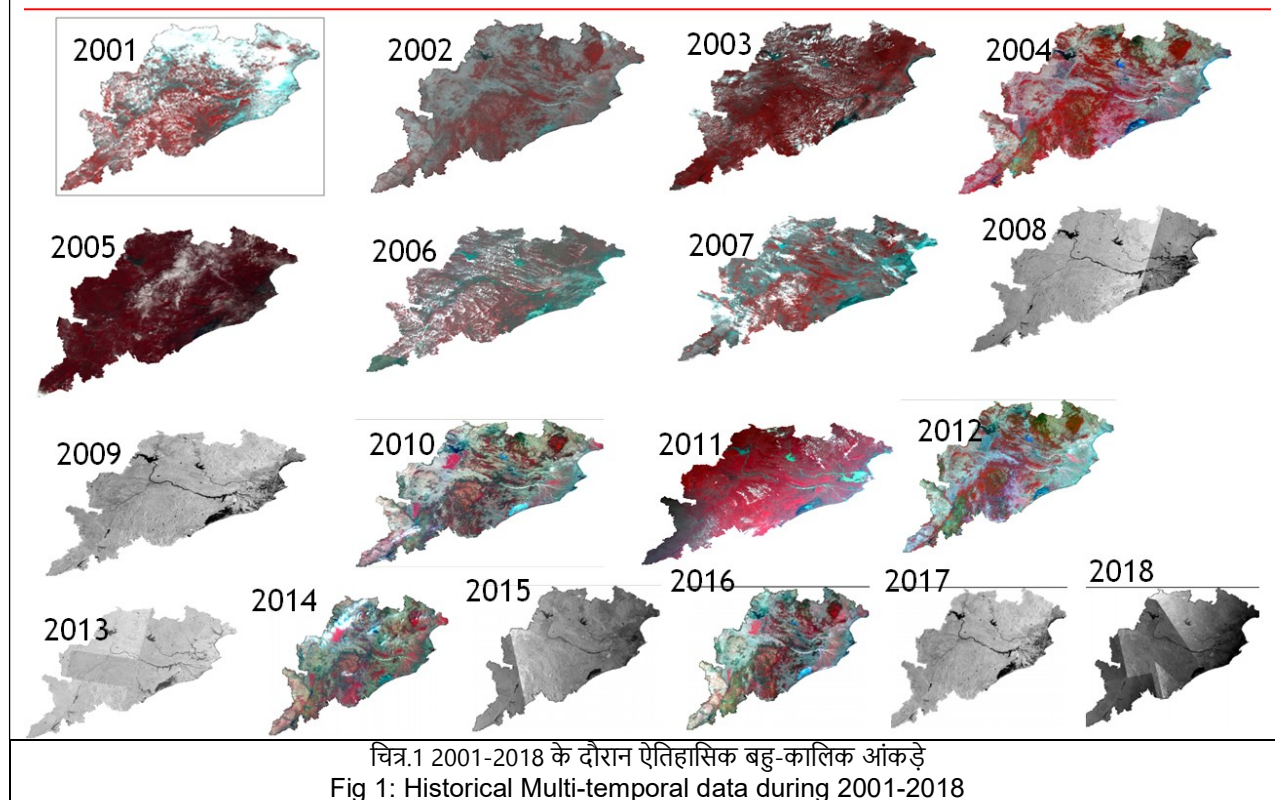


**Release of Flood Hazard Atlas – Odisha State**

बाढ़ दुनिया भर में लोगों को प्रभावित करने वाली सबसे गंभीर आपदाओं में से एक है। भारत, अपनी भौगोलिक स्थिति, जलवायु और भूवैज्ञानिक स्थिति के कारण, दक्षिण-एशियाई क्षेत्र में आपदा का सबसे बुरी तरह से प्रभावित केंद्र है, जो इसे कई प्राकृतिक खतरों, विशेष रूप से बाढ़ के लिए असुरक्षित बनाता है। राष्ट्रीय सुदूर संवेदन केन्द्र, हैदराबाद में स्थित निर्णय सहायता केंद्र (DSC) पिछले दो दशकों से बाढ़, चक्रवात, वन की आग, भूकंप और भूस्खलन की निगरानी और मानचित्रण कर रहा है। बाढ़ के निम्नीकरण के उपायों के भाग के रूप में, निर्णय सहायता केन्द्र, एनआरएससी ने आईआरएस और विदेशी उपग्रह आंकड़ासैटों दोनों के ऐतिहासिक बहु-कालिक उपग्रह आंकड़ासैटों के उपयोग से ओडिशा राज्य के लिए एक बाढ़ के जोखिम का सीमांकन दर्शाते हुए एटलस तैयार किया है। 2001- 2018 के बाढ़ के मौसम के दौरान लगभग 100 ऑप्टिकल और सूक्ष्मतरंग उपग्रह आंकड़ासैट अर्जित किए हैं जिन्हें बाढ़ के जोखिम का एटलस तैयार करने के लिए लिया गया है जैसा कि चित्र 1 में दिखाया गया है।

