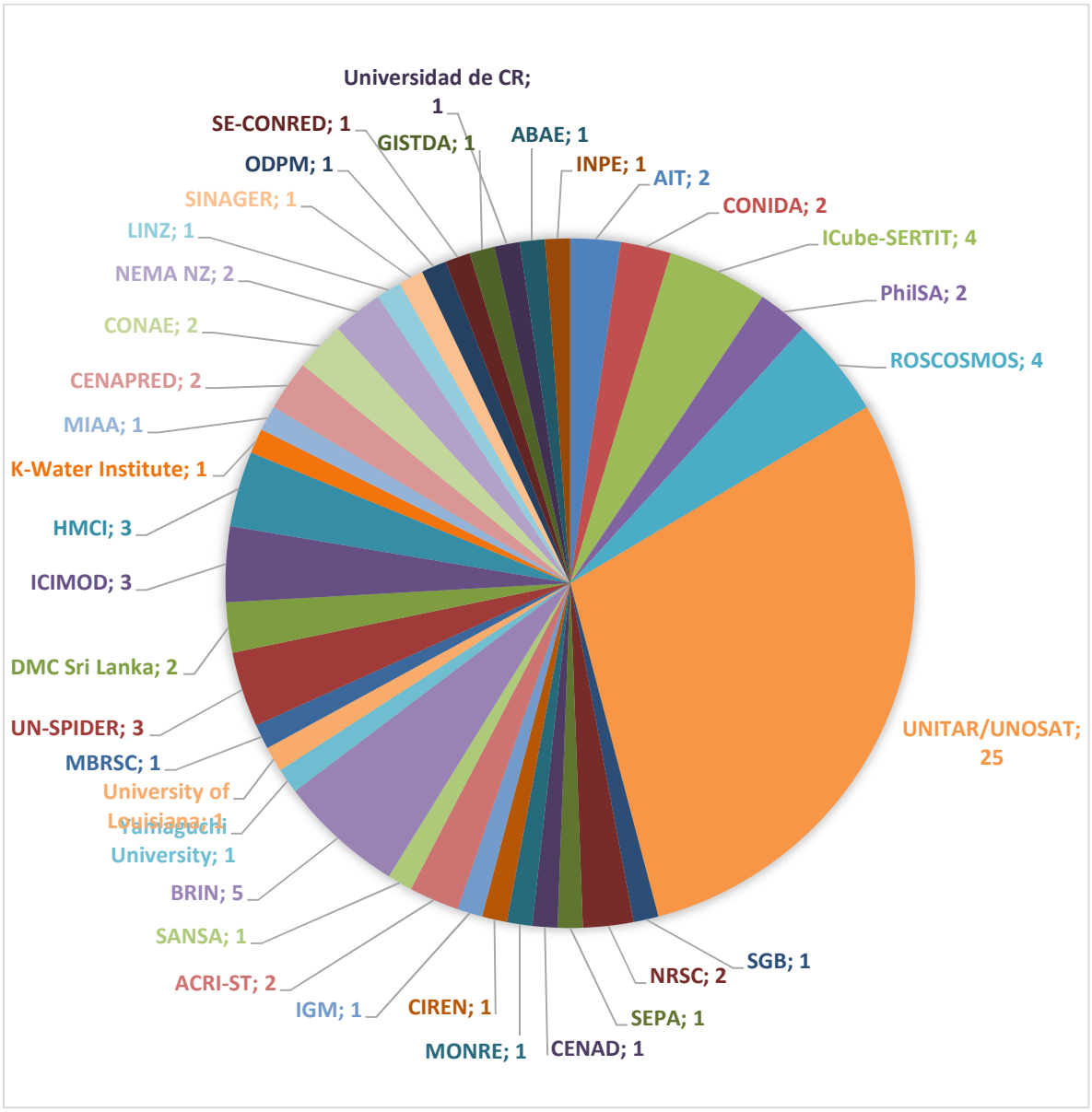


Figure 34. PM Organization breakdown in 2024

3.3 Charter Training

3.3.1 Authorized User Training

The Authorized User training aims at training the future Authorized Users and the current AUs in order to train them how and when to activate the Charter.

The following AU trainings were carried out on-line in 2024:

- In March 2024: 2 on-line AU training were organized by ESA (16 participants).
- In April 2024: 2 on-line AU training were organized by ESA (7 participants).
- In May a training to Morocco as possible future AU by CNES and ESA (on-line)
- In December an on-line AU training to NEMO - St. Vincent and the Grenadines by ESA.

3.3.2 Emergency on-Call Officer Training

The Emergency On-Call Officer (ECO) function is of utmost importance for the Charter operations, because the ECO is the person who orders appropriate data from the Charter members within a few hours after an activation request is received.

- Dedicated in person training held in Bonn, organized by DLR and ESA.

3.3.3 SARE exercises

Because some ECO staff might not face “real activations” frequently, two so-called “Semi-Annual Refresher Exercises” are performed every year with all of the ECOs.

In 2024, there were two exercises:

- SARE 28: held in January-March 2024, led by ESA and UKSA. 28 Participants
- SARE 29: held in August-November 2024, led by UKSA and CNES. 26 Participants

3.3.4 Project Manager Training

The PM training is aimed at strengthening the network of Charter PMs by providing refresher sessions for current PMs and training sessions for new PMs. Several ad hoc on-line trainings were carried out by ESA, some of which focusing on the Charter Mapper while also giving advice regarding the Project Manager role.

- PAGASA and PhilSA – Charter Mapper demo (in the context of the Strom Trani activation)
- Sentinel Asia PM training in Kyrgyzstan hosted by JAXA – Charter Mapper demo given by ESA
- NDMA - Eswatini – Charter Mapper demo
- UNEP – Charter Mapper demo
- SANSA - South Africa – Charter Mapper demo
- ABAE – Charter Mapper demo

- HMCI – Cayman Islands – PM training hosted by UKSA
- ISRO – Charter Mapper demo
- HOT – Several Charter Mapper demos for VAs
- SEPA – Scotland – 2 Charter Mapper demos (one general, one hydromet focused)
- UNGRD – Charter Mapper demo for VAs
- NEMA – New Zealand – Charter Mapper demo and PM training
- MBRSC – Dubai – Charter Mapper demo to 4 people
- Centre Royal de Télédétection du Maroc (CTRS) – Charter Mapper demo and PM training 14 people
- CSA – Charter Mapper demo for VAs
- Nepal – Charter Mapper demo 17 people

3.4 VA Training

A VA training was organized in October 2024 by INPE, before the 52nd Charter Meeting.

3.5 Sentinel Asia training

A "Charter PM training by Sentinel Asia" was organized in September in Kyrgyzstan with 10 participants. The training was co-organized by JAXA and Central Asian Institute for Applied Geosciences (CAIAG) in Kyrgyzstan.

3.6 The Charter Operational System (COS-2)

ESA has developed, operates, and continues to improve the web-based Charter Operations System second generation "COS-2", linked to the Charter Geobrowser, to manage Charter operations in one web-based platform and facilitate the work of the different Charter operational staff (AUs, CBs, ODO, ECOs, PMs and VAs). Several Charter member agencies support the COS-2 development as part of the "COS-2 Evolution Team".

COS-2 has been operational since the beginning of March 2015. All Charter members have their EO metadata fetching executed on COS-2, allowing automated and on-line cataloguing of Charter acquisitions. The data available in COS-2 are automatically sent to the Charter Mapper if covering at least one of the areas of interest.

More than 28,500 (9,833 pre-crisis and 18,636 crisis) satellite data were handled by COS-2 in 2024.

The COS-2 development contract is in its second 3-year phase. Few changes have been introduced in respect to the first 2 years: enlargement of the helpdesk (1300 tickets received in one year) and the movement of hosting to Amazon services.

2024 was characterized by a major upgrade of the COS-2 system due to the necessity to upgrade the Liferay software and the database, over which the COS-2 is built. The new version had been

transferred to operations in February 2025. Therefore, the development capacity in 2024 was considerably reduced.

Two new COS-2 versions were released in 2024, adding a variety of improvements including the handling of QuickViews products, a completely redesigned interface for the PM data ordering, the possibility for the Value Adders to request additional data (if it be approved by the Project Manager) and the renaming of DMCII to UKSA.

Larger effort was spent to interface the ESA Processing Environment, the Charter Mapper, with COS-2. COS-2 acts as identity management for the Processing Environments, a security measure. The data uploaded in COS-2 (physically or via link) are passed to the Charter Mapper that imports, calibrate them and displays in full resolution (see next section). Also, the information about the End User License Agreement (EULA) is transferred in order to grant access to the data.

Now it is possible to create a QuickView in the Charter Mapper and transfer it to COS-2.

During 2024, no issues blocking the regular flow of the activations for more than 2 hours had been detected in COS-2. All Activations were handled by COS-2.

Table 10. End to end data flow for year 2024

Satellite	Success Rate	Success Rate after recovery	Success Rate for valid products	Main Failure reason
amazonia-1	97%	97%	97%	
beijing-2	0%	0%	-	Satellite not supported
bka	12%	12%	89%	Not compliant data format. Evolution under development.
cas500-1	0%	0%	-	Satellite not supported
cbers-4	56%	56%	93%	Calibration failure (gain = 0); PAN products delivered in chunks, not yet supported
cbers-4a	76%	76%	95%	Calibration failure (gain = 0); PAN products delivered in chunks, not yet supported
gaofen-1	87%	87%	97%	
gaofen-2	97%	97%	97%	
gaofen-3	98%	98%	98%	
gaofen-4	0%	0%	-	Satellite not supported
geoeye-1	98%	98%	98%	
geosat-2	0%	0%	-	Satellite not supported
global BlackSky	64%	64%	99%	
iceye	73%	82%	82%	GRD ScanSAR products not yet supported
kanopus-v	48%	48%	89%	Metadata file missing; blanks in folder names
kanopus-v-ik	61%	61%	97%	Metadata file missing; blanks in folder names
khalifasat	0%	0%	-	Satellite not supported

kompsat-3	97%	97%	97%	
kompsat-3a	99%	99%	99%	
kompsat-5	69%	69%	93%	EW mode not supported
landsat-8	98%	98%	98%	
landsat-9	97%	97%	97%	
meteor-m	0%	0%	-	Satellite not supported
newsat	92%	92%	100%	
ohs-2a	0%	0%	-	Satellite not supported
ohs-2b	0%	0%	-	Satellite not supported
ohs-2c	0%	0%	-	Satellite not supported
ohs-2d	0%	0%	-	Satellite not supported
ovs-1b	0%	0%	-	Satellite not supported
ovs-2a	0%	0%	-	Satellite not supported
planetscope	98%	98%	99%	
pleiades-1a	84%	84%	88%	Issue with storage system at cloud provider; Some products are duplicates
pleiades-1b	82%	82%	86%	Issue with storage system at cloud provider; Some products are duplicates
pneo-3	100%	100%	100%	
pneo-4	100%	100%	100%	
rcm-1	94%	94%	96%	
rcm-2	99%	99%	100%	
rcm-3	97%	99%	99%	
resourcesat-2a	0%	0%	-	Products not available for download
resurs-p	0%	0%	-	Products don't contain the shapefile providing the geometry
saocom-1a	81%	86%	90%	Issue with storage system at cloud provider
saocom-1b	87%	94%	94%	
sentinel-1a	81%	90%	90%	Issue with storage system at cloud provider
sentinel-2a	95%	96%	96%	
sentinel-2b	93%	93%	93%	
spot-6	83%	83%	83%	Issue with storage system at cloud provider
spot-7	100%	100%	100%	
tandem-x	100%	100%	100%	
terrasar-x	98%	98%	98%	
vision-1	76%	76%	93%	Invalid metadata format for some products; Issue with storage system at cloud provider
vrss-2	91%	91%	91%	
worldview-1	97%	97%	97%	
worldview-2	94%	97%	97%	
worldview-3	97%	97%	97%	

3.7 The Charter Processing Environment

While COS-2 is focused on the operational steps of the Charter activation workflow, it does not have a workflow specifically addressing the generation of geospatial data products.

In the frame of the Strategic Plan 2017-2027 discussions led by the Board identified the need to develop an interface/platform for easy data access and tools and methods for PM/VA and users. Two Charter members (ESA and ISRO) decided to respond to this request and started the development of on-line Processing Environments, to support full-resolution visualization, data screening and basic data manipulation (data comparison, band combinations, etc.). Looking at the longer term, the Board is pursuing a reflection on the benefit of expanding on-line platform capabilities with a Value Adding capability for rapid end-to-end information extraction.

The processing Environment shall be seen as an extension of the COS-2 system, dedicated primarily to PM and VAs.

The ISRO Processing Environment is still under development with promising functionalities.

The ESA Processing Environment, now called the **ESA Charter Mapper**, approved by the Board in July 2021, was operationally released in September 2021. The release of the platform, initially foreseen by end July 2021 was delayed due to the unforeseen handling of data user licences (EULAs), in order to ensure that only users accepting a EULA will be able to handle and download the EO data of the involved agency. This granted availability of VHR data from CNES, DLR and USGS in the ESA Charter Mapper.

The ESA Charter Mapper has been fed with all the data of Charter activations (supported by COS-2) since August 2021. In 2024, data was ingested and calibrated in the Mapper from Charter members: ABAE, CONAE, CNES, CNSA, CSA, DLR, ESA, INPE, JAXA, KARI, ROSCOSMOS, UKSA and USGS, and third-party data contributors ICEYE, Satellogic, Planet, and BlackSky.

Figures presented below provide views of some Charter Mapper capabilities in manipulating and analyzing Charter data.

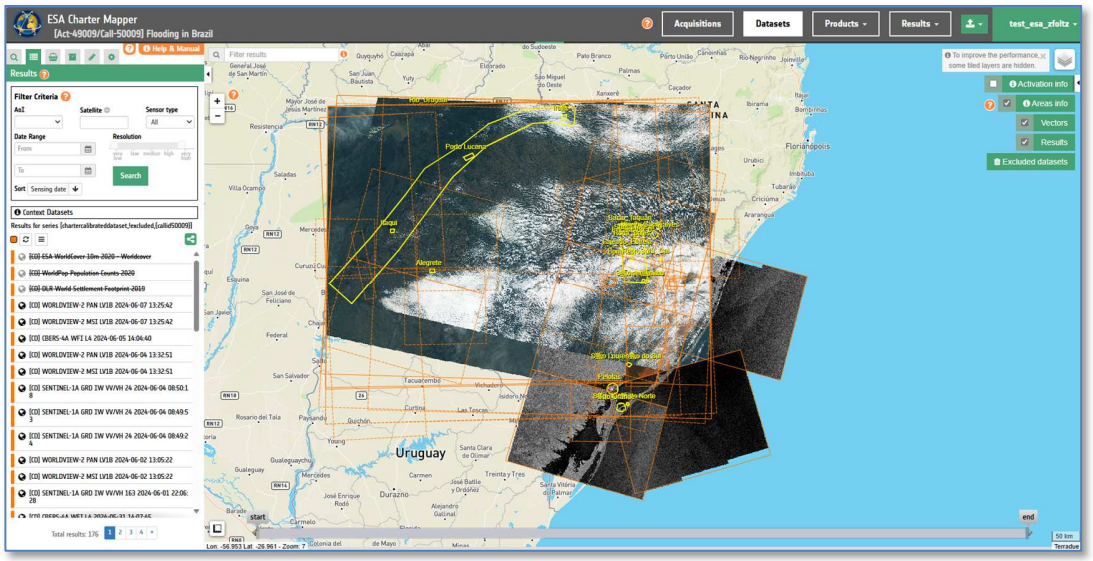


Figure 35. Various radar and optical datasets data over southern Brazil for flooding in April of 2024

Imagery received from COS-2 is ingested and transformed automatically in full resolution, irrespective of the original format, so as the user logs in, all available EO data can be viewed on-line. This will allow PM/VAs not familiar with some data formats to see the data without specific software to handle them.

The PM/VA can browse imagery on-line, select the EO data of interest, analyse and process them on-line with EO services and toolboxes to generate geo-information products.

The ESA Charter Mapper presents Activation Workspaces for each Activation. The workspace allows the PM/VA to:

- **Browse** full-resolution satellite data as raster on the map (for some data, the PM/VA shall accept the EULA – the system automatically redirects them)
- **Search and filter** among the available data
- **Upload** external satellite data outside COS-2 from local workstation or free EO Data catalogues;
- Submit **processing jobs** using satellite imagery processors; view the results as part of the Activation Analysis and download the results.
- **Store & share** satellite data and Value-Added Products with other partners involved (e.g., a PM or VA provider with credentials for the same activation)

The PM/VA can access a specific widget that allows to visualize & combine the assets (bands and overviews) derived by the ESA Charter Mapper from the satellite data product. An example is shown below using a WorldView product:

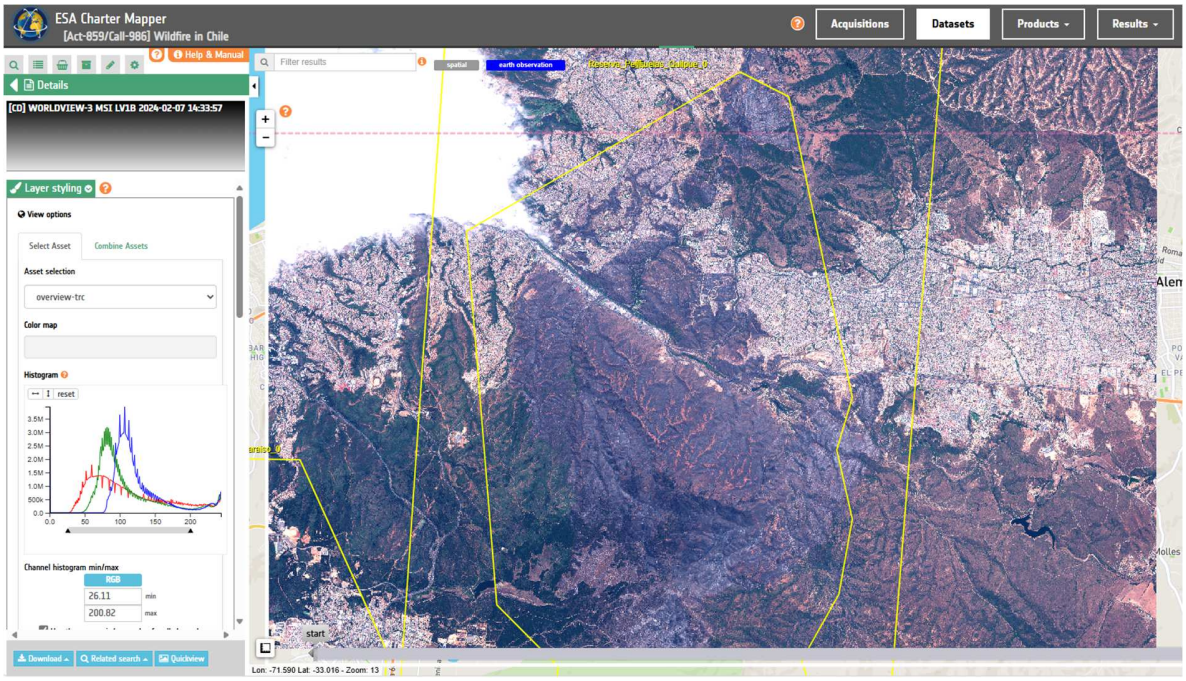


Figure 36. Full Resolution True Color RGB composite using Select asset of Layer Styling in the left panel of the ESA Charter Mapper workspace. Wildfires in Chile, February 2024 (image credits: MAXAR).

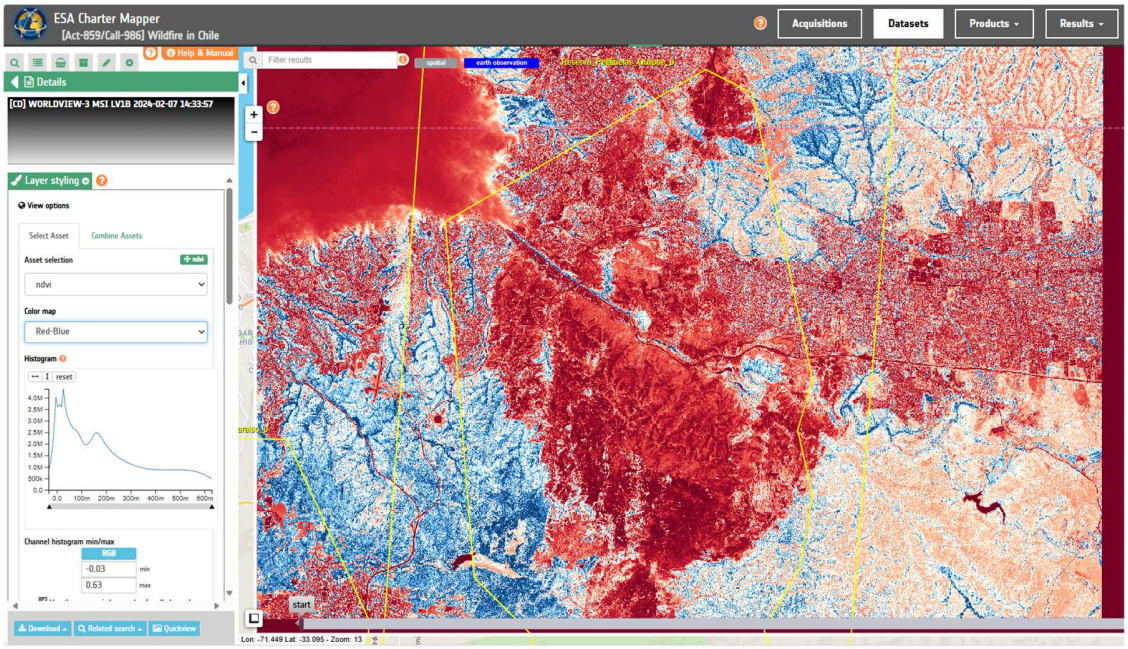


Figure 37. NDVI on the fly using Asset selection in Layer Styling in the left panel of the ESA Charter Mapper workspace (Red = low NDVI). Wildfires in Chile, February 2024 (image credit: MAXAR).

Among the features, it is possible to compare visually two images quickly through a slider:

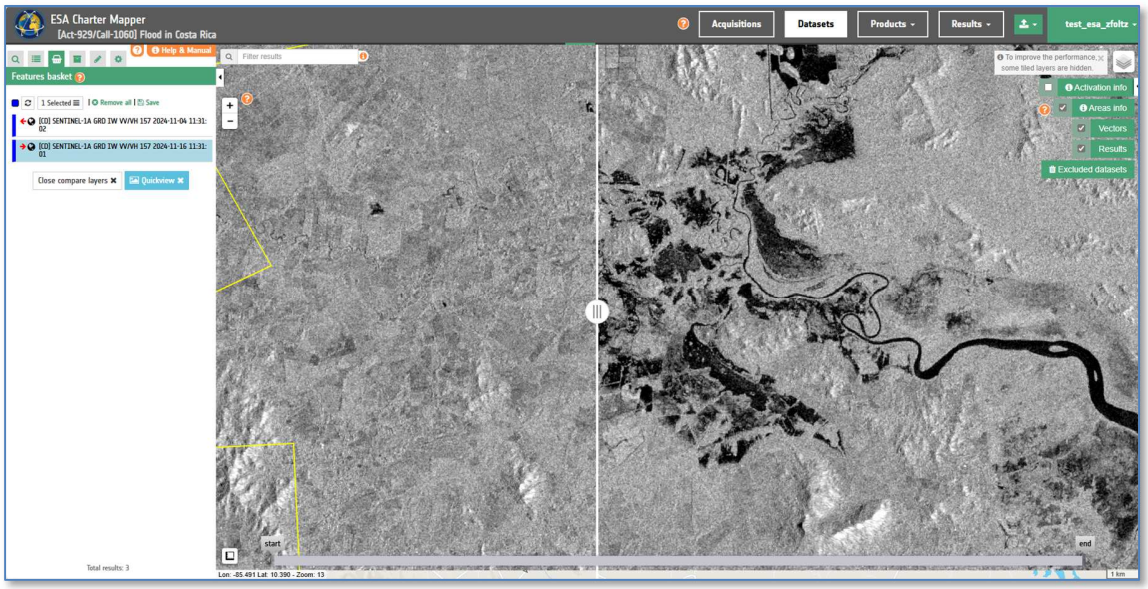


Figure 38. Compare Layers Slider function for Act-929 Flood in Costa Rica.

It is also possible to view the value-added products which have been uploaded to COS-2 for a specific activation. The footprint of the VAP will appear in the map interface and a quicklook of the VAP will appear in the bottom right of the screen. This allows viewing which areas have already been evaluated and which require treatment.

