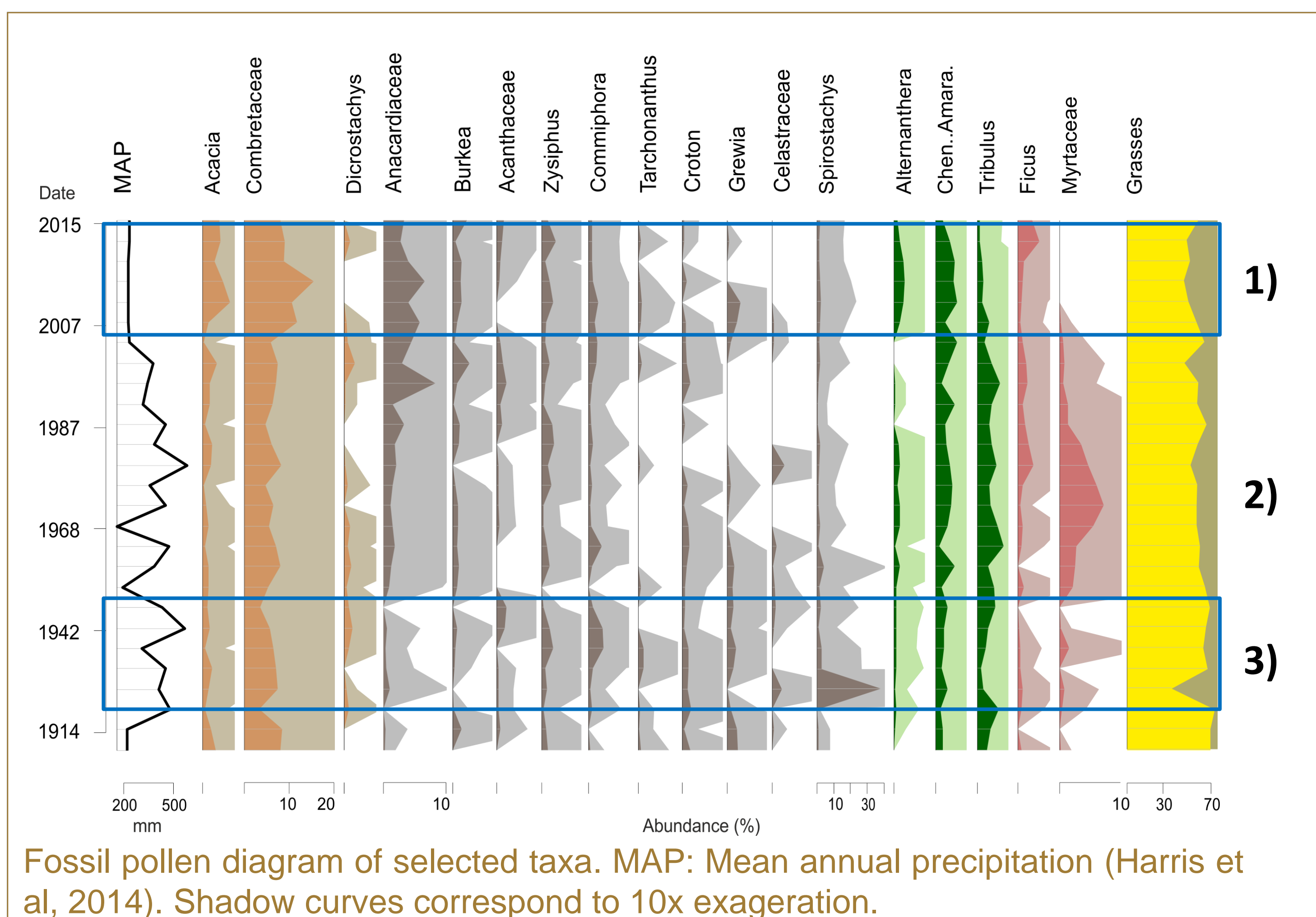




# Fossil pollen reconstruction of vegetation history at Otjikoto Lake in the last century

**Objective:** Pollen based reconstruction of past vegetation composition since 1914 at the Otjikoto region.

**Methods:** Several sediment cores were collected from Otjikoto lake. Pollen and chemical analysis were performed on 30 sediment samples of core 15oj10 (30 cm).

