

***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 October 2016

### Africa

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

In Somalia, ongoing conflict compounded by natural hazards has led to a displacement crisis. UNITAR-UNOSAT published a map of shelters for displaced persons north of Kismayo, in the Dalxiska settlement of Lower Juba, Somalia. Analysis of satellite imagery acquired 08 September 2016 revealed a total of 2,426 shelters as well as 200 infrastructure and support buildings within the compound. The camp extends into the town of Dalxiska, frequently blending in with its structures. A new shelter zone is potentially planned to the north of the main settlement, where camp infrastructure buildings were visible. This map product is available for download as a PDF on the UNITAR-UNOSAT website. Accompanying data in ESRI shapefile and geodatabase format is also accessible on this website.

Source: UNITAR-UNOSAT

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

### Asia

#### **Japan tropical cyclone – GLIDE number: TBD**

On 03 October 2016, tropical cyclone Chaba intensified into the equivalent of a Category 5 storm and impacted parts of Japan's Okinawa prefecture. The NASA Earth Observatory obtained 04 October 2016 satellite imagery of Chaba and produced an overview map. As of this date, the tropical cyclone's eye was visible hovering over the East China Sea, to the west of some southern islands in Japan. According to the Joint Typhoon Warning Center, maximum wave heights reached up to 10 meters at this time. In preparation for the tropical cyclone, many schools and offices were closed in the southern Japanese islands. Additionally, local governments recommended the evacuation of residents from Naha, Urasoe, and Kumejima. After passing over Japan, Chaba traveled to South Korea where it brought strong winds, heavy rainfall, and subsequent floods. 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=88867&eocn=home&eoci=nh>

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## Caribbean

### **Dominican Republic tropical cyclone – GLIDE number: TBD**

Tropical cyclone Matthew passed over the Dominican Republic as a Category 4 storm on 04 October 2016. Due to strong winds and heavy rainfall, damage, flooding and landslides occurred. The International Charter on Space and Major Disasters was activated on 05 October 2016 by the Comisión Nacional de Emergencias and project management was assumed by the German Aerospace Center (DLR). The DLR has since produced two flood extent maps using satellite imagery acquired 06 and 07 October 2016. Flood waters to the north of the capital Santo Domingo were visible on 06 October 2016, and flooded areas north of Cabral village could be seen on 07 October 2016. The tropical cyclone led to the declaration of a red alert in 19 provinces and it impacted thousands of people in the Dominican Republic. Map products are available for online viewing or download in JPEG format on the International Charter on Space and Major Disasters and DLR websites.

Sources: International Charter on Space and Major Disasters, DLR

Links: <https://www.disasterscharter.org/web/guest/-/flood-in-dominican-republic>

<https://www.zki.dlr.de/article/2829>

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

On 04 October 2016, tropical cyclone Matthew made landfall over the west coast of Haiti as a Category 4 storm. Torrential rainfall and winds reaching up to 230 kilometers per hour devastated the country and left 1,000 dead. 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, the Copernicus Emergency Management Service, and the NASA Earth Observatory have since published maps related to the event. UNITAR-UNOSAT created maps of wind speeds, estimated precipitation accumulation, as well as zones susceptible to flood hazard throughout Haiti. Using satellite imagery collected 07, 08 and 09 October 2016, the Copernicus Emergency Management Service identified some flooding and mudflow, approximately 34.5 kilometers of affected roads, 22,363 damaged settlements, and 102,128 affected inhabitants in the areas of Coteaux, Port-à-Piment, Côtes-de-Fer, Port Salut, Les Cayes, Jérémie, Petit and Grand Goâve. The NASA Earth Observatory acquired 04 October 2016 satellite imagery of Matthew and produced an overview map of the tropical cyclone a few hours after it made landfall over southwest Haiti. Map products 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, NASA Earth Observatory

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

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

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

<http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=88870&eocn=home&eoci=nh>

## North America

### United States tropical cyclone – GLIDE number: EMSR186\*

Tropical cyclone Matthew caused damage and flooding as it traveled near the United States coasts of Florida, Georgia, South Carolina, and North Carolina on 07 and 08 October 2016. The International Charter on Space and Major Disasters was activated on 06 October 2016 by the USGS on behalf of the Federal Emergency Management Agency. The Copernicus Emergency Management Service and the NASA Earth Observatory released maps of the tropical cyclone and its aftermath. Analysis conducted by Copernicus revealed a total of approximately 119.5 square kilometers of flooded area, 13.4 kilometers of impacted roads, and 3,980 affected inhabitants in the Sebastian, Port St Lucie, Titusville, Daytona Beach, and Satellite Beach areas of Florida. Maps from the NASA Earth Observatory are based on satellite imagery collected 06, 07, 08 and illustrate the progression of Matthew’s trajectory along the Atlantic coast of the southeast United States. Map products are available for download in various formats on their respective websites.

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

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

<http://emergency.copernicus.eu/mapping/list-of-components/EMSR186>

<http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=88903&eocn=home&eoci=nh>

<http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=88885&eocn=home&eoci=nh>

<http://earthobservatory.nasa.gov/NaturalHazards/view.php?id=88896&eocn=home&eoci=nh>

## Oceania

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

Southeast Australia experienced heavy rainfall starting on 24 September 2016. Consequently, 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. The Copernicus Emergency Management Service recently released new monitoring maps of the situation with satellite imagery from 02, 04, 05 and 07 October 2016. It identified approximately 443 square kilometers of flooded area, 60.9 kilometers of impacted roads, and 215 affected inhabitants in the areas of Hillston FMP, Jemalong Condobolin, and Eubalong. Map products are available for download in TIFF, PDF, and JPEG formats on the

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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:*

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*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.*