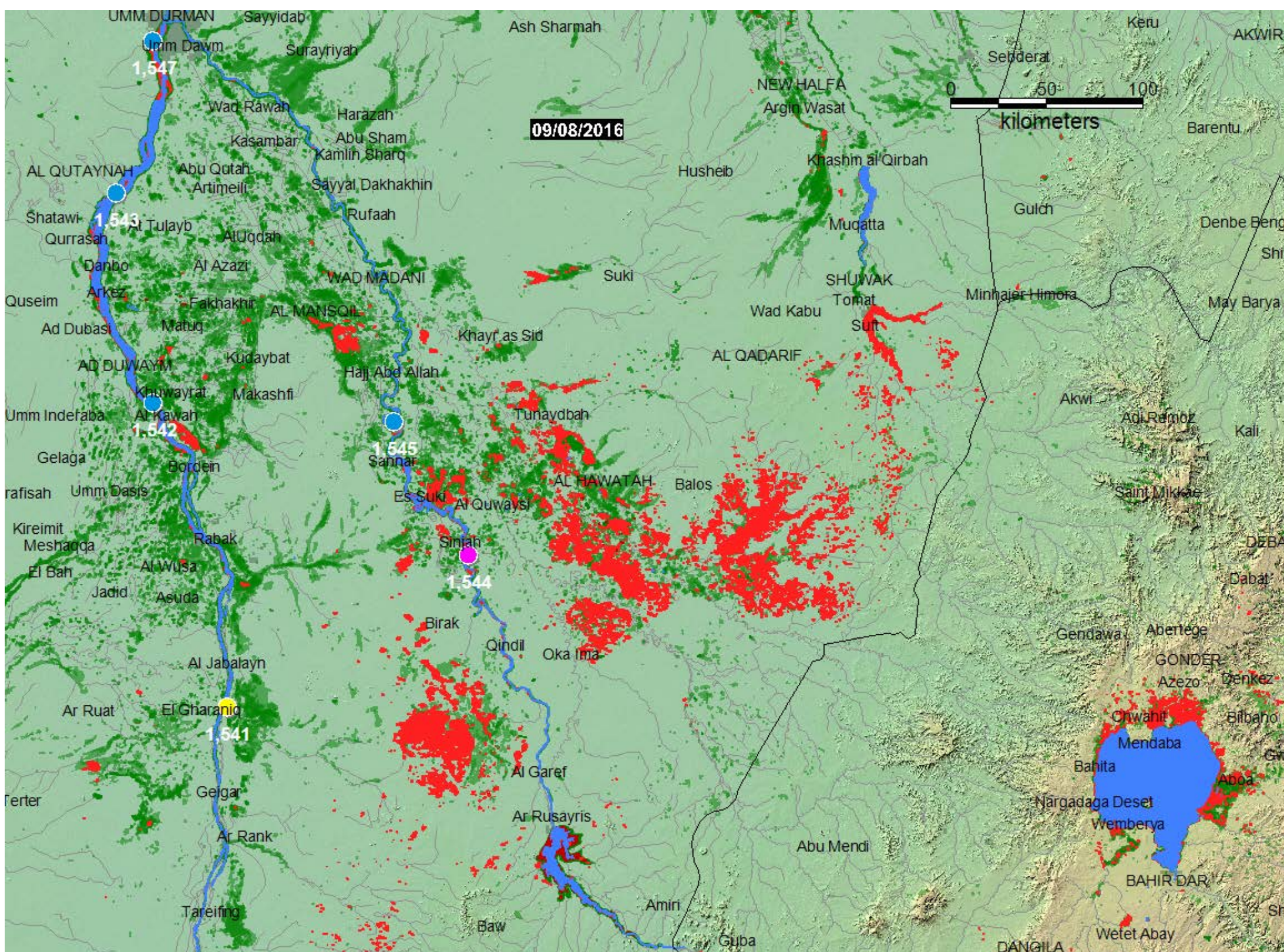# DFO Flood Event 4374

DRAFT, In Preparation

pdf version

Sudan and South Sudan, Flooding, July 11-September 8, 2016 from MODIS Data

Flood Map (Draft, may show excess water)

Red is flood water during past 14 days.. Dark red is previous flooding during this event. Green is previous flooding, 2000-present. Dark blue is surface water during February 2002.

