

***This service summarizes current satellite mapping activities of interest to GDACS stakeholders. It is issued weekly and based on contributions from map-producing entities and GDACS partners.***

## Satellite mapping overview

As of 05 January 2015

### Africa

#### **Cape Verde volcano – GLIDE number: VO20141124CPV**

On 23 November 2014 the Pico de Fogo volcano erupted for the first time since 1995. At present, thousands of people have evacuated their homes and the villages of Portela and Bangaeira have been destroyed. The Copernicus Emergency Management Service continues to monitor the situation in Fogo Island and recently published five new grading maps. Satellite imagery acquired 04, 07, 08, 09, 12, 16, 23, 24, 25, and 28 December, as well as 29 and 30 November 2014 was used to analyze the lava flow's progression. As of 28 December 2014, a total of 517.41 hectares of land and 6.4 kilometers of local roads were destroyed. Approximately 20.6 hectares of residential settlements and 328 inhabitants were also affected. The NASA Earth Observatory released two maps of the Pico de Fogo volcano using satellite imagery from 24 December 2014. A large smoke plume emanating from a fissure at the southwestern base of the Cha Caldera was visible at this time, as was lava flow to the north, south and west of the fissure. Copernicus map products and data are available in JPEG, PDF and TIFF formats as well as a downloadable zipped vector package on the Copernicus Emergency Management Service website. Data can also be accessed in GeoTIFF, GeoPDF, GeoJPEG and vector (shapefile and KML) formats. NASA maps are also available for online viewing and download in GeoTIFF and JPEG format on the Earth Observatory website.

Sources: Copernicus Emergency Management Service, NASA Earth Observatory

Links: <http://emergency.copernicus.eu/mapping/list-of-components/EMSR111>

<http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=84987&eocon=home&eoci=nh>

#### **Libya fire – GLIDE number: TBD**

As a result of conflict in the Libyan port city of As Sidr, seven oil storage tanks were set aflame on 25 December 2014. The NASA Earth Observatory produced two maps of the fire with satellite imagery acquired 29 and 30 December 2014. Black smoke plumes billowing over As Sidr, the Mediterranean Sea, and northeastern Libya are visible in both images. As of 31 December 2014, two storage tanks remained burning and 1.8 million barrels of oil were destroyed by the flames. This incident has likely caused environmental damage as well as a reduced capacity for oil exports. Map products are available for online viewing and download in JPEG format on the NASA Earth Observatory website.

Source: NASA Earth Observatory

Link: <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=85009&eocon=home&eoci=nh>

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### **South Sudan complex emergency – GLIDE number: CE20131218SSD**

As a result of escalating violence in South Sudan during December 2013, over 30,000 civilians sought refuge in United Nations facilities. UNITAR-UNOSAT has monitored the progression of this situation and recently released a map of IDP settlements in Melut, Upper Nile State. Analysis of satellite imagery acquired 02 December 2014 revealed six distinct IDP settlements occupying an area of 86.09 hectares. UNITAR-UNOSAT identified 3,587 IDP structures, including 3,005 shelters and 582 tukuls. Of these, a total of 214 IDP structures were found within the Melut UNMISS Base, covering an area of 1.84 hectares. This map product is available for download as a PDF on the UNITAR-UNOSAT website. An accompanying shapefile and geodatabase in ESRI format can also be accessed through UNITAR-UNOSAT's product links.

Source: UNITAR-UNOSAT

Link: <http://www.unitar.org/unosat/maps/100>

## **Asia**

### **Philippines typhoon – GLIDE number: TC20141204PHL**

On 06 December 2014 Typhoon Hagupit made landfall in the Philippines as a Category Three storm on the Saffir-Simpson scale. Heavy rainfall and strong winds caused flooding and significant damage to structures in the eastern part of the country. In anticipation of the typhoon's potentially damaging effects, the International Charter for Space and Major Disasters was activated on 04 December 2014 by UNITAR-UNOSAT on behalf of the UNOCHA Philippines and the UNDP Crisis Response Unit. Project management was assumed by the European Space Agency (ESA). The USGS continues to provide the latest satellite data coverage of affected areas through its Hazards Data Distribution System's (HDDS) RSS feed. UNITAR-UNOSAT recently released a map of damaged structures in Oras City, Eastern Samar Province. Satellite imagery acquired 20 December 2014 was compared with that of 19 June 2014 and 67 affected structures were identified. Of these structures, mainly consisting of coastal fishing shanties and stilt houses, 47 were categorized as destroyed, 13 as severely damaged, and 7 as moderately damaged. UNITAR-UNOSAT continues to update a live map of its analysis and maintains a satellite mapping coordination system for the Copernicus Emergency Management Service, the DLR, and itself. Links to the aforementioned products are provided below.

