

***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 24 October 2016

### Asia

#### **Philippines tropical cyclone – GLIDE number: TC-2016-000110-PHL**

On 19 October 2016, tropical cyclone Haima struck the Philippines and impacted more than 60,000 people. The storm arrived only four days after tropical cyclone Sarika made landfall over the country. The NASA Earth Observatory acquired 18 October 2016 satellite imagery of the situation in the region and created an overview map. As of this date, Haima was visible approaching the Philippines from the east as a category 4 storm, with maximum sustained winds of approximately 240 kilometers per hour. Around the same time, tropical cyclone Sarika could be seen hovering over China's Hainan Island, where it made landfall that day. After battering the Philippines, Haima also traveled to China where it adversely affected the southern part of the country, particularly Hong Kong. This map product is available for online viewing or download in GeoTIFF and JPEG format on the NASA Earth Observatory website.

Source: NASA Earth Observatory

Link: <http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=88966&eocn=home&eoci=nh>

### Caribbean

#### **Cuba tropical cyclone – GLIDE number: TC20161005CUB**

Cuba was hit with heavy rainfall and strong winds on 04 October 2016 as tropical cyclone Matthew drifted by the northeast coast of the country. The International Charter on Space and Major Disasters was activated on 05 October 2016 by UNITAR-UNOSAT on behalf of UNOCHA, and project management was assumed by the European Space Agency. UNITAR-UNOSAT published a preliminary satellite based damage assessment report of its findings in Guantanamo Province, as well as new maps of damage in the Baracoa and Cajobabo areas. Using satellite imagery from 07, 10 and 11 October 2016, UNITAR-UNOSAT identified a total of 4,617 damaged buildings in the Baracoa, Cajobabo, Maisi and Imias areas of Guantanamo Province. New maps indicate 3,147 of these damaged structures were found in Baracoa and 450 were observed in the Cajobabo area. Products are available for download in PDF and JPEG format on the International Charter on Space and Major Disasters and UNITAR-UNOSAT websites. Accompanying data is also accessible in shapefile and ESRI geodatabase format on the UNITAR-UNOSAT website.

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

Links: <https://www.disasterscharter.org/web/guest/-/cyclone-in-cuba>

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<https://www.unitar.org/unosat/maps/116>

### **Haiti tropical cyclone – GLIDE number: TC-2016-000106-HTI**

Tropical cyclone Matthew made landfall over the west coast of Haiti on 04 October 2016. The International Charter on Space and Major Disasters was activated on 03 October 2016 by the USGS on behalf of the Pacific Disaster Center. UNITAR-UNOSAT and the Copernicus Emergency Management Service published new products related to the event. UNITAR-UNOSAT recently released an updated satellite based damage assessment report for the Grand South departments, a live map, and a map of damage in the Dame Marie and Anse d’Hainault areas. Overall, analysis of 07 and 12 October 2016 satellite imagery revealed a total of 22,926 damaged structures, 264 locations with visible road obstacles, and 1,250 temporary people gathering sites within an examined area of roughly 650 square kilometers. The Copernicus Emergency Management Service examined 07, 09, 10, 12 and 15 October 2016 satellite imagery. It identified 154 landslides, 13,868 impacted settlements, and 69,563 affected inhabitants in different parts of the country. Map products and data are available for download in various formats on their respective websites.

Sources: International Charter on Space and Major Disasters, UNITAR-UNOSAT, Copernicus Emergency Management Service

Links: <https://www.disasterscharter.org/web/guest/-/cyclone-in-haiti>

<https://www.unitar.org/unosat/maps/HTI>

<http://emergency.copernicus.eu/mapping/list-of-components/EMSR185>

## **Europe**

### **Romania floods –GLIDE number: EMSR187\***

Heavy rainfall led to floods in Romania on 12 October 2016, particularly affecting the county of Galati. Prior to this event, hundreds of residents were evacuated and roads and schools were closed as a precaution. The Copernicus Emergency Management Service promptly created an internal activation for the floods. It has continued to monitor the situation and recently released maps for the Pechea, Galati, Cuza Voda, and Negrea areas. Satellite imagery acquired 16 October 2016 was analyzed and less than one square kilometer of flooded area was identified in Galati and Cuza Voda, as well as 45 affected inhabitants in Galati. No impacted areas were detected in Pechea and Negrea. The latest map products are available for download in TIFF, PDF, and JPEG formats on the Copernicus Emergency Management website. Accompanying zipped vector packages are also provided on this website.

Source: Copernicus Emergency Management Service

Link: <http://emergency.copernicus.eu/mapping/list-of-components/EMSR187>

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## Middle East

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

As a result of the ongoing conflict in Syria, the country's population has experienced significant upheaval. UNITAR-UNOSAT has monitored the situation along parts of the Syria-Jordan border and published new maps of shelters at the Rukban and Hadalat border crossings. Using satellite imagery from 22 October 2016, UNITAR-UNOSAT identified 7,116 probable shelters along the Jordanian side of the Rukban crossing, approximately 25 kilometers southwest of the Al Waleed crossing. This represents a 14 percent decrease in visible shelters since the previous analysis of 02 September 2016 imagery. Analysis of satellite imagery acquired 18 October 2016 revealed a total of 1,428 probable shelters at the Hadalat crossing. This is an 8 percent decrease in shelters compared with the previous examination of 05 September 2016 imagery. Map products are available for download as PDFs on the UNITAR-UNOSAT website. Accompanying data in shapefile and ESRI geodatabase format is also accessible on this website.

Source: UNITAR-UNOSAT

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

## Oceania

### **Australia floods – GLIDE number: EMSR184\***

Heavy rain fell over southeast Australia starting on 24 September 2016. Roughly 34,000 square kilometers of the Lachlan river catchment flooded and hundreds of residents were evacuated. The International Charter on Space and Major Disasters was activated on 26 September 2016 by Geoscience Australia. In an effort to monitor the aftermath, the Copernicus Emergency Management Service released new maps of the situation in the Eubalong and Hillston FMP areas. Satellite imagery acquired 14, 19 and 20 October 2016 was analyzed, and a total flooded area of approximately 16.7 square kilometers was observed in these locations. Map products are available for download in TIFF, PDF, and JPEG formats on the Copernicus Emergency Management website. Accompanying zipped vector packages are also provided on this website.

Sources: International Charter on Space and Major Disasters, Copernicus Emergency Management Service

Links: <https://www.disasterscharter.org/web/guest/-/flood-in-austral-2>

<http://emergency.copernicus.eu/mapping/list-of-components/EMSR184>

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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.*