River Basin Hydrology Modelling

INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY HYDERABAD

R&D SHOWCASE 2021
Technology, Social Impact

INTRODUCTION

- Great river valleys of India have shaped human civilizations throughout history by acting as a lifeline for their growth and sustenance.
- River basin modelling is essential tool in understanding various aspects that directly or indirectly effect our rivers and inland water bodies.
- Remote sensing platforms like land observation satellite imageries, DEM's are proving to be an excellent platform to model various river basins simultaneously, accurately at faster rate and in reliable way.
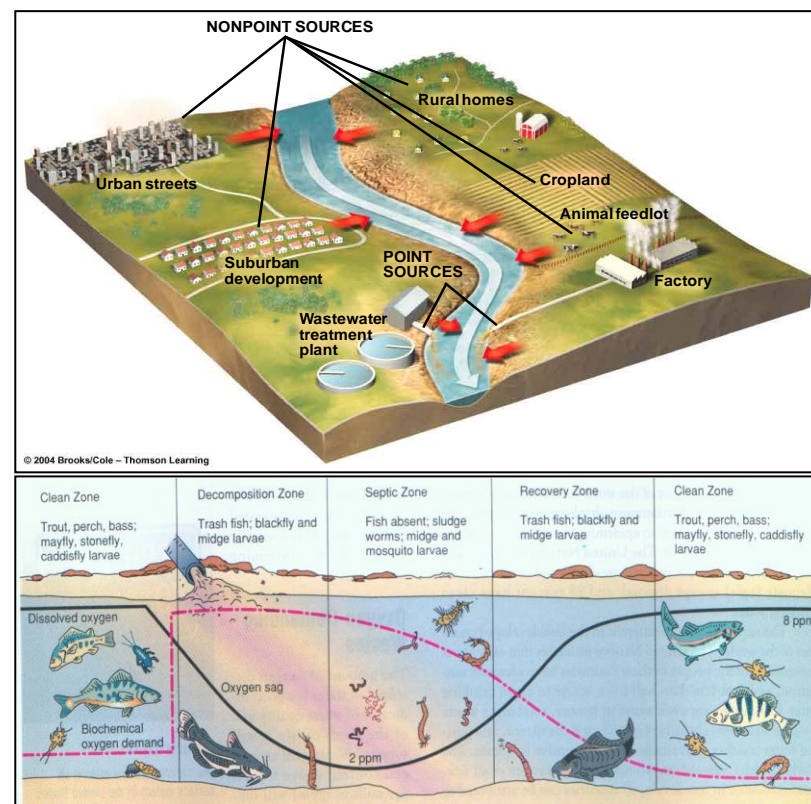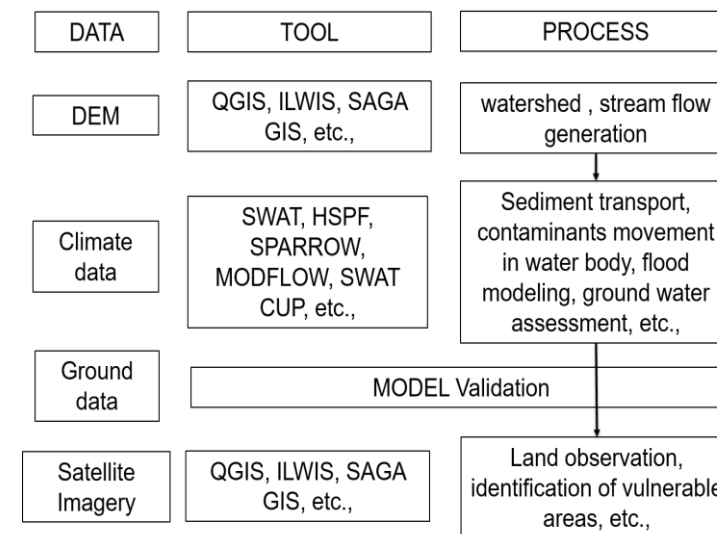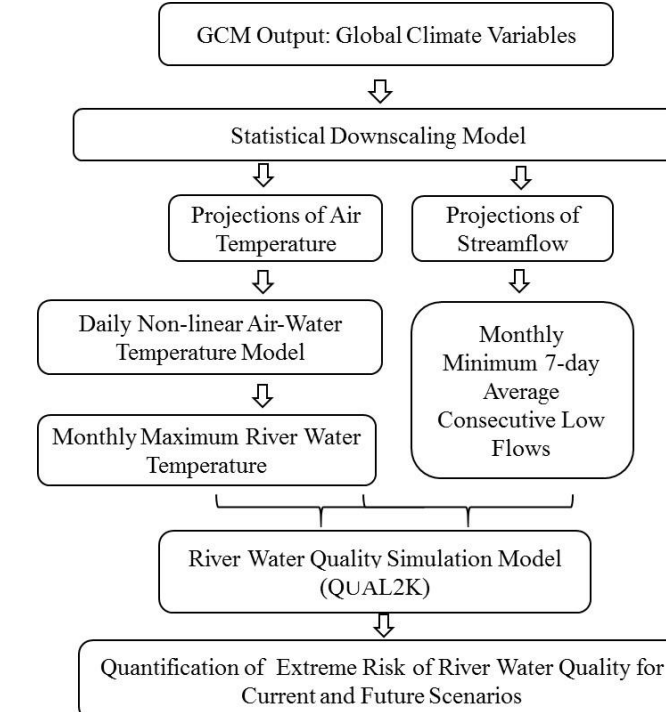
AIM