Sources: UNITAR-UNOSAT, USGS, International Charter for Space and Major Disasters

Links: <http://www.unitar.org/unosat/maps/69>

<https://unosatgis.cern.ch/LIVE/TC20141204PHL/>

<https://gdacs-smcs.unosat.org/events/view/id/13>

[http://dds.cr.usgs.gov/ee-data/rss/events/201412\\_Typhoon\\_Hagupit\\_PHL.rss](http://dds.cr.usgs.gov/ee-data/rss/events/201412_Typhoon_Hagupit_PHL.rss)

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<https://www.disasterscharter.org/web/guest/activations/-/article/flood-in-philippines>

### **Sri Lanka flood – GLIDE number: FL20141230LKA**

During the last two weeks of December 2014, Sri Lanka experienced flooding and landslides as a result of torrential rain. On 29 December 2014 the International Charter for Space and Major Disasters was activated by UNITAR-UNOSAT on behalf of the World Food Program. As project manager, UNITAR-UNOSAT published a map of flood waters over the Ampara and Batticaloa Districts of Sri Lanka. Areas of probable flood waters were detected using satellite imagery acquired 30 December 2014. Flood waters were mainly located along coastal areas and shores of inland lakes, with few large bodies of flood waters detected. Nonetheless, many roads and railroads were likely inundated by flood waters. It is possible that flood waters were systematically underestimated in highly vegetated areas along main river banks and within built-up urban areas due to particular characteristics of the satellite data. This map product is available for download as a PDF on the UNITAR-UNOSAT website. An accompanying shapefile and geodatabase in ESRI format can also be accessed through UNITAR-UNOSAT's product links.

Sources: UNITAR-UNOSAT, International Charter for Space and Major Disasters

Links: <http://www.unitar.org/unosat/maps/76>

<https://www.disasterscharter.org/web/guest/activations/-/article/flood-in-sri-lanka>

## **Europe**

### **United Kingdom snowfall – GLIDE number: TBD**

Heavy snowfall occurred across the United Kingdom on 26 December 2014. Using satellite imagery acquired 28 December 2014, the NASA Earth Observatory published a map of the snow cover. Visibly affected areas include northern England, the Midlands, Scotland and Wales. Sheffield was particularly overwhelmed with snow. As a result of the storm, airports in Liverpool and Yorkshire were closed, flights in Manchester delayed, cross-channel ferries suspended, and many drivers throughout the United Kingdom abandoned their vehicles in search of shelter. The overview map of this situation is available for online viewing and download in JPEG format on the NASA Earth Observatory website.

Source: NASA Earth Observatory

Link: <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=85013&eocn=home&eoci=nh>

## **Middle East**

### **Iraq complex emergency – GLIDE number: TBD**

According to the UNHCR, approximately 1,450,568 refugees, IDPs, asylum seekers and stateless persons reside within Iraq. REACH, a joint initiative of ACTED, IMPACT Initiative, and UNITAR-

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UNOSAT, recently released an updated general infrastructure map of Domiz Camp located in Duhok Governorate. In order to aid humanitarian efforts there, REACH acquired and analyzed satellite imagery from 14 December 2014. General infrastructure depicted in the subsequent map includes streets, quarters, offices, distribution and community areas, schools, clinics, mosques, water facilities, and generators. The camp perimeter and areas undergoing construction are also delineated. This map product is available for download as a PDF on the REACH website.

