

# Impact of La Niña on vegetation and precipitation in the Greater Horn of Africa

---

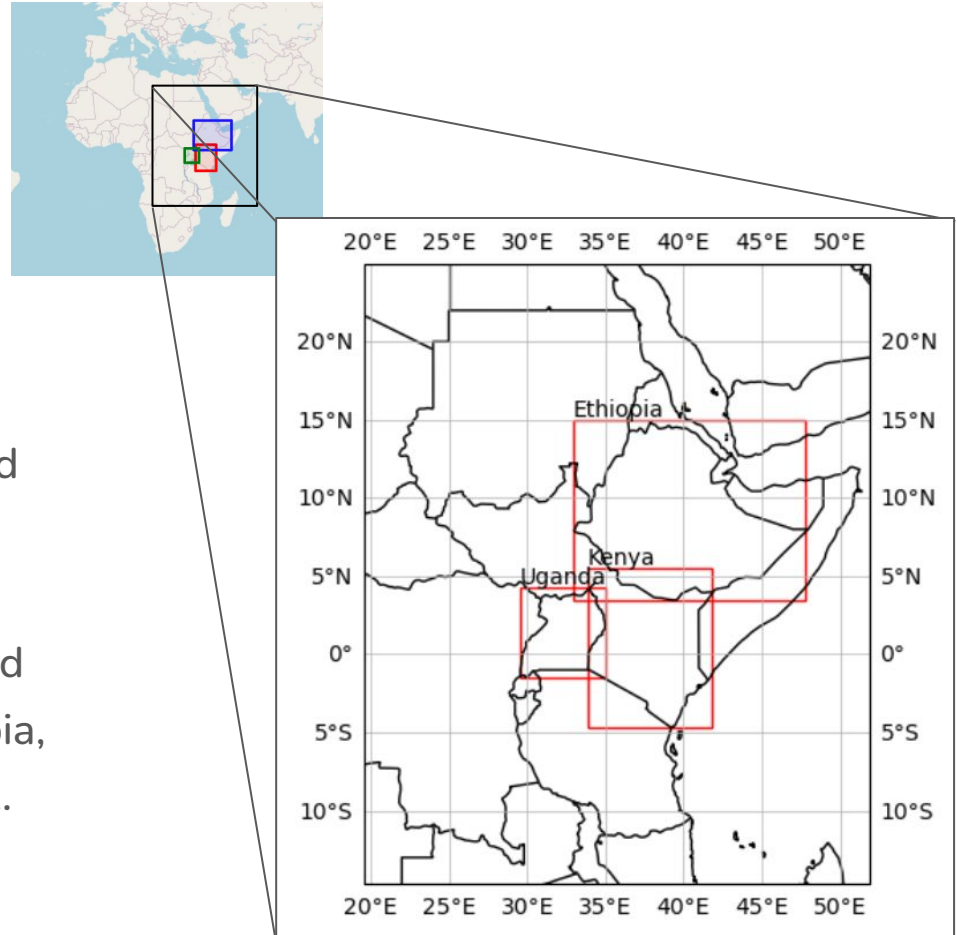
Hesperosaurus\_Bon\_Larghissimo



**Climatematch**  
Academy

# Introduction

- The colder phase of the El Niño Southern Oscillation (La Niña) is associated with droughts in the horn of Africa leading to crop yield variability.
- We studied the relationship between La Niña, precipitation and vegetation cover in Kenya, Ethiopia, and Uganda between 2008-2012.

