In mid-June 2013, unusually severe monsoon rain caused devastating flooding in northern India and Nepal. By June 21, news outlets reported at least 800 people dead and tens of thousands stranded or missing in rugged, inaccessible terrain on the edge of the Himalayas. Extremely high waters, particularly in the state of Uttarakhand, undermined roads and houses, while landslides wiped out others.

The Moderate Resolution Imaging Spectroradiometer (MODIS) on NASA’s Aqua satellite observed the flooding on June 21, 2013 (top). For comparison, the lower image shows the same area on May 31, 2013. These false-color images use a combination of visible and infrared light to make it easier to distinguish between water and land. Water appears blue and vegetation is bright green. Clouds (lower left) are pale blue-green and cast shadows. Glacier ice and snow in the Himalayas are pale blue to cyan.

The analysis also used Pre river line MODIS data from May 2013 to show identify flood water only. Please note that water bodies likely reflect an underestimation of all flood-affected areas within the map extent due to cloud, atmospheric variations and other reasons. This analysis has not yet been validated in the field.

Based on the MODIS Terra/Aqua images dated 22 June 2013 the Yamuna and Ganges rivers started receding at a faster rate compared to the previous two days of images. Flood inundation in Ganges river is still persistent particularly in districts of Sitapur, Fakhrpur, Gonda, Faizabad, where large patches of crop land and settlements were inundated.

This analysis also used the river line MODIS data from May 2013 to show identify flood water only. Please note that water bodies likely reflect an underestimation of all flood-affected areas within the map extent due to cloud, atmospheric variations and other reasons. This analysis has not yet been validated in the field.

Overview of Ganges basin during the flood season (MODIS/Aqua Image taken on 21-June-2013)

Overview of Ganges basin during the dry season (MODIS/Aqua Image taken on 31-May-2013)

Before inundation captured using MODIS/Aqua Image [31-May-2013]

Before inundation captured using MODIS/Aqua Image [31-May-2013]

Overview of combined MODIS Terra/Aqua Images captured on 23 June 2013

Overview of combined MODIS Terra/Aqua Images captured on 23 June 2013

Overview of combined MODIS Terra/Aqua Images captured on 23 June 2013

Global Flood Monitoring System (GFMS) that uses TRMM precipitation satellite data to predict hydrological runoff. Flood detection/intensity estimates are based on 13 years of retrospective model runs with TRMM input.

Source : University of Maryland, USA.

From the image it is clear that the Ganges river is having high streamflow (above 10,000cm³/sec) as of 24 June 2013.