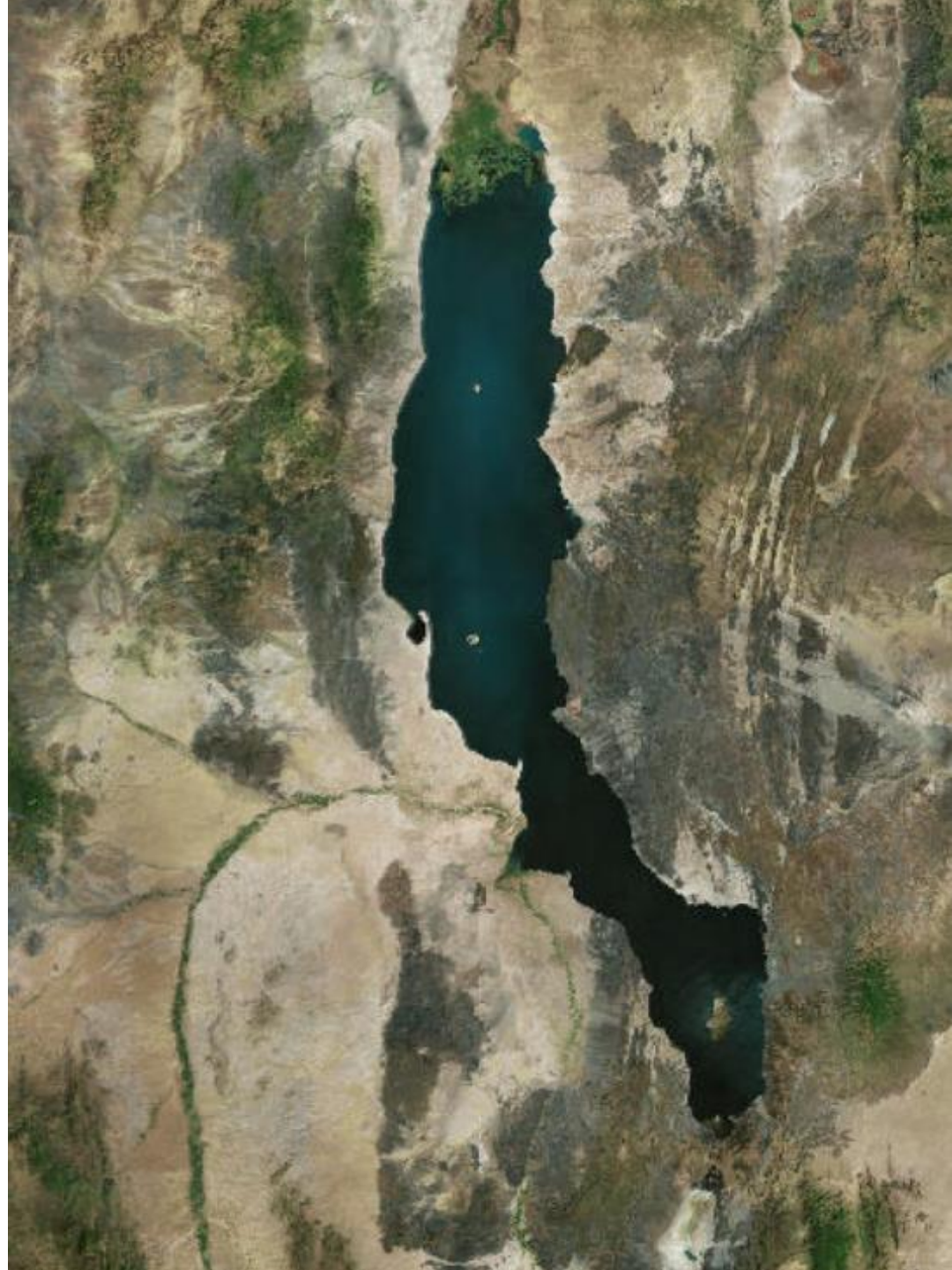# Mapping Water Balance around Lake Turkana