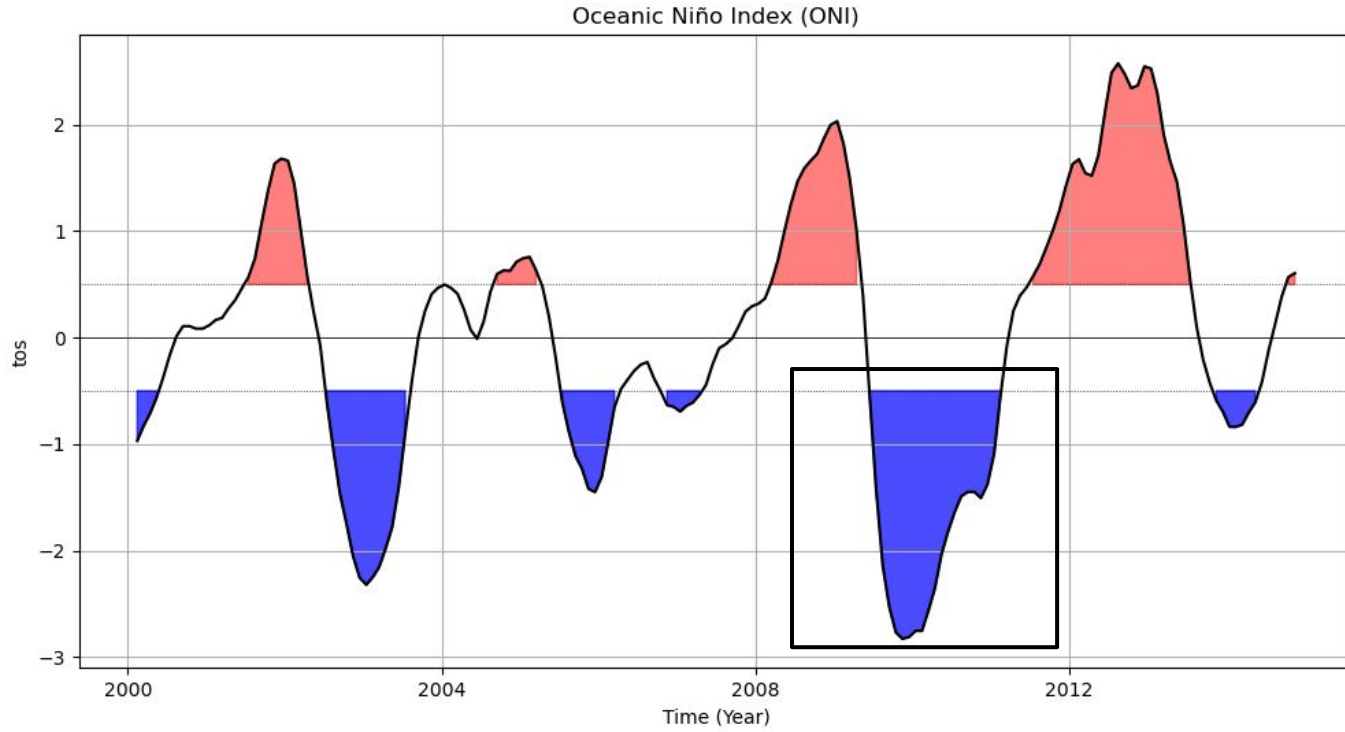


# Datasets and Methods

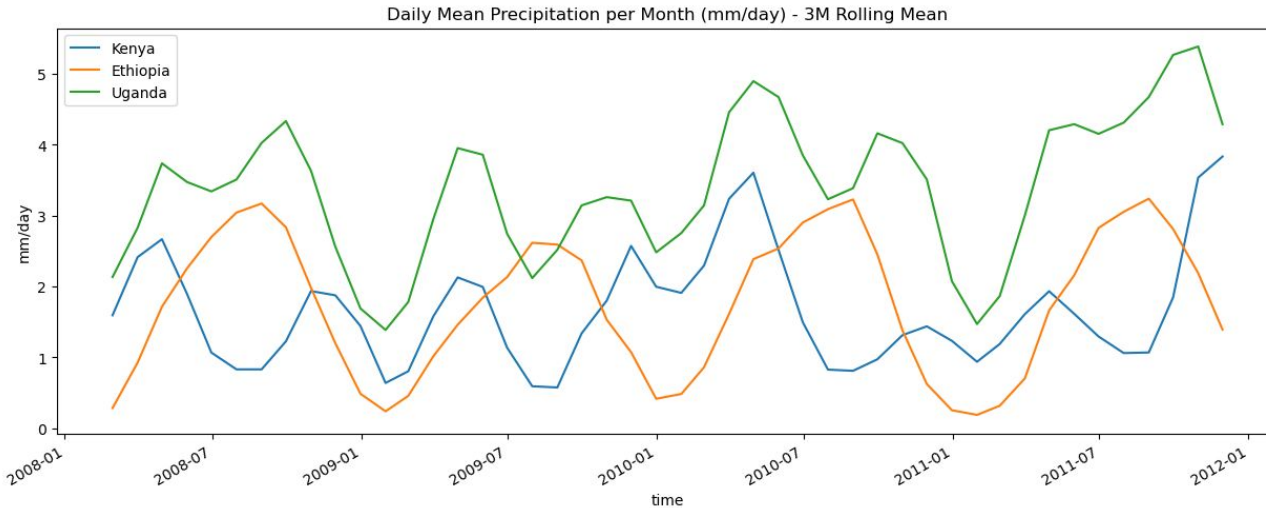
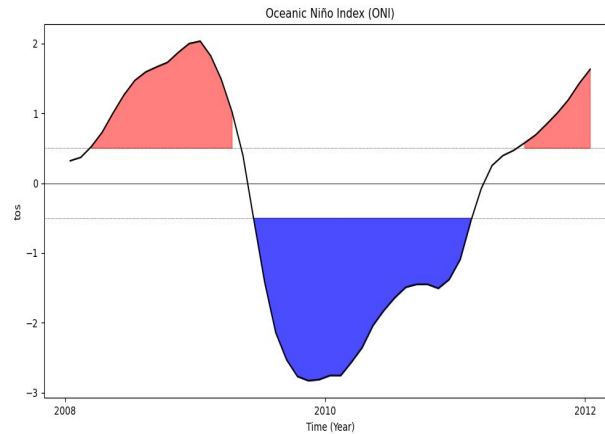
- The sea surface temperature anomaly is studied using the Oceanic Niño Index (ONI) from CESM2 CMIP6 data.
- CHIRPS data were used for studying precipitation indexes: Simple Daily Intensity Index (SDII) & Consecutive Dry Days (CDD).
- The Normalized Difference Vegetation Index (NDVI) was taken from NOAA NDVI CDR.



