

## **12. Real-time Operational Spatial Flood Early Warning for the Godavari and the Tapi Rivers**

Flood causes severe damage to life and properties every year worldwide. India is one of the most flood-vulnerable countries in the world and has a long history of dealing with floods. During the past decades, the frequency of floods in India has increased along with the damages caused by floods. The government has been developing flood preparedness to mitigate the impact of floods and equip the country better to deal with floods. Flood early warning is one of the most effective non-structural flood disaster damage mitigation. Developing Medium range Spatial Flood Early Warning models for large catchments is challenging for hydrologists. Considering the requirements at the national level and their importance, National Remote Sensing Centre (NRSC) has developed spatial flood forecast models for the Godavari and Tapi Rivers using space-based inputs under National Hydrology Project (NHP). Flood forecast models are developed for the Godavari and Tapi basins using NAM hydrological model and a one-dimensional hydrodynamic approach. CARTO DEM, land use land cover grid (derived from IRS P6 satellite data) of the study area, and soil textural grids were used to derive the study's input parameters. The developed models are calibrated and validated thoroughly using historical discharge and rainfall data obtained from CWC and IMD. Spatial flood early warning models for major floodplains of these two rivers are developed using high-resolution digital terrain models (ALTM DTMs).