Group 6 Members

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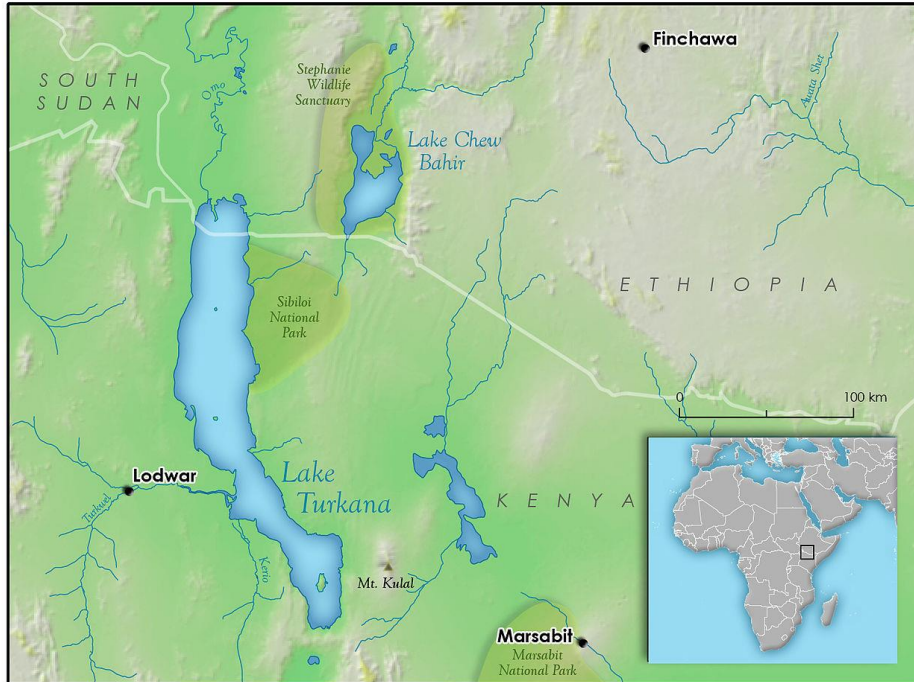7. Fitsume Teshome Wolkeba

Problem:

- The case study area is vulnerable to extreme climatic conditions [drought and floods]

- Droughts reduce the water that is available to the community livelihood generation in the area

Objective:

- To assess the spatial and temporal variability of water balance around Turkana.

