

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 22 April 2014

Africa

South Sudan complex emergency – Glide number: OT-2014-000001-SSD

UNOSAT Live map: As a result of escalating violence in South Sudan during December of 2013, over 30,000 civilians sought refuge in United Nations facilities. In an effort to observe the progression of this situation, the UNITAR Operational Satellite Applications Programme (UNOSAT) recently published a web map which compiles all UNITAR/UNOSAT South Sudan damage assessment data to date. The localities of Mayom, Rubkona, Bentiu, Bor, Leer, and Malakal were analyzed using satellite imagery from 11, 13, 18 and 19 January 2014, as well as 02 February 2014 and 15 March 2014. UNITAR/UNOSAT detected between 1,200 and 4,000 destroyed structures in Bentiu, Leer, Mayom, Bor and Rubkona and more than 10,000 destroyed structures in Malakal. More detailed information about each damage assessment can be obtained through the web map's interactive features, including widgets for a map legend, layer control, link list, expert tools, and base maps. The link to this live map is available on UNITAR/UNOSAT's website. The Live map is updated as new analysis becomes ready.

Source: UNITAR/UNOSAT

Link: <http://www.unitar.org/unosat/node/44/1966>

Somalia complex emergency – Glide number: CE20130710SOM*

According to the UNHCR, more than 60,000 internally displaced persons (IDPs) reside in Galkayo, Somalia as a result of fleeing war-torn south-central Somalia and difficult drought conditions in several parts of the country. In order to monitor the current situation in Galkayo, the UNITAR Operational Satellite Applications Programme (UNOSAT) produced a map of satellite-detected IDP shelters there. Using satellite imagery acquired 25 February 2014, UNITAR/UNOSAT identified a total of 1,799 metal shelter structures and 453 temporary shelter structures. A PDF version of this map and a corresponding geodatabase in ESRI format are available on UNITAR/UNOSAT's website.

Source: UNITAR/UNOSAT

Link: <http://www.unitar.org/unosat/node/44/1968>

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Tanzania floods – Glide number: FL-2014-000053-TZA

Heavy rainfall has affected the eastern coast of Tanzania and caused flooding in the city of Dar es Salaam. Precipitation data from the Tropical Rainfall Monitoring Mission (TRMM) was utilized by the UNITAR Operational Satellite Applications Programme (UNOSAT) to produce a map of estimated total rainfall accumulation for Tanzania from 09 to 13 April 2014. TRMM estimated rainfall ranges from zero to more than 180 millimeters during this period. The most significant precipitation occurred in the regions of Kagera, Kilimanjaro, Tanga, Pwani, Lindi, Morogoro, Iringa, Mbeya, Rukwa, Tabora, Zanzibar Island, Mafia Island, and southern Pemba Island. Levels of precipitation may be underestimated for local areas, and cannot replace ground station measurements. 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/44/1970>

Ethiopia other – Glide number: OT-2014-000001-ETH

Due to violence that erupted in South Sudan during December of 2013, many South Sudanese refugees have sought safety in the neighboring countries of Ethiopia, Kenya, Uganda, and Sudan. In the case of Ethiopia, more than 20,000 people have retreated to the country's Gambela region. The UNITAR Operational Satellite Applications Programme (UNOSAT) has created two maps of the Tierdiki and Lietchuor refugee camps, located in the Gambela area, in order to provide information about the region's natural environment for potential camp expansion projects in the future. Using satellite imagery from 08 and 15 October 2012, multiple areas of swamps and relatively small scale inundations within and surrounding the camps were detected. The "stripes" of missing data within the imagery are a result of a malfunction with the satellite's sensor. Areas outside of these missing data zones have not been affected. These map products are available for download as PDFs on the UNITAR/UNOSAT website.

Source: UNITAR/UNOSAT

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

Oceania

Solomon Islands floods – Glide number: FL-2014-000045-SLB

In early April of 2013, the Solomon Islands declared a state of emergency as a result of heavy rainfall that caused flash flooding, particularly within the capital city of Honiara. On 05 April 2014, the International Charter Space and Major Disasters was activated by the UNITAR Operational Satellite Applications Programme (UNOSAT) on behalf of UNESCAP and UNOCHA. Most recently, UNITAR/UNOSAT has published a damage assessment for urban flood-affected areas along the

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Matanikau River in Honiara and a map of the water level situation in Gold Ridge Dam, Guadalcanal. Analysis of pre-flood satellite imagery from 16 January 2012 and post-flood imagery from 08 and 13 April 2014 indicates that approximately one hundred houses in the identified zones of Honiara have been flooded. Although the city's main bridge appears to be unscathed, flash floods seem to have destroyed a bridge in the Chinatown neighborhood. Nonetheless, the precise extent of flood affected zones remains uncertain due to the sensor characteristics of satellite data and the nature of the flash flood. Using pre-crisis satellite imagery from 15 March 2014 and post-crisis imagery from 15 April 2014, UNITAR/UNOSAT identified a water level increase inside the Tailings Pond of Gold Ridge, however, no overflow in the Gold Ridge Tailings Dam as of 15 April 2014. The exact limit of flood affected zones is also uncertain in this case as a result of the sensor characteristics and resolution of the data. Map products are available for download as PDFs and the damage assessment can be accessed in KML format on the UNITAR/UNOSAT website.

