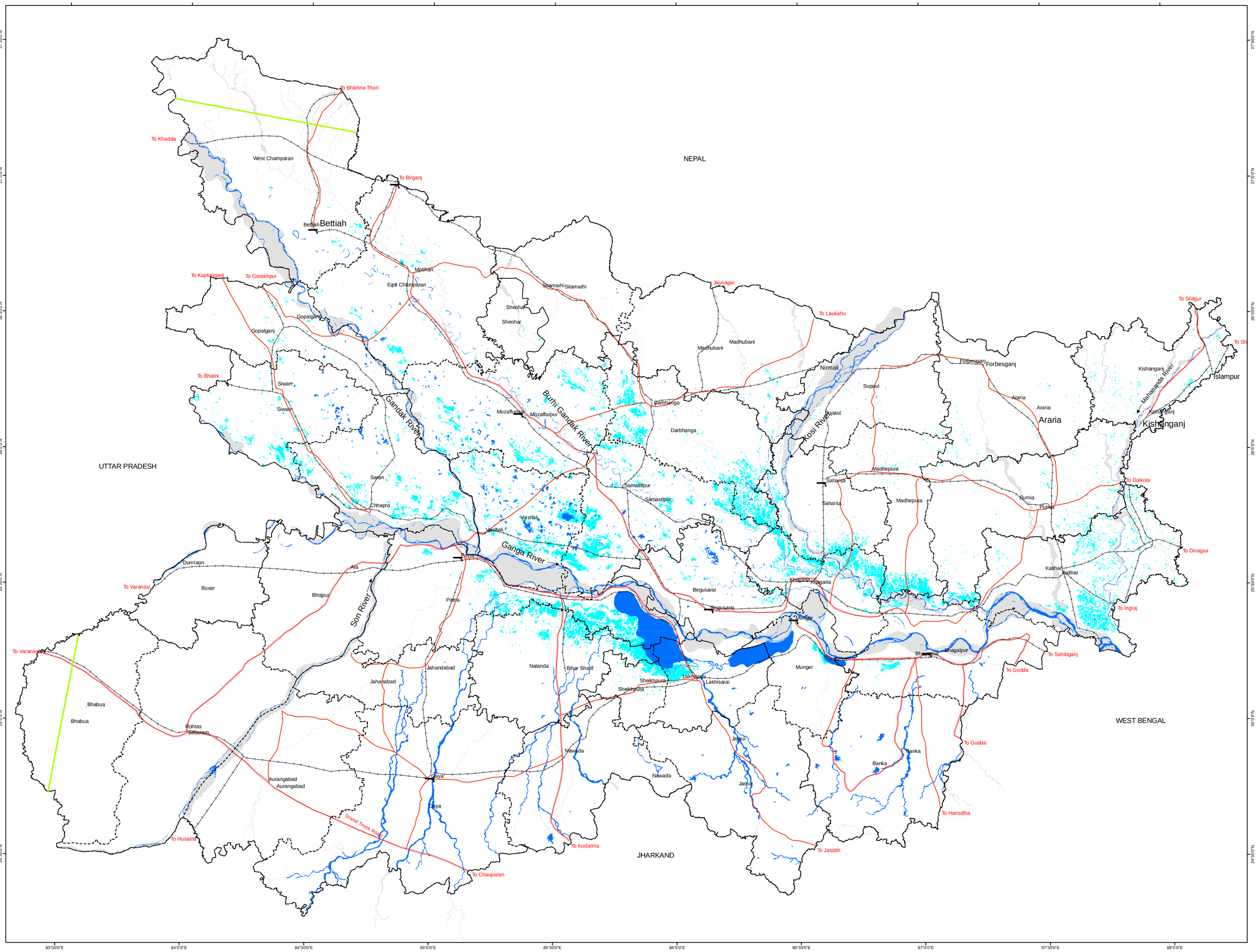
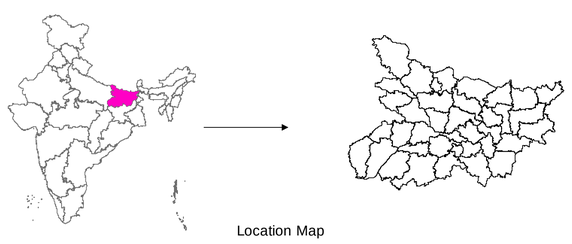
Flood Inundated areas in Bihar state

Based on the analysis of Radarsat-2 data of 05-August-2008



Legend

- Airport
- District HQ
- Major Roads
- Other Roads
- Railway
- International Boundary
- State Boundary
- District Boundary
- End of Satellite Coverage
- River Bank
- Normal river/water bodies
- Flood Inundation



Location Map

Scale: 1:600,000

0 10 20 30 40 50

Kilometers

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Date: Aug 05, 2008

Dear Sir,

Sub: Bihar Floods - Near Real Time Flood Mapping using satellite data

Please refer to our earlier letter dated 04-Aug-2008 regarding 'Near Real Time Flood Mapping' project using satellite data. So far, we have sent 36 flood maps covering floods in Bihar. In continuation, we have programmed Radarsat-2 data of 05-Aug-2008. The satellite data was analysed and a state-level flood map was composed on 1: 600,000 scale for Bihar. Further, district and detailed flood maps are being prepared for few districts. A brief report along with the flood maps are attached herewith containing the statistics.