Study area

- L. Turkana, a desert lake shared by Ethiopia and Kenya

- Lake Turkana is in an arid area

- The average annual rainfall is 250mm

- Main livelihood generation activities are fishing, pastoralism
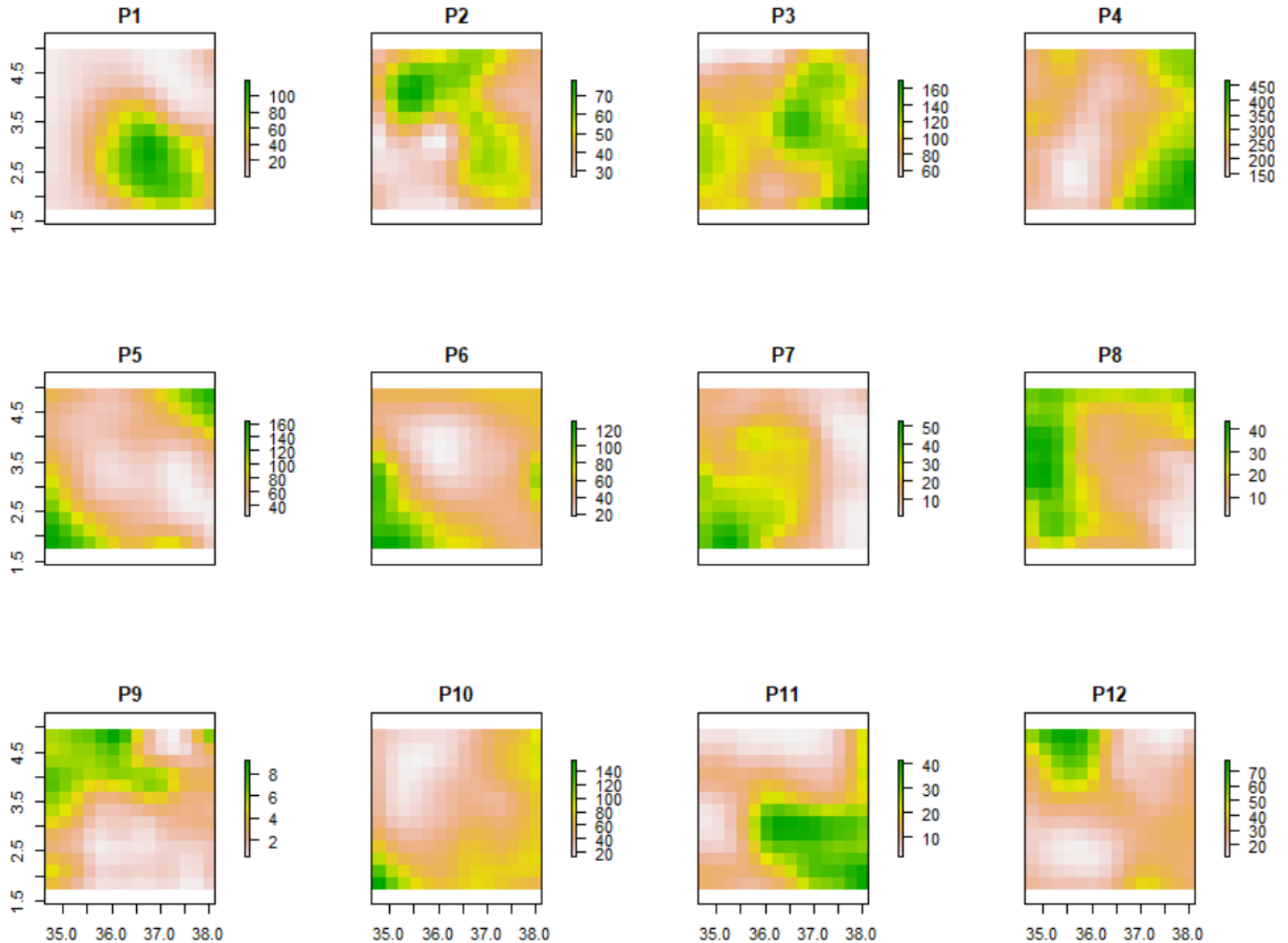
- Population: 300,000

Data

Data	Source	Spatial Resolution	Temporal Resolution
Precipitation	AFDM	2.5km	(2018) Monthly
Runoff	AFDM	2.5km	(2018) Daily
Evapotranspiration	AFDM	2.5km	(2018) Daily

