A Geospatial Approach to enhance Food Security

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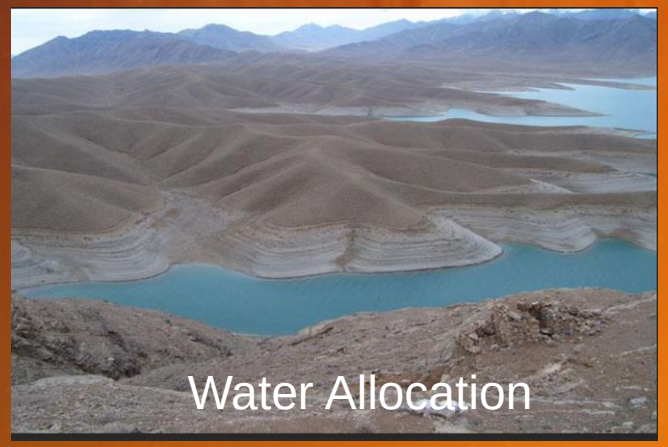
“Grow the right things in the right places”

- How do we increase production - sustainably?

- What does the 2050 Agricultural landscape look like?

Climate change and Environmental stressors have never been greater

Call's for increased monitoring and understanding of (changing) Local conditions.

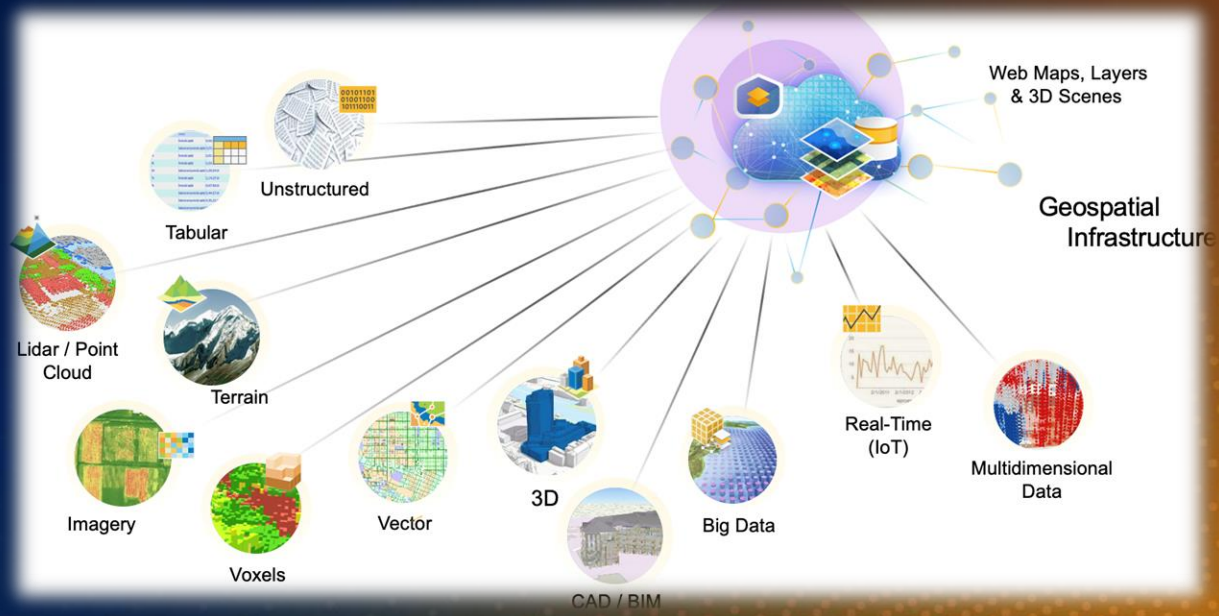


… to prevent food productivity shocks

Establish a baseline of data and insights

Technology and innovation can help generate understanding

1. Landcover, soil, crop mask, yield, rainfall
2. Demographics & Health data
3. Infrastructure
4. Trade, income, food prices
5. Conflict



collect & organise once, use many times

Establish a baseline – Agriculture Production

Cropland Masks, accessibility to knowledge and scale of deployment are critical to aid understanding

- Digitize from imagery/maps
- Field data collection
- Extraction from imagery (ML/AI)

