

***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.***

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## Satellite mapping overview

As of 10 November 2014

### Africa

#### **West Africa infectious disease – GLIDE number: ID20141010LBR**

Due to an outbreak of Ebola in western Africa, the World Health Organization (WHO) declared an International health emergency in August 2014. In response to a worsening situation, the International Charter for Space and Major Disasters was activated on 09 October 2014 by the USGS on behalf of the National Geospatial-Intelligence Agency (NGA) and by UNITAR/UNOSAT on behalf of the WHO Operations Center. As Project Manager, UNITAR/UNOSAT continues to work with the USGS to obtain and disseminate high resolution satellite imagery of the most heavily affected areas. Additionally, the National Geospatial-Intelligence Agency recently released regional atlases for the countries of Cote d'Ivoire, Gambia, Guinea-Bissau, Guinea, Liberia, Nigeria, Senegal, and Sierra Leone. These atlases contain high resolution imagery overlaid with infrastructural data for particular regions in each country. One atlas provides satellite imagery for all of the known Ebola treatment units in the country of Liberia. NGA atlases are available for download as PDFs on the International Charter for Space and Major Disasters' website. Satellite imagery depicting the situation prior to and following the Ebola outbreak is also accessible online through the USGS Hazards Data Distribution System (HDDS) RSS feed and website.

Sources: International Charter for Space and Major Disasters, USGS

Links: <https://www.disasterscharter.org/web/guest/activations/-/article/other-in-sierra-leone>

[http://dds.cr.usgs.gov/ee-data/rss/events/201410 Ebola Africa.rss](http://dds.cr.usgs.gov/ee-data/rss/events/201410_Ebola_Africa.rss)

#### **Somalia complex emergency – GLIDE number: CE20130710SOM**

As a result of conflict as well as political, security, development, and humanitarian challenges, more than one million internally displaced persons (IDPs) currently reside within Somalia. UNITAR/UNOSAT recently published maps of IDP shelter density in Mogadishu's Daynile and Dharkenley districts, as well as IDP shelter changes in the area of Baidoa, Somalia. Analysis of satellite imagery from 09 October 2014 and 24 November 2013 revealed a total of 34,806 IDPs in the districts of Daynile and Dharkenley. Of this total, 14,655 temporary housing structures, 213 tukul-style structures, 4,428 shelters, and 15,510 buuls were detected. Using satellite imagery acquired 02 October 2014 and 08 February 2014, UNITAR/UNOSAT identified 25 new and 14 expanded IDP settlement areas in Baidoa by 02 October 2014. Despite this development, the number of overall structures did not change significantly since 18 IDP settlement areas contracted and 5 others were no longer visible by this date. The number of structures increased from 7,910 to 7,990 between 08

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February 2014 and 02 October 2014 and the occupied area grew by 1.54 hectares. These map products are available for download as PDFs on the UNITAR/UNOSAT website. Accompanying shapefiles and geodatabases in ESRI format are also accessible on this website.

Source: UNITAR/UNOSAT

Link: <http://www.unitar.org/unosat/maps/92>

## Asia

### Japan volcano – GLIDE number: TBD

On 24 October 2014, the Sakurajima volcano in southern Japan produced a strong explosion that resulted an ash plume with an altitude of three kilometers. The NASA Earth Observatory acquired satellite imagery of the volcano venting ash over Kagoshima Bay on 27 October 2014. An ash plume spanning several kilometers is visible and it appears to move in a southerly direction. According to the Japan Meteorological Agency, the ash continued to drift southward at an altitude of 2.4 kilometers on 28 October 2014. Sakurajima is one of the most active volcanos in Japan. Its activity has continued into early November 2014 with more explosions and subsequent ash plumes. A map of the 27 October 2014 plume is available for viewing on the NASA Earth Observatory website.

Source: NASA Earth Observatory

Link: <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=84641&eocn=home&eoci=nh>

### Indian Ocean cyclone – GLIDE number: TBD

During the last week of October 2014, cyclone Nilofar intensified and developed into a category 4 storm as it passed over the northwest Indian Ocean, also known as the Arabian Sea. The NASA Earth Observatory used satellite imagery acquired 28 and 30 October 2014 to produce two maps of the cyclone. Satellite imagery from 28 October 2014 depicts the cyclone as it approached peak intensity while hovering over the Arabian Sea, near the countries of Oman, Pakistan, and India. Soon thereafter Nilofar was classified as the third strongest cyclone on record in the Arabian Sea. Nonetheless, as Nilofar began to make landfall over India on 30 October 2014 it was downgraded to a tropical depression. The storm's weakened nature is evident when comparing satellite imagery from 28 and 30 October 2014. 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=84650&eocn=home&eoci=nh>

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### **Pacific Ocean typhoon – GLIDE number: TBD**

Typhoon Nuri formed in the western Pacific Ocean on 30 October 2014 and soon intensified into a category 5 storm, becoming the sixth super typhoon of the 2014 season. Satellite imagery acquired 04 and 06 November 2014 was used by the NASA Earth Observatory to produce two maps of Nuri. On 04 November 2014, the super typhoon could be seen hovering over the Pacific Ocean, near Japan and South Korea. A distinct eye was visible in the storm's center. By 06 November 2014, Nuri was downgraded to a tropical storm heading northeast off the coast of Japan toward the Bering Sea. Soon thereafter, Nuri regained strength from the jet stream to become one of the strongest extratropical hurricanes on record in the North Pacific. It hit Alaska's Aleutian Islands with hurricane-force winds over the weekend. As of 10 November 2014 the storm is weakening over the Bering Sea, however, forecasters anticipate its remnants will soon impact the contiguous United States. NASA Earth Observatory map products are available for online viewing and download in GeoTIFF as well as JPEG format on the NASA Earth Observatory website.