Workflow

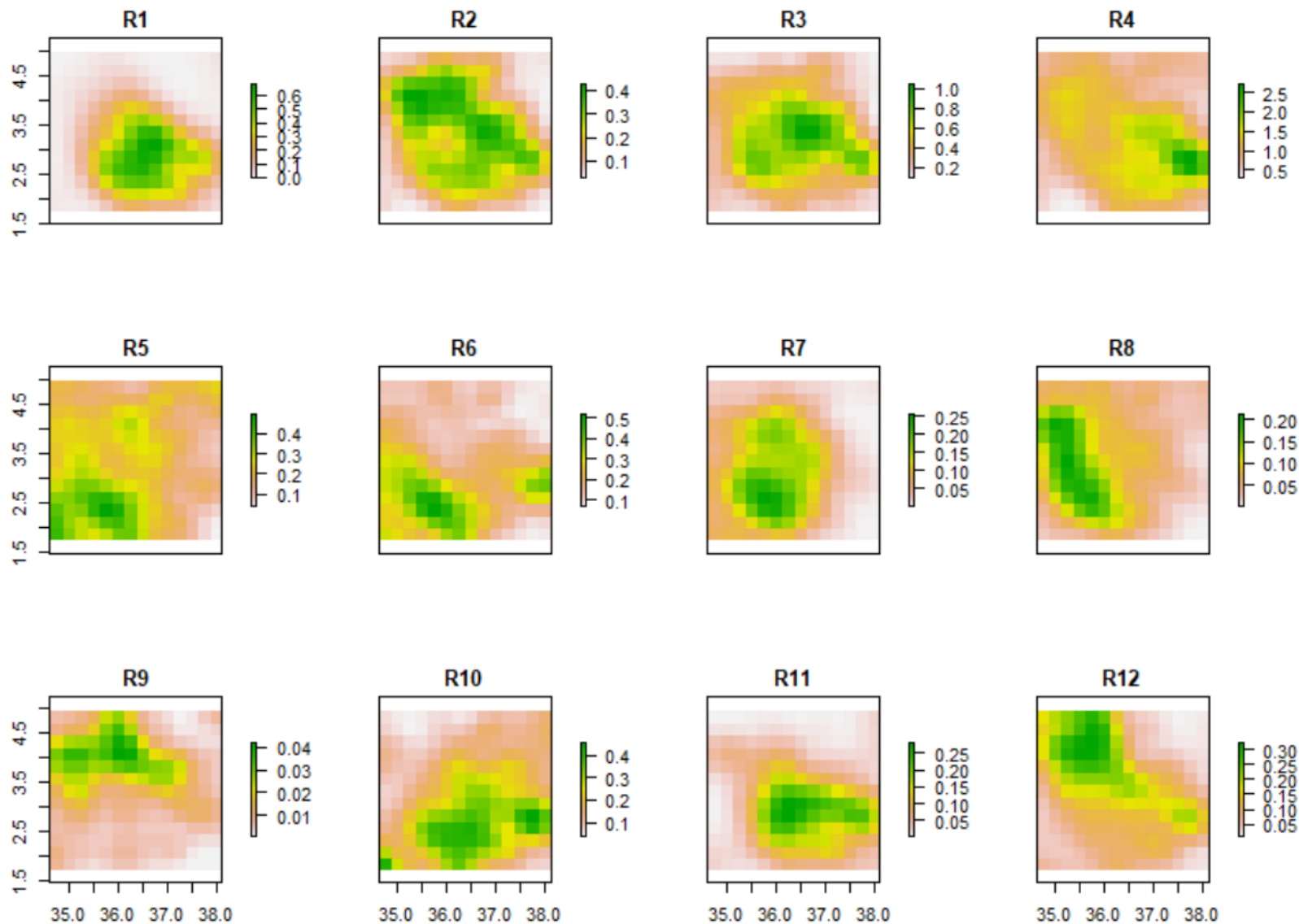Data download & Preprocessing → Water Balance Estimation → Mapping