# ONI- La Niña Event 2010-2011

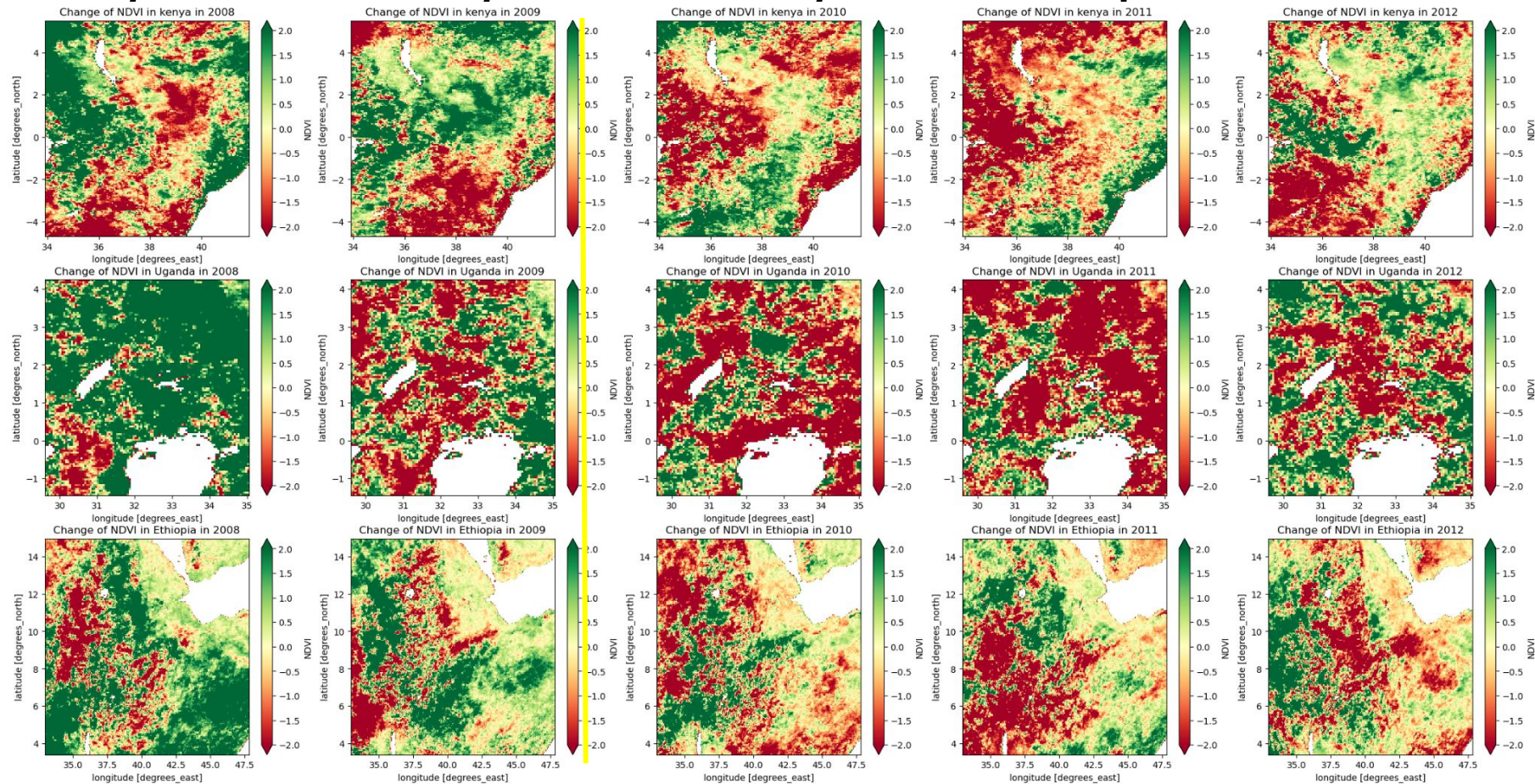


# La Niña with monthly precipitation (2008-2012)



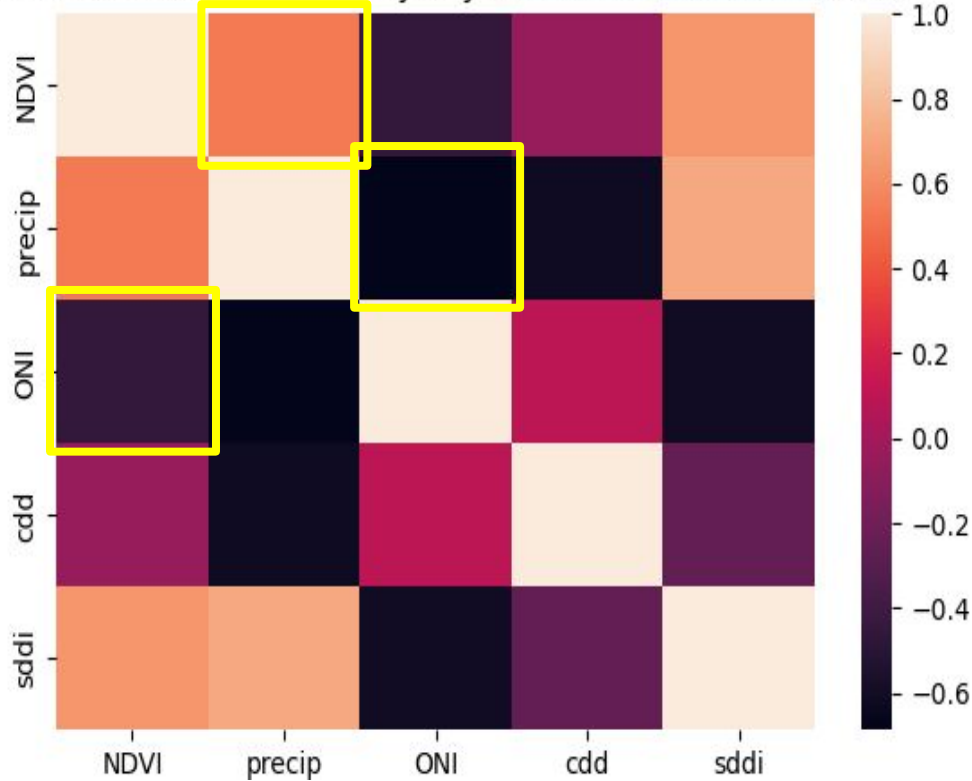


# Vegetation change: visualising