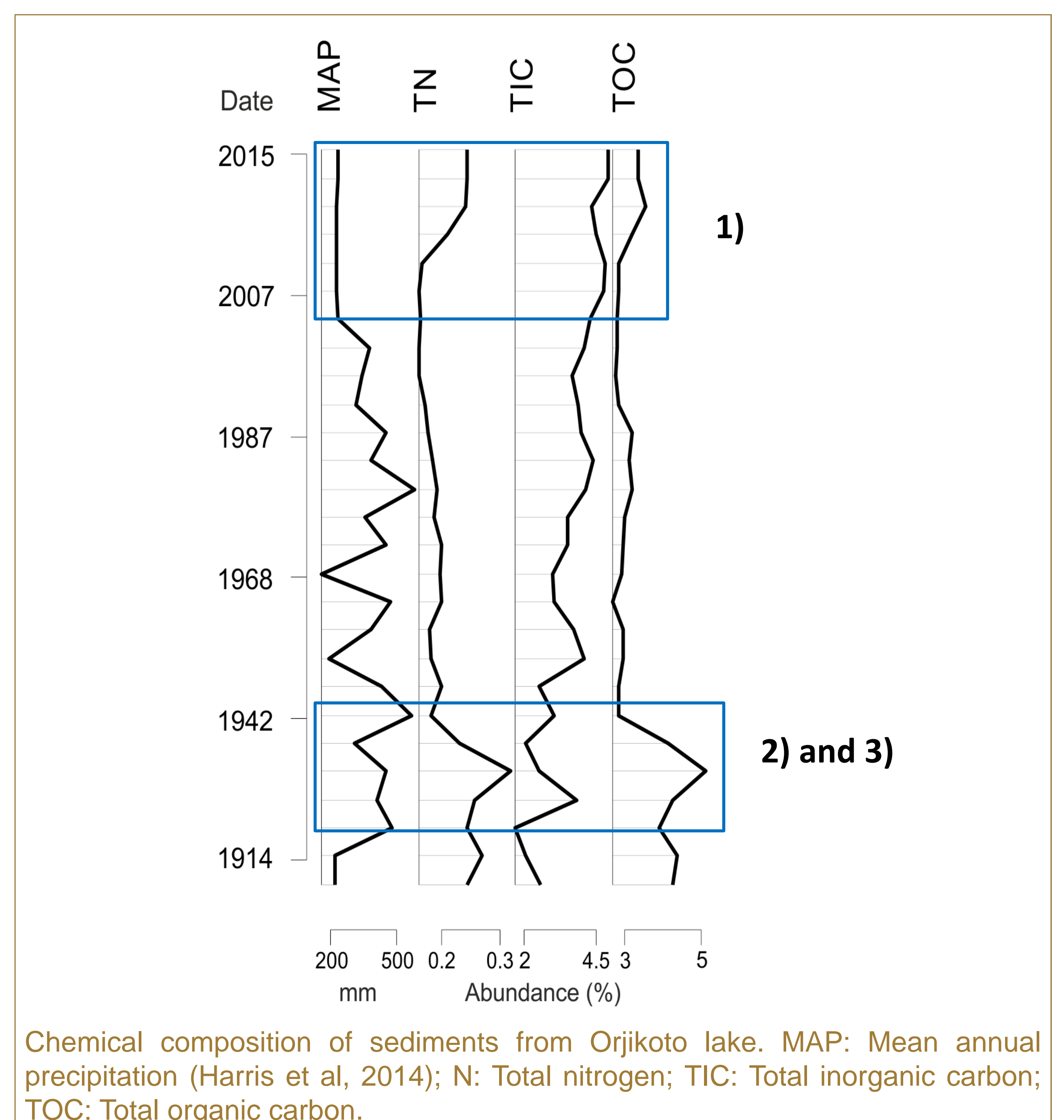


## Fossil pollen reflect vegetation change during the last 100 years

- 1) Encroachment** during the last 10 years is reflected by an increase of pollen percentages of *Acacia*, *Combretaceae* (*Terminalia*) and *Alternanthera* (disturbance indicator). Decreases of grasses and *Tribulus* suggest sparse ground cover.
- 2) Shoreline vegetation displays taxa turnover** from *Myrtaceae* to *Ficus* at drier conditions.
- 3) Broad-leaved taxa** such as *Spirostachys* and *Commiphora* seemingly benefited from continued high precipitation during the thirties.

## Chemical sediment composition reflect water dynamics at Otjikoto Lake

- 1) Increase of total inorganic carbon and decreasing precipitation** during the last 10 years reflect **low water recharge** at Otjikoto lake.
- 2) High levels of total nitrogen and total organic carbon** suggest additional **nutrient input** and high lake productivity in the thirties.
- 3) A peak of total inorganic carbon and continued high precipitation** suggest increased **runoff**.



## Key messages

- Fossil pollen reflect **vegetation change** following fluctuations in the **precipitation**.
- Fossil pollen reflect **encroachment** within the last 10 years.
- Chemical sediment composition reflect **low water recharge** at Otjikoto lake during the last 10 years.

**Pollen and chemical sediment analysis are suitable to reconstruct vegetation history and environmental conditions of savannahs.**

## References

- Harris, I. et al., 2014. Updated high-resolution grids of monthly climatic observations - the CRU TS3.10 Dataset. *International Journal of Climatology*, 34(3), pp.623–642.