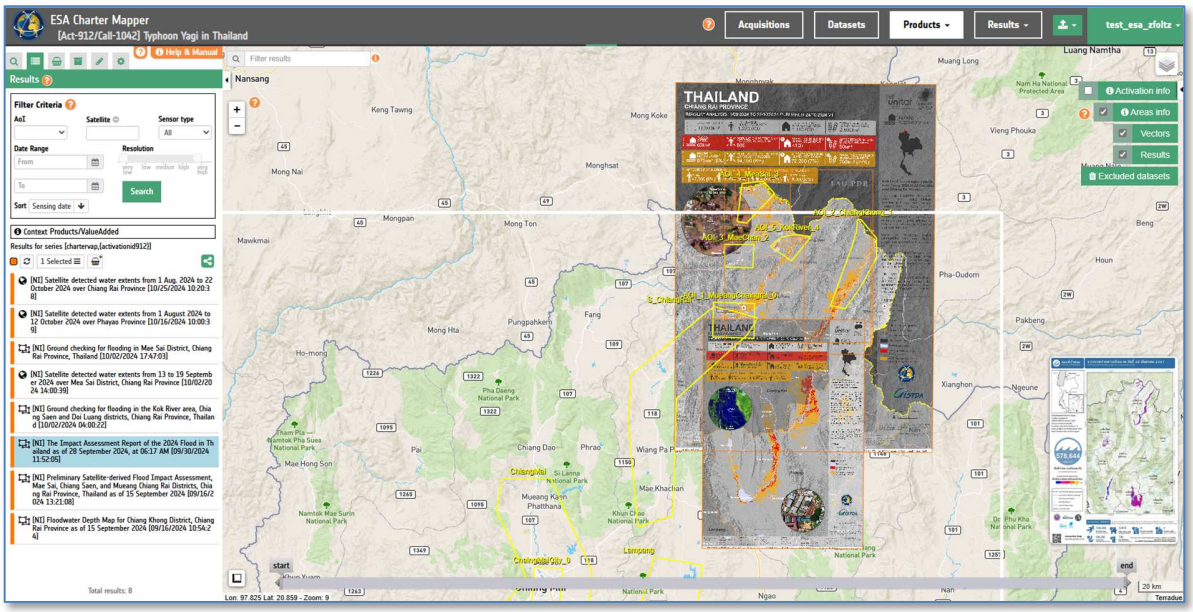


Figure 39. Interface of the ESA Charter Mapper with the “VA Products” tab selected. The list of VAPs is seen on the right and footprints are seen on the map. A quicklook of the selected VAP can be seen in the bottom right corner of the screen. Workspace of Act-912 Typhoon Yagi in Thailand.

The processing services integrated into the Charter Mapper will be gradually released as they are fully validated, improving the usefulness of the platform. At the end of 2024 the following services were available:

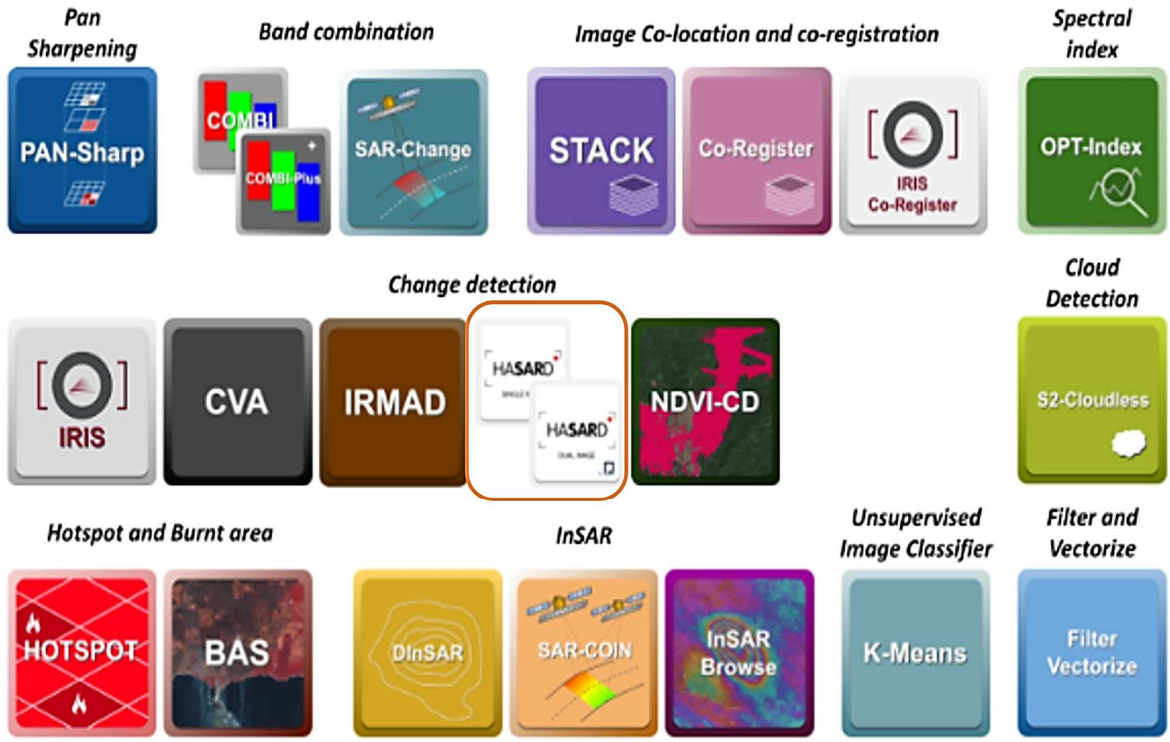


Figure 40. ESA Charter Mapper processing services in December 2024

- **COMBI**: Multi-sensor band composite
- **COMBI-Plus**: Advanced multi spectral band composite
- **OPT-Index**: Optical spectral index
- **Stack**: Co-located Stacking (requires that the images are already georeferenced)
- **SAR-Change**: Creates an RGB composite showing changes of backscatter values using a pair of SAR images
- **HOTSPOT:** Hotspot Detection
- **BAS**: Burned Area Severity
- **IRIS**: Change detection analysis
- **IRIS Co-Register**: Co-registered stacking
- **HASARD Dual**: Flood extent mapping with pre- and post-event Sentinel-1 images
- **HASARD Single**: Standing Water mapping with any post event SAR image
- **PAN-SHARP**: Optical Pan sharpened image processing
- **DInSAR**: Displacement Mapping
- **InSAR Browse**: Displacement Mapping (DLR)
- **Co-Register**: Co-registered stacking
- **SAR-COIN**: Coherence and Intensity composite
- **S2-Cloudless**: Sentinel-2 cloud masking

- **K-Means:** Unsupervised Image Classifier
- **Filter Vectorize:** Filtering and Vectorization of binary rasters
- **CVA:** Change vector analysis
- **IRMAD:** Change detection
- **NDVI-CD:** Change detection of Normalized Difference Vegetation index
- **DISMapper:** Automated detection of landscape change using Sentinel-2
- **Map Composition:** Create a PDF map layout with results from the platform

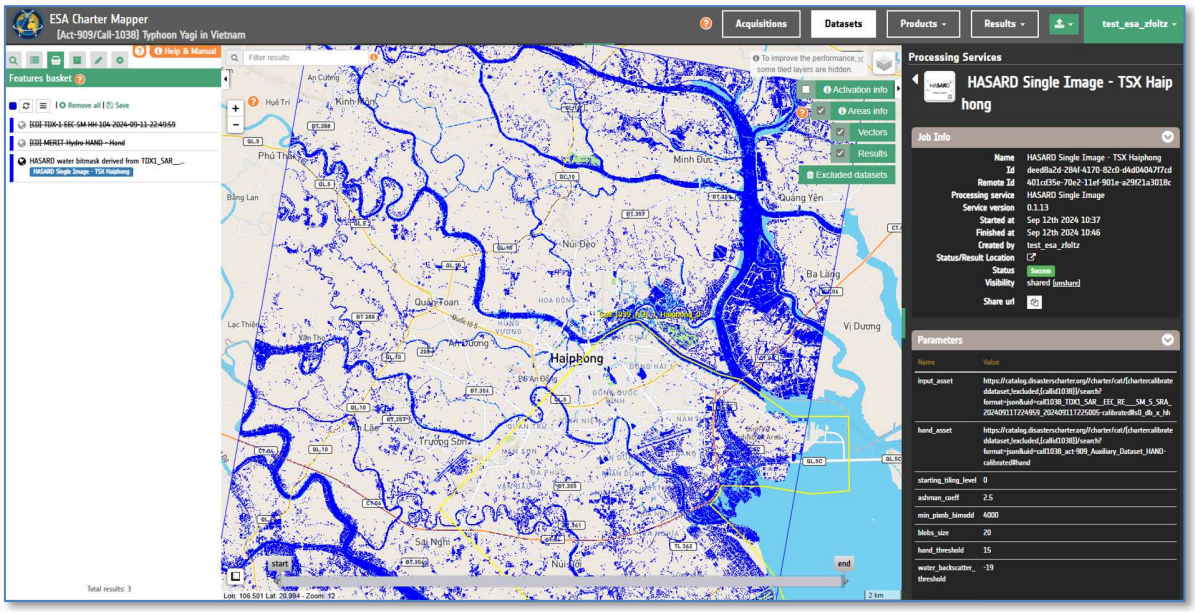


Figure 41. Result of the HASARD Single Image Service for a TSX image in the workspace of Act-909 Typhoon Yagi in Vietnam. (Binary Standing water mask).

The use of processing services in the Charter Mapper has evolved greatly since its release in 2021. Users often process EO data within the environment to derive useful geoinformation which can later be used in value-added products. The GIS functions have been improved, and the service portfolio has expanded to allow more advanced processing as well as providing an end-to-end environment for generating value added products. Over the course of 2024, the Map Composition tool was developed, to allow users to create value added products directly on the platform. Released at the end of 2024, this feature is expected to be used heavily in 2025 and beyond, especially among non-experienced users. The tool will establish an end-to-end process allowing users to generate value-added products directly in the environment without having to download any data or software. Information about the activation, a scale bar, north arrow, and locator map are automatically added to the map while the user has the option to add legends, logos, and custom text to the map product.

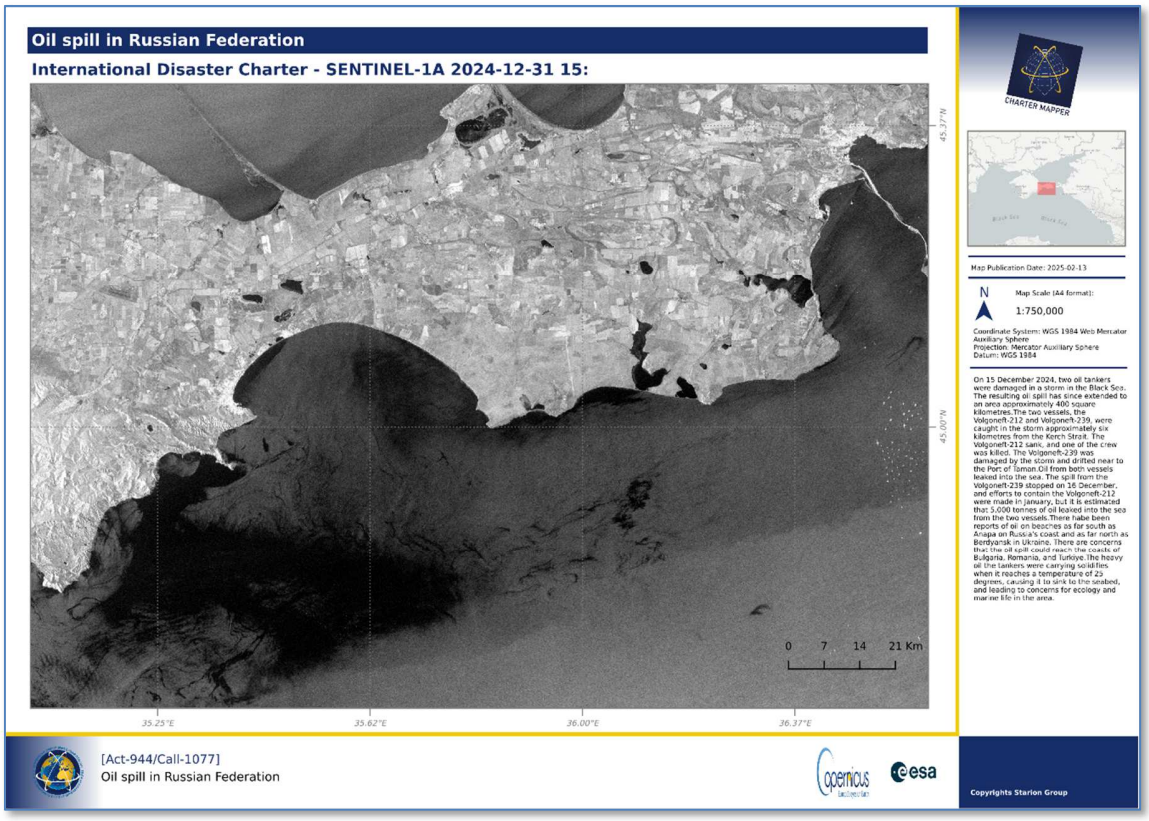


Figure 42. The Map composition tool being tested during the Oil Spill in Russia (VAP not published).

At the end of 2024, the ESA Charter Mapper was able to support the following Charter satellites:

- ALOS-2
- ALSAT-1B
- Amazonia-1
- BKA
- CARTOSAT-2
- CBERS-4/4a
- GeoEye-1
- GF-1, 2, 3
- ICEYE-X constellation
- KANOPUS-V, V-IK
- KOMPSAT-3, 3A
- KOMPSAT-5
- LANDSAT-8, 9
- PlanetScope constellation
- Pleiades-1A, 1B
- Pleiades NEO
- RCM
- RESOURCESAT-2, 2A

- SAOCOM-1A, 1B
- SENTINEL-1A, 1B
- SENTINEL-2A, 2B
- SPOT-6 & 7
- TanDEM-X
- TerraSAR-X
- UK-DMC-2
- Vision-1
- VRSS-1, 2
- WORLDVIEW-1, 2, 3

Figure 43. Pleiades NEO Image for Act-924 Flood in Spain. CREDIT: Pléiades NEO © Airbus DS, provided under Copernicus by the European Union and ESA, all rights reserved.

Starting in December of 2021, the ESA Charter Mapper has been enriched by a reporting system allowing an analysis of the data received and processed. Over the course of 2024, the Charter Mapper received 24,098 satellite data notifications from COS-2. Of these, 23,710 (98%) were successfully imported (most of the non-imported data were related to quicklooks and metadata only, meaning no products were found or the links were broken). Of these, 22,031 (93%) were successfully calibrated and available to PMs and VAs.

The failure information is very important because, except for data types not yet handled, it is due to issues with the data (lack of metadata, data corruption, unrecognised formats), meaning that the PM/VA will not be able to read them.

4. Assessment of the Charter operations

This chapter provides a synopsis of the overall assessment, including recommendations to be taken into consideration for improving Charter operations.

Statistics on the 2024 activations were compared with EM-DAT data to evaluate the overall impact of the Charter as a service to support disaster response – EM-DAT: The Emergency Events Database - Université Catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium.

The reports issued by the Project Managers of Charter activations and the various performance metrics recorded by COS-2 are the main sources of information for assessing the performance and quality of service provided by the Charter during 2024.

4.1 Overall impact

In 2024, the three most catastrophic events were the flooding in Chad with 576 deaths (affected 1.9 million), the earthquake in Japan that killed 491 people and affected 170,000 million, and typhoon Yagi in Southeast Asia which killed 850 people and affected over 3 million across five countries. All three of these events were covered by Charter activations, with Typhoon Yagi being a separate activation for Thailand, Vietnam, and Myanmar. The EM-DAT database (managed by the Centre for Research on the Epidemiology of Disasters (CRED) (http://emdat.be/disaster_list/)) inventoried 550 natural events in 2024 that killed a total of 11,000 people (officially reported deaths). These figures do not include droughts and extreme temperature events, since these events are not covered by the charter, while they do include earthquakes, tsunamis, floods, landslides, storms, volcanic eruptions, and wildfires.

The Charter covered 53 of the 550 total events in 2024 (9.6%). If we consider the 50 most severe disasters in the EM-DAT database (80% of fatalities), the Charter covered 17 of them, accounting for 50% of total fatalities. In comparison, in 2023, the Charter covered 41 of the 556 events registered in the EM-DAT database (8.9%). These 41 events accounted for 60% of total fatalities. It can be seen from the previous 2 years of data that the Charter accounts for a much higher percentage of overall fatalities than overall events, meaning that the charter is often activated for the most severe events only. 2024 further demonstrated this trend.

Figure 44 shows that 22 of the 50 most severe events recorded by the EM-DAT in 2024 were covered by the Charter. In 2023, the number of Charter activations (63) was slightly higher than in 2022 (51), however both years fall in the high range of annual activations in recent years, as the number of Charter activations has fluctuated between 32 and 63 per year since 2007. Such fluctuations can be explained in part by several factors such as: the variability in the total number of natural disasters occurring during a given year, the occurrence of disasters covering more than one country (e.g., hurricanes), and by the existence of national and regional EO-based emergency response services (e.g., Copernicus EMS, Sentinel Asia). Figure 45 shows that since 2007, the curve of the Charter activations follows, more or less, the trend of events recorded by EM-DAT.

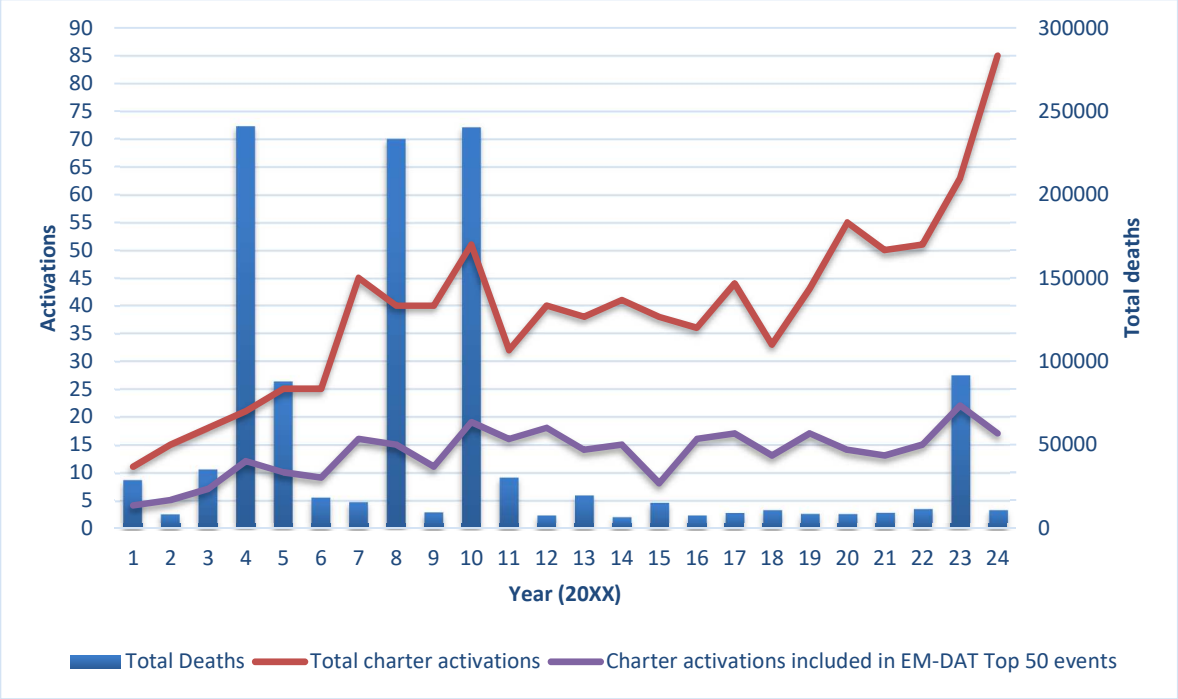


Figure 44. Number of Charter activations from 2001-2024, linked with the number of fatalities from all recorded natural disasters. Represented by the yellow line are the number of Charter events per year that are included within the 50 most severe disasters (by fatalities).

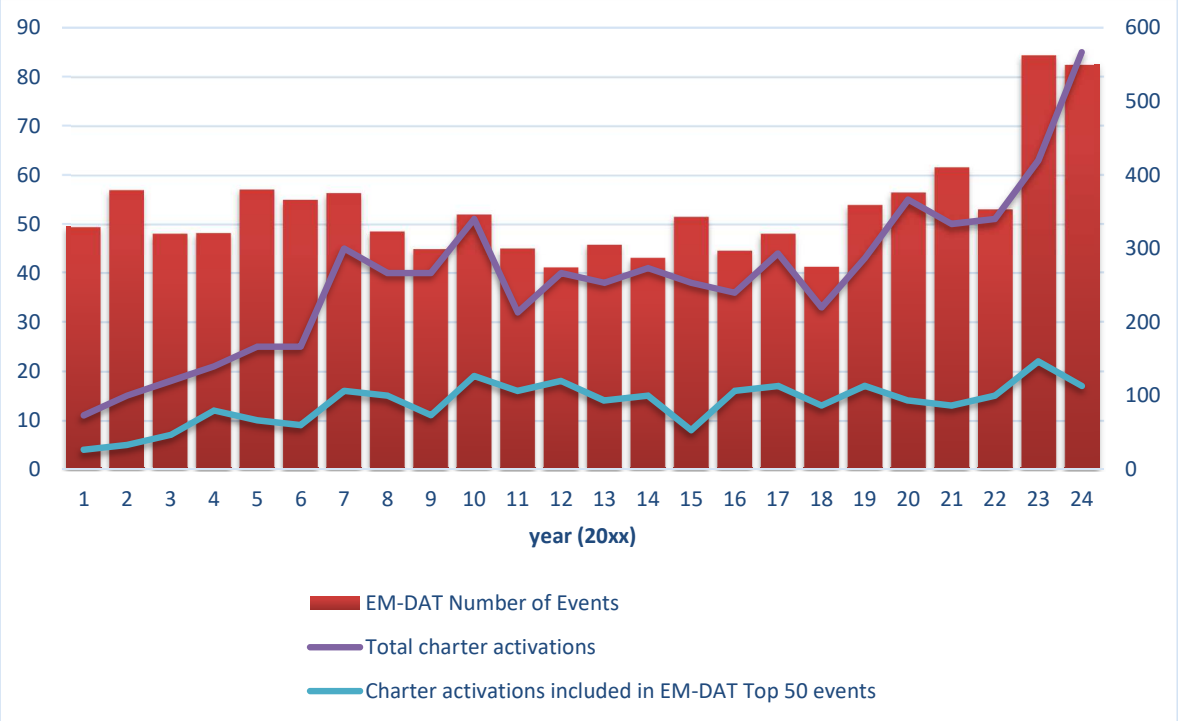


Figure 45. Number of Charter activations from 2001-2024, linked with the total number of natural disasters recorded by the EM-DAT.

In 2024, the Charter covered 8 most severe disasters by fatalities (see Table 11). Over the last fifteen years (2009-2024), the Charter was triggered for the 18 most severe natural disasters by fatalities, as reported by EM-DAT (see Table 11 and Table 12).

Table 11. The ten most severe natural disasters by number of fatalities in 2024 (events covered by Charter activations are indicated in bold). (Source: EM-DAT: The Emergency Events Database - Université Catholique de Louvain (UCL) - CRED, D. Guha-Sap.