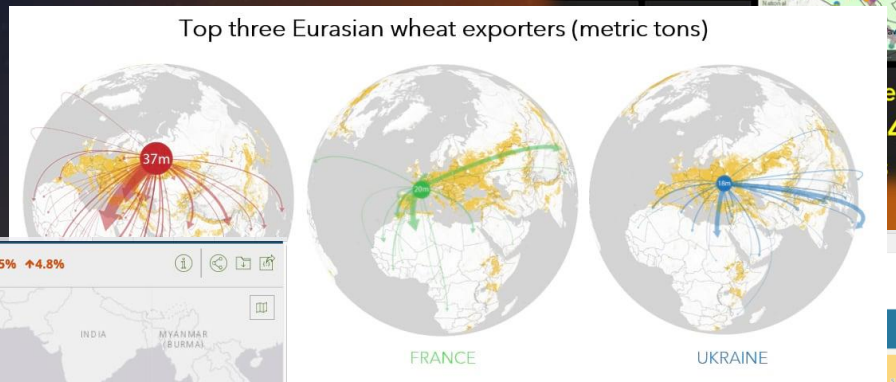
New streaming tool

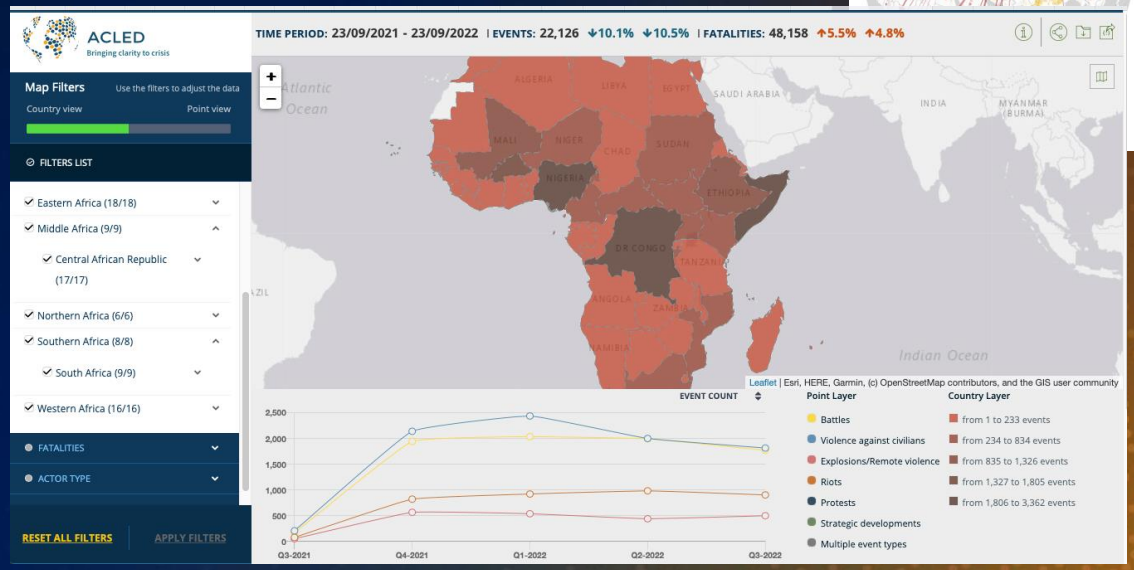
Geoglam Crop Monitor

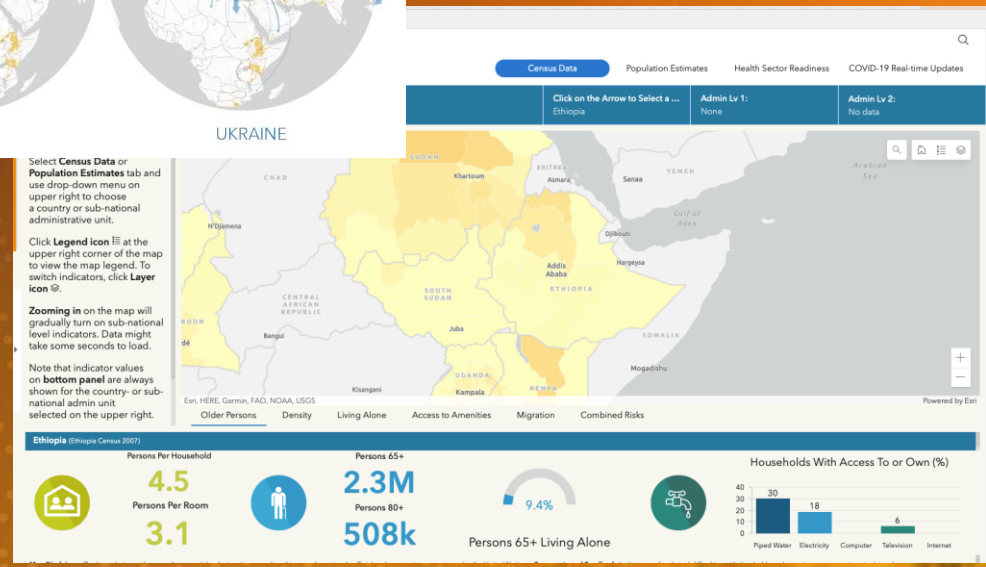
Establish a baseline – Access & Stability