In addition, the flood layer in GIS ready format and inundation statistics are transmitted to Bihar Remote Sensing Application Centre (BIRSAC) and Flood Management Information System Cell (FMISC), Patna by e-mail for further dissemination to 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 us the feedback on the flood maps.

Regards

Yours sincerely,

(V BHANU MURTHY)

1. Joint Secretary, NDM, Ministry of Home Affairs, New Delhi - 110 001. (Through e-mail and Hard copy by post)
2. NDM control Room, Ministry of Home Affairs, New Delhi - 110 001(e-mail)
3. Chairman, Central Water Commission, Sewa Bhavan, R K PURAM, New Delhi-110066. (Through e-mail and Hard copy by post)
4. Commissioner & Secretary, Disaster Management Department, Govt of Bihar, Old Secretariat, PATNA-800015 (E-mail and hard copy of the map through BIRSAC also)
5. In-charge, Flood Management Information System Cell (FMISC), Patna (e-mail)
6. Project Director, Bihar Remote Sensing Centre (BIRSAC), Planetarium Complex, Bailey Road, Patna 800001. (With a request to disseminate the information to Shri C.K.Anil, Additional Secretary to Government, Department of Agriculture, Patna and other concerned user depts.)
7. Dr V S Hegde, Programme Director, DMSP, ISRO Head Quarters, Antariksha Bhavan, New BEL Road, Bangalore-560094. (e-mail)
8. ADGM (H & A), India Meteorological Department, Mausam Bhavan New Delhi -110003

CC

PD (DSC) |
DD (RS & GIS-AA) | for kind information please
DIRECTOR, NRSA |

Bihar Floods – 2008

1.0 Background

Floods have struck South Bihar during third week of June 2008 due to heavy rains. An embankment breach was reported in Patna. The water levels of Bagmati, Kosi, Gandak, Ganga and Punpun River are nearing the danger level mark at some places. According to ground news, a breach in an embankment in Sitamarhi district was reported. Further, during third week of July 2008, it was reported that moderate flooding is in Bagmati, Punpun and Kosi rivers. Most of the areas in North and South Bihar were reported to be in flood-like situation. Muzaffurpur, Supaul, Patna, Saharsa, katihar, Nalanda, Arari and West Champaran districts were reported to be affected. The flood situation is reported to be improving. (Source: News Media)

2.0 Satellite Data

Flood Disaster Team is keeping a constant watch on the flood situation and checked the satellite data coverage over the flood affected areas. Anticipating cloud cover, Radarsat data of 05-Aug-2008 was programmed, procured and analysed. (Refer Table-1).

Table-1 Satellite Data acquired over Flood Affected Areas of Bihar

S No	Date	Satellite/ Sensor	Status
1	21-06-08	Radarsat	Procured, analysed and a flood map was sent
2	28-06-08	Radarsat	Procured, analysed and a flood map was sent
3	30-06-08	Radarsat	Procured, analysed and a flood map was sent
4	07-07-08	Radarsat	Procured, analysed and 3 flood maps were sent
5	17-07-08	Radarsat	Procured, analysed and 7 flood maps were sent
6	22-07-08	Radarsat	Procured, analysed and 9 flood maps were sent
7	24-07-08	Radarsat	Procured, analysed and 5 flood maps were sent
8	03-08-08	Radarsat-2	Procured, analysed and 9 flood maps were sent
9	05-08-08	Radarsat-2	Procured, analysed and a flood map is being sent

3.0 Data Analysis

Satellite data is rectified and flood inundation layer is extracted. A flood inundation map is composed on 1:600,000 scale for Bihar state. The flood inundation layer is integrated with district boundaries layer, for extracting district-wise flood inundation statistics which are shown in the Table-2. Further, district and detailed flood maps are being prepared for few districts.

4.0 Observations

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

- Satellite data covers major part of Bihar state.
- Major flood inundation was observed in Darbhanga, Samastipur, Patna, Katihar, Khagaria, Nalanda, Vaishali, Muzaffurpur, Saran and Madhepura districts.
- Most of the flood inundation is due to rain water accumulation / flood water in low lying areas especially in South Bihar.

Table-2

S.No	District	Inundated Area(Ha)
1	Darbhanga	24832
2	Samastipur	24726
3	Patna	23044
4	Katihar	20600
5	Khagaria	20141
6	Nalanda	18077
7	Vaishali	15963
8	Muzaffurpur	14386
19	Saran	12993
10	Madhepura	10004
11	Saharsa	7015
12	Siwan	6765
13	Purnia	6015
14	Bhagalpur	5534
15	Lakhisarai	5271
16	Sheikhpura	4036
17	East Champaran	4026
18	Begusarai	2933
19	Kishanganj	2177
20	Munger	1543
21	Gopalganj	1205
22	Madhubani	1168
23	West Champaran*	1005
	TOTAL	**233461**

Note:
- Inundation less than 1000 ha is not included in the statistics.
* partly covered in satellite data