Top 10 Natural Disasters: 2024 **Text in bold indicates that the Charter was activated**			
Country	***Disaster***	***Date***	***Fatalities***
Chad	**Flood**	**8-1-24**	**576**
Japan	**Earthquake**	**1-2-24**	**491**
Myanmar	**Tropical cyclone**	**9-8-24**	**460**
Niger	Flood	6-11-24	395
Chile	**Wildfire**	**2-1-24**	**383**
India	**Landslide**	**7-30-24**	**378**
Pakistan	Flood	7-1-24	368
Afghanistan	**Flood**	***5-10-24***	**357**
Kenya	**Flash flood**	***3-24-24***	**353**
Vietnam	**Tropical cyclone**	**9-6-24**	**345**

Table 12. Eighteen most severe disasters by number of fatalities (2009-2024) (all covered by Charter)

18 Most Severe Natural Disasters: 2009-2024 ***The Charter was activated for all of the top 18 events since 2009*** ***None of these occurred in 2024***				
Date	***Country***	***Type***	***Fatalities***	***Affected people***
12/1/2010	**Haiti**	**Earthquake**	**222,570**	**3,700,000**
06/02/2023	**Türkiye**	**Earthquake**	**50,783**	**9,100,000**
11/3/2011	**Japan**	**Earthquake and tsunami**	**19,848**	**368,820**
10/09/2023	**Libya**	**Storm**	**12,352**	**1,600,000**
25/4/2015	**Nepal**	**Earthquake**	**8,831**	**5,639,722**
8/11/2013	**Philippines**	**Tropical cyclone**	**7,354**	**16,106,807**

18 Most Severe Natural Disasters: 2009-2024 *The Charter was activated for all of the top 18 events since 2009* *None of these occurred in 2024*				
Date	***Country***	***Type***	***Fatalities***	***Affected people***
12-27/06/2013	**India**	**Flood**	**6,054**	**504,473**
06/02/2023	**Syria**	**Earthquake**	**5,900**	**8,800,000**
28/09/2018	**Indonesia**	**Earthquake**	**4,929**	**769,109**
02/05/2023	**Democratic Republic of the Congo**	**Flood**	**2,970**	**50,000**
14/04/2010	**China P Rep**	**Earthquake**	**2,968**	**112,000**
08/09/2023	**Morocco**	**Earthquake**	**2,946**	**840,000**
14/08/2021	**Haiti**	**Earthquake**	**2,575**	**702,763**
07/10/2023	**Afghanistan**	**Earthquake**	**2,445**	**560,000**
17/05/2022	**India**	**Flood**	**2,035**	**1,300,000**
28/07/2010	**Pakistan**	**Flash flood**	**1,985**	**2,0359,496**
15/06/2020	**India**	**Flood**	**1,922**	**1,300,000**

Table 13 lists the 50 most severe natural disasters by number of fatalities recorded by EM-DAT in 2024.

Note: EM-DAT events were filtered according to the type of natural disasters covered by the Charter.

Table 13. Fifty most severe disasters by number of fatalities in 2024 (Source: EM-DAT: The Emergency Events Database - Université Catholique de Louvain (UCL) - CRED, D. Guha-Sapir - www.emdat.be, Brussels, Belgium, filtered according to the type of disasters

Top 50 Natural Disasters: 2024 **Text in bold indicates that the Charter was activated**				
Date	***Country***	***Type***	***Fatalities***	***Affected people***
5-Aug	**Chad**	**Flood**	**576**	**1,941,869**
2-Jan	**Japan**	**Earthquake**	**491**	**166,947**
23-Sep	**Myanmar**	**Tropical cyclone**	**460**	**1,000,000**
19-Jun	Niger	Flood	395	1,481,730
8-Feb	**Chile**	**Wildfire**	**383**	**39,528**
31-Jul	**India**	**Landslide**	**378**	**N/A**
23-Jul	Pakistan	Flood	368	551,068
13-May	**Afghanistan**	**Flood**	**357**	**257,850**
27-Mar	**Kenya**	**Flash flood**	**353**	**306,520**

Top 50 Natural Disasters: 2024 Text in bold indicates that the Charter was activated				
23-Sep	**Vietnam**	**Tropical cyclone**	**345**	**3,600,000**
26-Aug	**Nigeria**	**Flood**	**321**	**1,374,557**
2-May	Democratic Republic of the Congo	Flood	300	2,190,000
30-Sep	**Nepal**	**Flood**	**268**	**2,590,000**
23-Jul	**Ethiopia**	**Landslide**	**257**	**15,515**
30-Sep	United States of America	Tropical cyclone	243	N/A
14-Nov	Yemen	Flood	240	655,011
30-Oct	**Spain**	**Flood**	**232**	**36,115**
28-Oct	**Philippines**	**Tropical cyclone**	**191**	**9,652,607**
2-May	**Brazil**	**Flood**	**182**	**2,398,255**
9-Apr	Tanzania	Flash flood	155	200,000
6-Jun	Afghanistan	Flash flood	150	39,000
22-Oct	**Sudan**	**Flood**	**148**	**N/A**
28-Nov	Uganda	Landslide	141	30,000
29-Jul	Sudan	Flash flood	132	317,000
8-Feb	Philippines	Landslide	128	1,400,000
15-Jul	India	Flood	125	1,000,000
17-Dec	**Mozambique**	**Tropical cyclone**	**120**	**453,971**
3-Apr	Pakistan	Severe weather	99	17,500
30-Sep	Mali	Flood	92	380,000
13-May	**Indonesia**	**Flood**	**87**	**3,300**
19-Apr	Uganda	Flood	77	57,508
16-Apr	Democratic Republic of the Congo	Landslide	75	N/A
21-Jun	Bangladesh	Flash flood	71	5,820,000
31-Jul	China	Flood	65	2,700
15-Jul	Nepal	Landslide	62	N/A
8-Aug	Yemen	Flood	62	171,300
16-Jan	United States of America	Blizzard/Winter storm	61	N/A
12-Mar	Indonesia	Landslide	59	500,000
16-Jul	Afghanistan	Flash flood	58	9,625
6-Jun	India	Tropical cyclone	51	2,109,143
2-May	China	Landslide	48	N/A
21-Jun	India	Flash flood	48	2,100,000

Top 50 Natural Disasters: 2024 Text in bold indicates that the Charter was activated				
23-Jul	China	Flood	46	N/A
1-Aug	India	Flood	46	N/A
12-Feb	South Africa	Storm surge	46	7,813
10-Jul	United States of America	Tropical cyclone	46	207
23-Sep	Thailand	Tropical cyclone	45	N/A
25-Jul	Philippines	Tropical cyclone	45	6,067,274
22-Jan	China	Landslide	44	500
4-Jun	Sri Lanka	Flood	40	235,854

The Charter covered 17 of the 50 most severe natural disasters in terms of fatalities recorded by EM-DAT in 2024, excluding droughts and extreme temperature events. Consider that not all disasters recorded in the EM-DAT database have officially reported death tolls. It is possible that other disasters occurred with more deaths than the ones shown in the table. However, the statistics were not reported by EM-DAT. All 17 of the Charter activations fell within the top 30 most severe disasters by fatality, showing that the Charter is normally only activated for major disasters.

For these 17 disasters, activation requests were made by:

- Charter Authorised Users (AUs) for disasters in their home countries: Wildfires in Chile, Storm in India, Flood in Spain, and the Flood in Brazil.
- Activations from Charter Cooperating Bodies: Activations requested by UNITAR/UNOSAT were the Floods in Chad, Sudan, Nigeria, Afghanistan and Kenya, the Storm in Mozambique, and the Landslide in Ethiopia
- Requested by Sentinel Asia (ADRC) was the Earthquake in Japan, Storms in Myanmar, Vietnam, and Philippines, and the Floods in Nepal and Indonesia.

The Charter continues to make progress with its Universal Access (UA) initiative by granting charter access to new countries globally each year (refer to chapter 5.2).

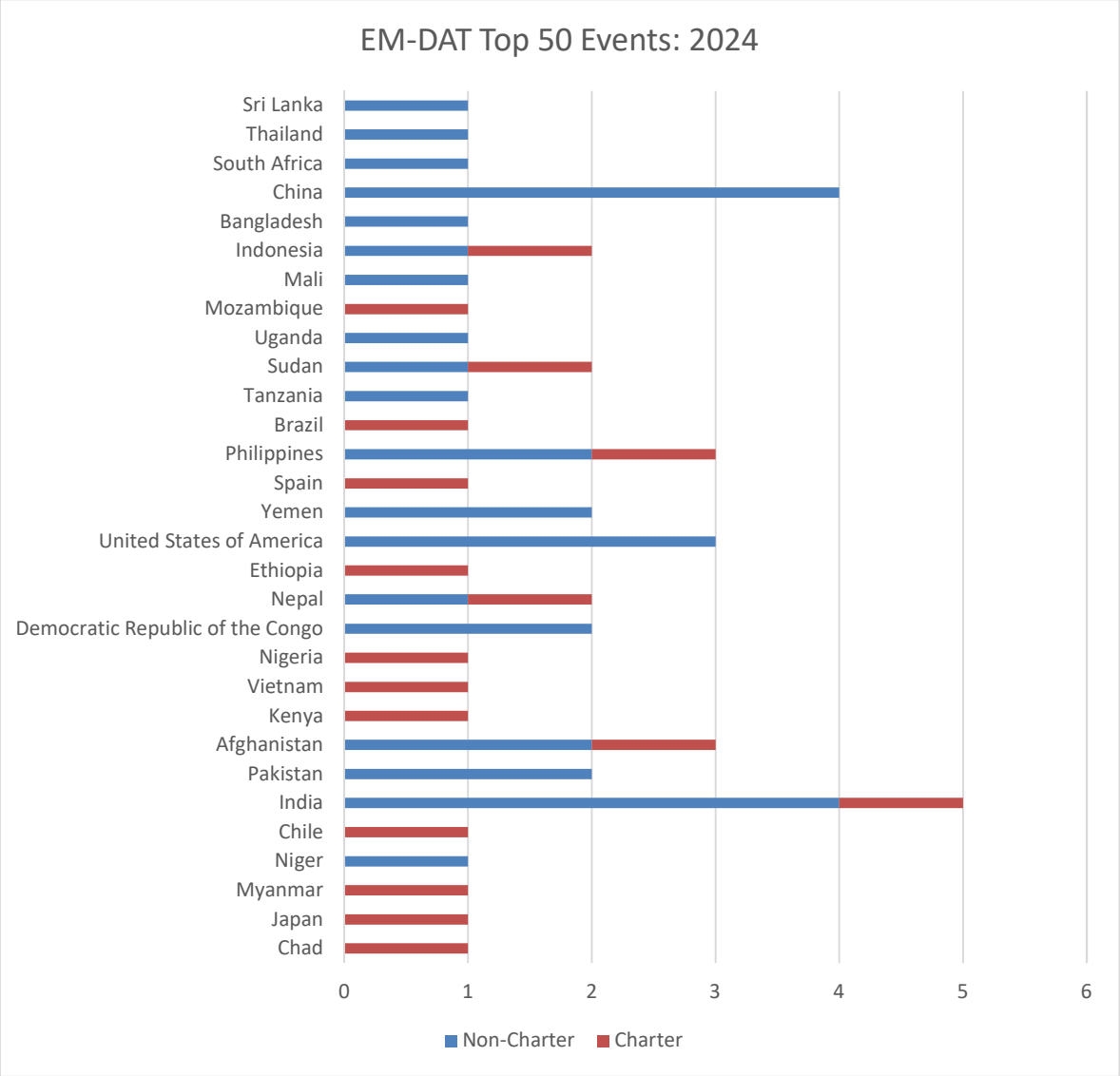


Figure 46. 2024 Breakdown by country of the 50 most severe natural disasters (by fatalities) recorded by EM-DAT. Disasters covered by the Charter are shown in red (17 out of 50 disasters) while other disasters are in blue.

4.1 System performances assessment

Up to 2016, system performance statistics were gathered and calculated manually. Also, all metrics were calculated with an accuracy of days instead of hours, which sometimes generated huge error margins.

The COS-2 operational system, implemented in March 2015, improves the speed and visibility of most operations and exchanges among the different operational staff involved during the activation. Since September 2017, COS-2 systematically monitors the Charter workflow and most of the Charter performance parameters will be generated automatically.

Since 2018, Charter operations have an automated monitoring system, all system performances can be calculated with a higher accuracy (hours and minutes). The automated monitoring system is operational with more than thirty statistic parameters being generated automatically.

4.1.1 Delivery of the first image

The plot below (Figure 47) shows the performance in the delivery of the first image (split by pre-crisis and crisis figures).

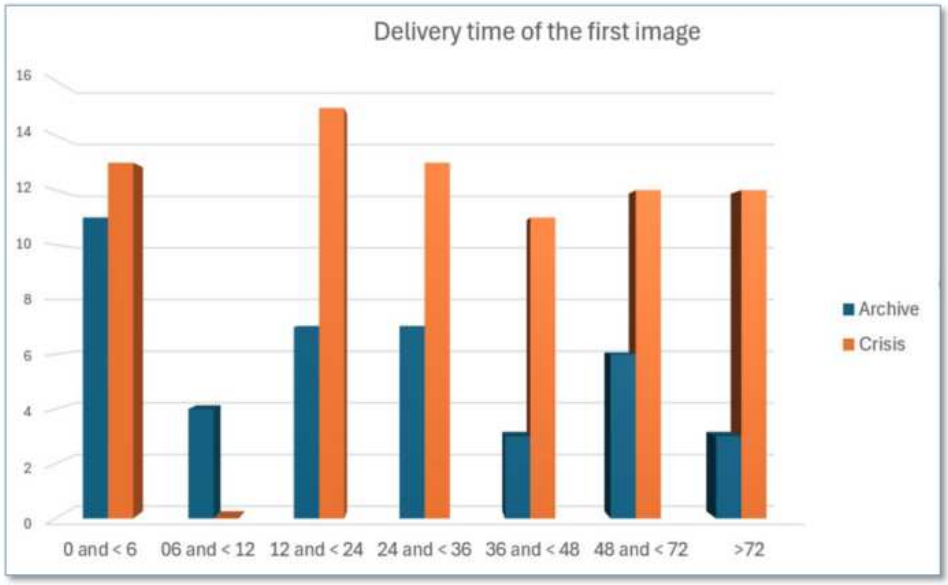


Figure 47. Delivery time of the first image in 2024 (in hours).

Most of the calls have a relatively high performance for the delivery of the first archive image. Regarding the crisis images, we can note a larger improvement in the timeliness, with 13 activations where the crisis data was provided within 6 hours and other 15 in less than one day. It is interesting to note that there is always quite a gap between 6-12 hours before the images will start to flow.

4.1.2 First image provided vs used

The first image provided is almost always Sentinel-2 (77/85 activations). This is due to the fact that COS-2 is automatically searching and fetching the data in the Copernicus catalogue for archived scenes over the area of interest. In the plots below, it can be seen that the number of Sentinel 2 images far exceeds the others, as the entire bar cannot be shown in Figure 48.

It is very interesting to note that the distribution between 1st image provided and the 1st image used is very different. There is a very even distribution of satellites for the first image used.The most used first image typically comes from Sentinel-2, Pleiades, Sentinel-1 and RCM (like last year), but this year Planetscope and Geo-Eye have also been commonly used first. Only items with a real product provided (uploaded in COS-2 or by a link) are considered in these plots.

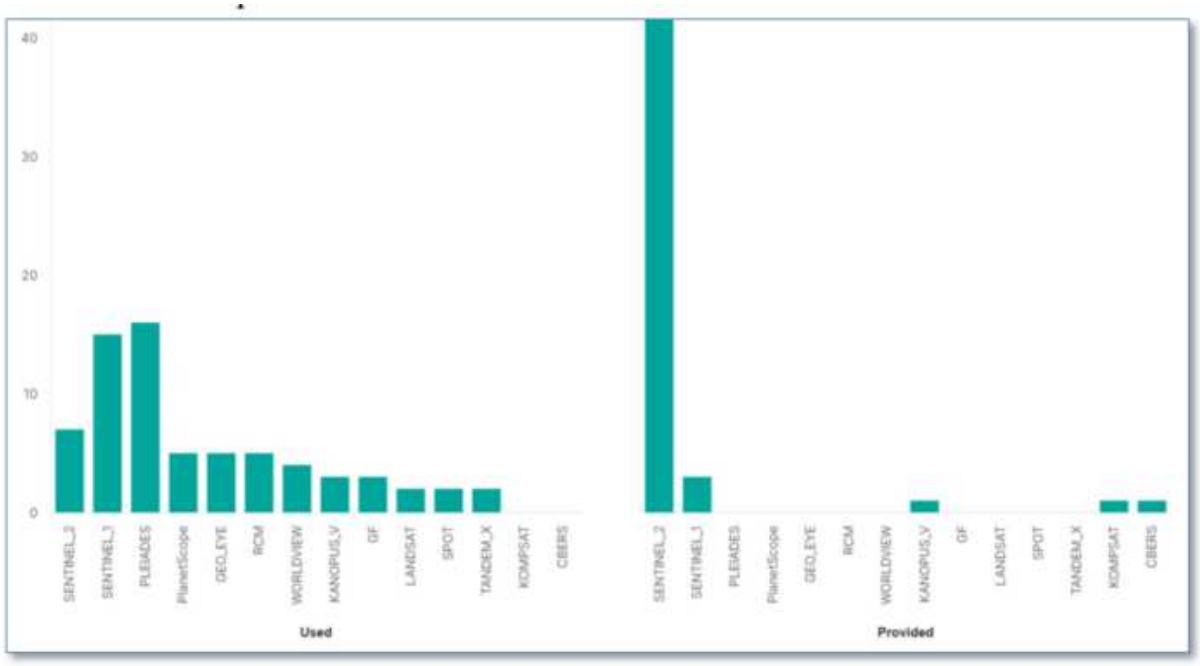


Figure 48. 2024 Delivery time of first image used image

Optical satellites, this year, are favourites with 47 first images used vs. 22 for the radar.

4.1.3 Call performance

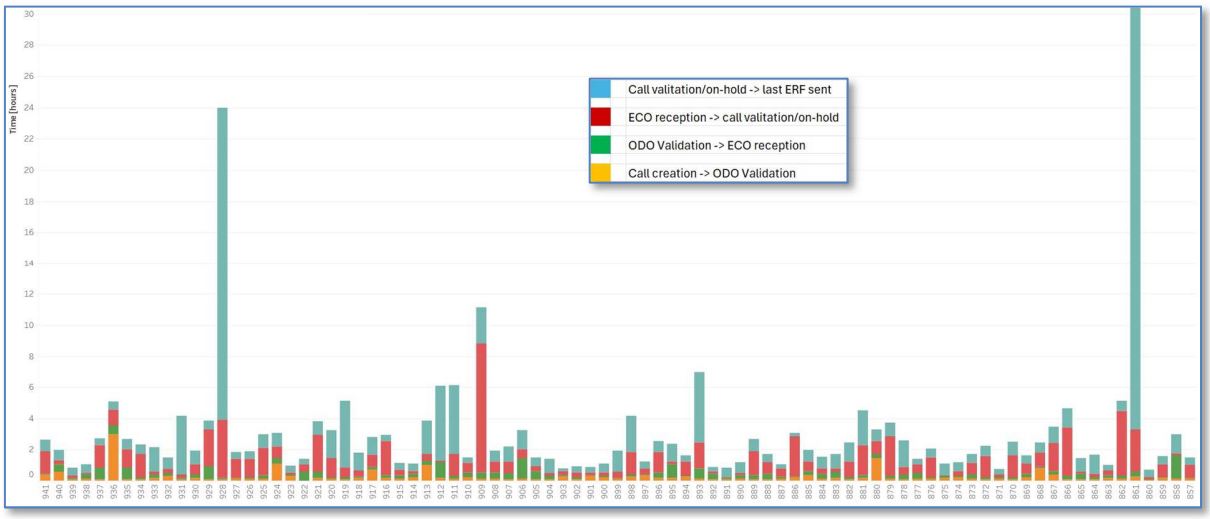


Figure 49. Call performance: time needed for sending all ERFs from call reception.

On average the call is handled within 2 hours from its activation. In 2024 we observed very few cases where this time was largely exceeded. In the case of the first one (Activation-861 - Oil spill in Trinidad and Tobago) the AU defined a very large area, and they were not reachable by phone.

In the second case (Activation-928 -Flood, Landslide in Colombia) there was an issue in COS-2 in the creation of the ERFs (lack of the GeoSat one). However, in both cases the activation proceeded normally after these minor delays.

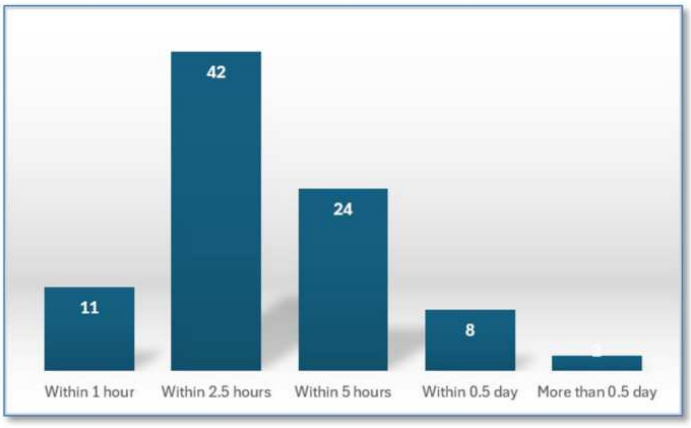


Figure 50. ECO performance: time needed for sending all ERFs from call reception.

The ECO completed their work within half a day for all the 2024 activations (except the 2 previously mentioned), normally within 2.5 hours (see Figure 50). This is quite a similar profile to 2023. In the worst case, the ECO acknowledged the call reception after 4.1 hours (one call) and in the best case 3 minutes from the ODO approval (occurred in 5 calls).

4.1.4 PM/VA performance

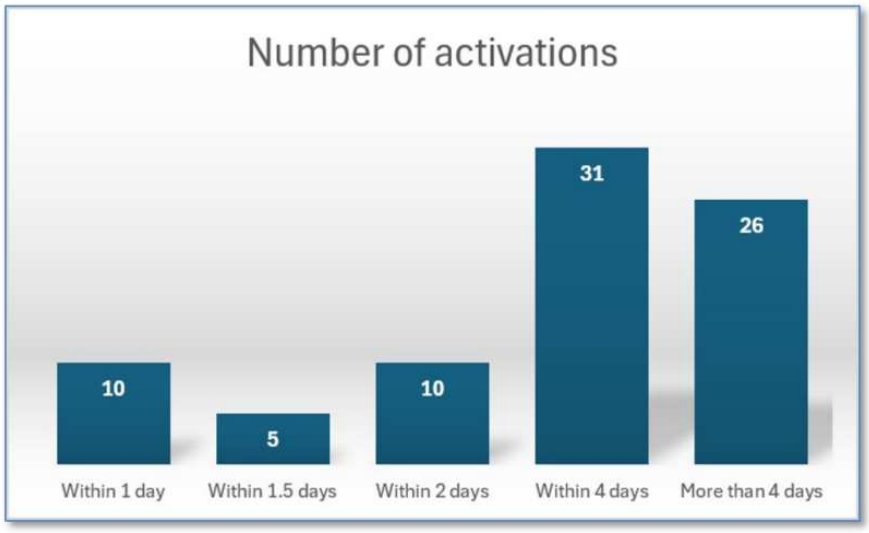


Figure 51. Value-Added Product delivery 2024.

As shown in Figure 51, the first Value-Added Product was provided within in 1 day for 10 activations, with the most recurrent case being within 4 days. These values are taken from the PM Reports only when the VAP has been really sent to the End User, but very often the time of the

upload in COS-2 is left blank in which case it could be longer). The results seen here are very similar to 2023.

Regarding the submission of the PM report, the situation has improved, but there is still room for more improvement. The item which delays the report is very often the collection of the EU/AU questionnaire. In orange the time used by the ES to approve the PM Report (in some cases very long, up to 32 days).

4.1.5 PM report delivery

PM report should be uploaded on COS-2 website within 45 days after activation. Nevertheless, as shown on Figure 52, this deadline is often overdue. Depending on disaster and experience of Project Managers, the PM report delivery is variable despite the Executive Secretariat reminders.

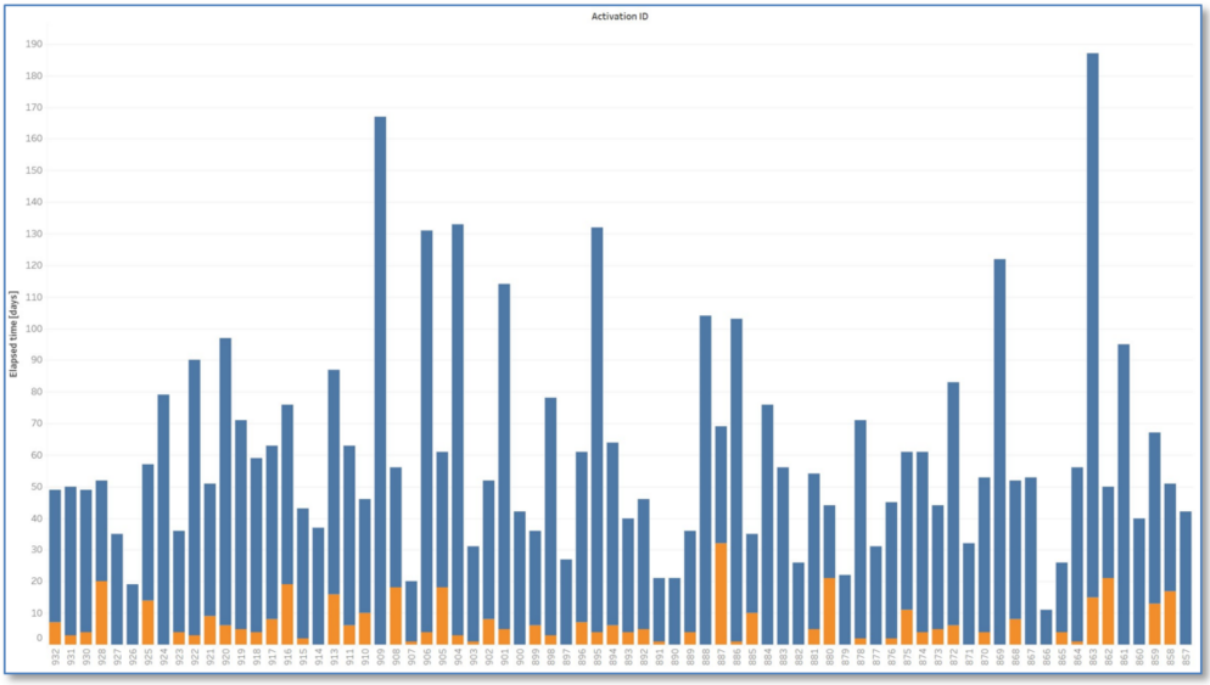


Figure 52. PM report delivery in 2024.