Information and Data conflation is key to build greater insights on our understanding

- Collect & visualise staple food stocks in-country
- Map import routes & quantities
- Understand vulnerable population (economic)
- Distance to market/shops (physical)
- Conflict & other risks
- Food prices



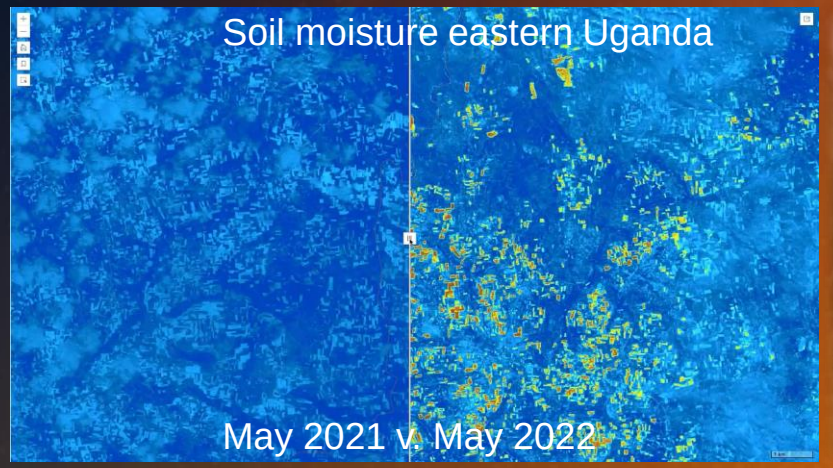


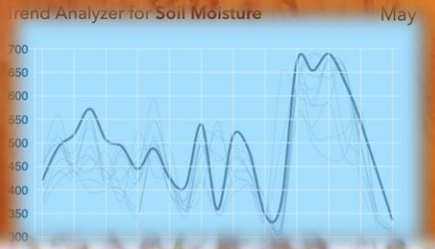