Source: International Charter Space and Major Disasters, UNITAR/UNOSAT

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

http://www.disasterscharter.org/web/charter/activation_details?p_r_p_1415474252_assetId=ACT-485

Australia tropical cyclone – Glide number: TBD

On 11 April 2014, the north coast of Australia was hit by tropical cyclone Ita and the International Charter Space and Major Disasters was immediately activated by Geoscience Australia. With satellite imagery acquired 11 April 2014, the National Aeronautics and Space Administration (NASA) Earth Observatory has produced a map of Ita's landfall on the Cook Peninsula at 2:00 p.m. local time. The eye of the storm, which was a category 4 cyclone on the Saffir-Simpson scale at that moment, is clearly visible. Fortunately, the storm weakened as it moved further inland. 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=83486&eocn=home&eoci=nh>

Europe

Ireland storm – Glide number: EMSR077*

Between 05 December 2013 and 12 February 2014, storm force winds and soils waterlogged by heavy rainfall caused pervasive damage to forest areas in Munster Province, Ireland. In response to this event, the Copernicus Emergency Management Service has published overview as well as detailed reference and delineation maps that examine two areas of interest for disaster response authorities. Copernicus analysis of satellite imagery from 07 March 2014 reveals a total of 111.8

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hectares of woodlands that were affected by strong winds in the town of Kilmaley. In the village of Templeglantine, a total of 489 hectares of impacted forest areas were identified using satellite data from 19 April 2014. Map products and data are available on the Copernicus website in JPEG, PDF and TIFF formats as well as a downloadable zipped vector package. 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/EMSR077>

South America

Brazil floods – Glide number: TBD

In February of 2014, a state of emergency was declared in Brazil due to flooding from heavy rainfall in the country's northern regions. As of 19 March 2014, water levels rose to 19 meters above normal and forecasters predicted an ongoing rise until the end of the month. Subsequently, the International Charter Space and Major Disasters was activated by the Brazilian Disaster and Risk Management National Centre (CENAD) on 21 March 2014. The Brazilian National Institute for Space and Research (INPE) recently produced two new flood maps of Jaci-Paraná and Porto Vehlo in Rondônia, Brazil. Satellite imagery from 07 April 2014 shows the eastern portion of the town of Jaci Paraná covered by flood water. INPE analysis of satellite data from 08 April 2014 reveals one flooded area along the Madeira River in Porto Vehlo, located northeast of the San Antonio Hydroelectric Power Plant. Map products are available for online viewing and download in JPEG format on the International Charter Space and Major Disasters' website.

Source: International Charter Space and Major Disasters

Link:

http://www.disasterscharter.org/web/charter/activation_details?p_r_p_1415474252_assetId=ACT-483

Chile fires – Glide number: TBD

On 13 April 2014, high winds caused a forest fire to spread into parts of Valparaiso, Chile. The International Charter Space and Major Disasters was activated the next day by SIFEM-DNPC on behalf of ONEMI, and this phenomenon became the largest fire in the city's history. Using satellite imagery from 13 April 2014, the National Aeronautics and Space Administration (NASA) Earth Observatory published a map of the fire at 11:10 am local time. In the satellite image, the NASA Earth Observatory detected two forest fires located south of Valparaiso. An elongated plume of smoke that extends northwest over the Pacific Ocean is also visible. This indicates that winds were

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substantial and moved flames in the direction of the city. 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=83498&eocn=home&eoci=nh>

North America

United States floods – Glide number: TBD

Due to heavy rainfall, a state of emergency was declared on 08 April 2014 for twelve counties in Mississippi, United States. Using satellite imagery from 10 April 2014, the National Aeronautics and Space Administration (NASA) Earth Observatory released a map of Mississippi’s Pearl and Big Black rivers’ bulging waters. Pre-flood satellite data acquired 20 March 2014 was also provided, along with a slider tool for comparing pre-crisis and post-crisis imagery. Map products are available for online viewing and download on the NASA Earth Observatory website in JPEG format.

Source: NASA Earth Observatory

Link: <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=83491&eocn=home&eoci=nh>

Asia

Tajikistan floods – Glide number: FL-2014-000054-TJK

From 12 to 13 April 2014, torrential rain resulted in flooding and several landslides that caused damage and destruction in numerous villages of Khatlon Province, Tajikistan. Consequently, the International Charter Space and Major Disasters was activated on 15 April 2014 by the Asia Disaster Reduction Center (ADRC) on behalf of the Committee of Emergency Situations and Civil Defense of Tajikistan (CoES). A map of areas affected by the 13 April 2014 landslides and mudflows in Khatlon Province was produced by the GeoInformatics Center of the Asian Institute of Technology (AIT). Analysis of satellite imagery from 15 April 2014 and field data collected the same day by the CoES was amalgamated to identify seven impacted localities that are situated 230 kilometers from the capital city of Dushnabe. Some of the affected areas include Tugarak, Besh-Tegerman, and Zarbdor. This map product is available for online viewing, download in JPEG format, and an interactive web map on the International Charter Space and Major Disasters’ website.

Source: International Charter Space and Major Disasters

Link:

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http://www.disasterscharter.org/web/charter/activation_details?p_r_p_1415474252_assetId=ACT-488

Russia volcanoes – Glide number: TBD

Based on satellite imagery from 14 April 2014, the National Aeronautics and Space Administration (NASA) Earth Observatory has published five maps depicting volcanic activity in Russia's Kamchatka Peninsula. Activity was captured at the Shiveluch, Klyuchevskaya, Bezymianny, Kizimen, and Karymsky volcanoes. These 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=83502&eocn=home&eoci=nh>

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

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.*