Source: REACH

Link: [http://www.reachresourcecentre.info/system/files/resource-documents/reach\\_irq\\_map\\_syriacrisis\\_domiz\\_overview\\_28dec2014.pdf](http://www.reachresourcecentre.info/system/files/resource-documents/reach_irq_map_syriacrisis_domiz_overview_28dec2014.pdf)

### **Jordan complex emergency – GLIDE number: TBD**

Jordan currently shelters approximately 648,962 refugees and asylum seekers, the majority of whom originate from Syria, Iraq, Somali and Sudan. With a population of 84,761 refugees, Al Zaatari camp in Mafraq Governorate has grown exponentially since its establishment in July 2012. REACH recently published an updated general infrastructure map of Al Zaatari using satellite imagery acquired 11 November 2014. General infrastructure in this map consists of water facilities, hospitals, schools, offices, mosques, warehouses, community and recreational areas, as well as registration and distribution points. The camp perimeter, areas undergoing construction, and 12 district boundaries are also illustrated. This map product is available for download as a PDF on the REACH website.

Source: REACH

Link: [http://www.reachresourcecentre.info/system/files/resource-documents/reach\\_jor\\_map\\_zaatari\\_ccm\\_general\\_infrastructure\\_dec2014\\_a1.pdf](http://www.reachresourcecentre.info/system/files/resource-documents/reach_jor_map_zaatari_ccm_general_infrastructure_dec2014_a1.pdf)

## **North America**

### **United States snowfall – GLIDE number: TBD**

In late December 2014 and early January 2015, snowstorms affected Hawaii, as well as the west and southwest parts of the United States. The NASA Earth Observatory acquired satellite imagery of blizzard conditions over Hawaii on 25 December 2014 and produced an overview map of the situation. Visible within the map is snow covering the Mauna Loa and Mauna Kea volcanoes located on the Big Island of Hawaii. The NASA Earth Observatory also collected satellite imagery of a snowstorm over the contiguous United States on 01 January 2015. A subsequent map shows snowfall over the states of Montana, Idaho, Oregon, Washington, California, Nevada, Utah and Arizona. NASA map products are available for online viewing and download in JPEG format on the Earth Observatory website.

Source: NASA Earth Observatory

Links: <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=84981&eocn=home&eoci=nh>

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<http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=85017&eocn=home&eoci=nh>

## Oceania

### **Australia fire – GLIDE number: TBD**

A fire that began on 02 January 2015 continues to affect Southern Australia and has been described as the worst bushfire in the country since 1983. It is estimated that 12,500 hectares of land have been burned, including more than 30 homes situated in the Adelaide Hills. Satellite imagery acquired 03 January 2015 was used by the NASA Earth Observatory to publish a map of the fire over this area. Several plumes of smoke streaming from the Adelaide Hills in a southerly direction towards Lake Alexandrina are visible. Temperatures and wind strength are expected to increase this week and will likely aggravate the situation. This map product is available for online viewing and download in JPEG format on the NASA Earth Observatory website.

Source: NASA Earth Observatory

Link: <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=85020&eocn=home&eoci=nh>

### **Tonga volcano – GLIDE number: TBD**

An undersea volcano located offshore of the Hunga Ha’apai Island in Tonga started erupting in late December 2014. The NASA Earth Observatory acquired satellite imagery of the eruption on 29 and 31 December 2014 and subsequently produced two maps. A white plume extending approximately three kilometres into the sky is visible in both maps. The steam plume on 31 December 2014 appears slightly larger in size than that of 29 December 2014. Discolored water originating from the same area can also be seen on both dates and is indicative of the release of gases and rocks below the surface or sediment disturbance caused by the eruption. Map products are available for online viewing and download as TIFFs on the NASA Earth Observatory website.

Source: NASA Earth Observatory

Link: <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=85000&eocn=home&eoci=nh>

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*This summary is compiled by the GDACS mapping & satellite imagery coordination mechanism, operated by the UNITAR Operational Satellite Applications Programme (UNOSAT).*

*When referring to this summary, please credit: GDACS, UNITAR-UNOSAT.*

*For comments, questions and to submit information on satellite image derived products, please contact: [maps@gdacs.org](mailto:maps@gdacs.org)*

*Sources indicate satellite analysis production entities and imagery providers. The products referenced in this summary are based on remote satellite imagery and may not be validated in the field prior to release, in which case findings are based only on what is observed in the satellite imagery.*

*\*Not an official GLIDE number, as event has no entry in GLIDE database, but used by GDACS for seamless information integration.*