4.1.6 Assessment of products & services

The members of the Charter make a constant effort to ensure that all relevant staff (ODO, ECOs, the member agencies’ order desks, the PMs and the Executive Secretariat members) are well trained, and that Charter operations are running smoothly in every circumstance.

The different Charter scenarios describing the most appropriate response for the different disaster types such as flooding, ocean storms, earthquakes, volcanic eruptions, etc. and the definition of new scenarios (e.g., explosive events) are regularly reviewed by the Charter’s Executive Secretariat, taking into account recent modifications to the Charter satellite virtual constellation, as well as recommendations by the ECOs and PMs. The objective is to offer optimal background procedures and to make the work of the ECOs and the PMs as efficient and easy as possible. In 2022, a discussion begun with the aim to provide more appropriate data for the different scenarios. Resolution is the key: if the feature to be detected is rather small, medium and low-resolution data are essentially useless and create an unnecessary overhead to the PM/VA in the data selection.

In addition to the systematic review of the PM training material, an on-line PM refresher training course is available to keep PMs up to date on the new members, additional satellites, and updated Charter processes. A new PM ordering interface was introduced in 2024, allowing new users to follow a step-by-step mechanism for ordering data, while the advanced option remains available. It does occasionally occur that the PM does not realize the satellite tasking has ended and does not request further data.

A new Charter role was invented in 2023, the Charter PM Deputy. The PM deputy is designed to solve two different issues: the first being a situation where the primary PM is unavailable for a period of time or is very busy and is in need of support with the activation. The second scenario involves training, if the primary PM is a new PM, an experienced PM can be added as the PM deputy in order to support and facilitate the learning process of the new PM. The PM deputy can perform all the same tasks as the primary PM, with the exception of submitting the PM report and closing the activation. In 2024, this role was used generously, especially by UN agencies. This shows that the new role has been useful to Charter operations.

Although the Charter’s mandate is limited to supplying satellite data quickly and at no cost, Charter members invest a significant amount of effort and resources in providing crisis mapping and damage assessment for the vast majority of Charter activations.

5. Collaborations and External relations

5.1 New members accession

The Charter is a group of 17 members since 2018. No new members have been integrated since 2018.

5.2 Universal Access

In 2012, the Charter launched its Universal Access (UA) initiative to enhance global access. UA enables national disaster management authorities (NDMAs) to become Charter Authorized Users (AUs), allowing them to request Charter support during major emergencies. To become an AU, authorities must meet basic requirements, follow a registration process, attend a training session, and complete a simulation exercise. This initiative aims to maximize the Charter's impact on global disaster management by gradually extending UA to more countries.

As of February 2024, 98 Authorized Users in 87 countries have joined the UA initiative (see Figure 53).

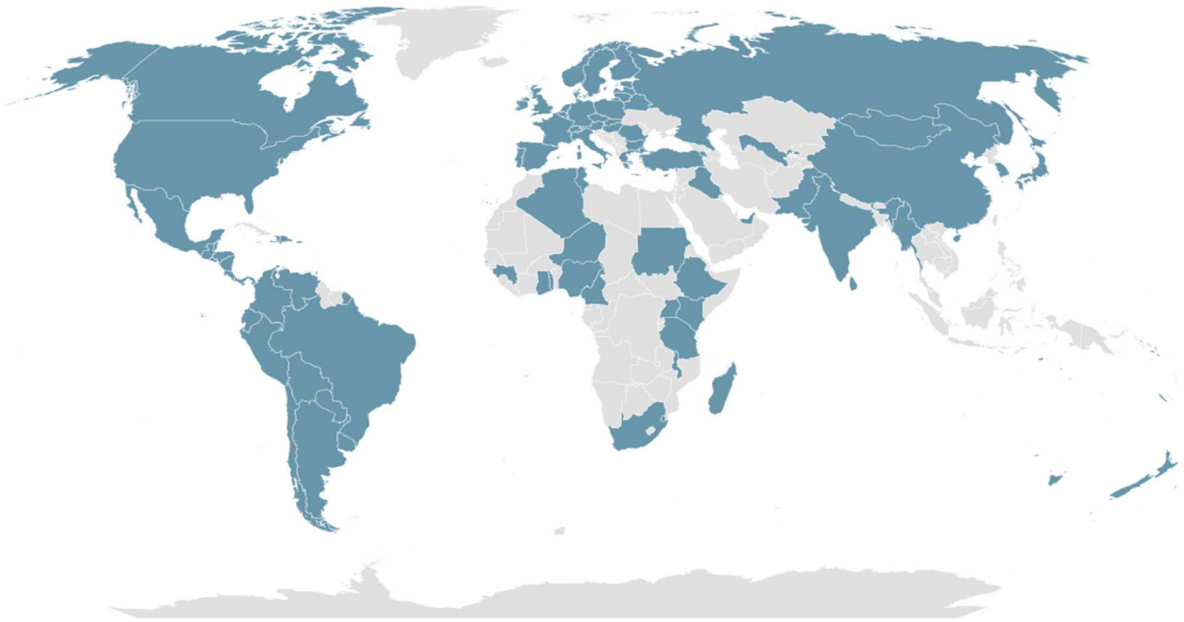


Figure 53. Map showing all countries (in blue) with direct access to the Charter as of February 2025

The Charter continues to expand its network of AUs, as seen in the following milestones:

- **2013**: Australia
- **2014**: Malawi, Pakistan
- **2015**: Bolivia, Chile, Colombia, Dominican Republic
- **2016**: Belarus, El Salvador, Guatemala, Iraq, Uruguay
- **2017**: Ecuador, Myanmar, New Caledonia, Sri Lanka

- **2018**: Madagascar, Paraguay, Peru, Sudan
- **2019**: Eswatini, Ghana, Tunisia
- **2020**: Cayman Islands, Costa Rica, Ethiopia, Haiti, Tanzania, Togo, Trinidad & Tobago
- **2021**: Uganda, Armenia, Cameroon, Gambia, Mexico, Mongolia
- **2022**: South Africa, Panama, Honduras, Niger, Nicaragua, Kenya, Solomon Islands
- **2024**: New Zealand, Guinea, Rwanda, Saint Vincent and the Grenadines

The Charter continues its efforts for promoting the Universal Access policy. Moreover, the Charter frequently offers refresher trainings for Authorized Users with the main focus on activating the Charter via the web-based operational system of the Charter (COS-2) as well as on trainings on the ESA Charter Mapper processing platform that is fully integrated into COS-2.

5.3 Cooperating Bodies

5.3.1 Cooperation with UNOOSA

UNOOSA and the Charter have maintained a long-standing partnership, particularly through the UN-SPIDER program. UNOOSA has played a key role in raising awareness of the Charter by organizing events and outreach efforts that engage disaster managers and Earth observation experts across Africa, Asia, Europe, Latin America, and the Caribbean.

A crucial aspect of UNOOSA’s work has been its support for the Universal Access initiative. By fostering engagement with disaster management authorities, UNOOSA encourages them to connect with the Charter and gain a deeper understanding of its activation process. This includes training on identifying eligible emergencies, initiating activations, and providing critical information for effective disaster response.

In 2024 together with the International Charter and other partners, UN-SPIDER organized the following events:

- A training workshop was held on May 21st and 22nd, 2024, organized by UN-SPIDER, the Charter, and the Royal Centre for Spatial Telecommunication (CRTS) of the Kingdom of Morocco. The two-day course provided participants with an overview of the activation procedures and training on the use of the Charter Mapper.

The cooperation between the Charter and UNOOSA was emphasized and detailed through statements and presentations at various international events and conferences. UNOOSA staff actively seized every opportunity to raise awareness of the Charter’s benefits, particularly the Universal Access initiative.

In 2024, UNOOSA activated the Charter on three occasions:

- In February, Wildfire – Guatemala | UNOOSA/UN-SPIDER on behalf of National Coordinating Agency for Disaster Reduction of Guatemala (CONRED)
- In March, Flood – Morocco | UNOOSA/UN-SPIDER on behalf of Royal Centre for Spatial Teledetection (CRTS) of the Kingdom of Morocco

- In May, Flood – Uruguay | UNOOSA/UN-SPIDER on behalf of National Emergency System (SINAE) of the Presidency of Uruguay

UNOOSA also assisted in identifying suitable project managers for other activations through its UN SPIDER Regional Support Offices network.

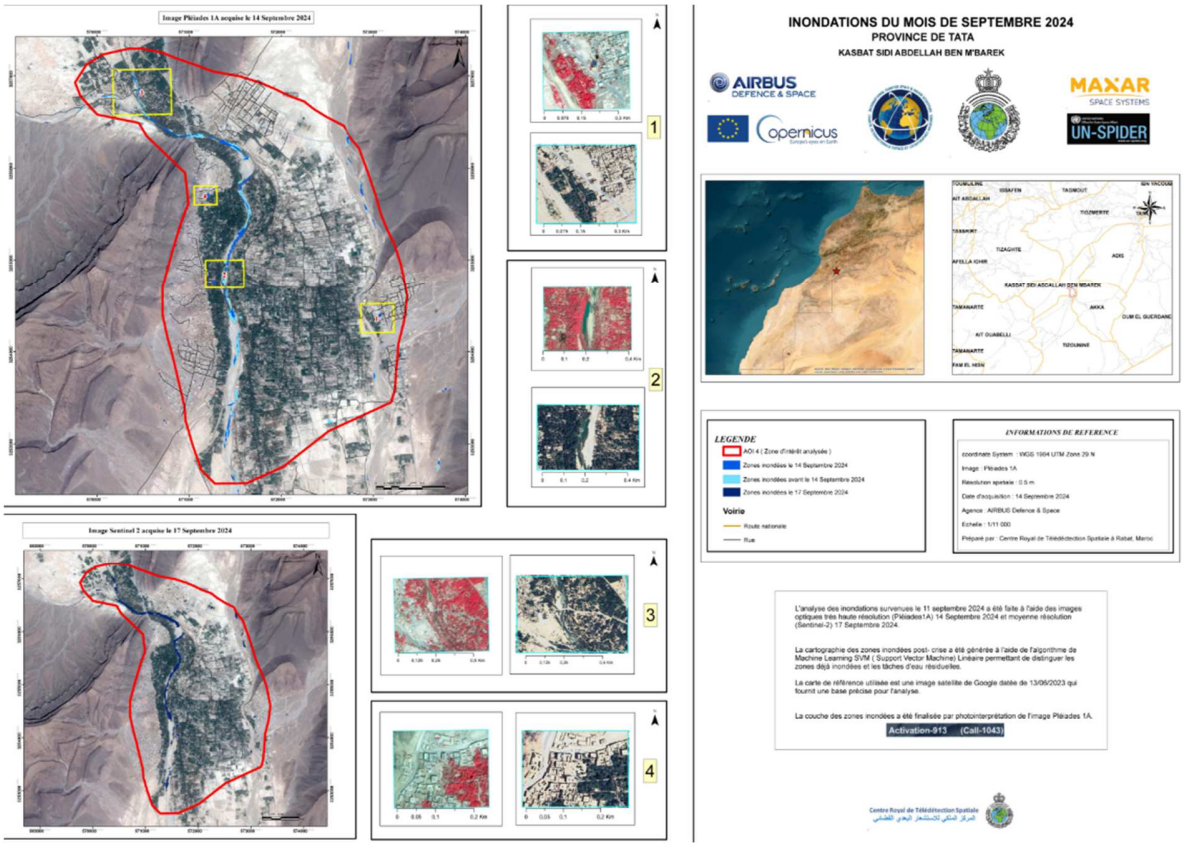


Figure 54. Example of a map created by CRTS depicting the flooding in Morocco in September 2024. The map illustrates the impact of the flood by comparing pre- and post-event imagery.

5.3.2 Cooperation with UNITAR/UNOSAT

UNITAR/UNOSAT and the Charter They have been actively cooperating for many years. UNOSAT has consistently promoted awareness of the Charter among its user community and other key stakeholders. Its operational rapid mapping service remains a core activity, enhancing the information available to both field actors and headquarters.

In 2024, UNITAR/UNOSAT triggered 22 Charter activations, accounting for a significant 26% of all activations.

- January:
  - Flood – Marshall Islands | UNITAR on behalf of International Organization for Migration

- February:
  - Flood – Libya | UNITAR on behalf of UN OCHA
  - Oil Spill – Yemen | UNITAR on behalf of UN OCHA
- March:
  - Cyclone Filipo – Mozambique | UNITAR on behalf of UN OCHA
- April:
  - Flood – Kenya | UNOSAT on behalf of UN Environment Program
- May:
  - Flood – Afghanistan | UNOSAT on behalf of UN OCHA
  - Cyclone Remal – Bangladesh | UNOSAT on behalf of UN ESCAP
- June:
  - Flood – Sri Lanka | UNOSAT on behalf of UN OCHA
  - Flood – Bangladesh | UNOSAT on behalf of World Food Program
  - Landslide – Ethiopia | UNOSAT on behalf of UNEP / UN OCHA
- July:
  - Hurricane Beryl – Jamaica | UNITAR on behalf of UNEP / UN OCHA
- August:
  - Flood – Chad | UNOSAT on behalf of UN OCHA
  - Flood – Bangladesh | UNOSAT on behalf of UN OCHA
  - Flood – Sudan | UNOSAT on behalf of WHO
- September:
  - Flood – Nigeria | UNOSAT on behalf of WMO
  - Typhoon Yagi – Thailand | UNOSAT on behalf of UN Resident Coordinator Office in Thailand
  - Flood – Sudan | UNITAR on behalf of UNESCO
- November:
  - Flood – Colombia | UNOSAT on behalf of UN OCHA
  - Super Typhoon Man-yi – Philippines | UNOSAT on behalf of UN OCHA
  - Flood – Gaza | UNOSAT on behalf of UN OCHA
- December:
  - Flood – Sri Lanka | UNOSAT on behalf of UN Population Fund
  - Cyclone Chido – Mozambique | UNOSAT on behalf of UN OCHA
  - Earthquake – Vanuatu | UNOSAT on behalf of UN OCHA & COGIC.

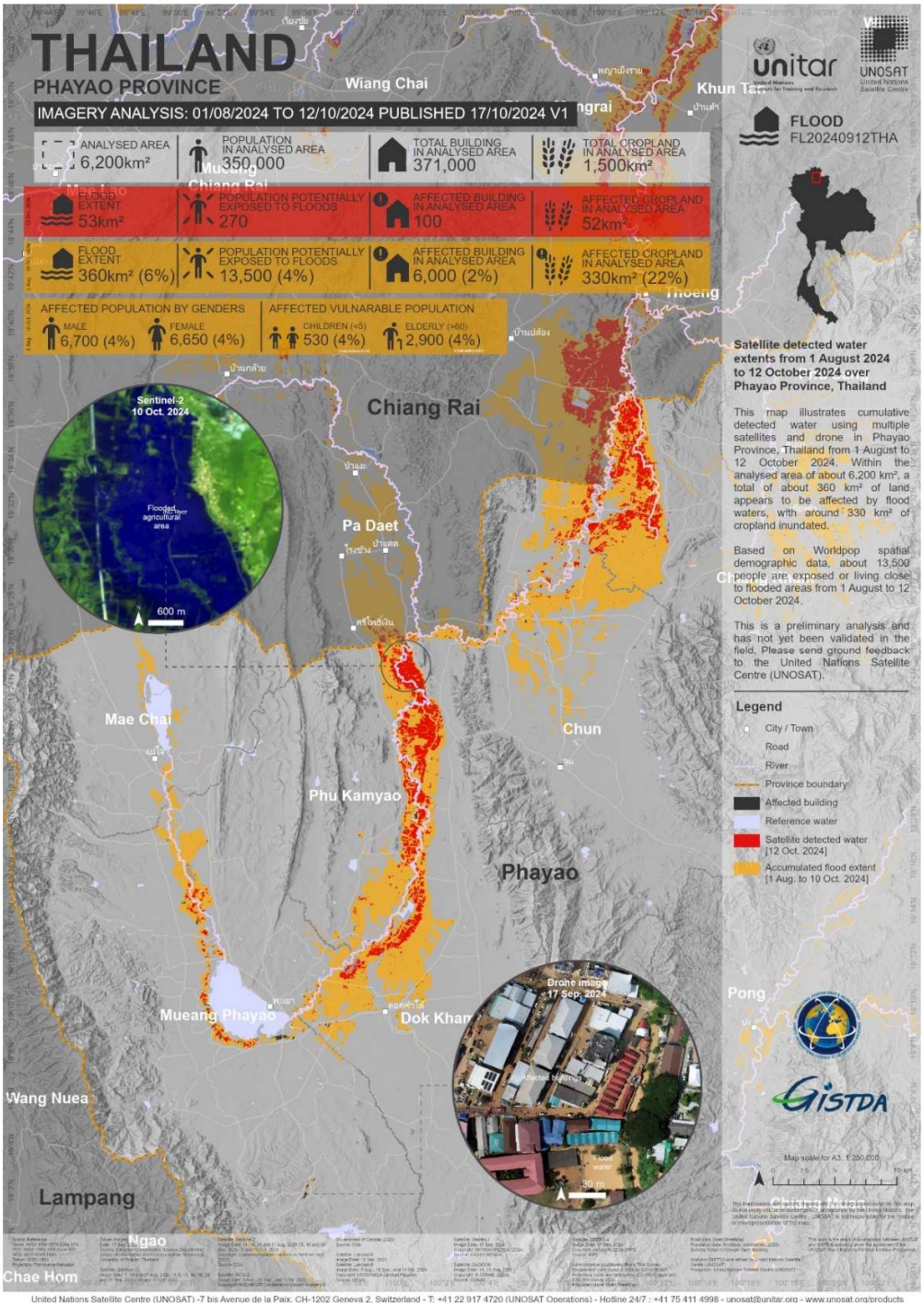


Figure 55. Example of map produced by UNITAR/UNOSAT in September 2024, illustrating the areas in Thailand affected by Typhoon Yagi. The map highlights the extent of damage to populations and infrastructure, including buildings and critical facilities.

UNITAR is reporting to the Charter board about their Charter-related activities every October. In the last reporting period UNITAR has seen a 44% increase in involvement in Charter activations compared to the previous reporting period. To help capture the dynamic nature of often rapidly

evolving situations following the onset of natural disasters, UNOSAT has published increasingly more dynamic assets such as live web maps, in addition to more traditional map products. In response to increasing frequency of high magnitude and high impact activations, UNOSAT reports that they continue to perform analyses to meet operational requirements with the use of a range of external and in-house tools, such as the ESA Charter Mapper platform. Furthermore, resources dedicated towards enhancing coordination activities are reflected in the successful launch of GDACS-SMCS v4, which integrates feeds from three API sources, including the International Charter COS-2 operational system.

5.3.3 Cooperation with Sentinel Asia

The Asian Disaster Reduction Center (ADRC) serves as a Charter Cooperating Body, enabling it to trigger Charter activations in response to requests from national members of Sentinel Asia (SA) and ADRC. By the end of 2024, SA comprised 108 organizations from 30 countries and regions, along with 19 international organizations.

JAXA provides the Charter with biannual reviews on SA’s emergency response efforts and awareness activities. During the 52nd on-line Charter Board meeting, it was noted that five organizations had recently joined SA. The interlink between the Charter Activation Homepages and SA’s EOR pages is working well, enabling public access to open VAPs. Members of SA also expressed their appreciation for contributions from ABAE, CSA, CNES, CNSA, DLR, ESA, KARI, USGS, and others for providing imagery, as well as UNITAR/UNOSAT for delivering VAPs, highlighting the continued support from the Charter community.

In 2024, SA handled 88 activations, with 16 escalated to the Charter—representing 19% of all Charter activations:

- January:
  - Earthquake – Japan
- April:
  - Mount Ruang Volcano Eruption – Indonesia
- May:
  - Flood – Sulawesi, Indonesia
  - Flood – Sumatra, Indonesia
- June:
  - Landslide – Kyrgyzstan
- July:
  - Flood – Nepal
  - Mudflow – Kyrgyzstan
  - Oil Spill – Philippines
- August:
  - Flood – Nepal
  - Mudflow – Kyrgyzstan
- September:
  - Typhoon Yagi – Vietnam
  - Typhoon Yagi – Myanmar

  - Flood – Nepal
- October :
  - Tropical Storm Trami – Philippines
- November :
  - Mount Lewotobi Laki-laki Volcano Eruption – Indonesia
- December :
  - Flood – Indonesia

Although several SA member countries have become Charter Authorized Users, allowing them to trigger activations directly, SA’s escalation mechanism remains valuable. This is because the satellite resources of Sentinel Asia and the Charter differ, and the SA community provides PM and VA services when escalations occur.

JAXA, as the Executive Secretariat responsible for SA, has continued to promote the Charter by explaining the escalation mechanism and the Charter’s Universal Access policy on multiple occasions. Additionally, JAXA has contributed to strengthening PM resources and maintaining PM expertise, ensuring that escalations from SA to the Charter are effective and beneficial for SA member countries and regions affected by disasters. Another key objective is to train PMs in SA member countries with Charter Authorized User status, enabling coordinated responses within the country in the event of a Charter activation.

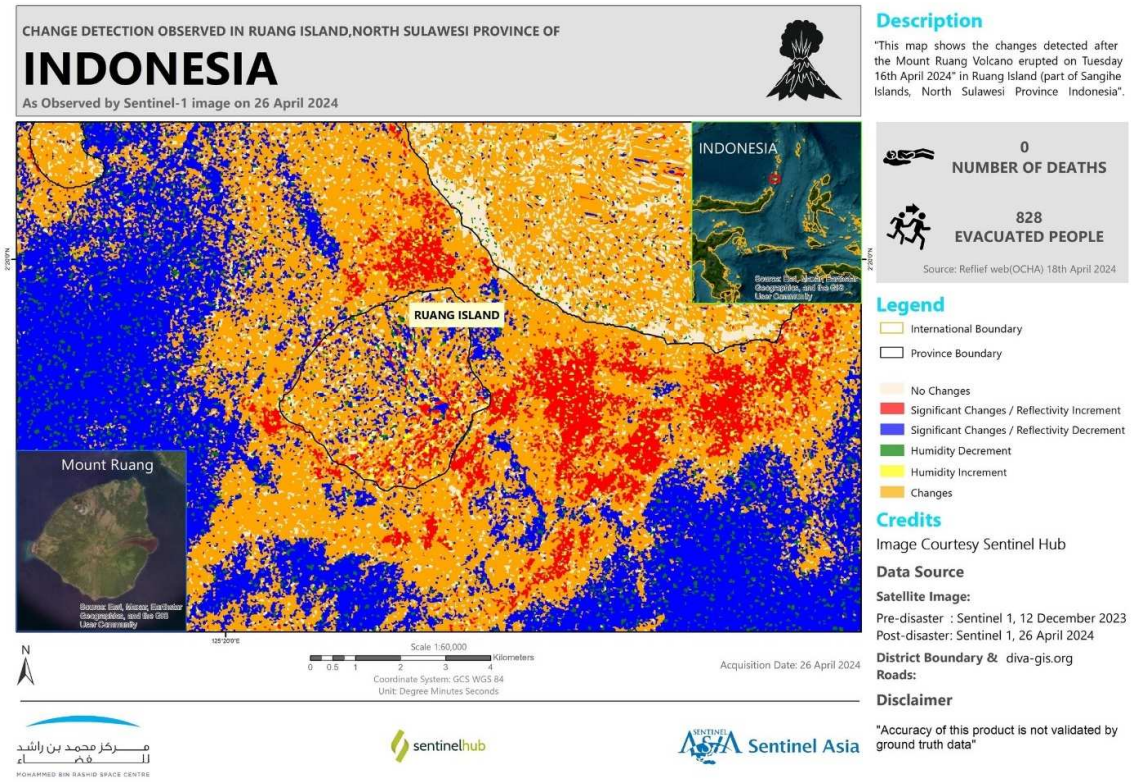


Figure 56. Change detection map of Ruang Island, Indonesia, showing areas affected by Mount Ruang’s April 16, 2024, eruption. Produced by MBRSC.

