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The Charter integrates its 15th member ROSCOSMOS

The Russian Federal Space Agency ROSCOSMOS formally became the newest member of the International Charter 'Space and Major Disasters' on 28 August 2013.

On the occasion of the International Aviation & Space Salon (MAKS) in Moscow a signature ceremony took place with representatives of ROSCOSMOS and several other Charter member agencies. Prof Wörner, chairman of the current Charter lead agency DLR, congratulated ROSCOSMOS and emphasised that a further important contributor to the Charter had been won.

At the same time, operational integration is progressing: new acquisitions and archive data from the Russian Earth-observing satellites METEOR-M and KANOPUS-V will contribute to Charter activations as well as archive data of the RESURS-DK1 satellite. These satellites will further improve the reactivity and performance of the Charter to support emergency response measures after major disasters worldwide.



Left: The Russian satellite KANOPUS-V is in operation since the year 2012/ Right: In July 2013, a Charter delegation visited the facilities at ROSCOSMOS in Moscow.

Recent Activations

- [Earthquake in Pakistan](#)
- [Ubinas Volcano in Moquegua, Peru](#)
- [Flood in Colorado, USA](#)
- [Fire in Cordoba, Argentina](#)
- [Flood in Senegal](#)
- [Flood in Pakistan](#)

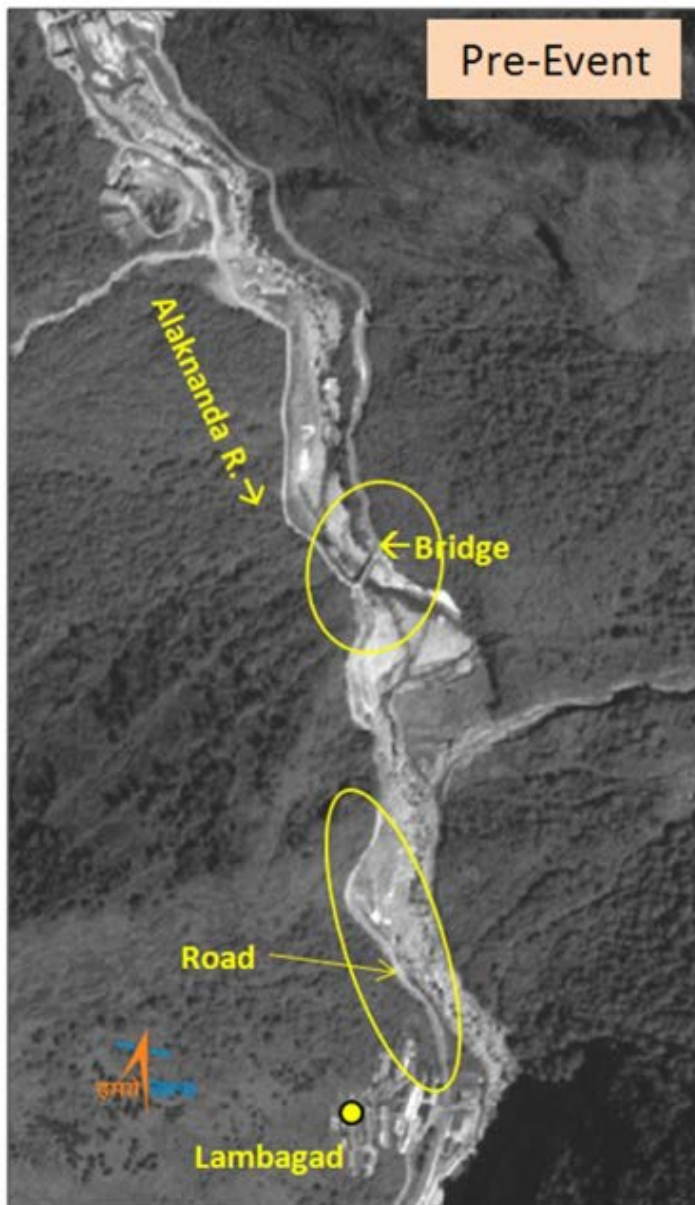
Charter Members

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

Bringing together new and efficient space technologies to support disaster management

Flood disasters in summer 2013

The Charter has been activated for a number of flood disasters in the months of June, July, and August. In the North of India, extraordinarily strong monsoon rainfalls have killed hundreds of people, destroyed villages, and damaged the Hindu temples of Kedarnath and Badrinath in the state of Uttarakhand, where tens of thousands of pilgrims stranded. Flash floods and landslides destroyed bridges, roads and hydro-electric power plants. An image showing the damaged infrastructure in a valley near Badrinath is given below.