La Nina impact

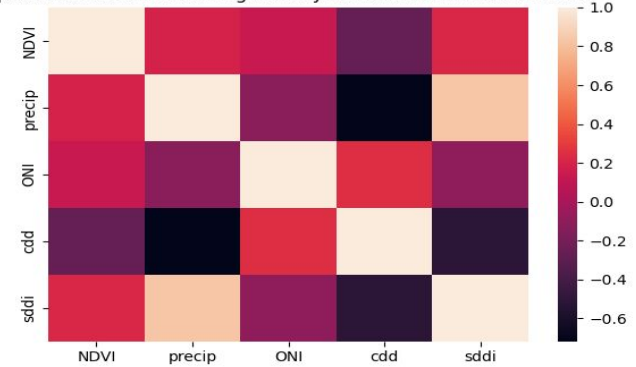


# Multivariate Correlation Analysis

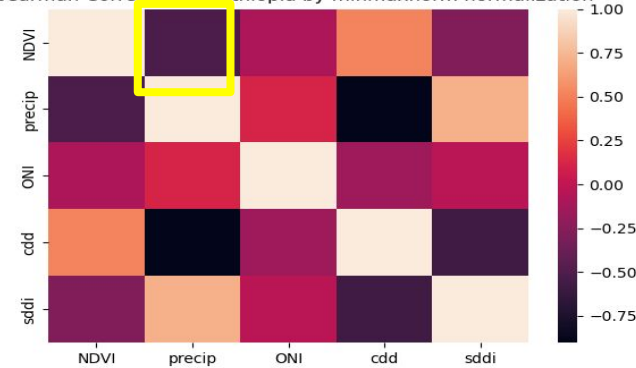
Spearman Correlation in Kenya by minmaxnorm normalization



