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Satellite mapping overview

As of 25 February 2014

Africa

Burundi floods – GLIDE number: FL-2014-000019-BDI

Burundi experienced torrential rainfall from 09 to 10 February 2014 that caused flash flooding as well as landslides and resulted in substantial damage and destruction, particularly in the capital of Bujumbura. The UNITAR Operational Satellite Applications Programme (UNOSAT) subsequently activated the International Charter Space and Major Disasters on behalf of UNOCHA on 11 February 2014. UNITAR/UNOSAT recently analyzed satellite imagery of Bujumbura from 14 February 2014 and identified at least 76 destroyed structures in the Kinama area. Approximately 553 hectares of area with 1,730 houses or structures appear to be affected by mud and water flow in the Kinama and Kamenge neighborhoods of Bujumbura and about 1,140 hectares with 10,000 houses or structures have potentially been impacted by the waters. Due to haze, the image quality is poor and therefore affected areas and destroyed structures in Bujumbura may be underestimated. Maps are available for online viewing at the International Charter Space and Major Disasters' website. Products can also be accessed as PDFs on UNITAR/UNOSAT's website.

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

Links:
http://www.disasterscharter.org/web/charter/activation_details?p_r_p_1415474252_assetId=ACT-479

http://www.unitar.org/unosat/maps/116

Central African Republic complex emergency – GLIDE number: OT-2013-000152-CAF

Since the Central African Republic experienced an outbreak of violence in December 2013, the UNITAR Operational Satellite Applications Programme (UNOSAT) has been monitoring the evolution of this complex emergency. UNITAR/UNOSAT recently released three damage assessments and one map of possible IDP locations. Using satellite imagery acquired 03 January 2014 and 20 January 2014, UNITAR/UNOSAT identified a total of 339 destroyed structures in the town of Bozoum, Ouham-Pende and its surrounding area. Satellite imagery from 05 December 2013 and 22 January 2014 revealed a total of 1,120 destroyed structures in the area of Bossangoa, Ouham. In Bouar, Nana Membere Province, UNITAR/UNOSAT found a total of 336 destroyed structures with satellite imagery from 22 January 2014. In all three damage assessments, most structures were destroyed by fire. Imagery from 06 January 2014 of Bossangoa, Ouham Province exposed two principal satellite-detected IDP camps and 9 IDP areas were derived from UNHCR tracks. UNITAR/UNOSAT calculated

each camp's area and counted a total of 1,545 structures in the Cathedral Saint-Antoine de Padoue IDP camp. This figure remains an estimate as not all shelters were detected due to tree cover. Map products are available for viewing as PDFs on UNITAR/UNOSAT's website.

Source: UNITAR/UNOSAT

Link: http://www.unitar.org/unosat/maps/113

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

As a result of escalating violence in South Sudan during the month of December 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) has produced maps of IDP shelters located in Wau Shilluk, Upper Nile State as well as the United Nations Mission in South Sudan's (UMISS) base at Juba Airport in Central Equatoria State and the UNMISS base in Malakal, Upper Nile State. UNITAR/UNOSAT analysis of satellite imagery from 06 December 2013 and 17 February 2014 reveals an estimated 1,157 new shelters along the White Nile River in Wau Shilluk. Using satellite imagery of the UNMISS base at Juba Airport, UNITAR/UNOSAT detected a moderate increase in the IDP camp's extent from 7 hectares on 28 December 2013, to 7.9 hectares by 07 January 2014, to 9.2 hectares as of 09 February 2014. IDP occupied area (including improvised shelters, administrative support, and other structures) has thus remained largely unchanged since UNITAR/UNOSAT's last analysis in which 9 hectares were identified in satellite imagery from 30 January 2014. Satellite imagery of the UNMISS base at Malakal illustrates that while IDPs occupied more than 8.3 hectares of the UNMISS compound as of 18 January 2014, by 17 February 2014 the IDP camp extent had increased to 11.1 hectares. The installation of additional IDP shelters was also detected outside of the UNMISS base entrance. Map products are available for viewing as PDFs on UNITAR/UNOSAT's website. Accompanying shapefiles and a geodatabase in ESRI format can also be accessed for the Wau Shilluk analysis.