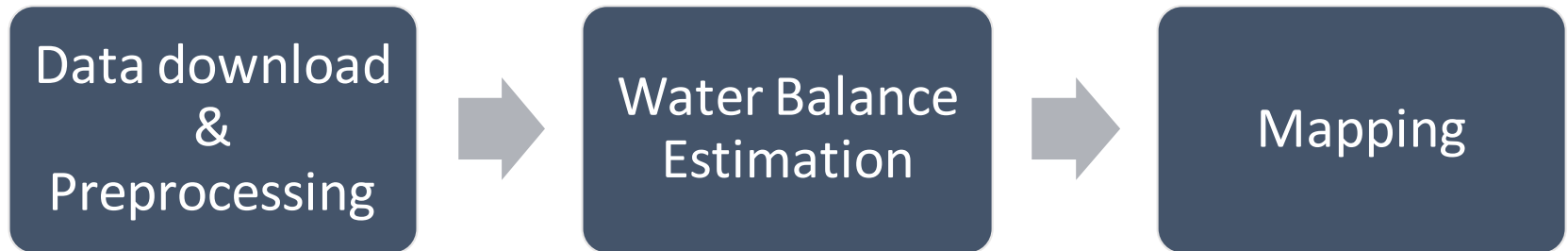
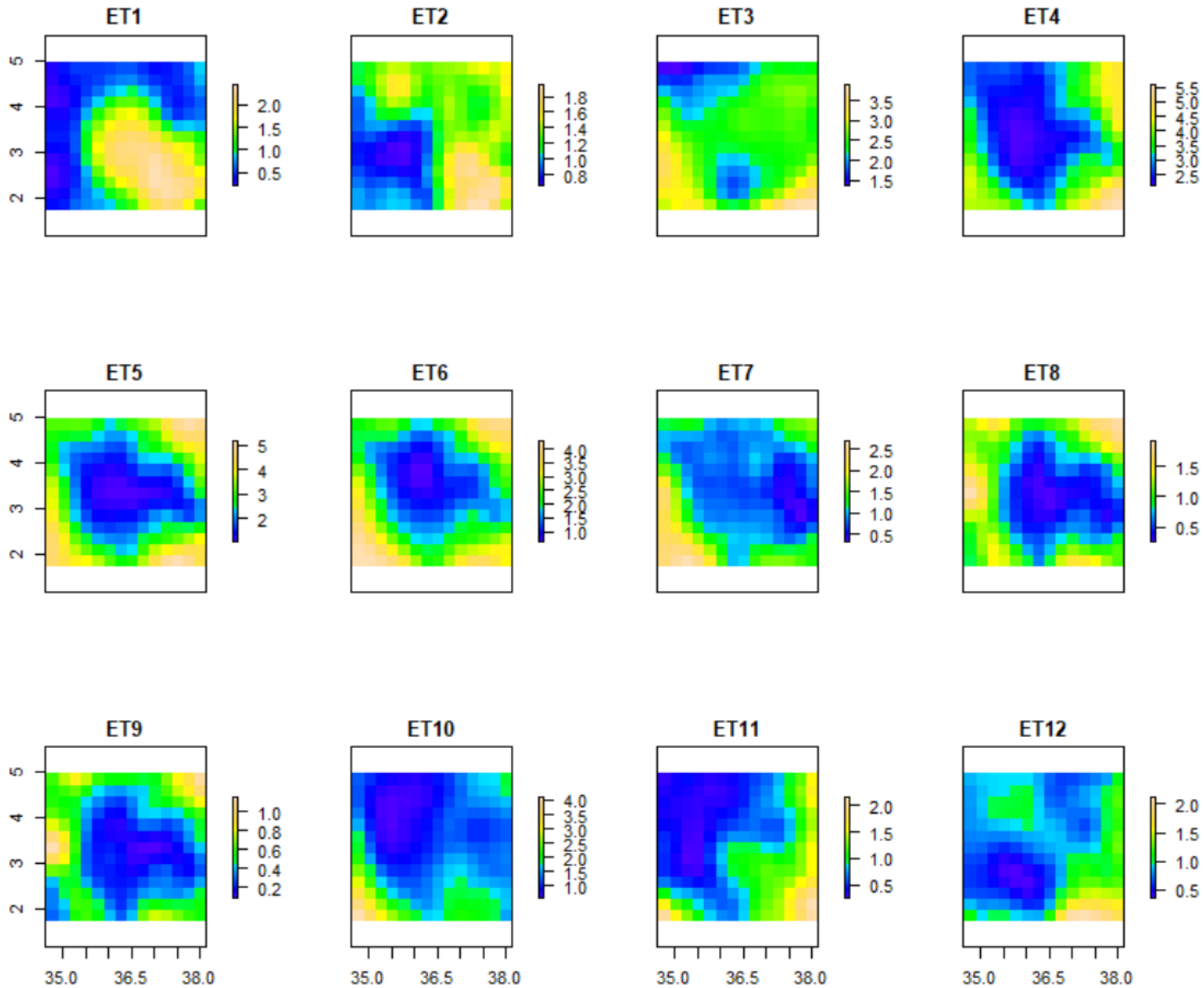**Analysis was done in R & ArcGIS**

