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Date: 02-11-2025

Dear Sir,

Sub: Cyclone Montha – Near Real Time Water Inundation Mapping using satellite data

With reference to heavy rains due to Montha cyclone in Andhra Pradesh , **Sentinel-1A SAR** Satellite data has been acquired on **02.11.2025(0600 Hrs)** to map the water level inundation in low lying areas and brief report is generated along with Water Inundation Map. Since, the satellite image is acquired during / immediate to the rainfall events, observed water accumulated inundation may include wet areas/ rain water accumulation in low lying areas.

Geospatial layers can be visualised at the following NRSC portals

Bhuvan : <https://bhuvan-app1.nrsc.gov.in/disaster/disaster.php?Id=flood>

NDEM : <https://ndem.nrsc.gov.in>

Inundation layer in GIS ready format and area wise statistics are provided to APSDMA (Andhra Pradesh State Disaster Management Authority) by e-mail for further value addition and dissemination to the concerned user departments.

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

With kind regards

Yours sincerely,
(SHASHIVARDHAN REDDY P)

Copy to : As per the distribution list enclosed in the report

Rain affected areas after Heavy Rains in Andhra Pradesh State

Background

Cyclone Montha hit many areas in Andhra Pradesh during the first week of November. Water Accumulation is observed in low lying areas in many districts of Andhra Pradesh. (Source: CWC, IMD and News)

Satellite Data acquisition and analysis

Satellite data acquisition has been planned for the coverage of rain affected areas in Andhra Pradesh State and its planned to have a watch over these areas. Satellite data has been acquired over the state using **Sentinel-1A SAR** satellite on **02.11.2025(0600 Hrs)** . Satellite data is rectified with the reference satellite image over the study area and water accumulated inundation layer is extracted based on the response of microwave satellite signatures viz. Back scatter coefficient in pre and post event datasets. Further, rain affected area map was composed for part of Andhra Pradesh state based on the analysis of **Sentinel-1A SAR** Image of **02.11.2025(0600 Hrs)**. The inundation layer is integrated with district boundaries layer, for extracting district-wise inundation statistics.

Based on the analysis of satellite data, it is observed that the satellite data covers part of Andhra Pradesh state, and rain affected areas are estimated to be 2691 ha covering 06 districts.

Sl no	District	Rain affected area(Ha)
1	ELURU*	982
2	WESTGODAVARI	643
3	ANAKAPALLI*	350
4	KRISHNA	279
5	KAKINADA	225
6	KONASEEMA	212
TOTAL		2691

* denotes the partial coverage of satellite across the district

Note : Water accumulated inundation pockets observed due to overflow of the rivers/tributaries are in several areas / pockets as found in satellite images which depicts high moisture after heavy rains. Area estimated is dependent on spatial resolution of satellite sensor and satellite coverage.

Satellite Data acquired over Flood Affected Area

S No	Date of Pass	Satellite / Sensor	District Affected
1	21.08.2025 (1000Hrs)	Resourcesat-2A AWiFS	Alluri Sita Ramaraju, Eluru, East Godavari
2	22.08.2025 (1800Hrs)	RISAT-1A MRS SAR	Alluri Sita Ramaraju, East Godavari, Eluru
3	23.08.2025 (1800Hrs)	RISAT-1A MRS SAR	Alluri Sita Ramaraju, Eluru
4	27.08.2025 (0600Hrs)	Sentinel-1A SAR	Alluri Sita Ramaraju
5	15.09.2025 (0600Hrs)	RISAT-1A MRS SAR	Alluri Sita Ramaraju, Eluru, East Godavari
6	03.10.2025 (0600Hrs)	RISAT-1A MRS SAR	Parvathipuram Manyam, Srikakulam
7	02.10.2025 (1800Hrs)	RISAT-1A MRS SAR	Alluri Sita Ramaraju, East Godavari, Eluru
8	04.10.2025 (0600Hrs)	Sentinel-1A SAR	Parvathipuram Manyam, Srikakulam, Vizianagaram
9	04.10.2025 (1800Hrs)	RISAT-1A MRS	Alluri Sita Ramaraju, East Godavari, Eluru
10	26.10.2025 (1800Hrs)	RISAT-1A MRS	Sri Potti Sriramulu, Tirupati, Prakasam, Bapatla
11	28.10.2025 (1800Hrs)	RISAT-1A MRS	Anakapalli, Visakhapatnam, Kakinada, Vizianagaram
12	29.10.2025 (1800Hrs)	RISAT-1A CRS	Bapatla, Guntur, Palnadu, Prakasam, Ntr, Krishna, East Godavari
13	30.10.2025 (1800Hrs)	RISAT-1A CRS	Eluru, West Godavari, Anakapalli, Konaseema, Kakinada
14	30.10.2025 (0600Hrs)	RCM	Sri potti Sriramulu, Bapatla, Prakasam, Tirupati
15	31.10.2025 (1000Hrs)	Sentinel-2B	Sri Potti Sriramulu, Prakasam
16	01.11.2025(1000 Hrs)	Landsat-8	Bapatla, Prakasam, Sri potti Sriramulu
17	02.11.2025(0600 Hrs)	Sentinel-1A SAR	Eluru, Westgodavari, Anakapalli, Krishna, Kakinada, Konaseema

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