5.4 Cooperation with other programs and initiatives

5.4.1 Cooperation with the Copernicus Emergency Management Service of the European Union

The Copernicus Emergency Management Service (CEMS) provides free, timely, and accurate geospatial information to support decision-making in emergency response and disaster risk management, helping to mitigate the impact of natural and man-made disasters and save lives.

The Charter CEMS complement each other, with the Charter focusing on disaster response and CEMS covering both response and recovery. Since finalizing procedures in 2018, both have worked together to avoid duplication and leverage synergies. The Charter benefits from CEMS's Rapid Mapping Service, while CEMS uses the Charter's satellite data for large-scale disasters. Collaboration can be initiated by either party.

The Charter and CEMS have an operational cooperation in place with two procedures that are regularly monitored.

In 2024 CEMS was granted access to data of the following Charter activations and published Value-Added Products on the Charter Website in some cases indicated below:

- February:
  - Wildfire – Chile
- March:
  - Oil Spill – Trinidad and Tobago
- April:
  - Flood – Brazil
- July:
  - Oil Spill – Philippines → Value Added Product by CEMS published on Charter Website
  - Landslide – Ethiopia
- August:
  - Flood – Sudan → Value Added Product by CEMS published on Charter Website
- September:
  - Flood, Landslide, Storm & Hurricane – Vietnam
- November:
  - Flood – Spain
- December:
  - Flood, Landslide, Other: Intense Tropical Cyclone Chido – Madagascar → Value Added Product by CEMS published on Charter Website
  - Storm & Hurricane – Mozambique, Malawi
  - Flood, Storm & Hurricane – Malawi
  - Flood – United Kingdom

In 2024, the CEMS Rapid Mapping Service was activated 89 times. Floods accounted for 39 activations, while wildfires triggered 34, making these the majority of all activations. CEMS was

activated 8 times for storms. Earthquakes, mass movements, and volcanic activity each led to one activation. Additionally, 5 activations fell under the category of "other."

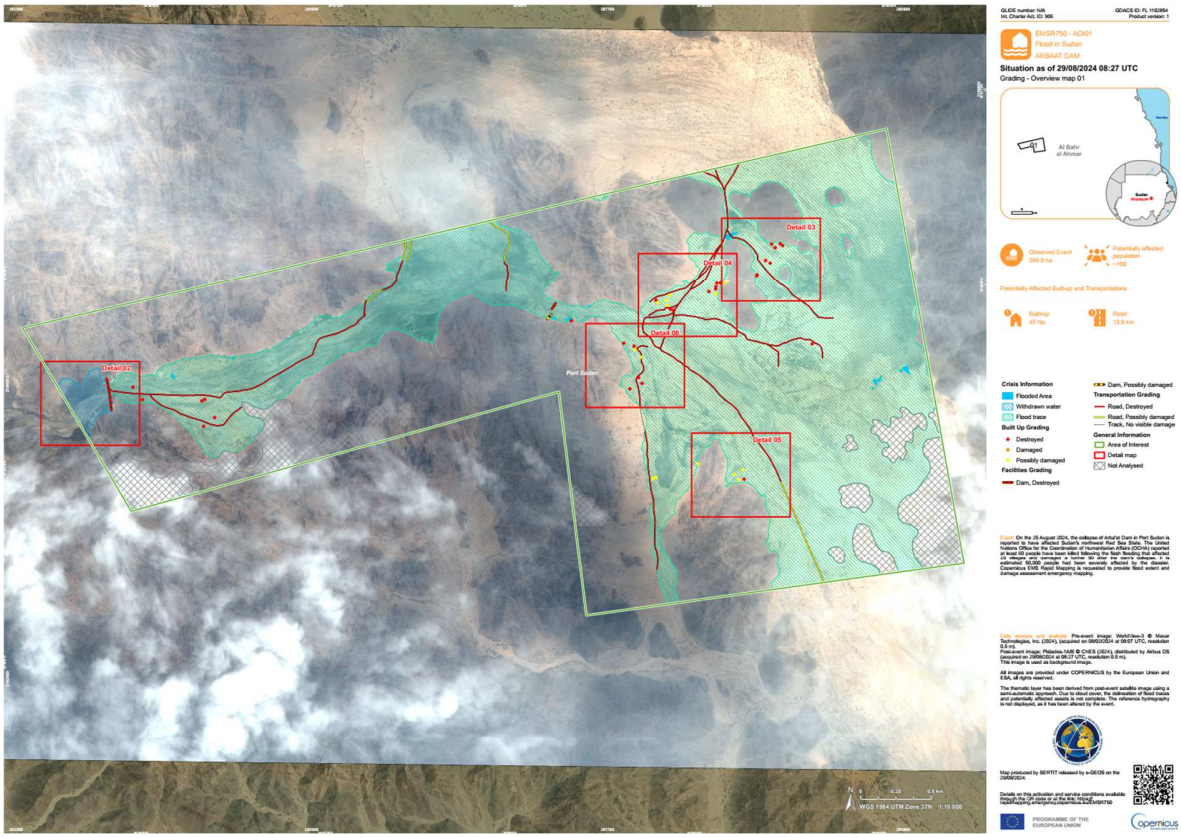


Figure 57. Satellite map of Sudan’s Arbaat Dam flood (29. August 2024), showing affected areas, damaged infrastructure, and flooded zones. Created by Copernicus EMS value-adders.

5.4.2 Collaboration with CEOS Working Group on Disasters

The Committee on Earth Observation Satellites (CEOS) Working Group on Disasters aims to enhance and strengthen satellite Earth observation contributions across various Disaster Risk Management (DRM) phases, focusing on domains such as earthquakes, volcanoes, and landslides (http://ceos.org/ourwork/workinggroups/disasters/).

To demonstrate the value of CEOS coordination in disaster management, several thematic demonstrator projects have been developed:

- The added value and uniqueness of enhanced CEOS coordination in these thematic areas.
- The benefits of closer engagement with key users, including decision-makers, disaster management stakeholders, and policymakers, while improving data accessibility.
- The potential for expanded roles of space-based Earth observation under the Sendai Framework for Disaster Risk Reduction 2015–2030 of the United Nations.

Key Activities and Demonstrator Projects

CEOS engaged in the following activities directly linked to the International Charter: Space and Major Disasters.

- G-VEWRS (Global Volcano Early Warning and Eruption Response System) aims to monitor volcanoes in a state of unrest using Earth observation (EO) data. This systematic pre-event data acquisition directly supports future Charter activations.
- Seismic Risk Initiative focuses on deformation rate estimates for active tectonic fault regions worldwide, contributing to seismic hazard assessment.
- Tonga Preparedness Pilot is developing a GIS-based platform to integrate EO disaster data, enhancing local communities' capacity to understand natural hazard risks. Charter data is crucial for visualizing disaster impacts.
- Recovery Observatory (RO) facilitates access to EO data for post-disaster recovery planning and monitoring, collaborating with key stakeholders. Originally a demonstrator project, the RO entered a pre-operational phase in 2024, with activities continuing until 2027. In June 2024, the United Nations Development Program (UNDP) activated the RO for flood recovery in Armenia, complementing activations from the International Charter and Copernicus Emergency Management Service (EMS) for post-flood landslide risk assessments.

CEOS-Charter Data Exchange and Collaboration

Since 2015, Charter agencies have been able to share activation data with CEOS demonstrator projects under specific licensing agreements once the peak activation phase has passed. A request procedure has been established. Observer access to COS-2 was granted to lead CEOS scientists, improving monitoring capabilities for Charter activations. On July 21, 2022, the Charter Board approved data exchange procedures between the Charter and CEOS Working Group on Disasters, covering:

- CEOS access to Charter data for scientific and disaster management applications.
- CEOS product contributions to Charter activations, enhancing data integration and response efforts.

6. Communication

6.1 Website

The Charter website has been redesigned and now available in English and some pages are available in Spanish, French and Chinese, Russian and Portuguese update is in progress, other languages versions are also expected. The website design is being continuously improved to facilitate the user navigation and information search.

https://www.disasterscharter.org/web/guest/home

The Charter website allows direct access to COS-2 for authorized Charter members’ personnel and provides information on how the Charter can be activated by Authorized Users through the Universal Access initiative.

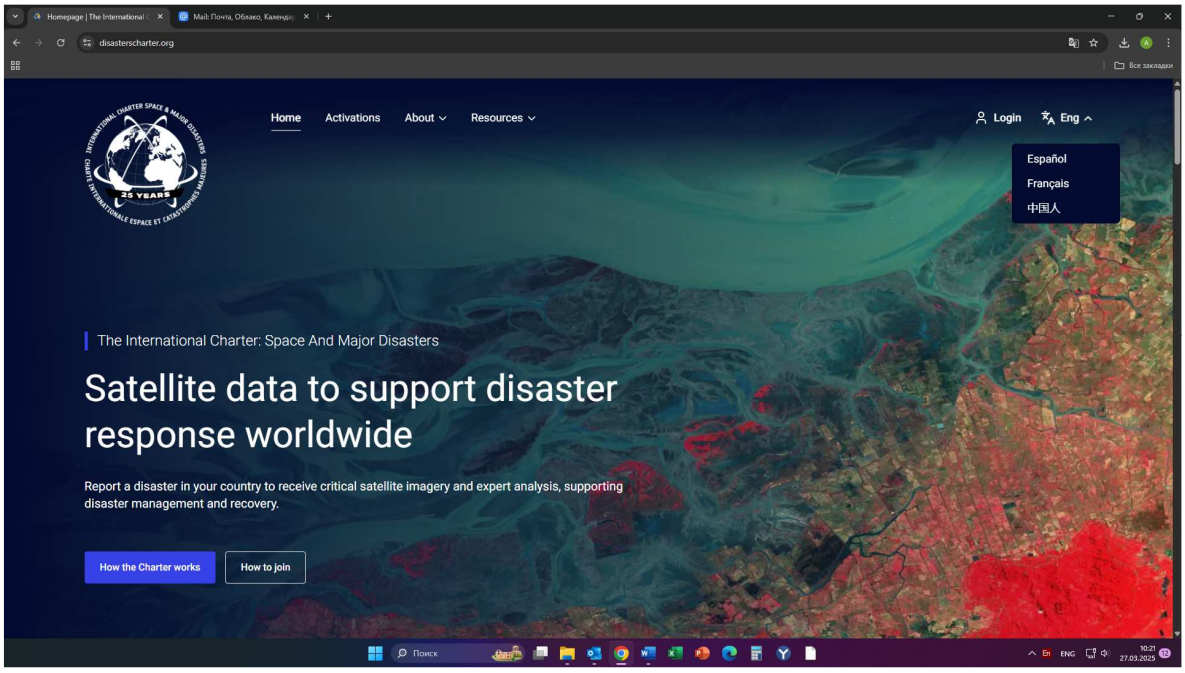


Figure 58. Charter website homepage

2024 set a new record for the number of activations in a single year, and there were some significant disasters that received notable traffic. On average, traffic to the website was higher in 2024 than in 2023.

In 2024 there were 298,745 visits to the website. There were 1,041,066 page views, and 502,781 unique page views. The average visit duration was 3 minutes and 52 seconds. There were a total of 58,455 downloads, and 48,124 unique downloads. Most of the downloads were for products, though the brochure and general infographic about the Charter were the third and fourth most downloaded files, respectively. The satellites poster was also the eighth most downloaded file.

Table 14. Charter website main pages views (January-December 2024)

Page	Page Views	Unique Page Views	Entrances	Unique visitors	Avg. Time on Page	Bounce Rate
https://disasterscharter.org/web/guest/home	70 703	47 728	20 652	37 257	55 seconds	34%
https://disasterscharter.org/web/guest/disaster-types/-/article/fires	11 091	9 202	8 938	8 792	53 seconds	83%
https://disasterscharter.org/web/guest/charter-activations	7 584	6 495	939	6076	1 minute 3 seconds	40%
https://disasterscharter.org/web/guest/about-the-charter	7038	4886	1070	4564	1 minute 15 seconds	55%
https://disasterscharter.org/web/guest/how-the-charter-works	4128	3250	657	3068	1 minute 11 seconds	59%
https://disasterscharter.org/web/guest/disaster-types/-/article/landslides	3722	3190	2973	3057	53 seconds	82%
https://disasterscharter.org/web/guest/how-to-register-as-a-user	2889	2228	479	2108	1 minute 11 seconds	67%
https://disasterscharter.org/web/guest/library	3588	2226	295	2020	1 minute 27 seconds	55%
https://disasterscharter.org/web/guest/disaster-types/-/article/volcanoes	2239	1885	1759	1814	53 seconds	83%
https://disasterscharter.org/web/guest/disaster-types/-/article/floods	1981	1688	1276	1612	49 seconds	82%
https://disasterscharter.org/web/guest/disaster-types/-/article/cyclones	1967	1620	1365	1561	58 seconds	82%
https://disasterscharter.org/web/guest/news	2390	1227	120	1168	30 seconds	53%
https://disasterscharter.org/web/guest/disaster-types/-/article/ice	1309	1157	1107	1139	24 seconds	85%
https://disasterscharter.org/web/guest/disaster-types/-/article/oil-spills	1292	1083	976	1044	48 seconds	82%
https://disasterscharter.org/web/guest/disaster-types/-/article/ocean-wave	873	748	675	723	44 seconds	82%
https://disasterscharter.org/web/guest/disaster-types/-/article/earthquakes	716	617	417	597	1 minute 8 seconds	79%
https://disasterscharter.org/web/guest/text-of-the-charter	772	660	259	587	1 minute 35 seconds	72%
https://disasterscharter.org/web/guest/history	467	404	63	390	1 minute 44 seconds	63%
https://disasterscharter.org/web/guest/contact-us	1124	365	114	359	17 seconds	32%
https://disasterscharter.org/web/guest/disaster-types/-/article/other	344	298	62	292	54 seconds	76%
https://disasterscharter.org/web/guest/newsletter	189	295	78	180	1 minute 1 second	73%
https://disasterscharter.org/web/guest/universal-access	234	187	33	177	1 minute 14 seconds	64%
https://disasterscharter.org/web/guest/20th-anniversary	64	95	43	61	1 minute 34 seconds	67%

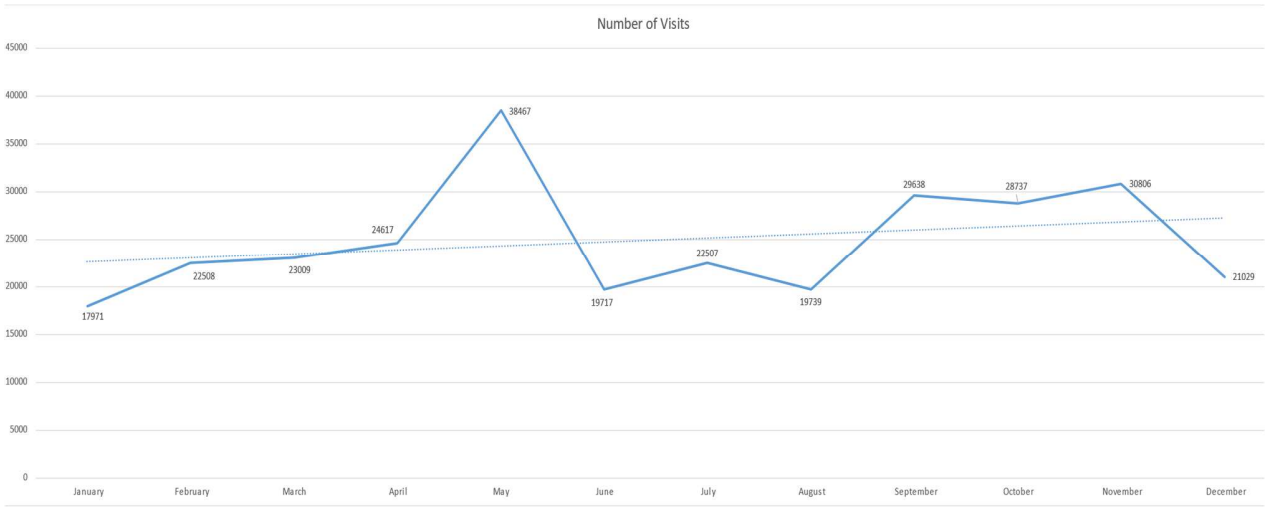


Figure 59. Charter website visits (January-December 2024)

As shown in Figure 59, traffic reached a peak in April-May due to the activation that month for the flood in Brazil, the February fire in Guatemala, and the flood in Kenya. There was also higher sustained traffic from September to November, due to a number of storms and flood events such as the activation for Spain in November.

The activation for Spain was the ninth most visited activation last year and contributed to a higher proportion of Spanish visitors to the website in comparison to previous years. The analytics tool does not detect the geographical location of a visitor, but the language they have set in their browser, meaning that the Spanish visitors will be from Spanish-speaking countries. The highest peak last year occurred during the activation for Spain, but there were also high levels between March and May due to the Spanish-speaking South American countries that were affected by flooding during this period.

The February activation for the fire in Guatemala was the most visited activation last year and received significant traffic. This was because the Guatemalan forest institute linked to the Charter website, which contributed ongoing traffic between February and June, with a particular peak in April. 55% of traffic to the activation page came from external websites, of which 97% was from the Guatemalan forest institute.

The April flood in Brazil was the second most visited activation. The scale of this disaster was large, and many products were published for it over time, causing sustained traffic to the page for over a month. The February activation was also among the most visited activations last year.

The earthquake in Japan was the fourth most visited activation last year and the news published related to it was the most visited news in 2024.

Table 15. Number of Charter activations page views (January-December 2024)

Page	Page Views	Unique Page Views	Entrances	Unique Visitors	Avg. Time on Page	Bounce Rate
https://disasterscharter.org/web/guest/activations/-/article/fire-in-guatemala-activation-863-	21186	13622	12854	13477	104	79%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-brazil-activation-875-	10601	8653	6245	7677	131	63%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-ecuador-activation-862-	4430	3782	3243	3527	65	72%
https://disasterscharter.org/web/guest/activations/-/article/earthquake-in-japan-activation-857-	3548	2962	1718	2717	170	63%
https://disasterscharter.org/web/guest/activations/-/article/oil-spill-in-trinidad-and-tobago-activation-861-	2575	2202	1285	1984	104	67%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-kenya-activation-874-	2251	1834	1324	1711	106	57%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-brazil-activation-865-	1709	1486	743	1361	108	69%
https://disasterscharter.org/web/guest/activations/-/article/fire-in-chile-activation-859-	1677	1427	561	1303	133	59%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-spain-activation-924-	1695	1356	705	1235	120	61%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-madagascar-activation-870-	1340	1140	519	1066	130	62%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-united-arab-emirates-activation-867-	1122	1007	430	939	97	66%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-costa-rica-activation-929-	1029	930	772	884	69	84%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-south-africa-activation-872-	998	896	408	852	80	60%
https://disasterscharter.org/web/guest/activations/-/article/snow-hazard-in-mongolia-activation-869-	970	866	377	826	86	64%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-nepal-activation-919-	1055	895	533	815	119	59%
https://disasterscharter.org/web/guest/activations/-/article/flood-flash-in-marshall-islands-activation-858-	986	849	379	812	127	61%
https://disasterscharter.org/web/guest/activations/-/article/storm-hurricane-in-united-states-activation-920-	1067	912	421	804	94	68%
https://disasterscharter.org/web/guest/activations/-/article/oil-spill-in-philippines-activation-897-	1055	858	457	774	125	68%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-india-activation-907-	999	830	453	762	103	64%
https://disasterscharter.org/web/guest/activations/-/article/volcano-in-indonesia-activation-873-	1000	845	452	761	120	72%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-nepal-activation-895-	978	832	429	756	98	65%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-dominican-republic-activation-894-	870	719	382	672	117	68%
https://disasterscharter.org/web/guest/activations/-/article/fire-in-bolivia-plurinational-state-of-activation-908-	930	758	400	663	126	69%

https://disasterscharter.org/web/guest/activations/-/article/flood-in-bolivia-plurinational-state-of-activation-866-	809	701	243	656	98	60%
https://disasterscharter.org/web/guest/activations/-/article/fire-in-argentina-activation-915-	866	728	341	631	135	63%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-korea-republic-of-activation-896-	772	646	301	598	125	62%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-argentina-activation-880-	757	642	273	570	137	58%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-colombia-activation-883-	728	608	292	562	100	65%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-russian-federation-activation-882-	706	575	239	546	107	62%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-uruguay-activation-881-	683	579	165	532	121	65%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-russian-federation-activation-871-	673	567	172	530	86	64%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-bangladesh-activation-884-	636	545	236	519	112	58%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-venezuela-bolivarian-republic-of-activation-891-	816	600	278	509	135	58%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-sri-lanka-activation-887-	647	524	155	501	111	61%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-nepal-activation-901-	629	529	268	492	119	65%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-sudan-activation-906-	686	532	226	480	138	55%
https://disasterscharter.org/web/guest/activations/-/article/storm-hurricane-in-mozambique-activation-868-	646	520	242	479	115	69%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-armenia-activation-886-	602	517	276	478	103	58%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-sri-lanka-activation-921-	578	507	240	472	111	62%
https://disasterscharter.org/web/guest/activations/-/article/storm-hurricane-in-jamaica-activation-893-	570	510	174	468	103	63%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-thailand-activation-912-	557	481	172	459	99	61%
https://disasterscharter.org/web/guest/activations/-/article/landslide-in-india-activation-900-	585	492	118	455	134	61%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-mexico-activation-918-	561	490	222	453	113	63%
https://disasterscharter.org/web/guest/activations/-/article/landslide-in-papua-new-guinea-activation-885-	587	496	174	452	123	49%
https://disasterscharter.org/web/guest/activations/-/article/flood-large-in-mozambique-activation-801-	563	480	401	446	74	78%
https://disasterscharter.org/web/guest/activations/-/article/fire-in-russian-federation-activation-890-	556	464	212	439	112	63%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-kyrgyzstan-activation-898-	542	459	216	437	88	64%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-dominican-republic-activation-876-	559	471	168	434	97	67%

https://disasterscharter.org/web/guest/activations/-/article/volcano-in-indonesia-activation-927-	544	466	180	434	83	74%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-bangladesh-activation-905-	599	482	229	428	125	68%
https://disasterscharter.org/web/guest/activations/-/article/oil-spill-in-yemen-activation-864-	532	440	87	415	92	71%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-indonesia-activation-879-	688	443	145	405	196	48%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-nigeria-activation-910-	475	411	177	388	140	51%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-bangladesh-activation-888-	531	415	149	383	92	58%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-colombia-activation-928-	491	409	133	383	104	76%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-afghanistan-activation-878-	479	407	131	382	119	58%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-libya-activation-860-	477	396	110	377	109	76%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-myanmar-activation-911-	468	391	186	377	98	58%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-indonesia-activation-877-	1442	405	110	369	416	55%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-sudan-activation-917-	478	401	123	369	126	58%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-philippines-activation-923-	459	389	118	362	104	71%
https://disasterscharter.org/web/guest/activations/-/article/oil-spill-in-samoa-activation-922-	459	382	113	346	100	54%
https://disasterscharter.org/web/guest/activations/-/article/storm-hurricane-in-cayman-islands-activation-892-	388	345	96	328	42	65%
https://disasterscharter.org/web/guest/activations/-/article/fire-in-peru-activation-914-	488	388	137	327	158	66%
https://disasterscharter.org/web/guest/activations/-/article/landslide-in-kyrgyzstan-activation-889-	832	371	94	326	324	59%
https://disasterscharter.org/web/guest/activations/-/article/storm-hurricane-in-philippines-activation-930-	442	324	56	301	103	60%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-morocco-activation-913-	395	339	78	295	170	58%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-chad-activation-904-	374	311	97	291	108	65%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-viet-nam-activation-909-	395	330	121	288	464	40%
https://disasterscharter.org/web/guest/activations/-/article/earthquake-in-vanuatu-activation-938-	366	308	164	269	114	75%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-dominican-republic-activation-926-	309	266	91	255	53	74%
https://disasterscharter.org/web/guest/activations/-/article/landslide-in-ethiopia-activation-899-	309	264	106	248	106	47%
https://disasterscharter.org/web/guest/activations/-/article/mudflow-in-kyrgyzstan-activation-902-	315	275	86	243	66	69%

https://disasterscharter.org/web/guest/activations/-/article/flood-in-cayman-islands-activation-916-	256	226	59	220	83	46%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-guinea-activation-903-	274	229	53	213	105	41%
https://disasterscharter.org/web/guest/activations/-/article/oil-spill-in-russian-federation-activation-937-	316	248	79	207	167	49%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-sri-lanka-activation-932-	239	206	53	193	80	54%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-sri-lanka-activation-933-	244	204	35	185	121	74%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-madagascar-activation-935-	238	198	75	176	57	75%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-palestinian-territory-occupied-activation-931-	217	189	46	171	68	63%
https://disasterscharter.org/web/guest/activations/-/article/storm-hurricane-in-cayman-islands-activation-925-	201	179	49	162	80	71%
https://disasterscharter.org/web/guest/activations/-/article/storm-hurricane-in-french-southern-territories-activation-939-	205	153	22	129	129	55%
https://disasterscharter.org/web/guest/activations/-/article/flood-in-indonesia-activation-934-	167	140	41	127	118	68%
https://disasterscharter.org/web/guest/activations/-/article/storm-hurricane-in-mozambique-activation-936-	162	119	31	109	138	65%
https://disasterscharter.org/web/guest/activations/-/article/oil-spill-in-peru-activation-940-	47	42	17	42	228	82%

Table 16. Top 10 countries that visited the website (January-December 2024)

Country	Visits
United States	133 591
United Kingdom	29 777
Spain	20 368
France	19 682
Brazil	12 052
China	10 303
Japan	9 652
Russia	7 489
India	5 877
Philippines	4 292

The trend for general pages was similar to previous years, though on average the pages received more traffic than in 2023. The 20th anniversary page was still receiving some traffic last year, though very little compared to the other pages. In the news, Noto earthquake in Japan, EUMETSAT/CSA joint leadership and 23rd Annual Report were the most visited in 2024.

