MOFODRONI: Monitoring and forecasting agricultural drought for rainfed rice in Nigeria, using multi-source data.

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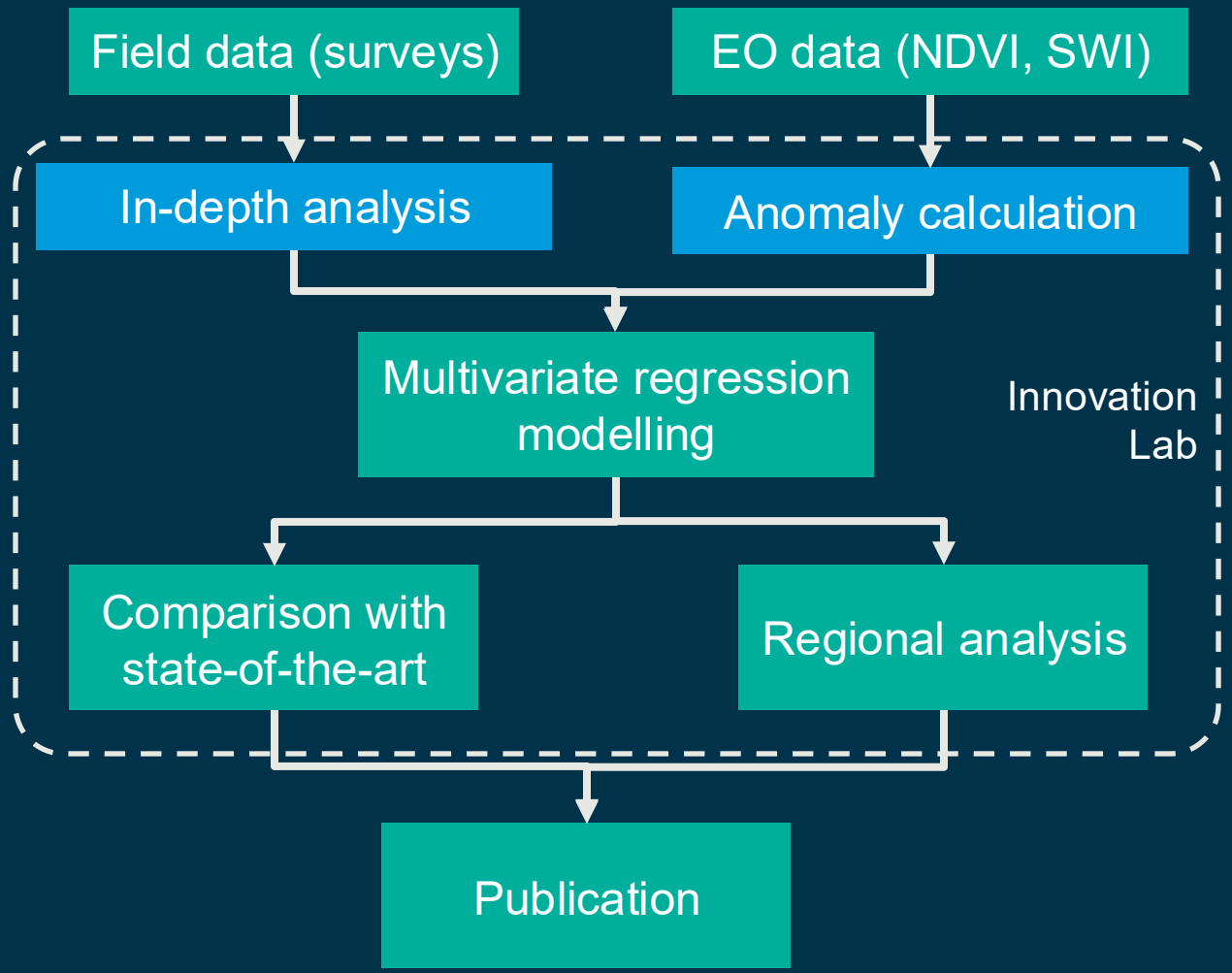
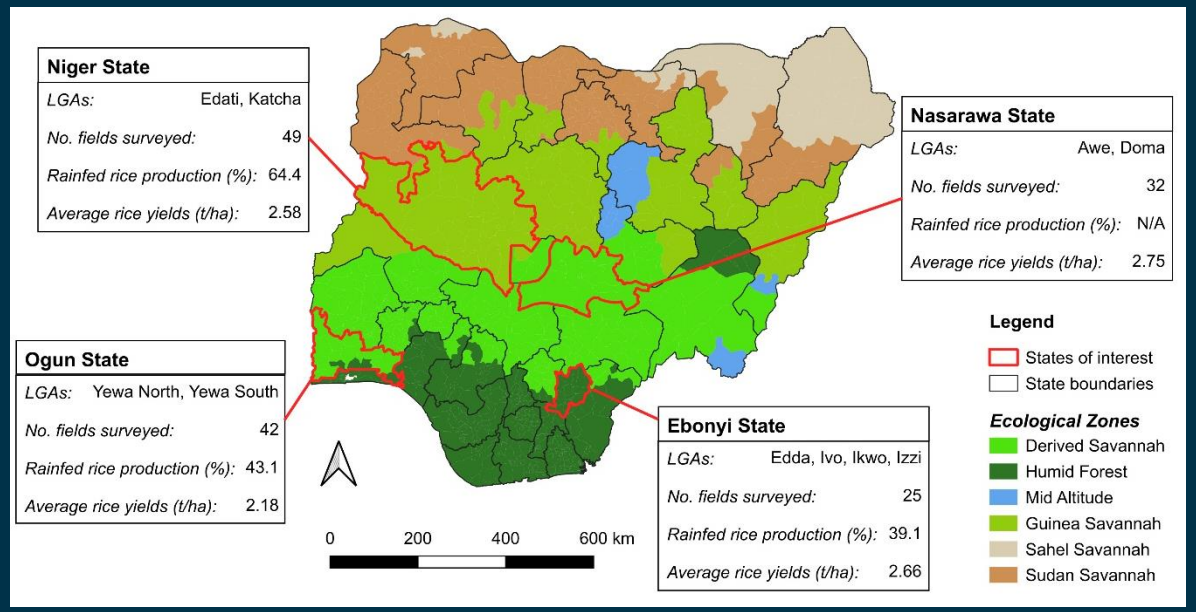
Scientific Background and Objectives