Qualitative and Quantitative hydrological modelling for large inland water bodies. Modelling future scenarios depending on current data.

METHODS

General Methodology

**Modeling of Extreme Risk in River Water Quality under Climate Change**

CONCLUSIONS

- Hydrological modelling is essential for sustaining our water resources and use them efficiently.
- It also helps in assessing the exploitation of water resources both surface and underground and helps in preserving water resources for future generations.
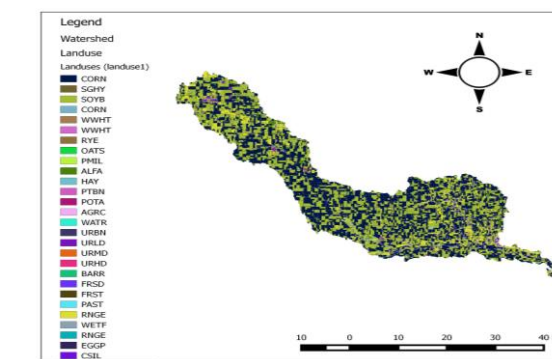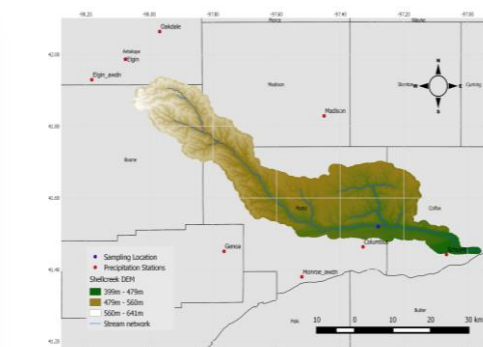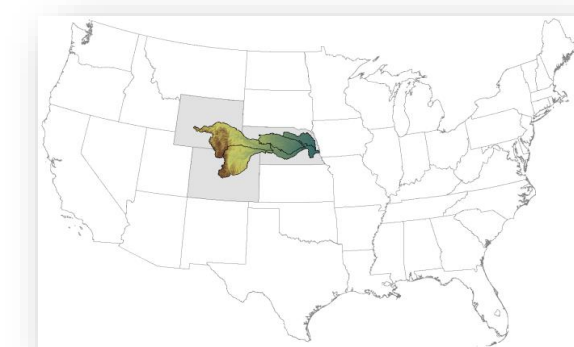
RESULTS
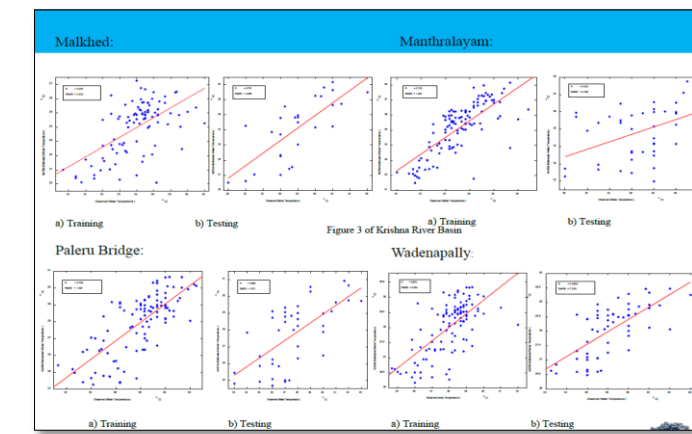
Multiple Linear Regression (MLRM) model of estimated and observed river water temperature for training and testing period
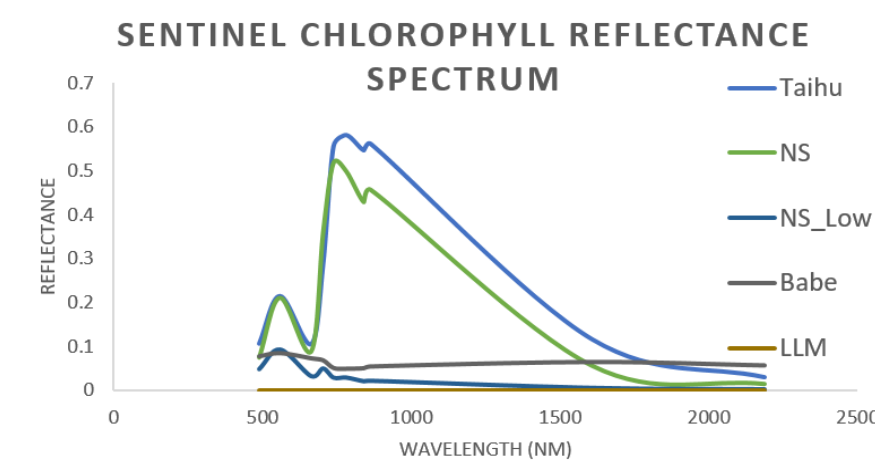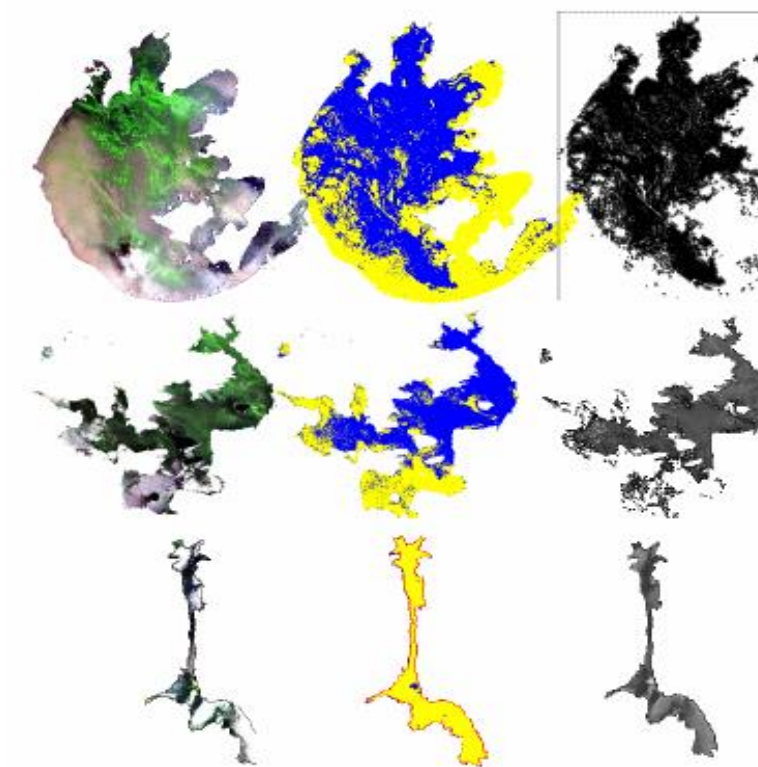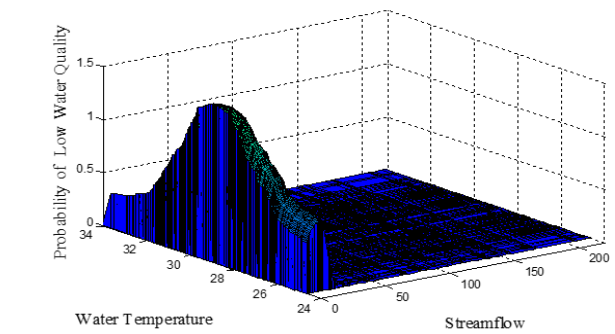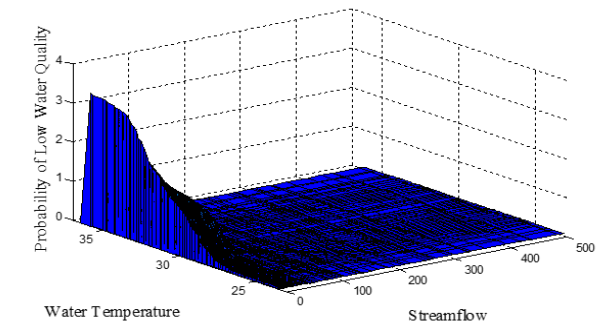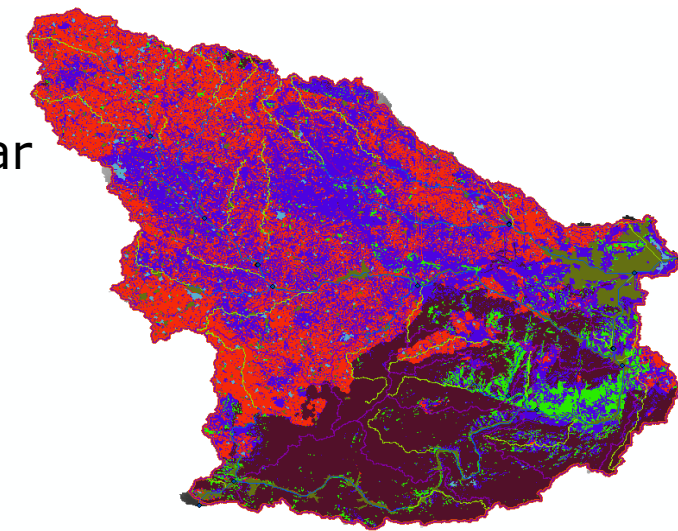
Chlorophyll –a detection in large inland water bodies. (Taihu, Nagarjuna Sagar, Ba Bae and Manasarovar lake)

Nutrient flow modelling in Nagarjuna Sagar watershed

The probability of low water quality for (a) current (1988-2005) and (b) Future Scenario (2020-2040) for Tunga-Bhadra river

Climate Change Sensitivity Assessment using SWAT for a Highly Agricultural Watershed, Shell Creek, Nebraska, USA

Led by: Dr. K.S. Rajan & Dr. Shaik Rehana

Lab for Spatial Informatics