Geotif version

Google Earth kmz version

Flood Map (Draft, from the automated NRT product, may not show sediment-rich water)

Red is flood water during past 14 days.. Dark red is previous flooding during this event. Green is previous flooding, 2000-present. Dark blue is surface water during February 2002.
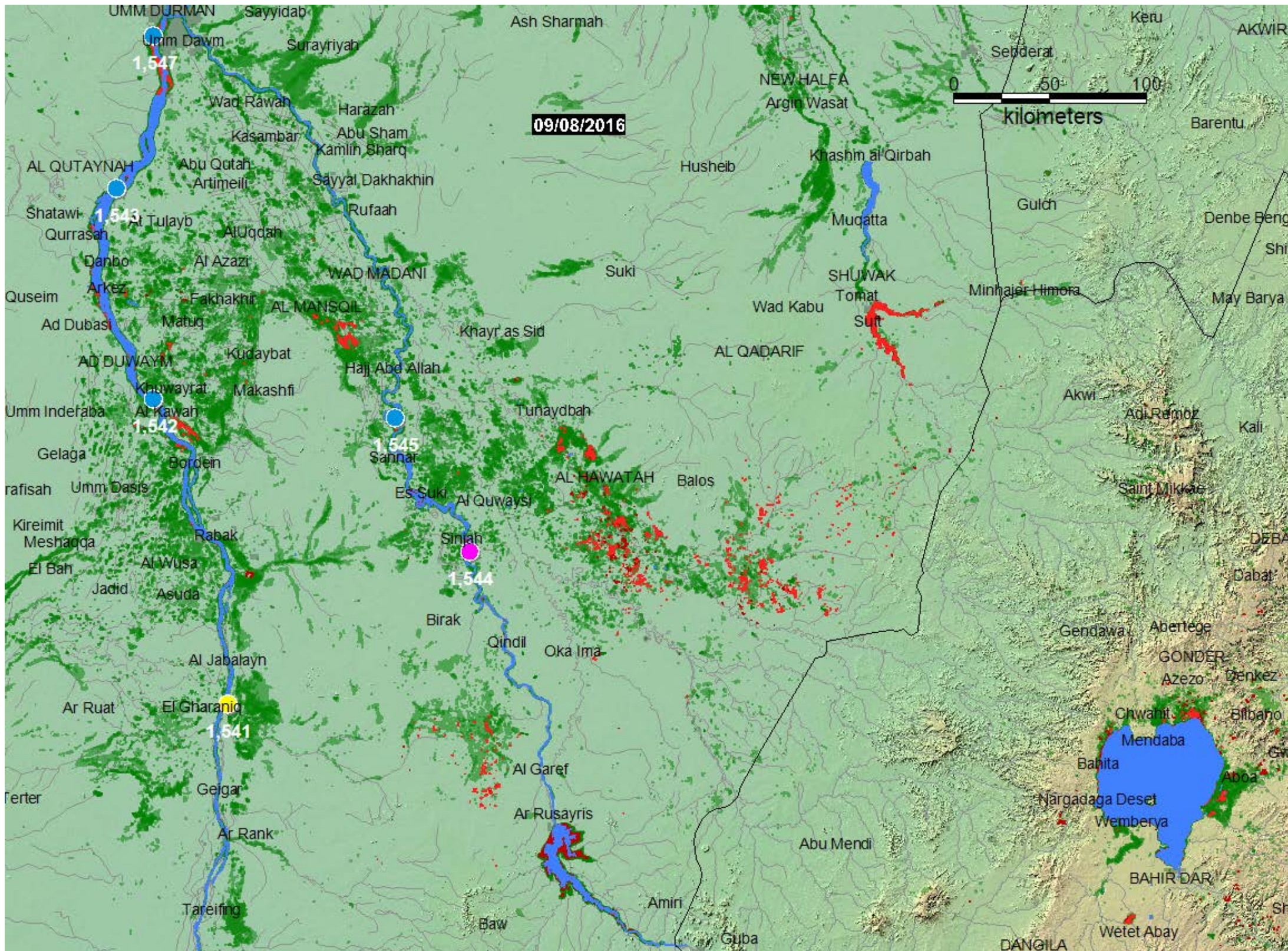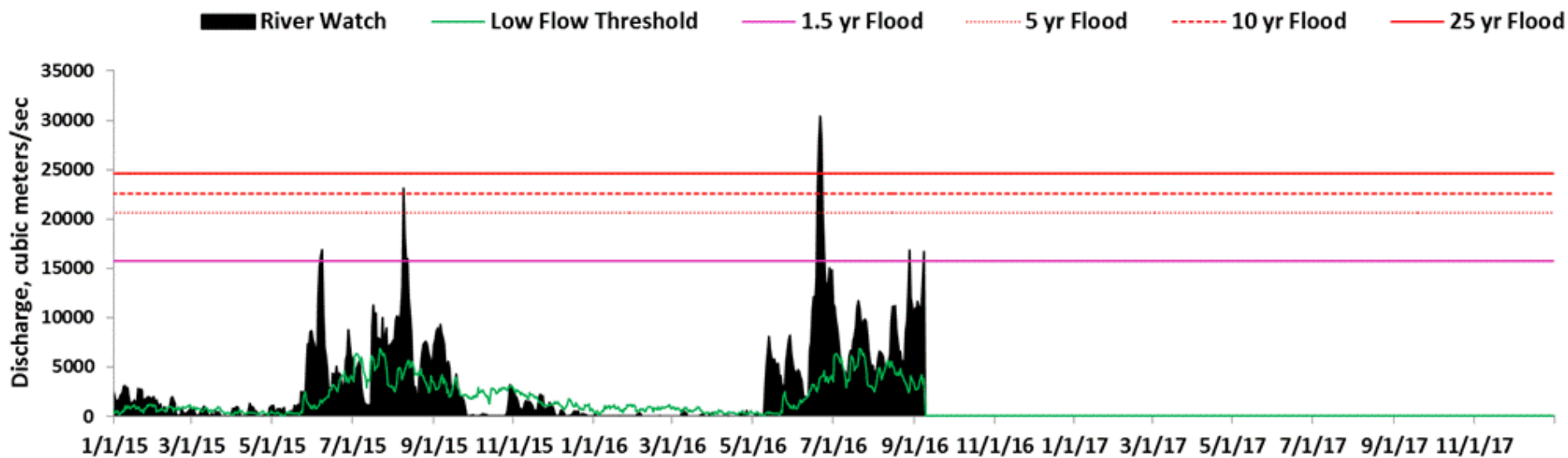
[Geotif version](#)