CartoSat-1 data of 2011



World View data of 22-June-2013

Worldview data provided under International Charter by USGS,
Copyright: @ USGS

Pre- and post-disaster scenes showing destroyed infrastructure in a valley in Uttarakhand, Northern India; in the post-disaster scene, green vegetation is visualised in red colour (product created by the Indian National Remote Sensing Centre NRSC, ISRO)

Further severe flood disasters occurred in Argentina, Thailand, Japan, Myanmar, Sudan, Senegal, Pakistan, and in North-East of China. For the Russian Far East it was even reported that the floods were the worst ever experienced in this region.

The Charter supported national emergency management authorities as well as UN organisations by providing a huge number of satellite images and derived information products from the Charter constellation of optical and radar-based satellite systems, with the latter ones being able to provide an overview of flooded areas independent of weather conditions.

Sentinel-1 mission getting ready for launch

The first Sentinel-1 satellite is prepared for launch in spring 2014 from Europe's Spaceport in Kourou, French Guiana, on a Soyuz rocket.

Sentinel-1 is a polar-orbiting satellite carrying a C-band Synthetic Aperture Radar (SAR) to provide all-weather day-and-night imagery. This new mission builds on heritage SAR systems from ESA's ERS and Envisat satellites, and Canada's Radarsat.



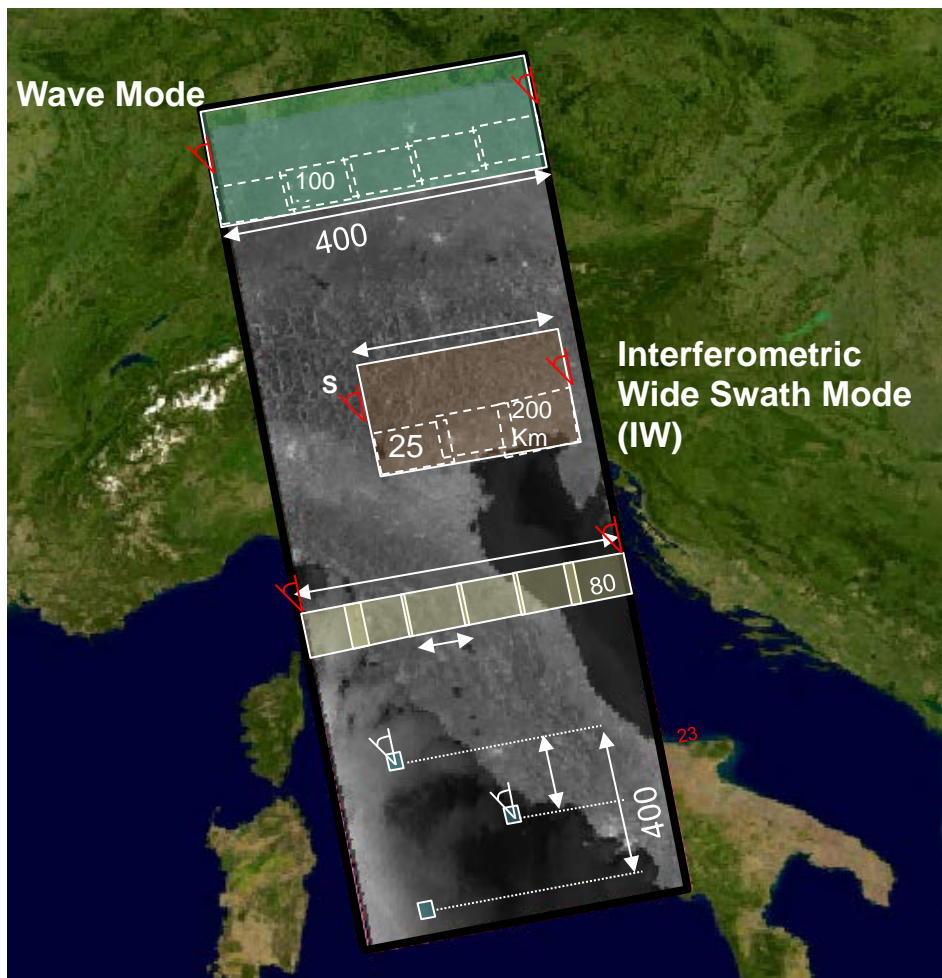
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A second satellite, Sentinel-1B, identical to the first, is prepared for launch about 18 months after Sentinel-1A. The pair of satellites will provide global coverage every 6 days, independent of cloud cover or daylight, to meet operational user requirements.