Source: UNITAR/UNOSAT

Link: http://www.unitar.org/unosat/maps/110

Zimbabwe flash floods – GLIDE number: FF-2014-000015-ZWE

From late January to early February of 2014, heavy rainfall in Zimbabwe caused flash floods that affected thousands of people. The UNITAR Operational Satellite Applications Programme (UNOSAT) subsequently activated the International Charter Space and Major Disasters on behalf of OCHA Zimbabwe on 07 February 2014. According to UNITAR/UNOSAT analysis of satellite imagery from 11 February 2014, an area of approximately 2,300 hectares was flooded above the Tokwe Mukorsi Dam in Masvingo Province. Satellite imagery from 18 February 2014 demonstrates a slight decrease in the

flooded area to 2,278 hectares. Using satellite imagery acquired 02 January 2012, UNITAR/UNOSAT identified a total of 751 structures in 143 homestead locations that would be submerged by the flood water extent. Maps are available for online viewing at the International Charter Space and Major Disasters' website. Product links on UNITAR/UNOSAT's website also provide access to the maps in PDF and KML format as well as their accompanying shapefiles and geodatabases in ESRI format.

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

Links:
http://www.disasterscharter.org/web/charter/activation_details?p_r_p_1415474252_assetId=ACT-477

http://www.unitar.org/unosat/maps/ZWE

Europe

England floods – GLIDE number: EMSR069*

Since 31 January 2014, heavy rainfall from ongoing storms has caused flooding in southern England. The Environment Agency of England and Wales activated the International Charter Space and Major Disasters on 06 February 2014 and has since produced several flood outline maps based on satellite imagery from 08, 11 and 12 February 2014. The maps cover Midlands West Gloucester, Tewkesbury, Midlands West Tewkesbury, Worcester, Slough, Datchet, Windsor, Somerset, Severn, Thames, and west of England. Estimated flood extents range from 550 hectares in Slough, Datchet, and Windsor to 37,000 hectares for Somerset, Severn, and Thames. The Copernicus Emergency Management Service has also published a series of maps that illustrate the flood water extent in the areas of Maidenhead, Bridgewater, Staines, Worcester, Kenley, and Hambledon. Satellite imagery from 11, 12, 19, 22, and 23 February 2014 was utilized to create both overview and detailed reference and delineation maps for disaster response authorities. The maps indicate that flooding has affected agricultural, recreational, commercial, industrial, residential, and urbanized multifunctional zones as well as infrastructure in the aforementioned areas of interest. Maps produced by the Environment Agency are available for online viewing at the International Charter Space and Major Disasters' website. Map products and data created by the Copernicus Emergency Management Service can be accessed on its website in JPEG, PDF and TIFF formats as well as a downloadable zipped vector package.

Source: Environment Agency of England and Wales, International Charter Space and Major Disasters, Copernicus Emergency Management Service

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Links:
http://www.disasterscharter.org/web/charter/activation_details?p_r_p_1415474252_assetId=ACT-476

http://emergency.copernicus.eu/mapping/list-of-components/EMSR069/ALL/ALL

Portugal floods – GLIDE number: EMSR072*

As a result of unusually heavy rainfall since 09 February 2014, major rivers have overflowed and caused flooding in central Portugal. The Copernicus Emergency Management Service has followed this event along the Lis and Alcoa Rivers which overflowed and destroyed some dykes in irrigation districts. Satellite imagery from 22 February 2014 was utilized to create both overview and detailed reference and delineation maps for disaster response authorities. Maps indicate that while the overall number of affected inhabitants is greater in areas along the Lis River, the inundated area and its impact on settlements, land-use, and transportation along the Alcoa River is slightly more significant. Map products and data created by the Copernicus Emergency Management Service can be accessed on its website in JPEG, PDF and TIFF formats as well as a downloadable zipped vector package.