Spearman Correlation in Uganda by minmaxnorm normalization

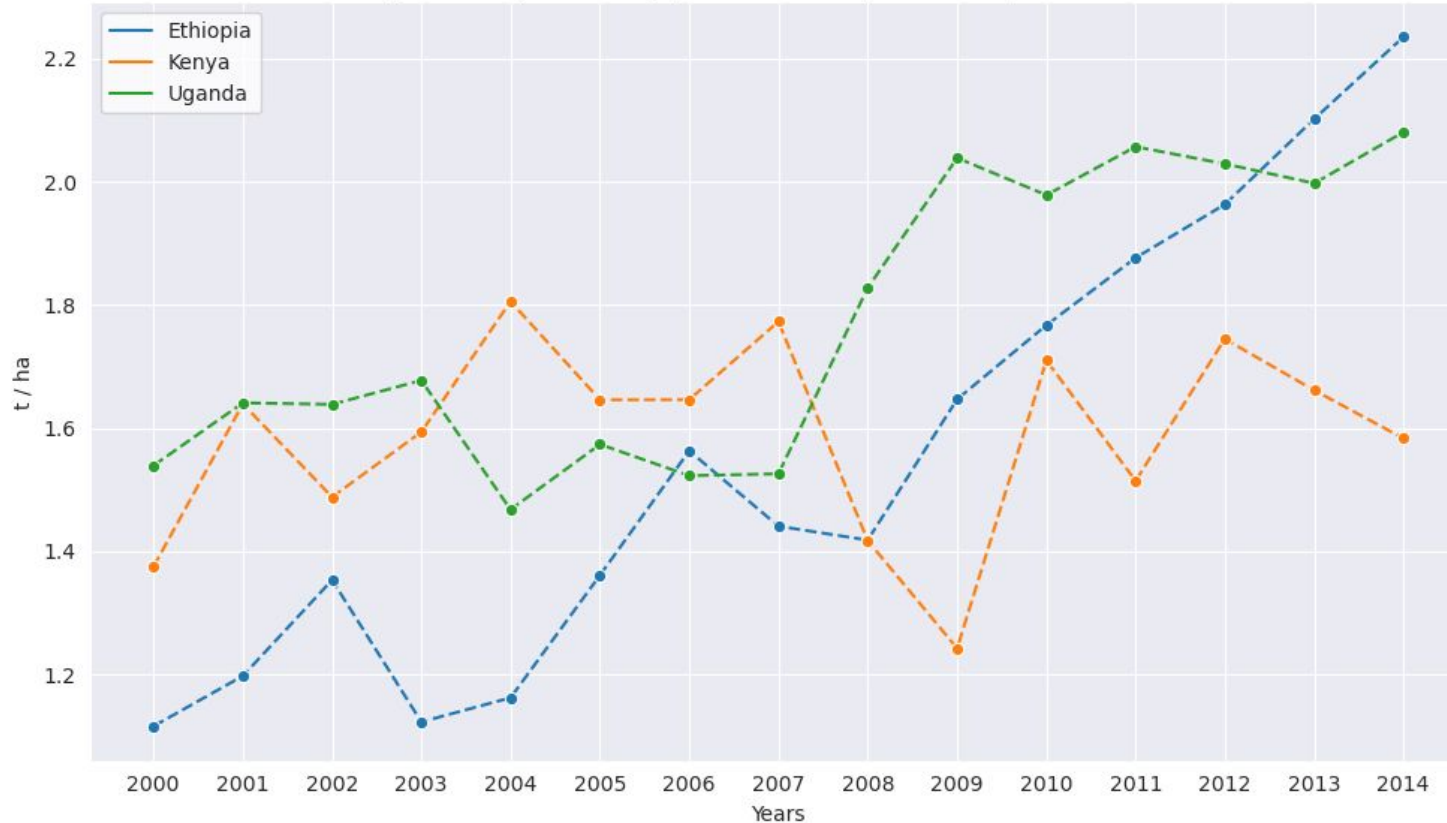


Spearman Correlation in Ethiopia by minmaxnorm normalization



# Cereals Production 2008 - 2012

Cereal produced per country (metric tonnes per hectare) from 2000 to 2014





# Conclusion

- Summary of results
  - Established that a La Niña event occurred between 2009 and 2011.
  - We showed how this event impacted monthly precipitation, and the vegetation in 3 countries in the Greater Horn of Africa.
  - We found a significant negative correlation between ONI and precipitation NDVI for Kenya.
- Future work
  - Use higher spatial and temporal resolutions - variables have marked changes within countries and across seasons
  - Establishing a baseline
  - Analyse correlation between ONI and lagged precipitation data