Table 17. Number of Charter News pages views (January-December 2024)

Page	Page Views	Unique Page Views	Entrances	Unique Visitors	Avg. Time on Page	Bounce Rate
https://disasterscharter.org/web/guest/-/charter-activation-for-noto-earthquake-in-japan	154	104	41	100	1 minute 24 seconds	68%
https://disasterscharter.org/web/guest/-/eumetsat-and-csa-joint-leadership-period	127	100	38	98	1 minute 40 seconds	68%
https://disasterscharter.org/web/guest/-/international-charter-newsletter-october-2024-issue-29	95	87	38	85	46 seconds	74%
https://disasterscharter.org/web/guest/-/23rd-annual-report-of-the-charter	111	81	15	77	1 minute 50 seconds	67%
https://disasterscharter.org/web/guest/-/eumetsat-and-csa-lead-the-international-charter-space-and-major-disasters-and-hand-over-to-dlr	81	57	12	53	1 minute 45 seconds	58%
https://disasterscharter.org/web/guest/-/international-charter-newsletter-april-2024-issue-28	52	48	4	46	52 seconds	75%
https://disasterscharter.org/web/guest/-/spotlight-on-international-charter-data-contributors-ngii	33	22	6	20	1 minute 56 seconds	50%
https://disasterscharter.org/web/guest/-/spotlight-on-international-charter-data-contributors-satellogic	66	16	8	13	1 minute 35 seconds	50%
https://disasterscharter.org/web/guest/-/inpe-lead-the-international-charter-space-and-major-disasters	15	13	8	12	1 minute 5 seconds	63%

At the end of the year there were 11,770 Followers, which was an increase of 318 since 2023. This increase was in spite of the ongoing issues on X, as the platform is continuing to see more people leaving for other social media services. This was particularly notable in the second half of the year.

As usual, the value-added products receive the most attention. We can see similarities here with the most visited activations on the website, with activations such as the flood in Spain, Kenya, and Brazil receiving the most reposts and likes. Then further down the list, but still receiving interest are activations such as the earthquake in Japan and various storms and floods in South America.

In contrast to the website, the flood in Spain received the most interest on social media. On the website it was the ninth most visited activation (which is still highly ranked) but there was notable activity for this in general on social media at the time.

The flood in Kenya was the sixth most visited activation on the website (also highly ranked) but products for it received a lot of interest on social media and received similar interest to the products for the flood in Spain. There seemed to be a particular interest for this activation.

The fire in Guatemala was by far the most visited activation on the website due to the link from the forest institute contributing ongoing traffic for a few months. On social media, without that ongoing drive, the posts were further down the list in terms of likes and reposts, though this is not to say that they received no interest. It was just less in comparison to examples shown in Appendix A at the end of the document (The Disasters Charter X statistics).

6.2 Charter Newsletters

Charter Newsletters #28 and #29 were issued in May 2024 and October 2024 respectively. The newsletters represent an additional means of informing users, stakeholders, and the public on recent Charter activations, news, events and related activities.

The dissemination of the newsletters is organised through the Charter website and by e-mail. Each agency deals with its own distribution list.

The 28th issue is available on the link below and reported on the following matters:

https://disasterscharter.org/cos-api/api/file/public/article-image/25411169

- EUMETSAT and CSA – Charter Leadership
- RADARSAT+: Ensuring continuity of essential satellite EO data
- Charter activation for Noto earthquake in Japan
- Project Managers Training at EUMETSAT

Figure 60. Charter Newsletter issue 28

The 29th issue is available on the link below and reported on the following matters:
https://disasterscharter.org/cos-api/api/file/public/article-image/27140843

- DLR leads the International Charter
- Data Contributors and Their Role
- JAXA´s News Radar Satellite “ALOS-4” will contribute to the Charter
- Emergency On-Call Officer Training in Bonn
- Unprecedented flood in Brazil Spatial Flood Early Warning Systems - Best Practices in Flood Risk Management
- The Evolution of the ESA Charter Mapper.

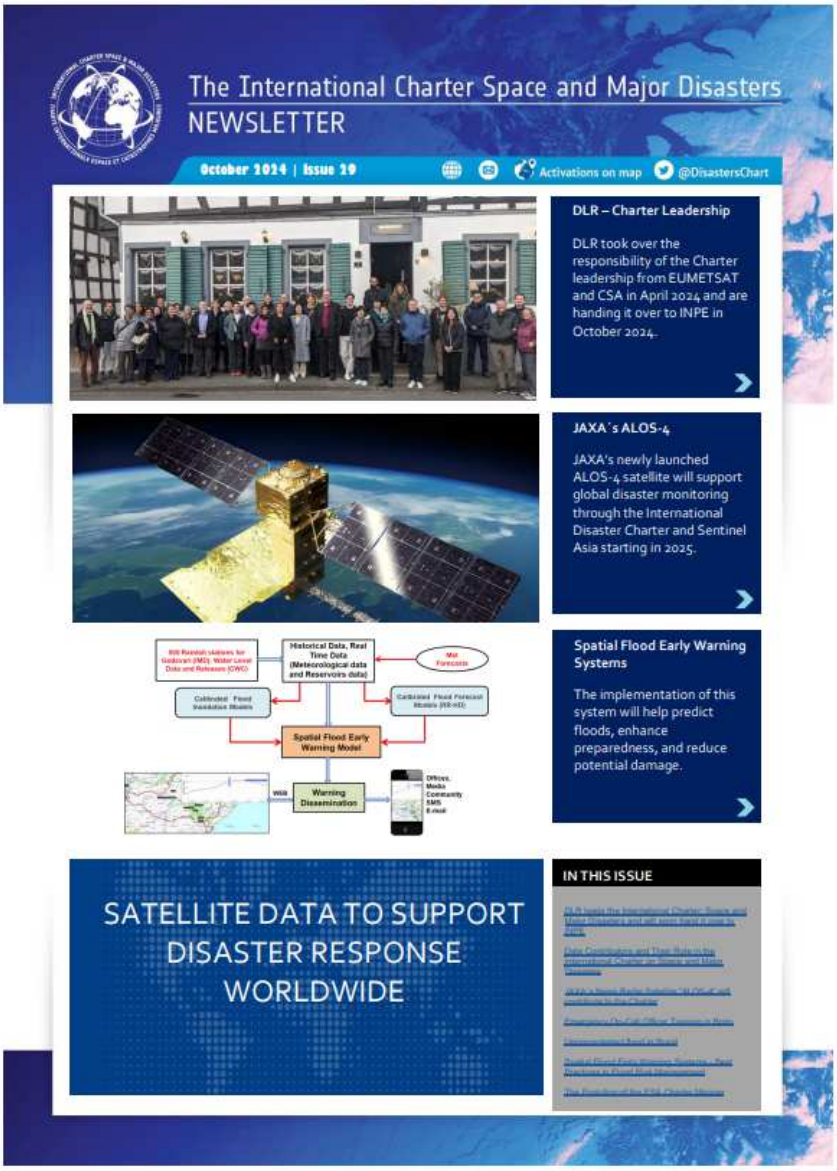


Figure 61. Charter Newsletter issue 29

6.3 Conferences and presentations

The following table provides details on the 2024 events or conferences where the Charter was represented. On such occasions, presentations were given covering the Charter's role in the acquisitions and production of satellite imagery for disaster response together with the Universal Access initiative.

Table 12. List of 2024 conferences/workshops/presentations with Charter presence

Event	Venue	Date	Speakers
Presentation of Charter to IEHDN delegation in CNES	CNES, Toulouse	March 2024	**CNES**
Presentation of Charter to Morocco delegation	CNES, Toulouse	April 2024	
Presentation of Charter to Djibouti delegation	CNES, Toulouse	May 2024	
Presentation of Charter	Balcon des étoiles, Latrape	June 2024	
Presentation of Charter to Rwanda delegation	CNES, Toulouse	June 2024	
Presentation of Charter (Fires and Volcanoes) to teachers	CNES Summer University, Toulouse	July 2024	
Scientific TV show about climate change on Sorcier TV **https://www.youtube.com/watch?v=iiHUDQxMOCw**	Paris	September 2024	
Presentation of Charter to UK delegation	CNES, Toulouse	November 2024	
Presentation of Charter	La Sorbonne University (Master in International geopolitical), Paris	December 2024	
Physics of Volcanoes Workshop 2024 **http://www.volcano.yourweb.de/assets/files/2024_POV_1st_circular.pdf**	Oberpfaffenhofen, Germany	March 2024	**DLR**
Global Flood Partnership - EW4ALL: Strengthening resilience against flooding - Know, Monitor, Communicate, Respond- Conference (Presentation Sandro Martinis/DLR) **https://www.globalfloodpartnership.org/sites/default/files/2024-07/Agenda-07-22-2024.pdf**	Nairobi, Kenya	July 24-26th, 2024.	
Regional Multi-Hazard Disaster Preparedness Planning Workshop 2024 (organized by SADC SHOC Centers) **"International Charter: Space and Major Disasters" (Presentation Samuel/DLR)**	Nacala, Nampula Province, Republic of Mozambique	2024	

SADC Humanitarian and Emergency Operations Centre (SHOC) | SADC			
World Space Forum **„The International Charter Space and Major Disasters: contributions from the Space Community to Disaster Response efforts around the world” (Presentation Samuel/DLR)** **https://www.unoosa.org/oosa/en/ourwork/world-space-forum/2024/world-space-forum-2024.html**	Bonn, Germany	December, 2024	
Floods 2024 and current questions of water resource management in Kazakhstan, (Presentation Sandro Martinis/DLR) **https://www.gov.kz/memleket/entities/mfa-berlin/press/news/details/896428?lang=de or https://casib.eu/en/node/3653**	German Bundestag Berlin, Germany	December, 2024	
13th Caribbean Conference on Comprehensive Disaster Management (CDM13)	St. Kitts and Nevis	December 2-6, 2024	**ESA**
Presentation on the International Charter Space and Major Disasters at the 16th EUMETSAT User Forum for Africa	Cotonou, Benin	September 2024	**EUMETSAT**
Understanding Risk Global Forum 2024 (UR2024) organized by the World Bank, Global Facility for Disaster Reduction and Recovery (GFDRR) and the Tokyo DRM Hub **https://understandrisk.org/event/ur24/**	Himeji, Hyogo Prefecture, Japan	June 16-21, 2024	**JAXA**
2024 Asia-Pacific Ministerial Conference on Disaster Risk Reduction (APMCDRR) organized by Government of the Philippines partnered with the United Nations Office for Disaster Risk Reduction (UNDRR) **https://apmcdrr.undrr.org/**	Manila, Philippines	October 14-18, 2024	
And JAXA also co-organized annual meeting of Sentinel Asia member (JPTM 2024) and introduced the Charter: **9th Joint Project Team Meeting for Sentinel Asia STEP-3 (JPTM2024) Co-organized b Philippine Space Agency (PhilSA) and JAXA** **https://sentinel-asia.org/meetings/SA3JPTM9/index.html**	Quezon City, Philippines	November 5-7, 2024	
Space-Comm Expo Scotland. UKSA participated on panel titled: ‘SEPA’s Satellite Emergency Mapping System	Glasgow, Scotland	September 2024	**UKSA**

(SEPA)' https://space-comm-scotland.co.uk/session/sepa-app-launch/			
USGS participated and presented the Charter during a Hurricane Data Mining Workshop, organized by the University of Louisiana Lafayette Regional Applications Center – this is an annual event that prepares for the hurricane season and involves several regional emergency response agencies. The 2024 session also included wildfire response for which Charter examples were also shown.	Monroe, USA	June 6, 2024	**USGS**

UNOOSA and UNITAR/UNOSAT also contributed towards increasing Charter awareness through presentations to a wider public audience.

6.4 Press releases and articles

The following table summarises the main press releases, web and paper articles issued by the member agencies or others in 2024.

Table 18. List of 2024 press releases and articles

Issuing agency	Date	Title
CNES	October, 2024	https://geodes.cnes.fr/la-charte-un-exemple-reussi-de-collaboration-internationale/
	December, 2024	Several press interviews following Mayotte disaster (Activation ID 939. Event: Storm. Location: French Southern Territories): • France Bleue Occitanie • RCF • RFI • Libération : https://www.liberation.fr/environnement/climat/cyclone-chido-a-mayotte-la-technologie-spatiale-du-cnes-au-service-des-secours-20241216_J6UD5D6QWFEUHCSOK5LSNRM66M/ • Radio Classique • Quotidien de la Réunion • France 3 Occitanie
CONAE	May 8, 2024	Activation ID 875. Event: Flood. Location: Brazil. https://www.instagram.com/p/C6tZAn4r04Z/?igsh=eWFqb21ydG1hOGhv https://x.com/CONAE_Oficial/status/1788199868571226611?t=4Fj_ivBp5OWcmvalg0-XTw&s=08 https://www.facebook.com/share/p/15o7qjuHgD/

	May 15, 2024	Activation ID 880. Event: Flood. Location: Argentina. https://www.instagram.com/p/C6_0ARHLQIn/?igsh=bjlvZDFkc3UzcXA3 https://x.com/CONAE_Oficial/status/1790792409481134541?t=yUx6RcXHKf_JyXO0QNDbDw&s=08 https://www.facebook.com/share/p/185hScHvr2/
	September 27, 2024	Activation ID 91527. Event: Fire. Location: Argentina. https://www.instagram.com/p/DAbmHlGvEl1/?img_index=1&igsh=MWJ3MWo3d283bjYwMg== https://x.com/CONAE_Oficial/status/1839738546141442455?t=eyX4-7GLQkz6dh7ZQ_DH_g&s=08 https://www.facebook.com/share/p/1AAfr9nB1j/
CSA	2024	2 web pages updates on CSA’s website. 7 social media posts on CSA’s platforms (LinkedIn, X and Facebook)
DLR	February 9, 2024	Wildfires in Chile https://www.dlr.de/en/eoc/latest/news/2024/wildfires-in-chile
	April 24, 2024	DLR übernimmt Vorsitz der „International Charter Space and Major Disasters“(available only in German) https://www.dlr.de/de/aktuelles/nachrichten/2024/dlr-uebernimmt-vorsitz-der-international-charter-space-and-major-disasters
	2024	Mark Carmichael auf LinkedIn: Spotlight on International Charter Data Contributors: Satellogic
ESA	May 11, 2024	ESA - Devastating floods in Spain witnessed by satellites
INPE	2024	"INPE ajuda a mapear áreas inundadas no Rio Grande do Sul" - https://globoplay.globo.com/v/12641279/?s=0s
	October 2024	"Agências de 17 países discutem uso de satélites no INPE" - https://globoplay.globo.com/v/13000116/
	October 2024	"INPE lidera consórcio internacional de agências espaciais" - https://youtu.be/RASh26g8aKk?si=15ExleHywzw0uSod
	October 2024	"Canção Nova Notícias - 10/10/2024 (Disasters Charter)" - https://youtu.be/aH7rbF0LM1A?si=qDLOBgpMlwi-Cs9N&t=565
	April 03, 2024	"Artigo no Discover Applied Sciences informa as contribuições do INPE na Carta Internacional Espaço e Grandes Desastres."
	April 25, 2024	"INPE participa da 51a. Reunião da Carta Internacional 'Espaço e Grandes Desastres"
	May 06, 2024	"Imagem de satélite revela extensão da inundação no Vale do Taquari no Rio Grande do Sul" (replicated on the INPE’s general website)
	May 10, 2024	"Imagem do Amazonia 1 dá dimensão da tragédia em todo o Rio Grande do Sul"
	October 10, 2024	"Agências espaciais de todo o mundo discutem desastres naturais no INPE" (replicated on the INPE’s general website)
	October 11, 2024	"Reunião internacional no INPE discute uso de satélites na gestão de desastres" (replicated on the INPE’s general website)
	December 16, 2024	"INPE publica Nota Técnica sobre monitoramento de incêndios florestais na Bolívia"

	2024	Outreach publications related to the Charter were held in 52 posts on our Earth Observation/INPE social media, 36 of them on @twitter (currently 'X'), 07 on @facebook and 09 on @instagram
	2024	Publication of the article “Unprecedented flood in Brazil” in the Disasters Charter Newsletter nº 29 (October/2024), available at: https://disasterscharter.org/cos-api/api/file/public/14458/International-Charter-Newsletter-Issue-29 https://doi.org/10.1007/s42452-024-05831-3 http://dx.doi.org/10.1016/j.rsase.2024.101314 http://dx.doi.org/10.14393/rbcv76n0a-70194 http://dx.doi.org/10.14393/rbcv76n0a-71999
UKSA	April 2024	Post regarding International Charter: Space & Major Disasters Board Meeting in Bonn - UK Space Agency on X: "Thank you @DLR_en for hosting the 51st International Charter: Space & Major Disasters Board Meeting in Bonn. We're proud to be part of this unique international collaboration using space data to support disaster response worldwide. 🌍 https://t.co/KFAailEGJe" / X
	September 2024	Reshared SEPA post regarding Satellite Emergency Mapping Service (SEMS) (1) Scottish Environment Protection Agency (SEPA) on X: "We’ve worked closely with the @spacegovuk as we developed the Satellite Emergency Mapping Service, using space technology for critical and life-saving use during times of environmental disasters in Scotland. https://t.co/jImTdcwTyG" / X

6.5 Users’ Appraisal

To understand how our service assists in disaster monitoring, and more importantly, to identify possible improvements to the Charter service, we gather feedback after each activation. We gather feedback from End Users, the recipients of our value-added products, and from Project Managers, the individuals who coordinate each activation.

During an ongoing disaster the Charter products are primarily used to support communication, thus assisting in disaster situation awareness. After the event, they can support post-event analysis and training. Figure 62 indicates how the value-added products are used.

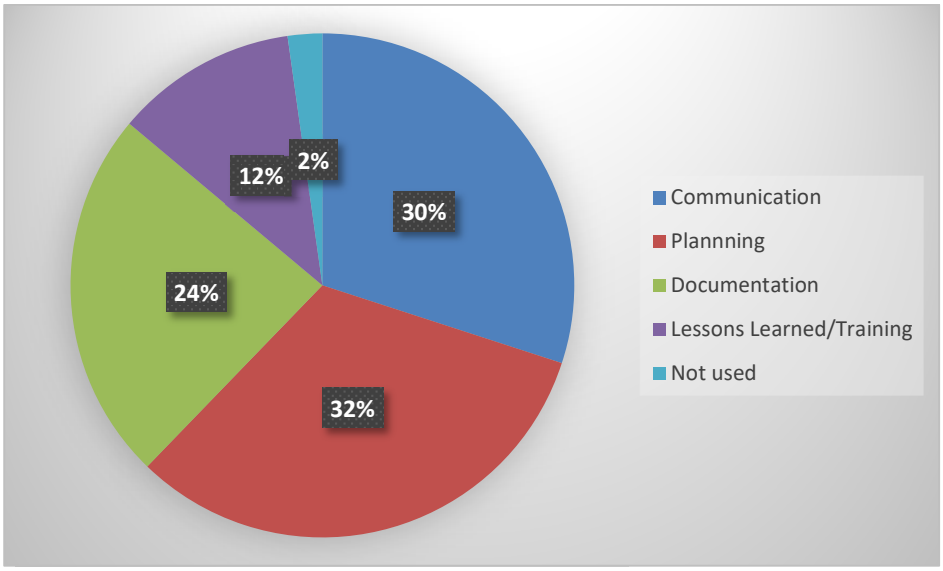


Figure 62. Breakdown of use of Charter value-added products in 2024

The feedback received in 2024 indicates that, end users are in general very satisfied with the Charter’s service, which continues to exceed user expectations. Figure 63 indicates the level of satisfaction based on feedback from end users when asked to rate the contribution made by the Charter service to the emergency events affecting them in 2024.

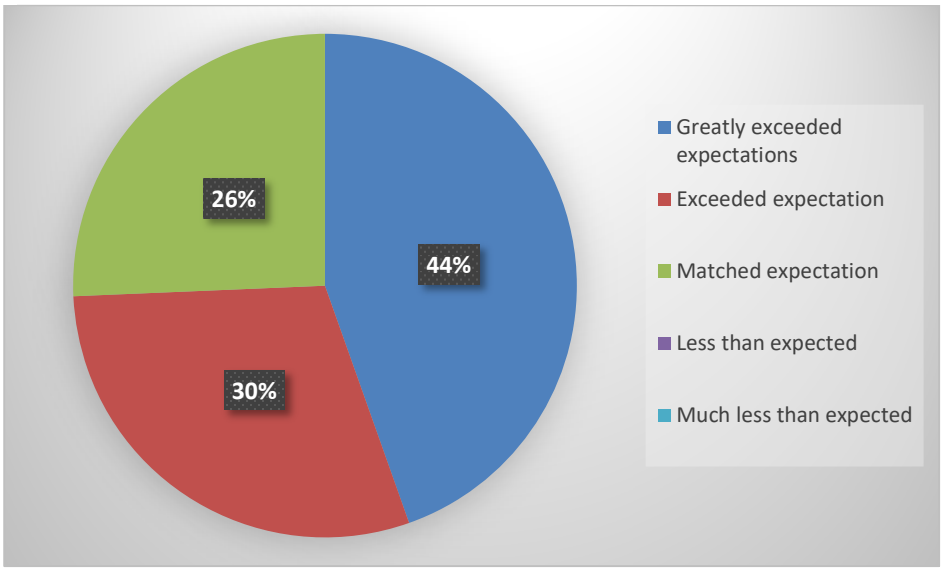


Figure 63. Level of satisfaction towards the contribution made by the Charter to emergencies in 2024

Occasionally, it is not possible to satisfy user needs for specific satellite data, information or other aspects of the Charter service. Here is a selection of feedback, including some suggestions for improvement, received from Project Managers and End Users:

- Confusion with Charter Helpdesk service messages: The Charter uses standard messages to relay the status of tickets. We will review and update our messages considering this feedback.
- The licensing step in the Charter Mapper is not streamlined, a user must re-enter the activation rather than being able to continue where you were previously working: To access some Charter data, the user needs to accept licensing terms and conditions. We are working on improving this step in an upcoming release of the Charter Mapper.
- Several End Users have requested value-added products in vector, geotiff, or WMS format: Many Value Adders are now generating information products in these formats. We are considering ways to include alternate formats on our activations page of the Charter website.
- Some End Users and new Project Managers have reached out to the Charter to request more training: The Charter provides regular Charter training sessions. We have just established a training group to better coordinate our training activities, and we continue to work closely with partners like UNSPIDER and Sentinel Asia in our capacity development activities.

All feedback received are reviewed by the Executive Secretariat. Where possible, enhancements are implemented and service issues remedied.

