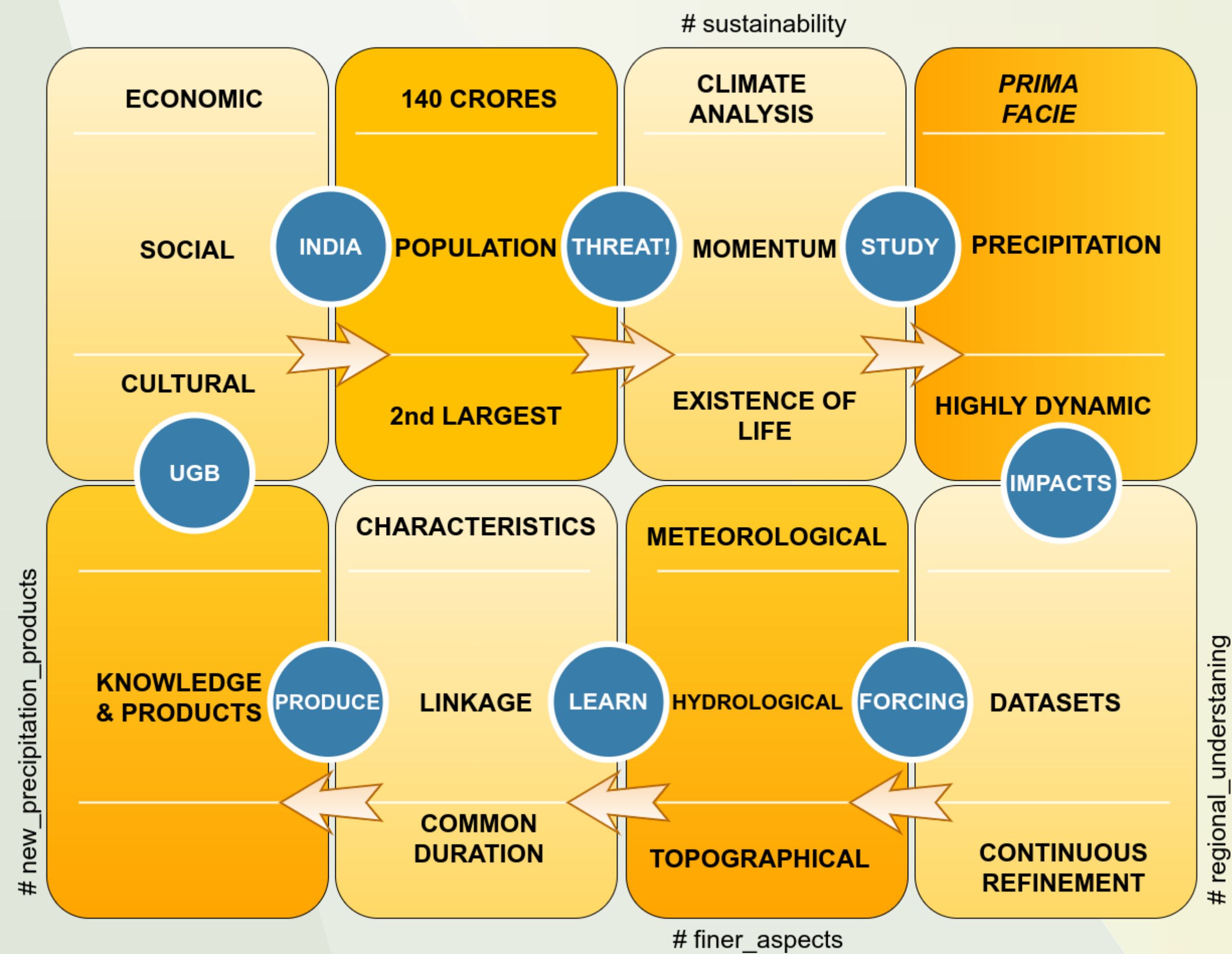


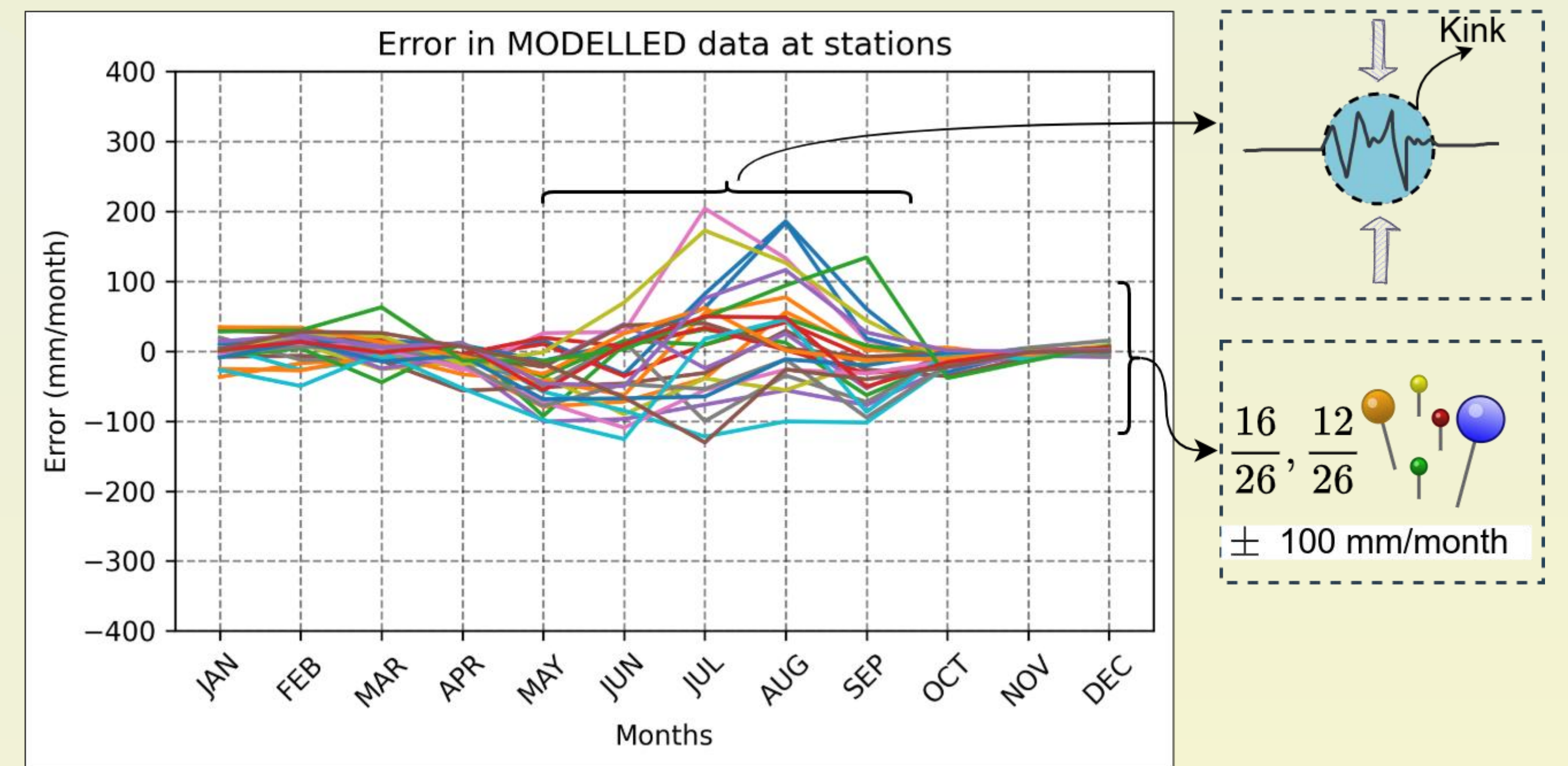
## Introduction

Available precipitation products over Upper Ganga basin bear a compromise between (a) accuracy, (b) spatial distribution of precipitation, (c) spatial resolution, (d) temporal resolution