The mission will benefit numerous services such as those associated with monitoring and mapping sea-ice, surveillance of the marine environment including oil-spill monitoring and ship detection for maritime security. Services that involve monitoring the land surface for motion risks, mapping for the management of forests, water and soil, and systematic mapping to support humanitarian aid and crisis situations will also benefit from Sentinel-1. The design of the Sentinel-1 mission with its focus on reliability, operational stability, global coverage, consistent operations and quick data delivery is expected to provide a considerable improvement over existing SAR systems.

The ground segment is designed to satisfy the operational needs of the Copernicus programme – formerly known as GMES. Therefore data processing and dissemination will be continuous.

Sentinel-1 operates in four mutually exclusive acquisition modes planned to optimise the instrument duty cycle for core Copernicus needs (see figure 2).



Operation modes of Sentinel-1, © ESA

The mission uses a systematic interferometric wide-swath mode to provide regular maps of areas prone to risk, which can be used as a reference for assessing damage after events such as floods. This mode will also provide regular maps of precise terrain deformation based on interferometric data to ensure frequent (about every 12 days, with pairs in both ascending and descending passes) data over areas prone to tectonic activity, subsidence, landslides and volcanic eruptions.

With the second satellite in orbit, interferometric products will potentially be generated with six-day intervals.

Consequently, it is expected that emergency observation needs related to Copernicus and national services will be satisfied by data acquired as part of the pre-defined Sentinel observation scenario. In addition, emergency requests in the Copernicus framework will also be accommodated via data supplied by the tailored Copernicus Contributing Missions. The Copernicus data and information policy is currently finalised by the European Union. On ESA's side, the Sentinel data policy, which is part of the overall Copernicus data and information policy, has been approved by its Member States. These policy documents foresee that data access will be free and open, with only minimal restrictions in case of technical or security reasons.

PM Trainings organised by the Charter

In April and June 2013, members of the Charter organized three Project Manager (PM) training events in Abuja/Nigeria, Manila/Philippines, and Frascati/Italy, respectively. The goal of these trainings was to strengthen the Charter's capability to work with PMs from all regions of the globe.

The PM role is a crucial function for each activation of the Charter. After each Charter Call, the Emergency-on-Call officer, which is a function performed by the Charter agencies in a weekly rotation, orders useful satellite data within few hours. Then, the Charter's Executive Secretariat finds a qualified PM for the activation as quick as possible. This role can be taken by one of the Charter agencies or by an external organization, preferably in the broad region where the disaster took place.

The PM is an expert in the field of remote sensing. After his nomination, the PM coordinates the activation and communicates with both the users and the Charter agencies in order to provide the users with the most useful information derived from the imagery of Charter satellites. To this goal, the PM might collaborate with an entity providing some value adding (e.g. production of easily understandable maps), or the PM might perform this work himself.

Institutions interested in contributing to the Charter by taking over the PM function are invited to contact the Charter's Executive Secretariat (ExecutiveSecretariat@disasterscharter.org).



© JAXA, Participants of PM Training in Manila



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PM Training in Frascati: the Training held in Rome gathered 29 experts of national organisations from 11 countries from both Europe (France, Germany, Hungary, Italy, UK, Romania, Spain and Switzerland) and the rest of the world (Algeria, Iran and South Africa) alongside European (EC-JRC and EUSC) and international organisations and initiatives (UNOOSA, UNITAR/UNOSAT, ICIMOD & GEO).

ESA Web TV special edition on the International Charter



© <http://www.youtube.com/watch?v=NtoTf4VS1ok>

In this special edition of ESA's Earth from Space web TV programme, Jens Danzeglocke, DLR's member in the Charter's Executive Secretariat talks about the Charter and its 'Universal Access' initiative.