End users and Project Managers occasionally give feedback on how the information provided during a Charter activation is used. Here are some examples, which provide insight into the value-chain of the Charter services:

- “Given the extensive damage caused by the [flooding], high-resolution imagery was crucial for precise mapping. The [Charter data] provided invaluable imagery, capturing the area before [and] after, which greatly aided in assessing the extent of the damage and planning the response.”
- “The support provided by the value-added team played a key role in the overall response. The high quality of the data allowed us to generate a water index, which highlighted the affected urban areas. By overlaying this with building footprints, we were able to identify emergency hotspots for future flood events and determine which infrastructure was impacted, even pinpointing buildings with roof level flooding through the use of high-resolution optical imagery.”
- “During the initial weeks of activation, our team focused on delivering at least one Value-Added Product per day. Every team member contributed, and the Analytical Unit received all VAPs, including those shared directly via WhatsApp to support three groups of firefighters working in [the fire impacted region].”
- “Activating the Disasters Charter and Sentinel Asia by ADRC and [local disaster management agency] enabled timely access to satellite imagery and analytical products, significantly aiding emergency response efforts. Despite challenges such as the narrow floodplain of the [river] reducing the effectiveness of SAR imagery and cloud cover

limiting optical data, the collaborative efforts of multiple organizations resulted in the generation of seven high-quality value-added products, a truly outstanding contribution.”

6.6 Communication assessment

The improved version of the website facilitates the user navigation and information search.

Several channels were used to ensure more comprehensive communication to Charter users, stakeholders, and the general public:

- The publication and distribution of newsletters.
- The Charter website, which is still well visited.
- The Charter X (ex-Twitter) account. All Charter activations and news are distributed via tweets. Around 10,000 followers were counted by the end of 2024.
- The Charter videos available in the “Library” Section of the Charter Website as well as on YouTube.
- Participation in international/regional events all over the world to promote the Charter and the Universal Access (UA) initiative.
- Press releases and articles mainly via the web and in particular, the Charter website, Charter members’ websites, and UN-SPIDER communication channels.
- The Charter flyer and brochure in English and French are distributed and used regularly at conferences and workshops internationally.

7. Conclusions

In 2024, the following agencies took the lead agency duty, which rotates among Charter members on a six-month basis: EUMETSAT/CSA (October 2023 – April 2024), DLR (April 2024 – October 2024) and INPE (October 2024 – April 2025). The Charter is 17 members and no new members have been integrated since 2018.

In total, the Charter has been triggered for 941 disasters in 147 countries between its inception in the year 2000 and the end of 2024.

In 2024, the Charter was activated 85 times in 52 different countries. This is the second year in a row where the Charter treated its highest number of activations ever seen in a single year, showing a clear tend upwards in Charter activation requests. The new average number of activations per year is 38 since 2000, and 46 since 2007 (when the Charter began consistently handling more activations). The range of activations per year since 2007 ranges from 32 in 2011 to 85 in 2024.

September of 2024 became the month with the most activations in the Charter’s history, with 13 activations, beating the previous record of 11 from September of 2022. Natural disasters occurring during this period of the year are mainly attributed to meteorological events such as intense rains; ensuing floods and landslides; tropical storms; in Asia (5), Africa (3), and Latin America and the Caribbean (4).

The Charter was triggered six times for man-made disasters (Trinidad and Tobago, Yemen, Philippines, Samoa, Russia, Peru).

The Charter covered 53 of the 550 total events in 2024 (9.6%). If we consider the 50 most severe disasters in the EM-DAT database (80% of fatalities), the Charter covered 17 of them, accounting for 50% of total fatalities.

The web-based system COS-2 has provided operational support to the Charter since the beginning of March 2015. Overall, it has been used successfully in all Charter calls. Most of the Charter members have their EO metadata fetched on COS-2, allowing automated and on-line cataloguing of Charter acquisitions. Since September 2017, COS-2 can automatically record metrics and information that is necessary in order to generate system performance statistics used in this report. 2024 was characterized by a major upgrade of the COS-2 system due to the necessity to upgrade the Liferay software and the database, over which the COS-2 is built. The new version had been transferred to operations in February 2025. Therefore, the development capacity in 2024 was considerably reduced.

Universal Access (UA) is gradually progressing with interest and contacts and 4 new Authorized Users were granted in 2024: New Zealand, Guinea, Rwanda, Saint Vincent and the Grenadines.

In 2024, two SARE refresher exercises (SARE 28 led by ESA and UKSA; SARE 29: led by UKSA and CNES) were organized for Emergency on-Call Officers. 16 Project Manager refresher training

sessions and one Value Adders Training were organized to strengthen the network of the Charter operation loop.

The Charter website is available in English and some pages are available in Spanish, French, Chinese, Russian and Portuguese. It allows Charter staff and Authorized Users direct access COS-2. The 28th and 29th Charter newsletters were issued in 2024. In addition, X (ex-Twitter) is frequently used as a tool to increase visibility of the Charter activations and other relevant news and raising public awareness on the Charter.

Successes of the ‘International Charter: Space and Major Disasters’ in 2024, such as improving our operational environment, welcoming additional authorized users, effectively communicating our mission and most importantly, responding to disasters as requested will continue going forward. The Members of the International Charter “Space & Major Disasters” remain dedicated to assisting emergency response efforts and providing improved access and benefit from satellite resources.

8. Appendix A: Disasters Charter X statistics for 2024

Link	Post	Date	Impressions	Engagements	Reposts	Likes	Replies	Link clicks	Profile visits	Detail expands	Follows
https722	The Charter has been activated to provide satellite imagery over yesterday's 7.6 magnitude #earthquake in #Japan: https://bit.ly/3vmdlv3	02.01.2024	1 530	55	2	8	2	21	5	10	1
https469	Our first map of the #earthquake in #Japan uses GeoEye-1 imagery to identify landslides at Wajima on 2 January: http://bit.ly/3vmdlv3	04.01.2024	2 753	146	15	16	0	19	11	7	1
https517	The Charter has been activated to provide satellite data over the flood in the Marshall Islands: https://bit.ly/495NFRF	22.01.2024	963	42	5	5	0	16	5	12	0
https660	This map uses imagery from WorldView-3 to estimate the impact of the storm surge and floods on Roi-Namur in the Marshall Islands: http://bit.ly/495NFRF	29.01.2024	629	46	2	7	0	4	2	7	0
https870	The Charter has been activated to provide satellite data over the wildfires in Chile: https://bit.ly/3SONi99	06.02.2024	1 253	32	7	9	0	9	2	3	0
https213	The Charter has been activated to provide satellite imagery over floods in Libya: https://bit.ly/3HTeHQV The flooding is due to a ground water crisis, particularly affecting the city of Zliten.	07.02.2024	729	29	2	6	0	10	4	6	0
https724	The Charter has been activated to provide satellite data over an oil spill at Trinidad and Tobago: https://bit.ly/3wkGMxO The oil spill, which came from an abandoned cargo vessel, is affecting approximately 15 km of Tobago's coast.	12.02.2024	13 217	187	10	13	0	50	27	81	1
https657	Our first maps of the oil spill at Trinidad and Tobago use SAR data from #ICEYE to estimate potential or probable areas of oil in the area: http://bit.ly/3wkGMxO	15.02.2024	7 763	198	12	16	1	13	22	44	2
https539	This map uses imagery from WorldView-3, Jilin-01, and Pleiades Neo to estimate areas of rising groundwater in the Rumaya neighborhood of Zliten, Libya: http://bit.ly/3HTeHQV	15.02.2024	1 162	76	5	9	0	5	9	4	2
https043	In these maps, radar data from #Sentinel1 and the #RCMSatellites was used to track potential oil at Tobago: http://bit.ly/3wkGMxO Between 14 and 16 February, the potential oil extends from Tobago to north of the Los Testigos Islands, becoming thinner with distance.	19.02.2024	3 449	192	8	15	0	12	13	49	4

https://430	These maps estimate the locations of probable oil at Tobago as of 14 and 16 February: http://bit.ly/3wkGMxO The maps use data from a number of radar satellites, with an optical view serving as reference.	22.02.2024	1 107	71	9	13	0	1	6	16	0
https://566	The Charter has been activated to provide satellite data over the flood in Ecuador: https://bit.ly/4bLTtlt	22.02.2024	1 250	55	7	9	0	19	6	12	1
https://147	This map shows the locations of potential areas of oil at Tobago, following analysis of data from five satellites between 11 and 15 February: http://bit.ly/3wkGMxO The area identified by each satellite are colour-coded according to date of acquisition.	23.02.2024	948	74	6	10	0	3	5	18	1
https://415	The Charter has been activated to provide satellite data over the forest fire on the #Agua volcano in #Guatemala: https://bit.ly/48y4wvL	23.02.2024	957	75	6	9	0	11	6	37	1
https://895	This map of Tobago uses data from the #RCMSatellites to identify potential areas of oil: http://bit.ly/3wkGMxO The preliminary analysis shows signs the potential oil patches may be weathering, as of 21 February.	23.02.2024	563	44	4	10	0	1	3	11	0
https://473	Our first maps of the forest fire in #Guatemala use imagery from #Pleiades to estimate the affected area on #Agua Volcano: http://bit.ly/48y4wvL	26.02.2024	876	74	7	12	0	4	2	6	1
https://942	These maps use imagery from #Pleiades and #Sentinel2 between 22 and 24 February to estimate the areas burnt by the forest fires on #Agua Volcano in #Guatemala: http://bit.ly/48y4wvL False-colour data from VIIRS was used to help estimate locations of active fires.	27.02.2024	477	30	2	6	0	2	0	5	0
https://152	The Charter has been activated to provide satellite data over the oil spill from the Rubymar, a cargo vessel adrift in the Red Sea: https://bit.ly/3wvAYSu	28.02.2024	1 574	47	6	8	0	14	4	12	0
https://489	In this map, data from #Sentinel1 were used to estimate the extent of potential oil at Tobago on 26 February: http://bit.ly/3wkGMxO	28.02.2024	689	36	5	5	1	7	2	3	0
https://053	This map uses #Pleiades and Landsat 9 imagery to estimate the area affected by the forest fire on #Agua Volcano in #Guatemala, as of 24 February: http://bit.ly/48y4wvL True and false-colour combinations were used to analyse the area in different ways.	28.02.2024	745	32	3	9	0	0	2	6	0
https://603	These maps use #Pleiades and #Sentinel2 imagery to estimate the area affected by the forest fires on the #Agua Volcano in #Guatemala, and	29.02.2024	760	42	6	9	0	1	0	3	0

	the level of severity within that area: http://bit.ly/48y4wvL										
https 431	The Charter has been activated to provide satellite data over the floods affecting Acre State in Brazil: https://bit.ly/4bZ4Syq Torrential rain has caused river levels to reach record levels, resulting in flooding in most of the state.	01.03. 2024	1 434	53	6	14	0	12	17	4	0
https 116	The Charter has been activated to provide satellite data over the flood in Bolivia: https://bit.ly/4c6S3T6	07.03. 2024	542	16	2	6	0	6	1	0	0
https 303	The Charter has been activated to provide satellite data following the storm that affected the United Arab Emirates: https://bit.ly/3V82NdM	12.03. 2024	2 273	94	6	9	0	41	10	26	1
https 792	The Charter has been activated to provide satellite data following #CycloneFilipo's impact to Mozambique: https://bit.ly/3wTweWN	15.03. 2024	658	17	3	5	0	4	2	3	0
https 640	The Charter has been activated to provide satellite data over the floods in Mongolia, caused by snow melt: https://bit.ly/3TQqma0	25.03. 2024	887	35	7	12	0	9	4	3	0
https 534	This map uses #Sentinel1 data to estimate flooded areas in the Maputo and Gaza Provinces of Mozambique following #CycloneFilipo: http://bit.ly/3wTweWN	26.03. 2024	737	44	4	8	0	6	4	3	1
https 558	Animation of the Tembe River in Mozambique, before and after #CycloneFilipo on 4 and 16 March: http://bit.ly/3wTweWN The animation uses radar data from #Sentinel1. The black areas represent low backscatter of the radar signal and therefore potential standing water.	26.03. 2024	610	45	4	13	0	1	3	2	0
https 984	These maps use imagery from #Pleiades to estimate potentially damaged and flooded areas in Beira, Mozambique, after #CycloneFilipo: http://bit.ly/3wTweWN	29.03. 2024	734	76	5	13	0	2	3	16	0
https 636	The Charter has been activated to provide satellite data over #CycloneGamane's impact to Madagascar: https://bit.ly/49r61fK Our first maps of the disaster use optical and radar data to estimate potentially flooded areas after the storm.	05.04. 2024	783	51	3	9	0	3	3	3	0
https 436	The Charter has been activated to provide satellite data over a flood in the Orenburg region of Russia: https://bit.ly/3VVeAfN The flood is the result of rapid snow melt in the area.	09.04. 2024	5 706	142	6	6	0	17	18	50	1
https 751	These maps use #Pleiades imagery to estimate damage and flooded areas in Anjanazana and Ampisikanana, Madagascar, following #CycloneGamane: http://bit.ly/49r61fK	09.04. 2024	718	69	4	9	0	4	4	2	0

https572	The Charter has been activated to provide satellite data over the flood in the Cape Province of South Africa: https://bit.ly/4aHij5r	09.04.2024	771	14	3	4	1	5	0	1	0
https852	Our first maps of the flood in Russia use data from #Sentinel1 to estimate the extent of water at Orenburg, Orsk, and Novotroitsk following the flood: https://bit.ly/3VVeAfN	12.04.2024	999	130	5	11	1	8	9	25	2
https738	Our first maps of the severe weather impacting South Africa use #Pleiades imagery to estimate areas affected by fires in Stellenbosch: http://bit.ly/4aHij5r	12.04.2024	1 051	86	4	7	0	4	12	8	0
https631	The Charter has been activated to provide satellite data of the volcanic eruption of Mount Ruang in Indonesia: https://bit.ly/3JozUCY	19.04.2024	1 167	25	5	5	0	4	8	1	0
https039	View a series of maps of the Mount Ruang volcanic eruption in Indonesia: http://bit.ly/3JozUCY Though clouds obscure our view in some of the optical imagery, these maps compare the area before and after the eruption and estimate pyroclastic debris on the island.	30.04.2024	1 355	135	8	10	0	6	6	22	0
https127	The Charter has been activated to provide satellite data over the flood affecting Kenya: https://bit.ly/3QoFo4A	30.04.2024	1 431	73	7	6	0	30	5	7	3
https699	Our first map of the flood in Kenya uses #Sentinel2 imagery to estimate the extent of flooding along the Tana River at Garissa and Mororo: http://bit.ly/3QoFo4A	01.05.2024	8 124	812	46	96	0	42	99	83	39
https642	The Charter has been activated to provide satellite data over the flood in Rio Grande do Sul, Brazil: https://bit.ly/4a095Qj	01.05.2024	2 057	134	5	21	1	59	27	14	0
https102	This map uses imagery from #Pleiades to estimate the extent of landslides/mudslides at Mai Mahiu and Kijabe in Kenya, following the flood: http://bit.ly/3QoFo4A The images of the area were acquired yesterday.	02.05.2024	6 478	756	41	110	1	33	83	68	23
https881	This map uses #Pleiades imagery from 1 May to estimate the impact of floods at Nairobi and Kiambu Counties, in Kenya: http://bit.ly/3QoFo4A	03.05.2024	20 985	1686	32	72	1	54	100	135	24
https584	We have a series of maps available of the flood in Rio Grande do Sul, Brazil: http://bit.ly/4a095Qj The maps use optical images and radar data from multiple satellites to estimate the extent and impact of the flood at different areas.	07.05.2024	6 809	761	36	99	0	60	51	93	7
https088	This comparison uses imagery from CBERS-4 and BlackSky to show floods at Porto Alegre and Canoas in Brazil: http://bit.ly/4a095Qj	08.05.2024	4 068	319	16	69	0	24	21	15	4

https 993	Map of flood at Dona Francisca in Brazil: http://bit.ly/4a095Qj The route of the Jacuí River is highlighted on the map, but the image shows that flood water covers most of this area around the river.	08.05. 2024	2 406	202	15	45	0	14	15	13	1
https 399	This map uses imagery from #Pleiades to estimate the extent of floods at Nairobi, in Kenya: http://bit.ly/3QoFo4A	08.05. 2024	1 817	89	6	16	0	7	3	2	0
https 747	In these maps, #Pleiades imagery is used to estimate the impact and extent of flood water at Nairobi and Kiambu in Kenya: http://bit.ly/3QoFo4A	09.05. 2024	1 646	119	10	25	0	4	1	12	1
https 768	Comparison of Parobé and Taquara in Brazil, before and after the flood: http://bit.ly/4a095Qj Imagery from PlanetScope were used to estimate the extent of flooding.	09.05. 2024	2 867	228	9	37	0	6	10	28	0
https 961	The Charter has been activated to provide satellite data over the flood in Afghanistan: https://bit.ly/3UFhfrV	13.05. 2024	842	29	4	9	0	10	0	5	0
https 862	The Charter has been activated to provide satellite data over the flood affecting the Dominican Republic: https://bit.ly/4dE4I0w	13.05. 2024	859	19	3	5	0	5	2	4	0
https 064	The Charter has been activated to provide satellite data over the flood in Indonesia: https://bit.ly/4ahbvu3	13.05. 2024	624	20	2	4	0	7	1	6	0
https 054	These maps use data from multiple satellites to estimate the impact of floods at San Sebastiao do Cai, Montenegro, and Taquari: http://bit.ly/4a095Qj	14.05. 2024	3 213	294	8	48	0	17	14	10	3
https 070	This map uses #Pleiades imagery from 7 May to show flooding on the Taquari River at the city of Taquari in Brazil: http://bit.ly/4a095Qj The river is highlighted in the map, but flood waters cover much of the area around it.	14.05. 2024	1 511	95	4	25	0	6	4	4	0
https 881	The Charter has been activated to provide satellite data over the flood in Sumatra, Indonesia: https://bit.ly/4bUC3mj This is our second activation for Indonesia this week. The previous activation covers the flood in Sulawesi.	14.05. 2024	547	13	4	7	0	1	1	0	0
https 500	The Charter has been activated to provide satellite data over the flood in Argentina: https://bit.ly/3UZoBrz	14.05. 2024	895	44	3	10	0	17	7	2	3
https 502	Our first maps of the flood in Argentina use #Sentinel1 data acquired yesterday to estimate the extent of floods along the Uruguay River at different locations in Entre Ríos Province: https://bit.ly/3UZoBrz	15.05. 2024	8 258	528	24	81	0	26	50	38	4
https 063	This map uses SPOT-6 imagery from yesterday to estimate the extent of floods at Concordia in Argentina: http://bit.ly/3UZoBrz	15.05. 2024	2 649	171	9	50	0	21	9	9	1

https 133	These maps use data from PlanetScope, WorldView-2, and ICEYE to estimate the impact of floods at Canoas, General Câmara, Agudo, and Nova Palma in Brazil: http://bit.ly/4a095Qj	15.05. 2024	1 264	133	5	26	0	3	6	6	0
https 583	Our first map of the flood in Afghanistan uses #Pleiades imagery from yesterday to estimate the impact of a mudflow in the Burka District: http://bit.ly/3UFhfrV	15.05. 2024	1 112	68	4	18	1	9	7	8	0
https 230	Our first maps of the flood in the Dominican Republic use imagery from #Pleiades and Kanopus-V to estimate the affected areas at Villa Isabela: http://bit.ly/4dE4I0w	15.05. 2024	616	46	3	15	1	2	1	5	0
https 801	This map uses SPOT-6 imagery to estimate the impact of flooding on the Uruguay River at Concordia in Argentina, as of 14 May: http://bit.ly/3UZoBrz	16.05. 2024	2 707	177	14	48	0	10	11	14	0
https 064	This map uses imagery from #Sentinel2 and BlackSky to estimate areas affected by flooding at Taquari and General Câmera in Brazil: http://bit.ly/4a095Qj	16.05. 2024	3 956	169	12	54	1	8	15	16	6
https 819	This map uses #Pleiades imagery from 14 May to estimate the extent of floods at Baghlan in Afghanistan: http://bit.ly/3UFhfrV	16.05. 2024	4 503	104	6	33	0	5	8	6	2
https 178	This map uses #Sentinel1 data from 1 and 14 May to estimate the impact of flooding in Duarte Province, Dominican Republic: http://bit.ly/4dE4I0w	16.05. 2024	1 304	73	5	30	0	5	3	3	0
https 101	The Charter has been activated to provide satellite data over the flood in Uruguay: https://bit.ly/3wNFpIy	16.05. 2024	515	13	3	6	0	1	0	2	0
https 336	The Charter has been activated to provide satellite data over a flood in Russia, caused by snow melt: https://bit.ly/3RfPy8f	20.05. 2024	3 343	29	2	3	0	6	4	12	1
https 053	These maps use SAOCOM data and KANOPUS-V imagery to estimate the extent of flooding at Concepción del Uruguay in Argentina: http://bit.ly/3UZoBrz	21.05. 2024	1 855	147	9	46	0	7	6	5	0
https 506	This map uses #Pleiades imagery to estimate the extent of flooding in Baghlan-e-Jadid, Afghanistan: http://bit.ly/3UFhfrV	21.05. 2024	1 247	59	8	22	0	8	3	1	1
https 522	This comparison uses imagery from SPOT-7 and #PleiadesNeo to estimate the impact of a mudslide in Tanah Datar Regency in West Sumatra, Indonesia: http://bit.ly/4bUC3mj	21.05. 2024	1 003	51	2	7	0	7	3	10	0
https 978	This map uses PlanetScope imagery to compare Latimojong in South Sulawesi, Indonesia, before and after landslides: http://bit.ly/4ahbvu3 The estimated locations of landslides as of 11 May are highlighted in the map.	21.05. 2024	535	34	2	10	0	0	1	2	0

https://t.co/641	These maps use VRSS-2 and #Pleiades imagery to monitor the flood at Nuevo Paysandú in Uruguay: http://bit.ly/3wNFpIy	23.05.2024	1 396	110	8	30	1	4	2	9	2
https://t.co/775	The Charter has been activated to provide satellite data over the flood in Colombia: https://bit.ly/4aBxegz	24.05.2024	971	68	4	14	0	5	8	4	0
https://t.co/711	The Charter has been activated to provide satellite data over #CycloneRemal's impact to Bangladesh: https://bit.ly/3UZavFf	29.05.2024	575	16	2	5	0	3	5	0	0
https://t.co/375	Our first maps of the flood in Colombia use optical and radar images to show the breach in the dike at Caro e Gato, and estimate the extent of flooding in the area: http://bit.ly/4aBxegz	30.05.2024	3 693	289	14	58	2	16	12	15	5
https://t.co/042	This map uses #Landsat 8 imagery to estimate the extent of flooding at Rio Branco in Uruguay: http://bit.ly/3wNFpIy	30.05.2024	2 681	135	13	40	0	9	6	5	2
https://t.co/049	The Charter has been activated to provide satellite imagery over the landslide in Papua New Guinea: https://bit.ly/4bFwesW	30.05.2024	830	25	3	7	0	11	2	0	1
https://t.co/276	This map uses #Sentinel2 imagery to estimate the extent of surface water at Tobolsk before and after the flood in Russia: http://bit.ly/3RfPy8f	30.05.2024	902	45	2	18	0	3	1	4	1
https://t.co/159	These maps use #Sentinel2 and PlanetScope imagery to estimate the extent of flooding at Durazno in Uruguay, and compare the city before and after the flood: http://bit.ly/3wNFpIy	31.05.2024	3 187	242	10	57	0	15	12	16	1
https://t.co/007	This map uses VRSS imagery to estimate the extent of flooding at Ust-Ishim in Russia, as of 25 May: http://bit.ly/3RfPy8f	31.05.2024	2 575	136	7	54	0	3	12	9	3
https://t.co/223	The Charter has been activated to provide satellite data over the flood in Armenia: https://bit.ly/3X3cmvB	31.05.2024	543	20	2	5	0	6	2	5	0
https://t.co/872	The Charter has been activated to provide satellite data over the #flood in #SriLanka: https://bit.ly/4c86vcn	04.06.2024	649	14	2	6	0	1	2	2	0
https://t.co/744	Our first maps of the landslide in Papua New Guinea use #Pleiades and GeoEye-1 imagery to show the landslide and compare the area before and after it occurred: https://bit.ly/4bFwesW	06.06.2024	2 574	195	7	36	1	9	6	11	0
https://t.co/563	This map uses #Sentinel1 data from 4 June to estimate the extent of #floods in the Gampaha, Colombo, and Kalutara districts in #SriLanka: http://bit.ly/4c86vcn	06.06.2024	795	44	4	14	0	1	4	5	1
https://t.co/806	Our first map for the flood in Armenia uses SPOT-6 imagery from 3 June to estimate the impact of flooding on the Debed River in Lori Province: http://bit.ly/3X3cmvB	06.06.2024	1 182	78	2	26	0	3	6	3	0