## Results

1. The error in the newly developed dataset is reduced in some or all aspects when compared to the available datasets.



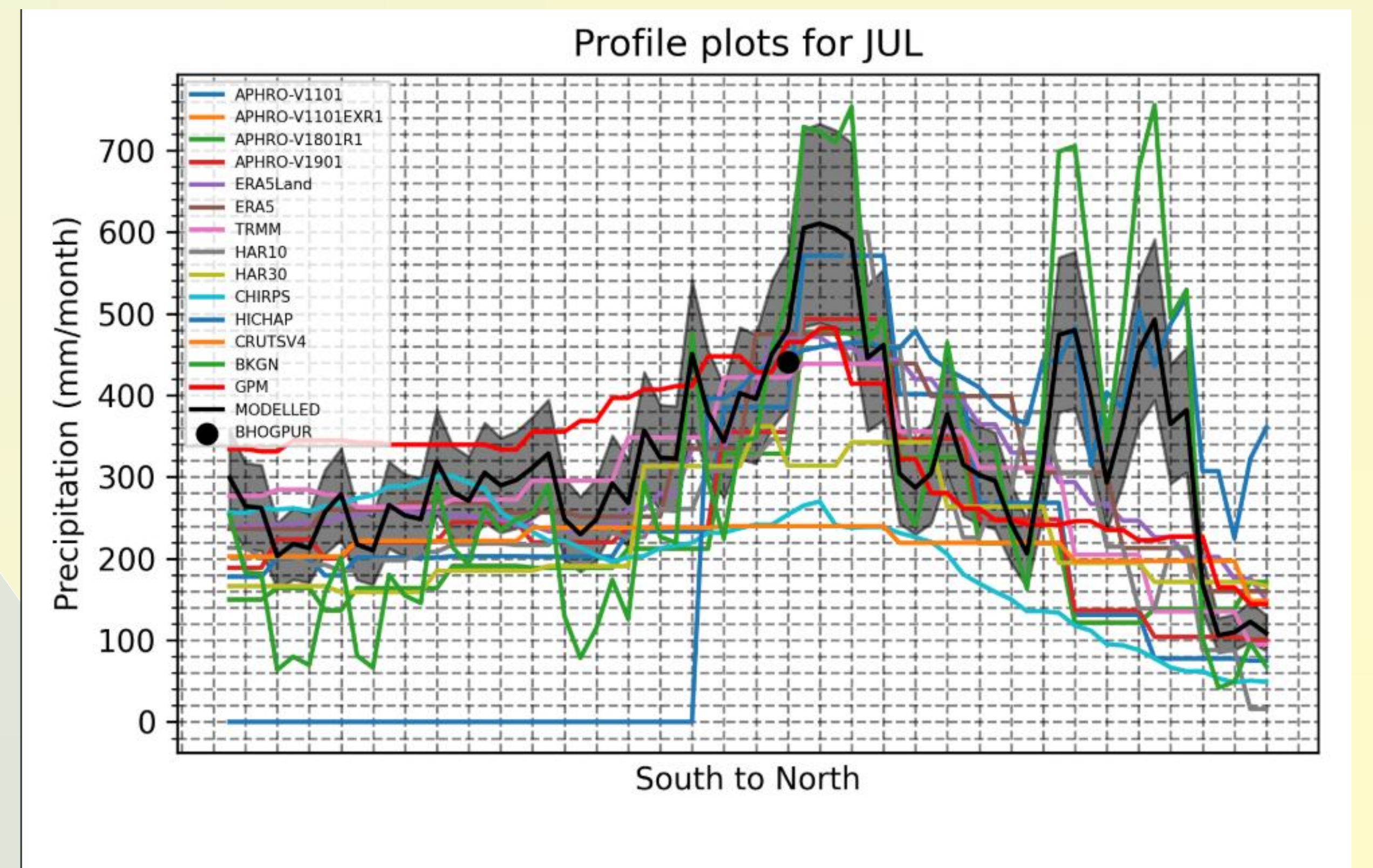
