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Dear Sir,

Sub: Odisha Heavy Rains 2022- Near Real Time Inundation Mapping using satellite data

Please refer to our earlier mail dated 16th Aug, 2022 regarding Near Real Time Flood Inundation Mapping project using satellite data. So far we have sent 1 flood map covering floods in part of Odisha State. Heavy rains were reported in Odisha state during third week of August, 2022. We have analyzed Sentinel-1A SAR data of 18th August, 2022 (1800 Hrs) and an inundation map for part of Odisha State is prepared. 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 inundation page in Bhuvan portal (bhuvan-noeda.nrsc.gov.in/disaster/disaster/disaster.php) for better visualization of inundation extent in Odisha.

In addition, the inundation layer in GIS ready format and inundation statistics are transmitted to Odisha Remote Sensing Application Centre (ORSAC) by e-mail for further value addition and dissemination to concerned user departments.

We will continue to keep a watch on the inundation 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. A.V Suresh Babu)

As per the distribution list enclosed in the report.

Odisha Heavy Rains – 2022

1.0 Background

Heavy incessant rains were reported in Odisha during third week of August, 2022. River Mahanadi at Naraj and River Bhargavi at Balanga were reported to be flowing above danger level. (Source: News Media, CWC)

2.0 Satellite Data

Flood Disaster Team is keeping a constant watch on the inundation situation and checked the satellite data coverage over the affected areas. Sentinel-1A SAR satellite data of 18th August, 2022 (1800 Hrs) is acquired and analysed. (Refer Table-1).

Table-1: Satellite Data acquired over Inundation Affected Area

S No	Date	Satellite / Sensor	Status
1	16-08-2022	Resourcesat-2 AWiFS (1030 Hrs) Sentinel-1A SAR (0600 Hrs)	Analyzed and 1 inundation map was sent.
2	18-08-2022	Sentinel-1A SAR (1800 Hrs)	Analyzed and 1 inundation map is being sent.

3.0 Data Analysis

Satellite data is rectified and inundation layer is extracted. Further, inundation map was composed for part of Odisha state based on the analysis of Sentinel-1A SAR satellite data of 18th August, 2022 (1800 Hrs). 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 are observations

- Satellite data covers part of Odisha State
- Major Inundation/ water accumulation is observed in parts of Bhadrak, Kendraparha and Jajapur districts.
- Observed inundation may include wet areas/ rain water accumulation / water in low lying areas as the image is acquired immediately after heavy rains.

Table-2: District-wise inundated area statistics

S. No.	DISTRICT	Inundated Area (ha)
1	BHADRAK	23402
2	KENDRAPARHA	22420
3	JAJAPUR	11846
4	PURI*	8659
5	JAGATSINGHAPUR	7752
6	BALESHWAR	5967
7	CUTTACK*	4349
8	KHORDHA*	3206
	TOTAL	87600

-Inundation may include rain water accumulation / inundation water in low lying areas.

-Districts with inundation less than 100 ha are not included in the statistics

-*Partially covered in satellite data

Distribution List (through e-mail):

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. Additional Chief Secretary and Managing Director, Odisha State Disaster Management Authority (OSDMA), Bhubaneswar 2. Relief Commissioner, Govt. of Odisha, Bhubaneswar. (Through email and hard copy of the map through ORSAC also) 3. Chief Executive, Odisha Remote Sensing Application Centre (ORSAC), Dept Of S&T, Govt. of Odisha, 2nd Floor, Surya kiran building complex, Saheed Nagar, Bhubaneswar – 751 007. (with a request to disseminate the information to the concerned user depts.)
5	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)
6	NRSC	1. Group Head, DMSG, NRSC 2. Deputy Director (RSA) & Project Director, RRES 3. Associate Director, NRSC 4. Director, NRSC

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