Flood is one of the most severe disasters affecting the people across globe. India, on account of its geographical position, climate and geological setting, is the worst affected centre of disaster in the South-Asian region, making it vulnerable to many natural hazards, particularly to floods. Decision Support Centre (DSC) situated at National Remote Sensing Centre, Hyderabad has been monitoring and mapping floods, cyclones, Forest Fires, Earthquakes and landslides for the past two decades. As part of flood mitigation measures, DSC, NRSC has prepared a Flood hazard Zonation Atlas for Odisha State using the historical multi-temporal satellite datasets comprising of both IRS and foreign satellite datasets. A total of about 100 optical and microwave satellite datasets acquired during the flood seasons of 2001- 2018 were considered for preparing the flood hazard atlas as shown in Fig 1.

• Data Used - 18 Years (2001-2018)



विभिन्न वर्षों (2001-2018) से संबंधित अधिकतम बाढ़ की परतों को एकीकृत किया गया ताकि बाढ़ की आवृत्ति का आकलन किया करते हुए की बाढ़ के जोखिम की आगामी परतें तैयार की जा सकें। ओडिशा जिला के आंकड़ा आधार के साथ इस जोखिम का सीमांकन कर बाढ़ के खतरे के आँकड़े निकाले गए हैं। अध्ययन अवधि (2001-2018) के दौरान ओडिशा राज्य के 30 जिलों में से 23 को बाढ़ प्रभावित देखा गया।

The maximum flood inundation layers corresponding to various years (2001-2018) were integrated for assessing the frequency of inundation and subsequent generation of hazard layer. This hazard zonation layer is integrated with the Odisha district database and the flood hazard statistics were derived. 23 out of 30 districts of Odisha state were observed to be flood affected during the study period (2001-2018).

इस प्रकार तैयार किए गए बाढ़ के जोखिम के एटलस को 22 जून, 2019 को ओडिशा के माननीय मुख्यमंत्री श्री नवीन पटनायक ने भुवनेश्वर में जारी किया।

The flood hazard atlas thus prepared is released (Fig 2) by Hon'ble Chief Minister of Odisha State Shri Naveen Patnaik at Bhubaneswar on June 22, 2019.



चित्र.2 बाढ़ के जोखिम वाले क्षेत्रों के एटलस का ओड़िशा के माननीय मुख्यमंत्री श्री नवीन पटनायक द्वारा विमोचन  
Fig 2 : Release of flood hazard atlas by Hon'ble Chief Minister of Odisha State Shri Naveen Patnaik

राज्य के कालानुक्रमिक बाढ़ प्रवण क्षेत्रों की पहचान करने और बाढ़ के खतरे वाले क्षेत्रों में विकासात्मक गतिविधियों को विनियमित करने के लिए एटलस राज्य के लिए एक प्रमुख संसाधन के रूप में काम करेगा। यह एटलस निर्णय निर्माताओं और नीति निर्माताओं को बाढ़ राहत और बचाव कार्यों को प्राथमिकता देने और बाढ़ राहत आश्रयों की पहचान करने के लिए काम करेगा। घटना को इलेक्ट्रॉनिक मीडिया और समाचार पत्रों द्वारा व्यापक रूप से आवृत्त किया गया था। आवरण का एक स्नेपशॉट चित्र 3 में दिखाया गया है।

The atlas would serve as a major resource for the state to identify chronically flood prone areas of the state and to regulate the developmental activities in flood hazard zones. This atlas would serve the decision makers and policy makers to prioritise the flood relief and rescue operations and also to identify flood relief shelters. The event was covered widely by electronic media and newspapers. A snapshot of the coverage is shown in fig 3



# Naveen unveils flood hazard atlas

POST NEWS NETWORK

**Bhubaneswar, June 22:** Chief Minister Naveen Patnaik Saturday unveiled a flood hazard atlas for better preparedness to tackle the natural calamity.