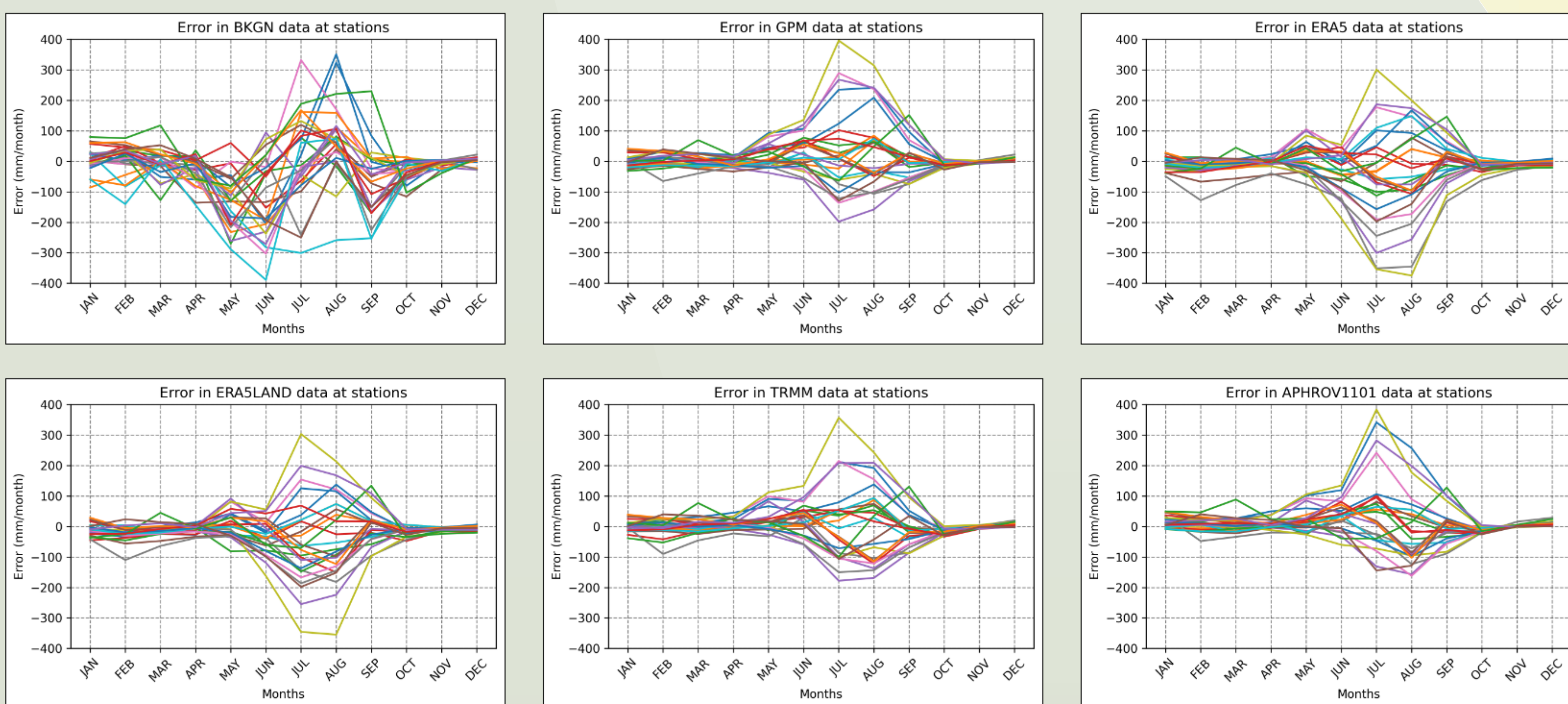
2. The profile plots of all the available datasets show that the modelled data (black) performs well comparatively.

