LEVERAGING GEOSPATIAL APPLICATIONS FOR URBAN CLIMATE RESILIENCE

A CASE OF BENGALURU

Concept Note

Urbanisation is a dynamic and complex process shaped by the interplay between human activities and natural systems. One of its critical consequences is the alteration of local and regional climates through changes in surface energy and water balances. Urban climate patterns are influenced by both large-scale atmospheric processes and localised environmental modifications. In recent years, the rapid expansion of urban populations, combined with the escalating impacts of global warming, has made the study of urban climate more urgent than ever.

As urbanisation accelerates in India, cities face a growing array of climate-related and socio-environmental issues, including urban flooding, the urban heat island effect, and pressure on infrastructure systems such as public transport. Building resilient cities requires data-driven insights into urban systems and their vulnerabilities. Addressing these challenges requires a robust understanding of the underlying environmental drivers. Geospatial technologies have emerged as essential tools for monitoring, analysing, and visualising urban and climate dynamics. Remote sensing and open-source platforms now offer access to a wide range of essential climate variables, enabling comprehensive assessments of urban resilience and sustainability.

This workshop will explore the intersection of urbanisation and climate variability through a geospatial lens, with Bengaluru as a case study. The following are the aims of the workshop:

- Discuss contemporary urban climate challenges.
- Highlight the role of geospatial and remote sensing technologies in climate research.
- Demonstrate the application of open-source tools—particularly Google Earth Engine—for mapping and analysing climate-sensitive urban features, focused on Bengaluru.

Participants will gain essential skills in geospatial analysis, remote sensing, and urban climate assessment, supporting evidence-based planning and resilience-building.