- Agricultural drought threatens rainfed rice production in Nigeria
  - Essential for maintaining both economic and food security for local populations
- Smallholder farmers depend on rainfall and have limited capacity to buffer climate shocks
- Existing drought early warning system relies on pixel-based temporal precipitation anomalies
  - No accounting for complex regional vegetation patterns
- **MOFODRONI objectives:**
  - enhance Nigeria's existing national drought index by implementing a zone-based agricultural drought severity index driven by NDVI and SWI data
  - Validate indices based on local in-situ data on drought occurrence and rice yields collected through farmers' surveys

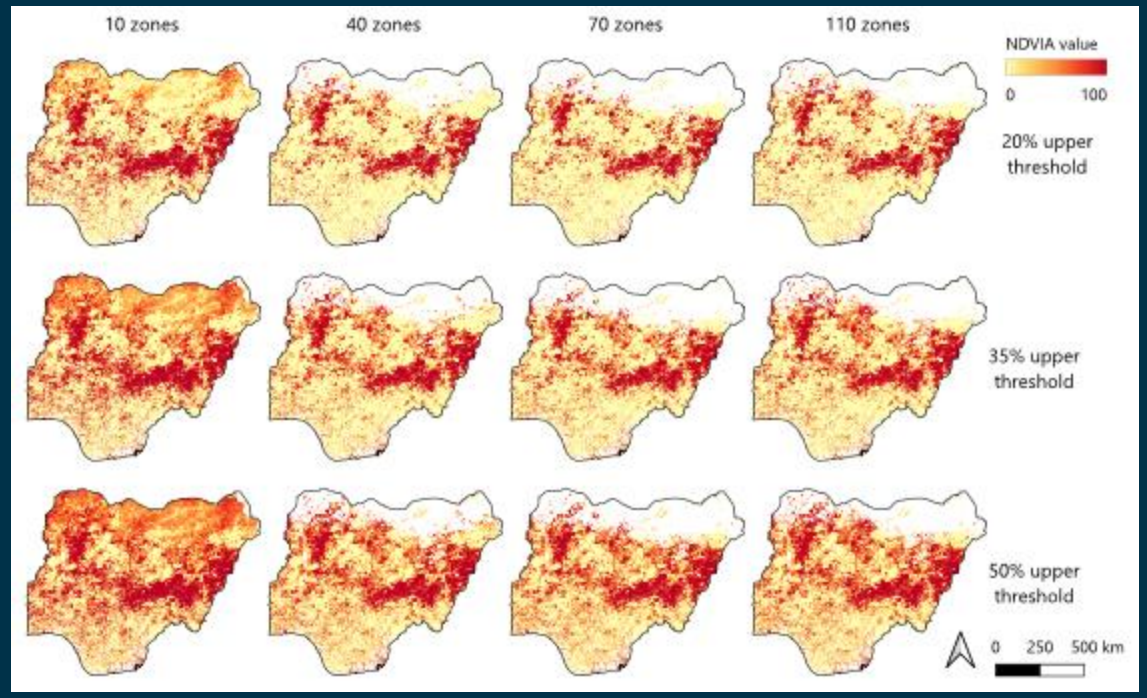
Research Outline

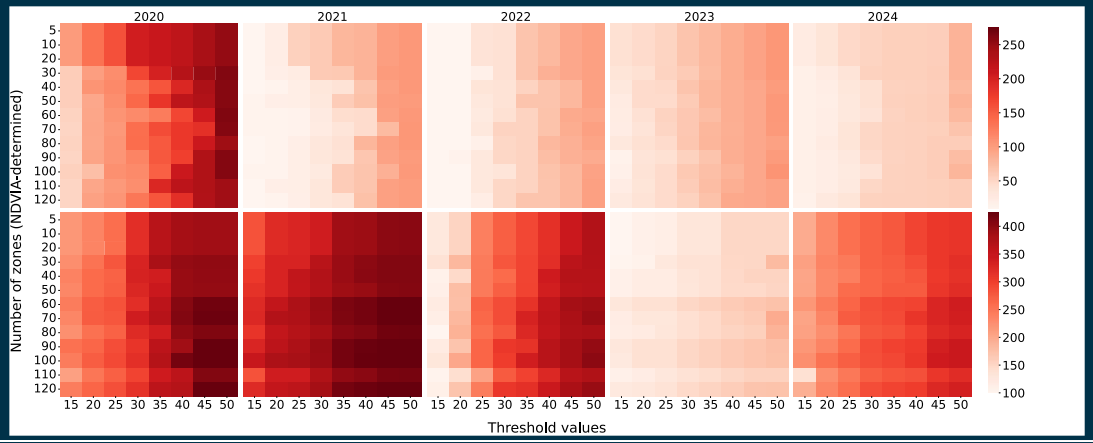


Study Area



Results





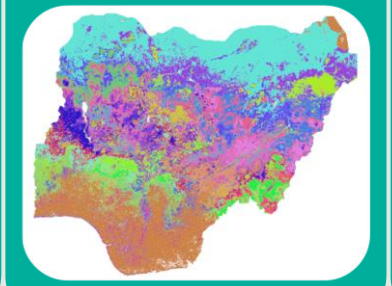
Further work

- Work together with Nigerian Meteorological Agency (NiMet) to integrate methods for drought monitoring into existing early warning systems for farmers
- Investigate application of anomaly indices to other states in Nigeria
- Combine resulting anomaly indices with short-term meteorological forecasts to predict future drought events