Source: NASA Earth Observatory

Link: <http://earthobservatory.nasa.gov/NaturalHazards/event.php?id=84677>

### **India fires – GLIDE number: TBD**

The Indian state of Punjab has recently undergone preparations for a new wheat growing season that begins in November 2014 and ends in April 2015. The NASA Earth Observatory acquired a satellite image of this region on 30 October 2014 as it experienced a practice known as paddy stubble burning. The approximate locations of hundreds of fires were identified by the NASA Earth Observatory. A vast expanse of smoke emanating from different fires across the region is visible in the image. 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=84680&eocn=home&eoci=nh>

## **Europe**

### **Slovenia floods – GLIDE number: EMSR107\***

Torrential rainfall led to flooding in Slovenia last week. In order to aid Civil Protection authorities in the field, the Copernicus Emergency Management Service produced reference and delineation flood maps for the affected areas of Ljubljana and Ptuj. Using satellite imagery acquired 08 November 2014, the Copernicus Emergency Management Service identified 7,221 hectares of flooded area in Ljubljana. Approximately 5,012 inhabitants, 7,185 hectares of land use areas, 28 hectares of built-up area, 8.6 hectares of utilities, as well as 5.5 kilometers of primary and secondary roads were

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affected. Analysis of 08 November 2014 satellite imagery over the Ptuj region revealed 598.6 hectares of flooded area. Roughly 45 inhabitants were affected, along with 330.5 hectares of agriculture and woodland, 2.8 hectares of residential settlements, and 1.6 kilometers of railways, runways, primary and secondary roads. Examination of 10 November 2014 satellite imagery of Ptuj resulted in an observed decrease of flooded area to 198.3 hectares. As of this date, 72 inhabitants, 185 hectares of agriculture and woodland, 4.3 hectares of residential area, as well as 1.1 kilometers of motorways and primary roads were impacted. Map products and data for this event area 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.

Source: Copernicus Emergency Management Service

Link: <http://emergency.copernicus.eu/mapping/list-of-components/EMSR107>

## Middle East

### **Syria complex emergency – GLIDE number: CE20130604SYR**

As a result of ongoing violence in Syria, citizens continue to flee the country in search of refuge. UNITAR/UNOSAT recently published a map of IDP shelters located in the Rubkan crossing area on the border of Syria and Jordan. Using satellite imagery acquired 02 November 2014, UNITAR/UNOSAT identified 155 probable shelters situated in the open desert and along the Jordanian side of the border, approximately 25 kilometers southwest of the Al Waleed border crossing. This latest figure represents a 17 percent increase in shelters since the previous UNITAR/UNOSAT analysis which employed satellite data from 01 October 2014. It is possible that some shelters may have been missed or included erroneously in this analysis due to their small size and irregularity. This map product is available for download as a PDF on the UNITAR/UNOSAT website.

Source: UNITAR/UNOSAT

Link: [http://www.unitar.org/unosat/node/44/2090?utm\\_source=unosat-unitar&utm\\_medium=rss&utm\\_campaign=maps](http://www.unitar.org/unosat/node/44/2090?utm_source=unosat-unitar&utm_medium=rss&utm_campaign=maps)

### **Syria complex emergency – GLIDE number: CE20130604SYR**

Due to the conflict in Syria, many cities have experienced substantial damage and destruction. Damage assessments for the cities of Aleppo, Ar Raqqa, Daraa, Deir Ez Zor, Hama, Homs, and Idlib were recently published by UNITAR/UNOSAT and REACH for the United States Office of Foreign Disaster Assistance. Analysis of high resolution satellite imagery acquired in 2010, 2011, 2013, and 2014 revealed destroyed structures, severely damaged structures, and moderately damaged

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structures in each city. A total of 13,778 affected structures were identified in Homs, followed by 8,510 in Aleppo, 5,233 in Hama, 3,112 in Deir Ez Zor, 476 in Ar Raqqa, 351 in Daraa, and 307 in Idlib. The largest amount of destruction occurred in the city of Hama, where 4,671 destroyed structures were found. Map products are available for download as PDFs on the UNITAR/UNOSAT website. An accompanying geodatabase in ESRI format and shapefiles containing the damage assessment data are also accessible on this website.

Source: UNITAR/UNOSAT

Link: <http://www.unitar.org/unosat/maps/98>

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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.*