Source: Copernicus Emergency Management Service

Link: http://emergency.copernicus.eu/mapping/list-of-components/EMSR072/ALL/ALL

Slovenia floods – GLIDE number: EMSR070*

Heavy snowfall and freezing rain struck Slovenia from 31 January 2014 to 02 February 2014 and resulted in a state of emergency for the entire country. With rising temperatures occurring a few days later, several parts of Slovenia, particularly the southwest, have experienced significant flooding. In response to this event, the Copernicus Emergency Management Service has produced a series of flood extent maps depicting the situation in the Gorenje Jezero, Notranje Gorice, Laze, and Ilirska Bistrica areas of Slovenia. Satellite imagery acquired 12, 13, 14, and 21 February 2014 was utilized to create reference and delineation maps for disaster response authorities. Map products indicate that flooding has affected settlements, transportation, and land-use in all areas of interest. While Gorenje Jezero has the most infrastructure and the largest number of inhabitants impacted by the flooding, agricultural lands in Notranje Gorice experienced the most significant inundation. Map products and data for this event are available in JPEG, PDF and TIFF formats as well as a downloadable zipped vector package. Data can 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/EMSR070/ALL/ALL

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Croatia floods – GLIDE number: EMSR073*

Flooding in central Croatia resulted from heavy rainfall and snowfall during the first 10 days of February as well as subsequent snow-melt and channel blockage. In an effort to monitor the post-crisis situation, the Copernicus Emergency Management Service utilized satellite imagery from 22 February 2014 to produce reference and delineation maps for disaster response authorities. Map products focus on flooding in the counties of Sisak-Moslavina and Rugvica and reveal that substantial inundations have affected residential, industrial, and agricultural areas as well as infrastructure. Map products and data for this event are available in JPEG, PDF and TIFF formats as well as a downloadable zipped vector package. Data can 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/EMSR073/ALL/ALL

Asia

South Korea snowfall – GLIDE number: TBD

According to the Korean Meteorological Agency, in early February 2014 South Korea experienced the largest snowfall in the nation's recorded meteorological history. The International Charter Space and Major Disasters was subsequently activated on 10 February 2014 and two maps were produced by the Korea Aerospace Research Institute (KARI) as well as the National Disaster Management Institute (NDMI). Analysis of satellite imagery acquired on 15 and 16 February 2014 illustrates snow cover in eastern areas of South Korea, spanning from Goseong-gun in the north to Gyeongju-si in the south, and along the coastline of Gangwon province, from Sokcho to Gangneung. Heavy snowfall in the northern part of Gangwon province reached about one meter from 06 to 10 February 2014. Snowfall cover maps are available for online viewing on the International Charter Space and Major Disasters website.

Source: KARI & NDMI, International Charter Space and Major Disasters

Link:
http://www.disasterscharter.org/web/charter/activation_details?p_r_p_1415474252_assetId=ACT-478

Indonesia volcano – GLIDE number: VO-2014-000022-IDN

Located in East Java, Indonesia, Mount Kelud erupted on 13 February 2014 and caused the evacuation of 100,000 people from their homes. The International Charter Space and Major Disasters was activated the same day by the Asia Disaster Reduction Center (ADRC) on behalf of the

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Indonesia Institute of Aeronautics and Space (LAPAN). Using satellite imagery from 13, 14, 15, and 18 February 2014, LAPAN as well as AIT Thailand and the USGS produced ten maps that illustrate the volcano pre and post-crisis, the spatial distribution of settlements within a 20 kilometer radius of the eruption site, disaster prone zones, and the estimated distribution of volcanic ash. Map products are available for online viewing on the International Charter Space and Major Disasters website.

Source: LAPAN, International Charter Space and Major Disasters

Link:

http://www.disasterscharter.org/web/charter/activation_details?p_r_p_1415474252_assetId=ACT-481

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.*