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

Date: August 07, 2018

No: 09-FL-2018-UP/01

Dear Sir,

Sub: Uttar Pradesh - Near Real Time Flood Inundation Mapping using satellite data

As you are aware, National Remote Sensing Centre is carrying out 'Near Real Time Flood Mapping' project using satellite data. Heavy rains under were reported in Uttar Pradesh state during first week of August 2018. We have analyzed Sentinel 1 SAR satellite data of 4th August 2018 over Uttar Pradesh and a flood inundation map is prepared for part of Uttar Pradesh State. 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.

Further, we request you to visit flood page in Bhuvan portal (bhuvan-noeda.nrsc.gov.in/disaster/disaster/disaster.php) NDEM portal for better visualization of flood extent in Uttar Pradesh State.

In addition, the inundation layer in GIS format is being transmitted to Flood Management Information System Cell (FMISC) and Uttar Pradesh Remote State Sensing Centre, Lucknow by e-mail for further value addition and dissemination to user departments. Kindly keep us in the mailing list of the user departments.

We will continue to keep a watch on the flood 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,
(K H V Durga Rao)

As per the distribution list enclosed in the report.

Heavy Rains in Uttar Pradesh – 2018

1.0 Background

Heavy incessant rains in Uttar Pradesh is reported during first week of August 2018 caused steady rise in river water levels in parts of Uttar Pradesh state and led to inundation of low lying areas in the state. According to reports, River Ghagra in Ayodhya and River Sai in Raebareli district is flowing above danger level.

(Source : News Media, FMISC)

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. Sentinel 1A SAR satellite data of 4th August, 2018 was acquired and analyzed. (Refer Table-1).

Table-1 Satellite Data acquired over Flood Affected Area

S No	Date	Satellite / Sensor	Status
1	04-Aug-18	Sentinel 1 / SAR	Analysed and 1 flood map is being sent.

3.0 Data Analysis

Satellite data is rectified and inundation layer is extracted. Further, inundation map is composed for part of Uttar Pradesh state. The inundation layer is integrated with district boundaries 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 Uttar Pradesh state.
- Inundation is observed in Raebareli, Barabanki , Pratapgarh district.
- Observed inundation may include wet areas/ rain water accumulation / water in low lying areas.

Table-2: District-wise inundated area statistics

S.No.	District	Approx. Inundated Area (ha)
1	RAEBARELI	19150
2	BARABANKI	4871
3	PRATAPGARH	4399
4	JAUNPUR	3401
5	LUCKNOW	2683
6	FATEHPUR	1897
7	GORAKHPUR	1537
9	GONDA	1351
	TOTAL	39290

Note:

Districts with inundation less than 1000 ha are not included in the statistics.

5.0 Distribution List:

1	MHA	<ol style="list-style-type: none"> 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	NODAL MINISTRIES NDRF	<ol style="list-style-type: none"> 1. Vice Chairman, National Disaster Management Authority (NDMA), New Delhi 2. Control Room, National Disaster Management Authority (NDMA), New Delhi 3. DG NDRF, Sector-1, R.K. Puram, New Delhi - 110 066. 4. DIG (Ops&Trg.), Sector-1, R.K. Puram, New Delhi - 110 066
3	STATE	<ol style="list-style-type: none"> 1. Secretary, Revenue Department, Govt. of Uttar Pradesh, Bapubhawan, Lucknow – 226 001. 2. Uttar Pradesh Remote Sensing Application Centre, Lucknow (With a request to disseminate the information to the concerned departments)
4	ISRO/DOS	<ol style="list-style-type: none"> 1. Programme Manager, Disaster Management Support Programme, ISRO Head Quarters, Antariksha Bhavan, New BEL Road, Bangalore 2. Programme Director, Disaster Management Support Programme, ISRO Head Quarters, Antariksha Bhavan, New BEL Road, Bangalore-560094. (e-mail)
5	NRSC	<ol style="list-style-type: none"> 1. Deputy Director (RSA) & PD, DSC 2. Associate Director, NRSC 3. Director, NRSC <p>#####</p>