## Objectives

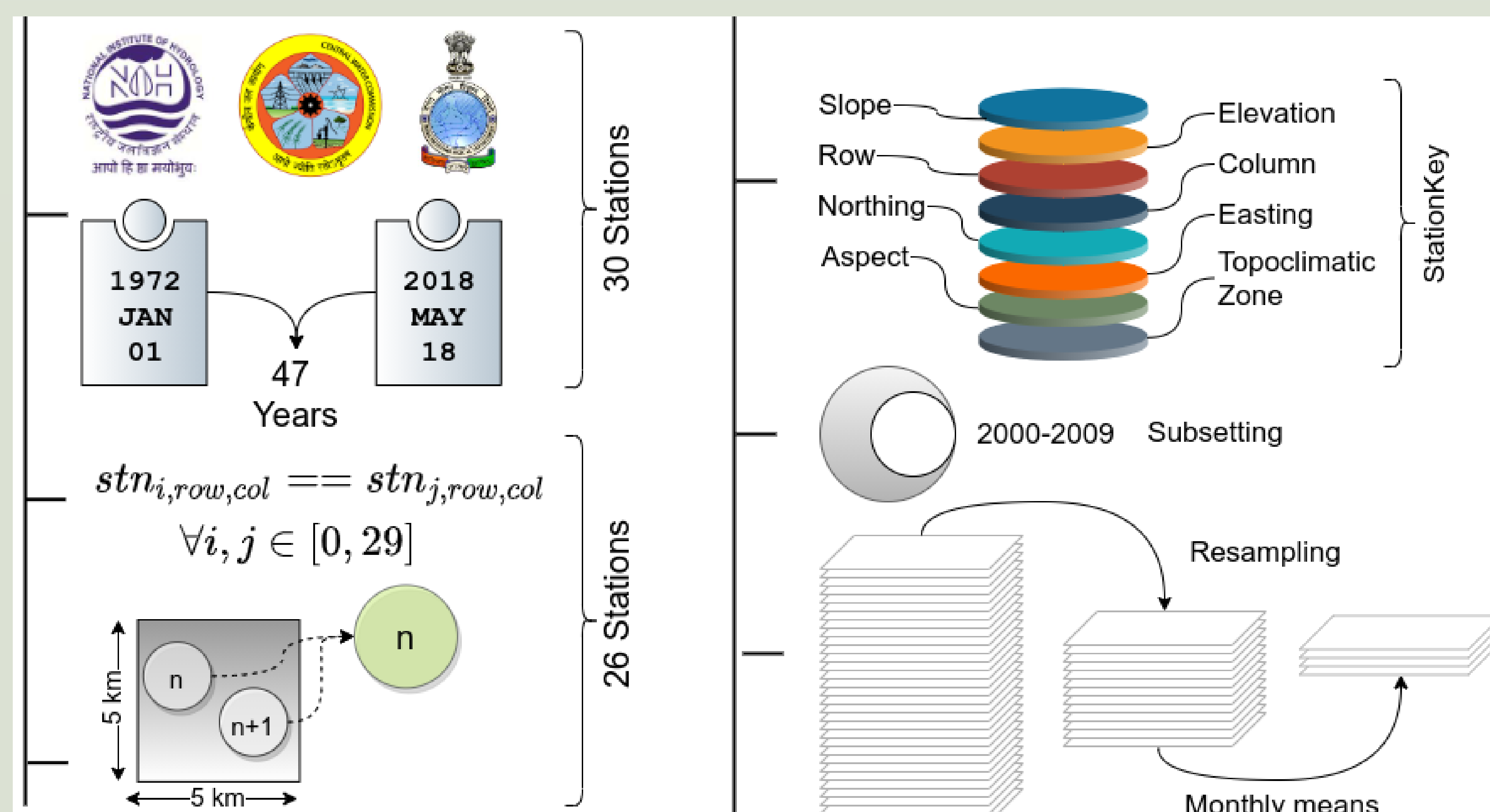
Preparation of a precipitation datasets capturing the spatial distribution of precipitation over the study area.

## Methodology

1. Analysis of existing precipitation datasets with respect to available station data.



2. Driving a machine learning scheme to prepare new datasets



## Conclusions

- Fifteen popular satellite-reanalysis-observational datasets with ground station data over UGB for their coincidental period of 12 years (1998-2009) and report that APRHODITE V1101 and GPM IMERG datasets were the highest performing datasets.
- A machine learning engine was driven to produce a reanalysis dataset with the ability to represent the spatial heterogeneity of precipitation while retaining accuracy.
- This dataset is provided at a resolution of 5 km × 5 km at daily time scale for a period of ~50 years (1972-2018). It performed better than some or all datasets in (i) spatial resolution, (ii) temporal resolution, (iii) spatial distribution of precipitation, and (d) accuracy.

## Acknowledgements

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