



Press Release

## IIT Bhubaneswar Study Maps Odisha's Rising Thermal Hotspots, Calls for Region-Specific Climate Action

*Research published in Royal Society of Chemistry journal reveals rapid urbanization and land degradation are intensifying surface heat across Odisha*

**Bhubaneswar, 8<sup>th</sup> July 2026:** A new study by researchers from the School of Earth, Ocean and Climate Sciences, Indian Institute of Technology (IIT) Bhubaneswar has revealed a significant rise in land surface thermal hotspots across Odisha, highlighting the growing impact of rapid urbanization and land-use changes on the state's climate. The research has been published in the prestigious *Environmental Science: Advances*, a journal of the Royal Society of Chemistry.

The study, conducted by Ms. Dikshika Mahapatra and Dr. Debadatta Swain, analysed 20 years of satellite data to understand how thermal hotspots have evolved across all 30 districts of Odisha. The findings show that rapidly growing urban and industrial areas, particularly Khordha, Ganjam, Cuttack, and Sundargarh, are witnessing a steady increase in extreme surface temperatures, with thermal hotspot coverage expanding by 2% to 9% annually in several coastal districts.

Interestingly, the research also found that rising heat is no longer confined to cities. Several interior and hilly districts, including Balangir, Kalahandi, Rayagada, and Gajapati, are experiencing persistent thermal stress due to vegetation loss, forest degradation, and increasing stretches of barren land.

The researchers note that prolonged exposure to such thermal hotspots can have serious implications for public health, energy demand, and environmental sustainability. The study demonstrates how satellite-based monitoring can help identify vulnerable regions and support evidence-based planning for climate resilience.

To address the challenge, the study recommends region-specific solutions, including expanding urban green spaces, adopting heat-resilient infrastructure, restoring mangroves and riverbank vegetation, and integrating high-resolution satellite data into urban planning and environmental management.

This publication reflects IIT Bhubaneswar's continued commitment to research that addresses pressing environmental challenges and contributes to sustainable development through science and technology.

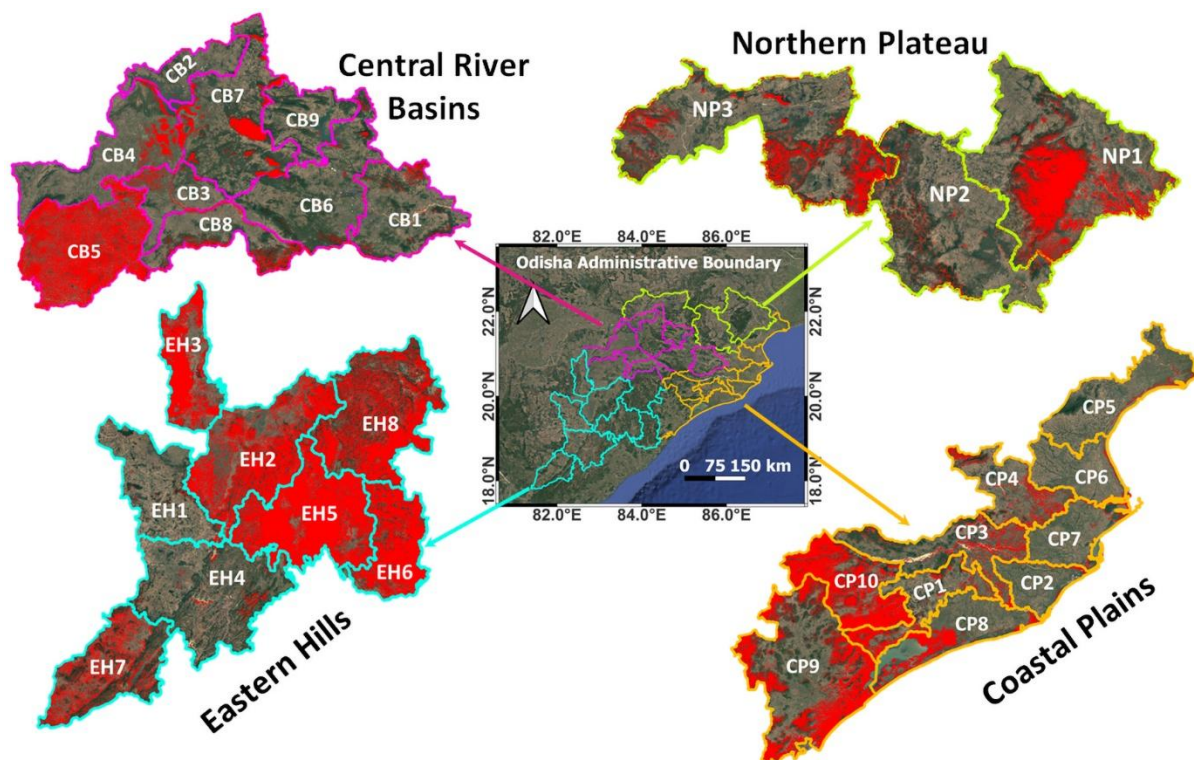


Figure: A geographical breakdown of persistent thermal hotspots (in red) in Odisha. The figure visualizes how varied topographies, spanning the districts in Coastal Plains, Central River Basins, Eastern Hills and Northern Plateau regions, are currently experiencing severe and persistent land surface heating.

**Link of the Paper:**

<https://pubs.rsc.org/VA/article/5/7/1774/1259099/Rising-urban-land-surface-thermal-extremes-in-a>

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