Patnaik unveiled the atlas at the State-Level Natural Calamity Committee meeting here Saturday. The Chief Minister said, "This atlas will help identify the disaster prone areas of the state so that necessary plans can be made to tackle the situation."

He said the atlas prepared by National Remote Sensing Centre (NRSC), Hyderabad and Odisha State Disaster Management Authority (OSDMA), will help management of the flood in the state as "Odisha is a flood prone state. The flood causes extensive damage to life and property."

"In view of the IMD prediction of a normal monsoon this year, chances of flooding would also be there. Enhanced preparedness has to be ensured at all levels to meet any eventuality. At the same time, the state has to remain fully prepared for any drought situation," Patnaik said.

The atlas has been prepared on the basis of historic flood inundation captured through satellite imagery over a period from 2001 to 2018 and the methodology adopted for arriving at the district-wise



CM Naveen Patnaik releases 'Flood Hazard Atlas of Odisha' at Secretariat

**COMBATING CALAMITY**  
The atlas will help identify the disaster prone areas of the state so that necessary plans can be made to tackle the situation. It has been prepared by National Remote Sensing Centre, Hyderabad and Odisha State Disaster Management Authority.

**RURAL DEVELOPMENT AND HOUSING AND URBAN DEVELOPMENT DEPARTMENTS HAVE BEEN TOLD TO MAKE NECESSARY ARRANGEMENTS FOR THE SUPPLY OF SAFE DRINKING WATER DURING CALAMITIES**

flood hazard index. Special Relief Commissioner (SRC) Bishnupada Sethi said. In this attempt, a large number of satellite images acquired over 18 years were used. All satellite data sets were analyzed and flood layers were extracted, he said.

served flood inundated areas with different frequencies. Later, the layer was integrated with digital database layers of Odisha.

As per the atlas, about 8.96 per cent (13.96 lakh hectares) of land in the state was affected by flood during 2001-2018. Out of total flood affected area (13.96 lakh ha), about 2.81 lakh ha of land falls under high (inundated 7-9 times) to very high (inundated 10-14 times) flood hazard categories. Eight districts - Bhadrak, Kendrapara, Jagatsinghpur, Balasore, Puri, Ajpur, Khurda and Cuttack - are more flood prone.

The state government has meanwhile asked the Water Resources department to close breaches in river embankments and the Odisha Disaster Rapid Action Force and Fire Service Organisation to stay alert with boats and other rescue equipment.

The CM also stressed on pre-positioning of adequate food materials by Food Supplies and Consumer Welfare Department in flood prone areas. Rural Development and Housing and Urban Development departments have been told to make necessary arrangements for the supply of safe drinking water during the calamity.

Health and Family Welfare department will take care of health and hygiene in flood-hit areas, to prevent outbreak of epidemic.

www.phnindia.in  
Cutack, Sunday, June 23, 2019

twincity

## CM asks officials to remain prepared for possible floods

Launches Flood Hazard Atlas prepared by NRSC Hyderabad, OSDMA

FOR BUREAU

Bhubaneswar, June 22

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## Odisha uses satellite imagery to create unique flood hazard atlas

Aimed at tackling floods effectively, the system takes into account flood inundation data from 2001 to 2018

STAFF REPORTER

BHUBANESHWAR

Odisha has come out with a unique flood hazard atlas on the basis of historic flood inundation captured through satellite imagery from 2001 to 2018, which is expected to help the State manage floods more efficiently.

The National Remote Sensing Centre (NRSC) of the Indian Space Research Organisation (ISRO), Hyderabad, conducted the study on flood hazard creation for Odisha. The atlas was released by Chief Minister Naveen Patnaik at the State-Level Natural Calamity Meeting here on Saturday.

Vast areas of the State are inundated every year due to the flooding of major rivers - Mahanadi, Brahmani, Baitarani, Subarnarekha and Rushikulya. Other rivers, like the Vamsadhara and the Balakrishna, also cause flash floods due to instant run off from their hilly catchments.

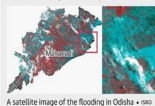
Common delta According to Bishnupada Sethi, managing director, Odisha State Disaster Management Authority (OSDMA), damages due to floods are caused mainly by the Mahanadi, the Brahmani and the Baitarani, which have a common delta where floodwaters intermingle, and when in spate simultaneously, weak considerable havoc.