https 953	This map uses #Sentinel1 data to estimate the extent of #floods in North Western Province, #SriLanka: http://bit.ly/4c86vcn	07.06. 2024	802	59	4	17	0	1	2	5	1
https 498	The Charter has been activated to provide satellite data over a landslide in Kyrgyzstan: https://bit.ly/3VYnedb	26.06. 2024	643	16	3	4	0	6	3	0	0
https 617	The Charter has been activated to provide satellite data over the flood in Bangladesh: https://bit.ly/3VWsvSy	26.06. 2024	553	16	2	4	0	4	3	2	0
https 834	The Charter has been activated to provide satellite data following #HurricaneBeryl. We are activated for: - Jamaica JM: https://bit.ly/3RUPBXd - Venezuela VE: https://bit.ly/4bxmobZ - The Cayman Islands KY: https://bit.ly/3Sic8h1	04.07. 2024	3 000	86	8	19	0	37	15	0	0
https 479	The Charter has been activated to provide satellite data over a wildfire in Russia: https://bit.ly/3RTMEGy	04.07. 2024	630	28	3	6	0	9	6	4	0
https 005	The Charter has been activated to provide satellite data over a flood in Nepal: https://bit.ly/4cUsjZp	08.07. 2024	732	38	4	4	0	23	5	2	0
https 416	The Charter has been activated to provide satellite data over #HurricaneBeryl's impact to the Dominican Republic: https://bit.ly/3xEulyb	08.07. 2024	1 223	21	4	7	0	4	1	2	0
https 666	These maps estimate the areas affected by floods and landslides in Cumanacoa in Venezuela after #HurricaneBeryl: http://bit.ly/4bxmobZ	11.07. 2024	3 515	397	18	48	1	16	13	45	11
https 093	These maps estimate the extent of flooding in Jamaica following #HurricaneBeryl: http://bit.ly/3RUPBXd The maps use #TerraSARX and #Sentinel2 data to estimate the impact.	11.07. 2024	1 096	90	11	22	0	3	1	4	2
https 992	These maps use imagery from Resurs-P and Gaofen-1 to observe smoke plumes from wildfires in Sakha, Russia: https://bit.ly/3RTMEGy	12.07. 2024	578	32	4	6	1	3	0	1	0
https 479	These maps use VRSS imagery to estimate the locations of landslides in the Manzanares River basin in Venezuela after #HurricaneBeryl: http://bit.ly/4bxmobZ	15.07. 2024	694	88	7	18	0	4	6	6	1
https 573	These maps use VRSS imagery to estimate the extent of flood waters on the Manzanares River at different locations in Cumanacoa, Venezuela, before and after #HurricaneBeryl: http://bit.ly/4bxmobZ	16.07. 2024	2 795	251	9	49	0	17	21	16	1
https 159	These maps use a combination of optical and radar data to estimate the extent of flooding in Nepal: https://bit.ly/4cUsjZp Preliminary analysis indicates that the water levels at Belandi have decreased since 9 July.	17.07. 2024	3 114	248	12	46	0	17	17	18	3

https074	These maps estimate the impact of floods in Santo Domingo in the Dominican Republic after #HurricaneBeryl: http://bit.ly/3xEulyb The maps use imagery from #Pleiades and VRSS between 6 and 10 July to analyse changes to these locations.	17.07.2024	367	21	0	3	0	0	1	1	0
https226	These maps use imagery from #Pleiades to estimate areas and buildings affected by #HurricaneBeryl in Santo Domingo in the Dominican Republic: http://bit.ly/3xEulyb	18.07.2024	814	82	5	17	0	1	3	8	0
https289	These maps use SPOT-6 and #Sentinel1 data to estimate the extent of flooding at Beldandi in Nepal: http://bit.ly/4cUsjZp Preliminary analysis indicates that the flooded area has decreased between 9 and 17 July.	19.07.2024	1 172	101	5	32	1	7	5	8	2
https107	The Charter has been activated for the flood in South Korea: https://bit.ly/467KRU9	19.07.2024	509	7	1	1	0	3	1	1	0
https816	Our first map for the flood in South Korea uses data from #Sentinel1 and the #RCMSatellites to estimate the extent of water in Yeoncheon before and after the flood: http://bit.ly/467KRU9	22.07.2024	1 256	88	6	29	0	5	6	7	0
https729	This map uses #Sentinel1 data to estimate water levels at Beldandi in Nepal: http://bit.ly/4cUsjZp The preliminary analysis suggests the affected area has decreased to 107 square km as of 20 July.	25.07.2024	975	71	4	26	0	4	6	4	3
https177	The Charter has been activated to provide satellite data over the oil spill affecting the Philippines: https://bit.ly/3Sj1LJJ The oil spill was caused by a fuel tanker which sank off the coast near Manila.	25.07.2024	846	21	3	7	0	6	1	3	0
https677	The Charter has been activated to provide satellite data over the flood in Kyrgyzstan: https://bit.ly/46jWXJH	25.07.2024	509	14	1	3	0	2	1	7	0
https326	Our first map of the oil spill in the Philippines uses data from the #RCMSatellites to estimate the extent of what may be oil from the tanker in Manila Bay: http://bit.ly/3Sj1LJJ	26.07.2024	6 871	271	18	70	0	13	41	29	4
https213	These maps use radar data from #TerraSARX, #RADARSAT2 and the #RCMSatellites to identify potential oil in Manila Bay following the sinking of the Terra Nova tanker in the Philippines: http://bit.ly/3Sj1LJJ	29.07.2024	952	110	4	14	0	7	8	34	1
https370	These maps use radar data from #TanDEMX and the #RCMSatellites to estimate areas of potential oil in Manila Bay following the sinking of the Terra Nova tanker in the Philippines: http://bit.ly/3Sj1LJJ	30.07.2024	1 007	66	6	17	0	2	5	5	0

https 006	The Charter has been activated to provide satellite imagery over the landslide in Ethiopia: https://bit.ly/4bZBp6s	30.07. 2024	803	28	4	5	0	4	4	10	0
https 754	The Charter has been activated to provide satellite data over the landslide in Kerala, India: https://bit.ly/46pKgxc	30.07. 2024	566	15	2	3	0	3	6	0	0
https 269	This map estimates the impact of the mudslide in Bazar-Korgon in Kyrgyzstan as of 30 July: http://bit.ly/46jWXJH	07.08. 2024	883	50	2	9	0	3	9	6	1
https 464	Our first maps of the landslide in India use data from a number of satellites to compare Chooralmala before and after the disaster occurred, to estimate the extent and impact: https://bit.ly/46pKgxc	09.08. 2024	1 233	113	3	15	0	8	4	31	2
https 320	The Charter has been activated to provide satellite data over a flood in Nepal: https://bit.ly/3MdQpDa The floods follows a glacial lake outburst in Solokhumbu district, which has affected the village of Thame.	19.08. 2024	694	30	4	8	1	9	4	3	0
https 830	This map uses imagery from PlanetScope and GF-2 to estimate the impact of the landslide and mudslide at Thame Village in Nepal, as of 17 August: http://bit.ly/3MdQpDa	20.08. 2024	2 501	170	13	48	1	17	15	9	4
https 322	The Charter has been activated to provide satellite data over a mudflow in the Issyk-kul region of Kyrgyzstan: https://bit.ly/4dOgAME	21.08. 2024	526	17	3	2	0	5	4	3	0
https 647	Our first map of the mudflow in Kyrgyzstan uses #Pleiades imagery to estimate the impact to Korumdu as of 21 August: http://bit.ly/4dOgAME	23.08. 2024	416	33	1	15	0	3	0	5	0
https 788	These maps use PlanetScope imagery before and after the flood in Nepal to estimate the extent of flooding along the Thame River: http://bit.ly/3MdQpDa	26.08. 2024	596	85	2	9	0	7	11	12	0
https 964	This map uses estimates the impact of the mudflow in the Issyk Kul region of Kyrgyzstan: http://bit.ly/4dOgAME The map uses a comparison of #Pleiades imagery from before and after the disaster.	26.08. 2024	369	26	1	6	0	1	3	2	0
https 887	The Charter has been activated to provide satellite data over the flood at Conakry in Guinea: https://bit.ly/4dCaj6X	26.08. 2024	500	20	1	4	0	4	4	7	0
https 169	The Charter has been activated to provide satellite data over the flood in Chad: https://bit.ly/3T4UeyA	27.08. 2024	949	24	3	7	0	7	2	4	0
https 844	The Charter has been activated to provide satellite data over the flood in Bangladesh: https://bit.ly/3X7cc4H	28.08. 2024	525	12	2	4	0	3	2	1	0
https 630	The Charter has been activated to provide satellite data over the flood in Sudan: https://bit.ly/3X2T9bO Our first maps of the disaster estimate	29.08. 2024	676	94	4	12	0	6	6	24	3

	the extent of floods at Abu Hamad and Tawkar.										
https 649	This map uses #Sentinel1 data from 28 August to estimate water levels in Moulvibazar in Bangladesh following the flood: http://bit.ly/3X7cc4H	30.08. 2024	2 114	89	6	30	0	19	10	2	2
https 234	The Charter has been activated to provide satellite data over the flood in India: https://bit.ly/3MwKI3G	03.09. 2024	537	23	4	5	0	7	2	5	0
https 764	These maps use #Pleiades and PlanetScope imagery to estimate flooded areas at N'Djamena, Bongor and Koukou Angarana in Chad: http://bit.ly/3T4UeyA	05.09. 2024	542	33	5	7	0	1	4	4	0
https 872	These maps use #Sentinel1 data to estimate flooded areas at Lakshmipur, Noakhali, Habiganj and Cumilla in Bangladesh: http://bit.ly/3X7cc4H	05.09. 2024	395	17	2	3	0	0	2	0	0
https 715	The Charter has been activated to provide satellite data of the fire in Bolivia: https://bit.ly/4dT7j6x	09.09. 2024	903	35	3	6	0	10	4	10	0
https 845	The Charter has been activated to provide satellite data over the flood in Nigeria: https://bit.ly/47lDCs2	11.09. 2024	423	13	2	5	0	3	2	1	0
https 524	The Charter has been activated to provide satellite data following #TyphoonYagi's impact to Vietnam: https://bit.ly/4elKXtV	11.09. 2024	438	11	2	2	0	3	1	2	0
https 962	The Charter has been activated to provide satellite data over the flood in Morocco: https://bit.ly/4gsDD1v	16.09. 2024	431	9	2	1	0	1	2	3	0
https 178	The Charter has been activated to provide satellite data following #TyphoonYagi's impact to Myanmar: https://bit.ly/3zj0Cvs	16.09. 2024	493	13	2	3	0	5	1	2	0
https 545	The Charter has been activated to provide satellite data following #TyphoonYagi's impact to Thailand: https://bit.ly/3AYMWGf	16.09. 2024	447	4	1	3	0	0	0	0	0
https 425	Our first maps of #TyphoonYagi's impact to Vietnam use radar data from ALOS-2 and #Sentinel1 to estimate flooded areas: http://bit.ly/4elKXtV	17.09. 2024	930	66	5	9	0	6	7	7	0
https 415	The Charter has been activated to provide satellite data of the fire in Peru: https://bit.ly/4d5kgst	17.09. 2024	791	29	4	6	0	12	1	4	0
https 255	These maps use Amazonia-1 and Landsat 9 imagery to estimate areas affected by the wildfires in Bolivia: http://bit.ly/4dT7j6x	17.09. 2024	759	44	2	8	0	2	3	7	0
https 180	These maps use Suomi NPP data and #Pleiades imagery to estimate the extent of flooding in Nigeria: https://bit.ly/47lDCs2	18.09. 2024	4 170	266	18	54	0	20	20	7	2
https 030	This map uses data from GF-3 to estimate the depth of flood water in Chiang Rai in Thailand, following Typhoon Yagi: http://bit.ly/3AYMWGf	18.09. 2024	377	26	1	1	0	4	1	2	0

https458	These maps use #Sentinel2 imagery to estimate areas affected by fires in Peru: https://bit.ly/4d5kgst	19.09.2024	543	28	2	5	0	2	0	5	0
https072	This map uses GF-3 imagery to estimate the extent of flood water in central Myanmar following #TyphoonYagi: http://bit.ly/3zj0Cvs	19.09.2024	289	12	2	2	0	0	0	4	0
https738	These maps use WorldView-3 imagery to estimate the impact of floods in Việt Trì district in Vietnam after #TyphoonYagi: http://bit.ly/4elKXtV	19.09.2024	322	21	1	3	0	3	0	2	0
https754	These latest maps of the fires in Peru use #Sentinel2 imagery from 14 to 17 September to estimate areas affected by fires: http://bit.ly/4d5kgst	20.09.2024	345	26	2	5	0	3	0	9	0
https893	The Charter has been activated to provide satellite data of the wildfire in Argentina: https://bit.ly/3THStYj	23.09.2024	1282	25	6	8	0	4	4	1	0
https790	This map uses #Sentinel1 data to estimate the location of flooded areas in northern Myanmar following #TyphoonYagi: http://bit.ly/3zj0Cvs	23.09.2024	291	10	1	2	0	3	2	0	0
https000	The Charter has been activated to provide satellite data in anticipation of Tropical Cyclone Nine's impact to the Cayman Islands: https://bit.ly/4gElD4i	24.09.2024	573	10	3	5	0	1	1	0	0
https475	These maps estimate areas affected by fires in Córdoba and San Luis provinces, Argentina, as of yesterday: http://bit.ly/3THStYj	24.09.2024	436	27	3	5	0	2	0	2	0
https895	These maps use #Sentinel2 and SPOT-6 imagery from 23 September to estimate areas affected by fires in Córdoba and San Luis provinces, Argentina: http://bit.ly/3THStYj	25.09.2024	475	29	4	6	0	1	0	1	0
https811	The Charter has been activated to provide satellite data for the flood in Sudan: https://bit.ly/3XWfHwo	25.09.2024	664	23	3	4	0	5	3	8	0
https887	The Charter has been activated to provide satellite data over the flood and landslides in Nepal: https://bit.ly/3XN8VYp	30.09.2024	699	17	2	2	0	4	4	4	0
https348	The Charter has been activated to provide satellite data following #HurricaneJohn's impact to Mexico: https://bit.ly/3zGWdma	30.09.2024	699	14	2	4	0	3	3	2	0
https753	These maps use imagery and data from #Pleiades and #Sentinel1 to estimate the extent of flooded areas in Sudan: http://bit.ly/3XWfHwo	30.09.2024	532	34	1	4	0	0	1	6	0
https206	Our latest newsletter is now available, summarising recent activities of the Charter: https://bit.ly/4dEBqNS Some of the articles in this issue: - @DLR_en six-month lead - Charter data contributors - ALOS-4 data for the Charter - Feature on the unprecedented flood in Brazil	08.10.2024	952	43	6	9	0	9	8	9	0

https 114	The Charter has been activated to provide satellite data following #HurricaneMilton's impact to Florida in the United States: https://bit.ly/3XZ5azi	10.10. 2024	3 268	61	4	13	0	14	19	11	0
https 825	These maps use SPOT 6 imagery to estimate the extent of floods in Nepal, and the impact to Kathmandu: http://bit.ly/3XN8VYp	10.10. 2024	452	47	1	5	0	1	3	15	0
https 709	These maps use radar data from #Sentinel1, #TanDEMX and the #RCMSatellites to estimate areas affected by floods in Guerrero State, Mexico after #HurricaneJohn: http://bit.ly/3zGWdma	10.10. 2024	421	30	0	7	0	1	2	4	1
https 825	The Charter has been activated to provide satellite data over the flood in Sri Lanka: https://bit.ly/4eQXeaC Our first maps use radar data to estimate the extent of flooded areas.	21.10. 2024	958	63	5	12	0	2	1	4	2
https 222	The Charter has been activated to provide satellite data over the oil spill in Samoa: https://bit.ly/3YuhKIl Our first map uses data from the #RCMSatellites to identify possible areas of oil near the HMNZS Manawanui.	21.10. 2024	629	41	1	9	0	4	2	9	0
https 981	This map uses #Pleiades imagery to estimate the impact of #HurricaneMilton to St. Lucie County in the United States: http://bit.ly/3XZ5azi	22.10. 2024	372	22	2	5	0	2	0	5	0
https 522	This map uses #Pleiades imagery to estimate the impact of floods at Ja'Ela in Sri Lanka: http://bit.ly/4eQXeaC Though partially obscured by clouds, the image still allows enough visibility to estimate the flood extent.	22.10. 2024	551	27	2	9	0	1	3	6	0
https 256	These maps use #Sentinel1 and SPOT-6 data to estimate the extent of flooding in Nepal at Kathmandu and Bagmati and Madhesh provinces: http://bit.ly/3XN8VYp	23.10. 2024	427	36	2	6	0	1	3	7	0
https 376	The Charter has been activated to provide satellite data following #TyphoonTrami's impact to the Philippines: https://bit.ly/4hlaq98	24.10. 2024	593	23	1	5	0	5	3	7	0
https 909	Our first maps for the Philippines after #TyphoonTrami use optical and radar data to estimate the extent of flooding in the region, and assess the impact of the landslide/mudflow at Laurel Town: http://bit.ly/4hlaq98	30.10. 2024	803	61	4	12	0	3	4	12	0
https 880	These maps use data from #Sentinel1, #Sentinel2, and the #RCmSatellites to estimate the extent of flooding in the Bicol region after #TyphoonTrami: http://bit.ly/4hlaq98 #KristinePH	31.10. 2024	4 265	302	16	59	0	15	30	27	2
https 679	These maps use NOAA, #Sentinel1 and #Sentinel2 data to estimate damage to Anna Maria Island and the extent of flooding at Cape Canaveral and Cocoa Beach in the United States	31.10. 2024	830	62	1	8	0	9	3	9	0

	after #HurricaneMilton: http://bit.ly/3XZ5azi										
https624	These flood maps use data from the #RCMSatellites to estimate the extent of flooding in Calabarzon in the Philippines after #TyphoonTrami: http://bit.ly/4hlaq98 #KristinePH	01.11.2024	1053	72	2	15	0	2	3	2	0
https429	This first map of the flood in Spain uses ICEYE data from yesterday to estimate the depth of flooding around L'Albufera lake at Valencia: http://bit.ly/3CdrEFx	04.11.2024	7319	465	30	87	0	57	42	42	10
https425	In this comparison, #Sentinel1 data is used to visualise the estimated extent of floods at Albufera Park at Valencia in Spain: http://bit.ly/3CdrEFx The radar data represents bodies of water as darker areas, showing the difference between 19 and 31 October.	04.11.2024	1731	98	9	26	0	3	4	13	0
https377	The Charter has been activated to provide satellite data for the flood in Spain: https://bit.ly/3CdrEFx	04.11.2024	643	28	3	9	0	12	1	3	0
https955	This map uses GeoEye-1 imagery to estimate the impact of the flood at Horta Sud in Valencia, Spain, as of 31 October: http://bit.ly/3CdrEFx	05.11.2024	9199	641	50	134	0	72	41	24	3
https124	The Charter has been activated to provide satellite data in anticipation of Tropical Storm Rafael's impact to the Cayman Islands: https://bit.ly/40vm6jX	05.11.2024	584	11	1	3	0	3	2	2	0
https280	In these maps, #Sentinel1 and #Sentinel2 data were used to estimate the impact of the flooding at Valencia in Spain: http://bit.ly/3CdrEFx The maps estimate the extent and depth of flooding and impact to urban areas.	06.11.2024	5871	421	33	90	1	22	24	15	3
https992	These maps use #Pleiades imagery to estimate the impact of flooding to buildings, infrastructure and rivers at Catarroja and Torrent in Spain: http://bit.ly/3CdrEFx	06.11.2024	759	44	2	9	0	5	0	0	0
https141	The Charter has been activated to provide satellite data over the flood in the Dominican Republic: https://bit.ly/3UD2czJ	07.11.2024	500	11	2	5	0	1	4	0	0
https673	The Charter has been activated to provide satellite data for the eruption of Mount Lewotobi Laki-laki in Indonesia: https://bit.ly/4f93ASR The volcano erupted on 3 November, and again yesterday.	08.11.2024	839	17	1	3	0	2	3	5	2
https724	This map of Paiporta in Spain uses #Pleiades imagery to estimate areas where groups of vehicles were swept away by floods: http://bit.ly/3CdrEFx	11.11.2024	1737	108	9	31	0	4	5	7	0
https858	Our first map of the Lewotobi Laki-laki eruption uses #TerraSARX data acquired before and after the volcano	11.11.2024	634	32	2	9	0	3	2	1	0

	erupted to estimate changes to the area: http://bit.ly/4f93ASR										
https 065	This map uses #Sentinel1 data acquired before and after #TyphoonTrami to estimate changes to water levels near Naga City in the Philippines: http://bit.ly/4hlaq98 Interpretation of the radar data suggests that flooding has decreased in this area since 2 November. #KristinePH	11.11. 2024	514	25	1	5	0	1	1	5	0
https 562	These maps use #Sentinel1 and #Landsat 8 and 9 imagery to estimate changes following the Lewotobi Laki-laki volcano eruption in Indonesia: http://bit.ly/4f93ASR The maps estimate the area affected by volcanic ash, and ground deformation after the eruption.	14.11. 2024	820	69	3	12	0	3	5	6	1
https 079	These maps assess the impact of the floods in Spain at Caudete de Las Fuentes, Chera, Godelleta, and Montserrat: http://bit.ly/3CdrEFx The maps uses imagery from #Pleiades and WorldView-2 to estimate flooded areas and potential damage to buildings and roads.	14.11. 2024	1 536	82	2	11	0	1	5	6	0
https 177	The Charter has been activated to provide satellite data over the flood in Colombia: https://bit.ly/4hSBn4G	15.11. 2024	416	10	2	2	0	5	0	0	1
https 331	The Charter has been activated to provide satellite data over the impact of Super Typhoon #ManYi (#PepitoPH) to the Philippines: https://bit.ly/4fV3Hl5	18.11. 2024	619	12	2	4	0	2	2	3	0
https 976	The Charter has been activated to provide satellite data over the flood affecting Costa Rica: https://bit.ly/3Z9VYK5 The flood has been caused by two weeks of torrential rain, partly caused by #HurricaneRafael and #TropicalStormSara	18.11. 2024	422	12	0	6	0	3	0	0	0
https 875	This map compares Klatanlo village before and after the eruption of Mount Lewotobi Laki-laki in Indonesia: http://bit.ly/4f93ASR Potentially damaged buildings are highlighted in the image from 14 November, and volcanic ash covers the area.	19.11. 2024	589	30	2	6	0	4	1	6	2
https 464	Our first maps of the flood in Costa Rica use radar data from #Sentinel1, #TanDEMX and the #RCMSatellites to estimate the extent and changes in flooding at different locations in Guanacaste: http://bit.ly/3Z9VYK5	20.11. 2024	201 1	85	5	16	0	3	6	13	1
https 082	This map uses imagery from Landsat 9 and #Pleiades to estimate the extent of flooding in Camarines Norte, in the Philippines, after Super Typhoon #ManYi: http://bit.ly/4fV3Hl5 #PepitoPH	20.11. 2024	437	8	0	4	0	0	2	0	0

https 070	The Charter has been activated to provide satellite data over the flood in Gaza: https://bit.ly/4ePeBYB	27.11. 2024	531	22	3	4	0	10	4	1	0
https 364	Did you know that many organisations contribute satellite data to the Charter for disaster monitoring purposes? Find out more in our new series on data contributors. The first focuses on Korea's National Geographic Information Institute: https://bit.ly/3ZoR8ZD	27.11. 2024	331	22	0	5	1	1	0	5	0
https 609	These maps estimate the impact of Super Typhoon #ManYi at different locations in the Philippines: http://bit.ly/4fV3Hl5 The maps use #Sentinel2 and #Pleiades imagery to estimate flooded areas, landslides, and damage to buildings caused by the storm.	27.11. 2024	343	21	0	5	0	1	0	2	0
https 702	The Charter has been activated to provide satellite data over the flood in Sri Lanka: https://bit.ly/3ZcWmX0	28.11. 2024	846	22	3	5	0	2	2	10	0
https 094	The Charter has been activated to provide satellite data over the flood in Sri Lanka: https://bit.ly/4icXfaZ This is our second activation for floods in Sri Lanka since last week, and the fourth for the country this year following previous floods in October and June.	02.12. 2024	544	23	2	7	0	5	5	3	1
https 840	These maps use data from the #RCMSatellites to estimate flooded areas in Jaffna and Kilinochchi, Sri Lanka, after #CycloneFengal: http://bit.ly/3ZcWmX0	05.12. 2024	429	16	2	3	0	0	0	0	0
https 817	The Charter has been activated to provide satellite data over the flood in Indonesia: https://bit.ly/3B98zEw	10.12. 2024	410	3	0	2	0	1	0	0	0