[Google Earth kmz version](#)

Representative River Watch Flood Hydrograph (clickable dots above)

At selected locations, a time series of satellite microwave-based daily river discharge measurements are available from the Flood Observatory. See [River Watch Global Display](#) for more information. A sample from Site [1544](#) is shown below.

Comparison to the [University of Maryland Global Flood Monitoring System](#)

(DRAFT, In Preparation)

Streamflow 12km res. [m^3/s]
15Z01Jan2015 15Z08Sep2016
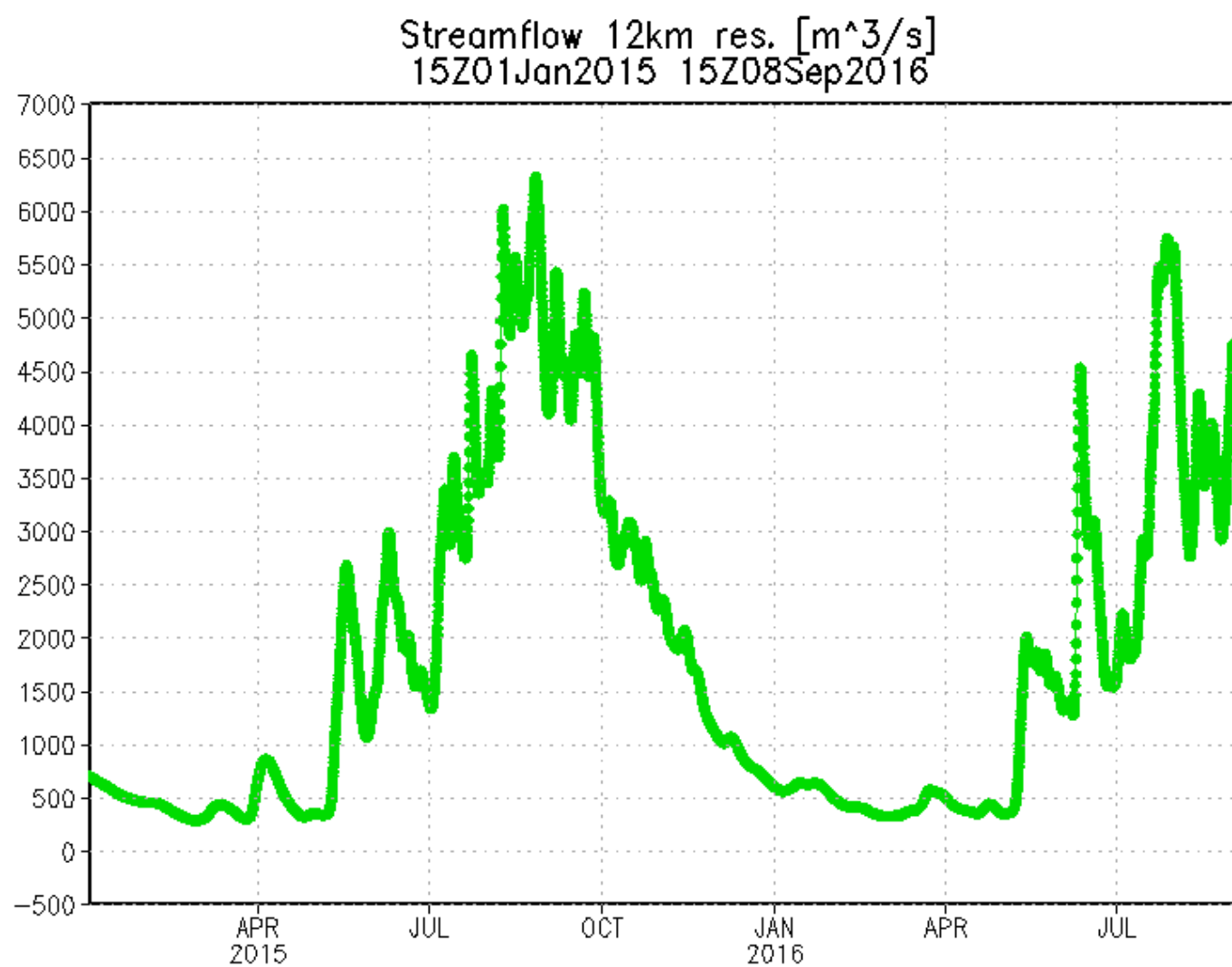
Explanation

Event Reporting:

The Flood Observatory maintains a Global Active Archive of large flood events, 1985 to present. It is available to the public in both spreadsheet and GIS formats (both formats together provide the complete Archive). New events are entered into this archive each week. As of the end of 2015, there were 4319 events; each has a unique archive number.

Event Mapping:

In some cases, severe or damaging floods become the focus of Observatory inundation mapping. As part of collaborations with other organizations, and the Global Flood Partnership, the Observatory's maps and other data are made available to the public. With attribution, they can be used freely, including for commercial purposes, under the terms of the Creative Commons Attribution 3.0 Unported License. Geotif versions and GIS files are also provided for these maps through the links below. This event is selected for Observatory production of map and GIS data products.This web page and associated image and map (GIS) files are the permanent Flood Observatory record of this event.

