14 NOVEMBER 2019

PRELIMINARY SATELLITE-DERIVED FLOOD ASSESSMENT IN BHASHAN CHAR ISLAND, CHITTAGONG DIVISION, PEOPLE’S REPUBLIC OF BANGLADESH

STATUS: NO MAJOR SATELLITE-DETECTED WATERS IDENTIFIED ON THE ISLAND

FURTHER ACTION(S): CONTINUE MONITORING
OVERVIEW / BASED ON AOIs ASSESSED

Date of assessment validity: 14 November 2019

Impact and severity*:
- undiscovered
- limited impact potentially
- significant impact potentially

Potentially affected elements at risk (indicate all that are applicable):
- buildings - residential
- buildings - commercial/industry
- vulnerable structures (e.g. schools, hospitals, water, sanitation, power)
- internally displaced persons (IDP) camps
- transportation network
- agriculture
- other:

Data sources:

1. pre-event (reference) image: GeoEye1, 19 April 2019 04:27 UTC © 2019 GeoEyeNextView License
2. RADARSAT-2, 26 May 2019 23:50 UTC
   RADARSAT-2 Data and Products © Maxar Technologies Ltd. (2019)
   All Rights Reserved; RADARSAT is an official mark of the Canadian Space Agency
3. post-event images:
   Pléiades, 12 November 2019 06:47 UTC © CNES (2019), Distribution AirbusDS
   RADARSAT-2, 12 November 2019 12:08 UTC
   RADARSAT-2 Data and Products © Maxar Technologies Ltd. (2019)
   All Rights Reserved; RADARSAT is an official mark of the Canadian Space Agency
4. ancillary data
   - tropical cyclone path, wind speed zones, storm surge levels
     European Union, JRC, 10 November 2019
   - global precipitation measurements
     Giovanni, NASA, 02 - 13 November 2019
   - administrative boundaries: © 2019 HDX
   - schematic of flood defense structure: © 2019 Reuters Graphics
The island is located in the low wind speed zone (i.e. < 60 km/h) and 70 km from the eye of the cyclone (i.e. maximum wind speed).

The eastern part of the island experienced a maximum storm surge level of 1.8 m.

Wind speed zones and maximum modeled storm surge levels (EU JRC, 10 November 2019)
AOI 1 / BHASHAN CHAR ISLAND, CHITTAGONG DIVISION, PEOPLE’S REPUBLIC OF BANGLADESH / NO MAJOR Floods DETECTED

The eastern part of the island experienced a maximum storm surge level of 1.8 m. The height of the flood defense embankment around the settlements on the island is 2.47 m.

Maximum storm surge levels (EU JRC, 10 November 2019) with respect to the flood defense embankment properties (adapted from Reuters Graphics, 2019)
Between 75 and 125 mm of precipitation in the last 10 days (2 - 13 November 2019) over Bhashan Char Island.
AOI 1 / BHASHAN CHAR ISLAND, CHITTAGONG DIVISION, PEOPLE’S REPUBLIC OF BANGLADESH / NO MAJOR FLOODS DETECTED

No major satellite-detected waters on Bhashan Char Island, as of 12 November 2019

Potentially affected elements at risk (indicate all that are applicable):

- ☑ buildings - residential
- ☑ buildings - commercial/industry
- ☑ vulnerable structures (e.g. schools, hospitals, water, sanitation, power stations, etc.)
- ☑ internally displaced persons (IDP) camps
- ☑ transportation network
- ☑ agriculture
- ☑ other:

GeoEye-1, 19 April 2019 04:27 UTC (pre-event image)
AOI 1 / BHASHAN CHAR ISLAND, CHITTAGONG DIVISION, PEOPLE’S REPUBLIC OF BANGLADESH / NO MAJOR FLOODS DETECTED

No evidence of significant storm surge impact detected on Bhashan Char Island

RADARSAT-2, 26 May 2019 23:50 UTC  
RADARSAT-2, 12 November 2019 12:08 UTC
AOI 1 / BHASHAN CHAR ISLAND, CHITTAGONG DIVISION, PEOPLE’S REPUBLIC OF BANGLADESH / NO MAJOR FLOODS DETECTED

Radarsat 2, 26 May 2019 23:50 UTC

Radarsat 2, 12 November 2019 12:08 UTC
AOI 1 / BHASHAN CHAR ISLAND, CHITTAGONG DIVISION, PEOPLE’S REPUBLIC OF BANGLADESH / NO MAJOR FLOODS DETECTED

GeoEye-1, 19 April 2019 04:27 UTC

Pleiades, 12 November 2019 06:47 UTC
AOI 1 / BHASHAN CHAR ISLAND, CHITTAGONG DIVISION, PEOPLE’S REPUBLIC OF BANGLADESH / NO MAJOR FLOODS DETECTED

GeoEye-1, 19 April 2019 04:27 UTC

Pleiades, 12 November 2019 06:47 UTC
SUMMARY OF PRELIMINARY OBSERVATIONS AND FURTHER ACTIONS

Date of assessment validity: 14 November 2019

Preliminary observations, impact and severity *: * disclaimer (i.e. assessment has yet to be validated with field-based information)

• No major satellite-detected flood waters based on both optical and radar imagery over Bhashan Char Island as of 12 November 2019

• The tropical cyclone is not considered to be an extreme event, with respect to the location of the AOI, for the following reasons:
  • relatively low quantities of estimated precipitation (i.e. between 75 and 135 mm) over the AOI during the last 10 days
  • relatively low wind speeds of < 60 km/h, where the eye of the cyclone (i.e. maximum wind speeds) is approximately 70 km from the island
  • the eastern part of the island experienced a maximum storm surge level of 1.8 m

• Given the aforementioned conditions and the known height of the flood defense embankment of 2.47 m, the full effectiveness of the mitigation measure against extreme events could not be confirmed based on this particular occurrence

Further/anticipated actions from UNOSAT:

- [ ] no impact detected/ discontinue monitoring over specific AOI
- [x] potential impact detected  [x] continue monitoring over specific
- [ ] full assessment to be conducted
- [ ] more data and/or information needed to confirm impact