The Application of Earth Observations for Assessing Waterborne Disease Risk

March 25 & 27, 2023

9:00-10:30 (Session A) or 14:00-15:30 (Session B) EDT (UTC-4)

Waterborne diseases such as cholera, diarrhea, hepatitis A, typhoid, and polio are caused by contaminated drinking water and poor sanitation (World Health Organization). Inadequate management of urban, industrial, and agricultural wastewater worsens water quality in water bodies, introducing chemicals and exacerbating growth of pathogens in water. Every year, waterborne diseases are responsible for approximately one million deaths, the majority of which are children under the age of five. For improved availability of safe drinking water, it is necessary to monitor and manage watershed processes (e.g., rainfall, land use, runoff) and water quality in coastal regions, streams, and lakes for harmful pathogens and sediments. Globally available satellite observations have been found useful for monitoring temperature, sediments, and phytoplankton in water bodies as indicators of waterborne diseases. Also, flooding and pathways for waterborne diseases are studied using satellite observations. Satellite data are also used in disease (e.g., cholera) prediction models.
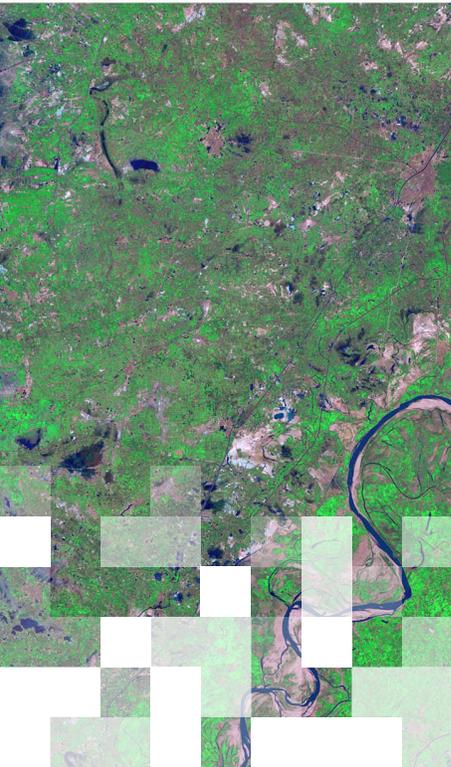
Part 1: Overview of Monitoring Waterborne Diseases using Remote Sensing Observations

ARSET Instructors: Amita Mehta

- Overview of Waterborne Diseases
- Open-Source Satellites and Sensors
- Demonstration: Data Access

Part 2: Using Remote Sensing-based Cholera Predictive Intelligence for Intervention and Mitigation

ARSET Host: Amita Mehta

Guest Instructors: Antar Jutla, Bailey Magers

- Utility of Satellite Data in Waterborne Disease Prediction Models
- Example of a Disease Prediction Model for Cholera
- Demonstration: Assessing Risk and Decision Making for Diseases

ARSET empowers the global community through remote sensing training.