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Dr. K.H.V.DURGA RAO, Scientist/Engineer 'SG'
Head, Disaster Management Support Division

Date: Oct 14, 2018

No: 12-FL-2018-AP/03

Dear Sir,

Sub: Cyclone 'Titli'- Andhra Pradesh- Near Real Time Cyclone Inundation Mapping using satellite data

Please refer to our earlier mail dated 13th Oct 2018 regarding 'Near Real Time Flood Mapping' project using satellite data. So far we have sent two flood maps covering floods in part of Andhra Pradesh State. Heavy rains were reported in Andhra Pradesh state during second week of October, 2018 due to Cyclone 'Titli'. We have analyzed Radarsat-2 data of 13th October 2018 and a flood map for part of Andhra Pradesh State is being prepared. However, rain induced inundation is observed hence, the reported inundation may include wet areas/ rain water accumulation / water in low lying areas. The inundation map along with a brief report is enclosed herewith for your kind information. Since the image was acquired during/immediate to the rainfall event, large extents of wet areas were also observed.

In addition, the inundation layer in GIS ready format is transmitted to Andhra Pradesh State Remote Sensing Application Centre (APSRAC) & APSDPS (Andhra Pradesh State Development Planning Society) by e-mail for further value addition and dissemination to user departments.

Further, we request you to visit Bhuvan portal (bhuvan-noeda.nrsc.gov.in/disaster/disaster/disaster.php) NDEM portal for better visualization of Inundation extent in Andhra Pradesh State with villages overlaid.

We will continue to keep a watch on the situation and update the information as and when required. Your support and active interaction is highly appreciated. Please provide feedback on the information being provided.

With kind regards

Yours sincerely,
(Dr KHV Durga Rao)

As per the distribution list enclosed in the report.

Andhra Pradesh- Cyclone 'Titli'-2018

1.0 Background

Incessant rains lashed Andhra Pradesh during Second week of October 2018, under the influence of Cyclone Titli. Districts in the northern part of Andhra Pradesh were severely affected. Srikakulam and Vizianagaram were reported to be flooded.

(Source: News Media, IMD, CWC)

2.0 Satellite Data

Flood Disaster Team is keeping a constant watch on the situation and checked the satellite data coverage over the affected areas. Radarsat-2 Image of 13-Oct-2018 was programmed and analyzed. (Refer Table-1).

Table-1 Satellite Data acquired over Flood Affected Area

| S No | Date | Satellite/Sensor | Status |
|------|------------|--------------------------------------|---|
| 1 | 12-10-2018 | Radarsat-2 SAR (0600 hours IST) | Analysed and 1 flood map was sent. |
| 2 | 13-10-2018 | Resourcesat-2 AWiFS (1030 hours IST) | Analysed and 1 flood map was sent. |
| 3 | 13-10-2018 | Radarsat-2 SAR (1800 hours IST) | Analysed and 1 flood map is being sent. |

3.0 Data Analysis

Satellite data is rectified and inundation layer is extracted. The inundation layer is integrated with district boundary layer, for extracting district-wise inundation statistics which are shown in the Table-2.

4.0 Observations

Based on the analysis of satellite data, the following points were observed.

- Satellite data covers part of Andhra Pradesh state.
- Major inundation was observed in Srikakulam district

| Sl.No | District | Flood Inundated Area (Hectares) |
|-------|--------------|---------------------------------|
| 1 | SRIKAKULAM | 4199 |
| | TOTAL | 4199 |

Note:

- Flood inundation may include rain water accumulation / flood water in low lying areas.
- Districts with inundation less than 1000 ha are not included in the statistics.

Distribution List:

| | | |
|---|---------------------|--|
| 1 | MHA | 1. Joint Secretary, NDM, Ministry of Home Affairs, North Block, New Delhi. 2. NDM control Room, Ministry of Home Affairs, North Block, New Delhi 3. Director, DM-III, NDM, Ministry of Home Affairs, North Block, New Delhi. |
| 2 | NDMA | 1. Vice Chairman, National Disaster Management Authority (NDMA), New Delhi 2. Control Room, National Disaster Management Authority (NDMA), New Delhi |
| 3 | NODAL MINISTRIES | 1. Chairman, Central Water Commission, Sewa Bhavan, R K PURAM, New Delhi 2. ADGM (H & A), India Meteorological Department, Mausam Bhavan, New Delhi |
| 4 | STATE | 1. Commissioner for Disaster Management, Revenue Department, 7th Floor, L-Block, AP Secretariat, Hyderabad-500022. 2. Andhra Pradesh State Development Planning Society (APSDPS) |
| 4 | ISRO/DOS | 1. Director, EDPO, ISRO Head Quarters, Antariksha Bhavan, New BEL Road, Bangalore-560094. (e-mail) 2. Programme Director, EDPO, ISRO Head Quarters, Antariksha Bhavan, New BEL Road, Bangalore-560094. (e-mail) 3. Associate Director, EDPO, ISRO Head Quarters, Antariksha Bhavan, New BEL Road, Bangalore-560094. (e-mail) |
| 5 | NRSC | 1. Director, NRSC 2. Associate Director, NRSC 3. Deputy Director (RSA) & PD, DSC |

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