This Event:

This Flood List link provides a summary. According to Flood List:"According to a recent report by the UN Office for the Coordination of Humanitarian Affairs (UNOCHA), the flood situation in Sudan has deteriorated over the last 2 weeks in particular in the states of Kassala, South Darfur and Al Gezira,The numbers affected by floods across the country have significantly increased from 161,730 in mid August to over 204,000 as of 25 August. The worst hit states by population affected are Kassala (55,880 affected), South Darfur (38,575), and Al Gezira (23,280).Sennar, West Kordofan, Gedaref, South Kordofan, North Darfur, West Darfur and White Nile are also badly affected.A further 15 people have died since mid August and the UN says that 98 people have now lost their lives in the flooding since early June. As many as 26 of the fatalities occurred in Al Gezira, 17 in South Darfur, 13 in Gedaref and 13 in West Darfur.The report adds that 22,097 houses have been completely destroyed and 18,523 partially destroyed." According to River Watch Site 1544 along the Blue Nile, flooding in late July-early August exceeded the 25 yr recurrence interval, but other sites show less extreme flooding. We are examining the results further (Sept. 8, 2016)

Caution:

Floods in hilly or mountainous regions are difficult remote sensing targets and not always observable. Also, cloud cover or heavy vegetation may restrict the ability to capture peak inundation everywhere. The maps may not illustrate all areas of flooding, and cloud and terrain shadows may be misclassified and falsely mapped as flood water. Finally, due to the relatively coarse resolution of MODIS 250 m bands, some areas mapped as flooded may include smaller parcels of dry land and many small areas of flooding may not be detected and mapped.

Suggested citation:

Brakenridge, G.R., Kettner, A.J., Slayback, D., Lei, San Mei, and Policelli, F., date accessed, "Flood Event 2016-Sudan-4374", Dartmouth Flood Observatory, University of Colorado, Boulder, Colorado, USA, http://floodobservatory.colorado.edu/Events/2016Sudan4374/2016Sudan4374.html

Mapping Data Sources:

The Land Atmosphere Near-real-time Capability for EOS (LANCE) system provides daily NASA MODIS data at 250 m spatial resolution. Landsat 8 data, if used, are provided by the U.S. Geological Survey Hazards Data Distribution System. Landsat 8 is jointly managed by NASA and the United States Geological Survey. VIIRS data are processed to flood maps by a NOAA-supported project at George Mason University and are provided courtesy Dr. Sanmei Lei. COSMO-SkyMed synthetic aperture radar (SAR) data, when used, are provided by the Italian Space Agency (ASI) as a contribution to the CEOS Flood Pilot. Sentinel SAR data, when used, are provided by the European Space Agency. NASA EO-1 satellite tasking and data are provided by Stuart Frye and colleagues at the NASA Goddard Space Flight Center. MODIS data beginning in year 2012 are based on an automated product provided by the MODIS NRT Flood project at the NASA Goddard Space Flight Center. Non-automated, MODIS-based .shp or MapInfo GIS files supporting this Flood Event Map are located in a map sheet folder here together with any other high resolution (using Landsat 8, EO-1, etc) GIS files.Click here for access to the automated daily .shp file GIS record (record commences in 2011). Choose appropriate 10 deg x 10 deg map sheet directory and appropriate dates; longitude and latitudes refer to upper left map sheet corner.

Related Data:

[Global Flood Monitoring System](#) (GFMS) displays, if provided, are from the University of Maryland. Reference: Wu, H., R. F. Adler, Y. Tian, G. J. Huffman, H. Li, and J. Wang (2014), Real-time global flood estimation using satellite-based precipitation and a coupled land surface and routing model, Water Resour. Res., 50, doi:10.1002/2013WR014710. [Global Flood Awareness System](#) (GloFAS) displays, if provided, are from the European Commission Joint Research Centre and the European Centre for Medium-Range Weather Forecasts. Reference: Alfieri, L., Burek, P., Dutra, E., Krzeminski, B., Muraro, D., Thielen, J., and Pappenberger, F.: GloFAS – global ensemble streamflow forecasting and flood early warning, Hydrol. Earth Syst. Sci., 17, 1161-1175, doi:10.5194/hess-17-1161-2013, 2013.

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(counting since August 5, 2016)

Return to Flood Observatory