The entire coastal belt is prone to storm surges, which is usually accompanied by heavy rainfall, thus making the estuary region vulnerable to both storm surges and river flooding. A few districts are affected by floods during 2001-2018. Out of total flood-

### Clear picture

The atlas will help the authorities in several ways

- To carry out relief and rescue operations
- To plan relief shelters and health centres
- To systematically plan flood control measures
- To control developmental activities on floodplains



A satellite image of the flooding in Odisha - via

affected area (13.96 lakh hectares), about 2.81 lakh hectares of land falls under high (inundated 7-9 times) to very high (inundated 10-14 times) flood hazard categories.

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According to P. G. Dewakar, director of Earth Observation, Application and Disaster Management Support Programme Office of ISRO, "A large number of satellite images acquired over 18 years (2001-2018) were used. All satellite data sets were

analyzed and flood layers were extracted. All the flood layers corresponding to a year are combined as one inundation layer, so that this layer represents the maximum flooded area in one year."

'Useful resource' "All such combined flood layers were integrated into flood hazard layer representing the observed flood-inundated areas with different frequencies. This layer was integrated with the digital database layers of Odisha," said Dr. Dewakar.

The atlas would serve as a useful resource of information for policy makers, planners and civil society groups, said Chief Secretary A. P. Padhi.

The atlas has been prepared by National Remote Sensing Centre (NRSC), Hyderabad and Odisha State Disaster Management Authority (OSDMA).

Patnaik unveiled the atlas at the State-Level Natural Calamity Committee meeting here Saturday. The Chief Minister said, "This atlas will help identify the disaster prone areas of the state so that necessary plans can be made to tackle the situation."

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"In view of the IMD prediction of a normal monsoon this year, chances of flooding would also be there. Enhanced preparedness has to be ensured at all levels to meet any eventuality. At the same time, the state has to remain fully prepared for any drought situation," Patnaik said.

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Sandesh Mishra / Two

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across the state. "It will help the planning and development process by identifying high risk areas as a sustainable resource," Patnaik added.

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TIMES CITY

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Eight out of 30 districts - Bhadrak, Kendrapara, Jagatsinghpur, Balasore, Puri, Jajpur, Khordha and Cuttack - are more flood affected than others. As high as 77% of Bhadrak and 70% of Kendrapara have been categorized as flood hazard.

According to P. G. Dewakar, director of Earth Observation, Application and Disaster Management Support Programme Office of ISRO, "A large number of satellite images acquired over 18 years (2001-2018) were used. All satellite data sets were

analyzed and flood layers were extracted. All the flood layers corresponding to a year are combined as one inundation layer, so that this layer represents the maximum flooded area in one year."

'Useful resource' "All such combined flood layers were integrated into flood hazard layer representing the observed flood-inundated areas with different frequencies. This layer was integrated with the digital database layers of Odisha," said Dr. Dewakar.

The atlas would serve as a useful resource of information for policy makers, planners and civil society groups, said Chief Secretary A. P. Padhi.

The atlas has been prepared by National Remote Sensing Centre (NRSC), Hyderabad and Odisha State Disaster Management Authority (OSDMA).

Patnaik unveiled the atlas at the State-Level Natural Calamity Committee meeting here Saturday. The Chief Minister said, "This atlas will help identify the disaster prone areas of the state so that necessary plans can be made to tackle the situation."

He said the atlas prepared by National Remote Sensing Centre (NRSC), Hyderabad and Odisha State Disaster Management Authority (OSDMA), will help management of the flood in the state as "Odisha is a flood prone state. The flood causes extensive damage to life and property."

"In view of the IMD prediction of a normal monsoon this year, chances of flooding would also be there. Enhanced preparedness has to be ensured at all levels to meet any eventuality. At the same time, the state has to remain fully prepared for any drought situation," Patnaik said.

The atlas has been prepared on the basis of historic flood inundation captured through satellite imagery over a period from 2001 to 2018 and the methodology adopted for arriving at the district-wise

चित्र.3 बाढ़ के जोखिम वाले क्षेत्रों का एटलस के विमोचन समारोह के संबंध में समाचार पत्रों का क्लिपिंग  
Fig 3 : Newspaper clippings of Flood hazard atlas release function