Precipitation variability in 2018
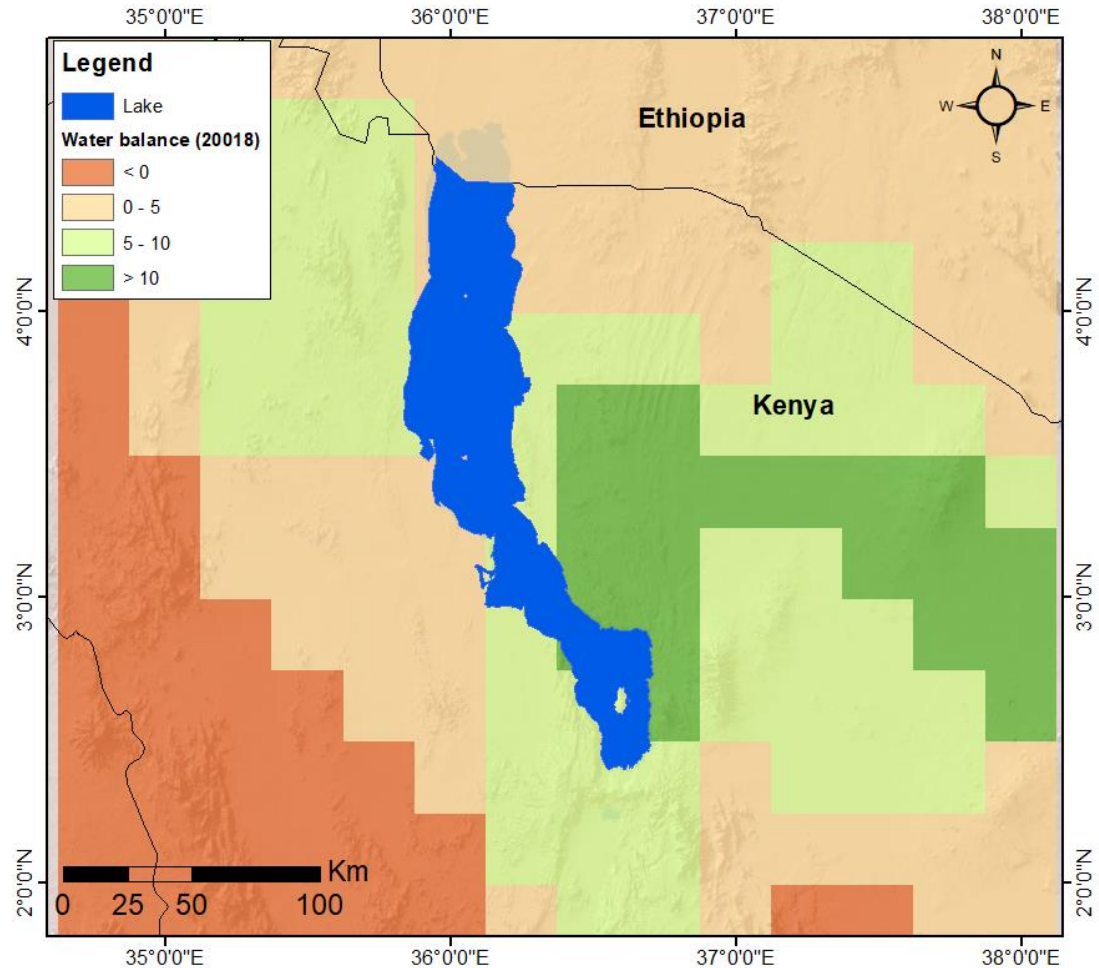
Variation in runoff (2018)

Evapotranspiration (2018)

Water balance in 2018

- Preliminary results highlight the potential cold and hot spots of water deficiency

- Cold spots can be combined with other variables to map ground water potential areas

- The hotspots highlight areas that may need interventions.

Way forward

- Results demonstrate the potential benefits of large scale earth observation data in assessing the spatial and temporal of water budgets

- This kind of analysis can contribute to understanding ground water potential

Limitations

- Spatial resolution of the data is course, limiting fine scaled analysis

- AFDM platform does not allow for data to be retrieved via known extents, making it difficult to replicate analysis