- Investigate application of the anomaly indices to other rice-producing states and staple crops in Nigeria

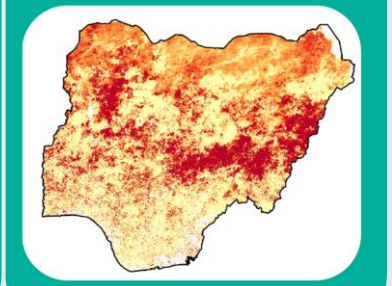
Layout for social media posts

Field data collection in four rice-growing states of Nigeria

Zonal clustering of EO data based on temporal vegetation patterns



EO indicator anomalies to identify past drought events in rice-growing regions



The #EOAfrica #MOFODRONI project has been successfully completed, demonstrating a novel approach to using #earthobservation anomalies for monitoring drought impacts on rainfed rice fields in Nigeria! Many thanks to @ESA for the opportunity!

Proud to announce the successful completion of the **#EOAfrica #MOFODRONI** project 🚀

We demonstrated an innovative approach to using **#EarthObservation** anomaly data to monitor drought impacts on rainfed rice fields in four major rice-growing states of Nigeria 🌾 📡

This work highlights how cutting-edge EO insights can strengthen climate resilience for smallholder farmers and support agricultural monitoring efforts 🌍

Grateful to **ESA** for the opportunity and to the **VITO** and **UNN** teams for the collaboration 🙌