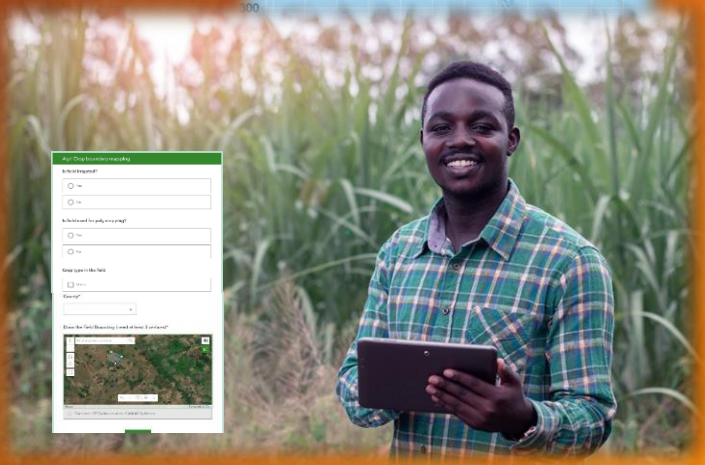
Monitoring

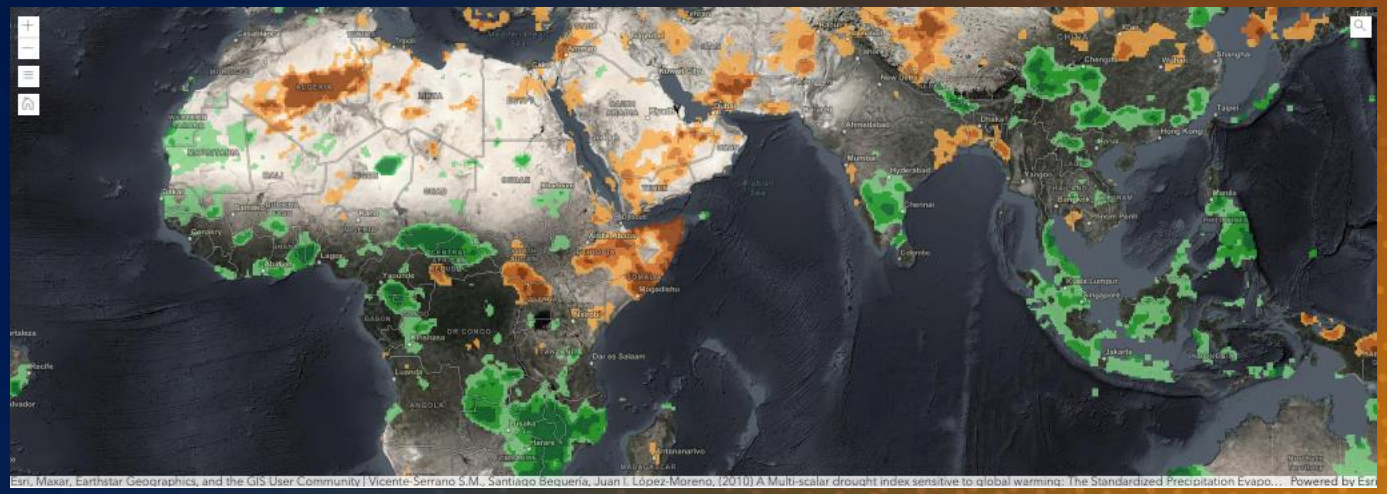
Turn insights into action to analyse, predict and intervene

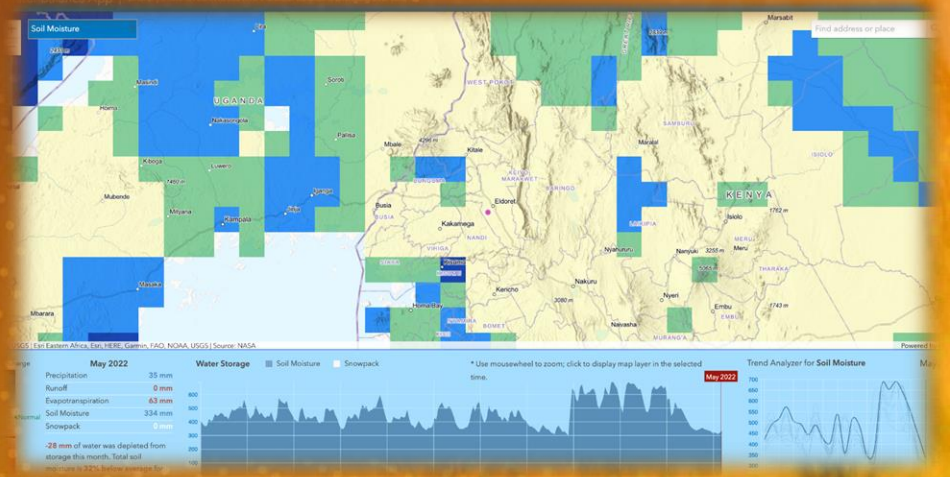
- Weather (flood/drought)
- Crop development & health
- Soil conditions
- Fires
- Conflict
- Population movement
- Food Prices
- Food stock levels







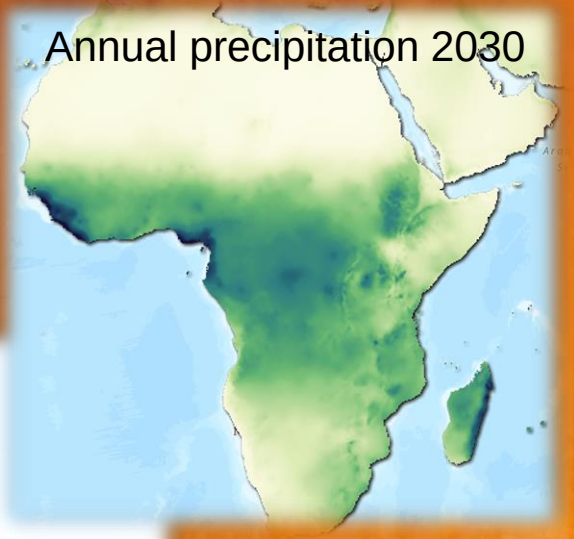


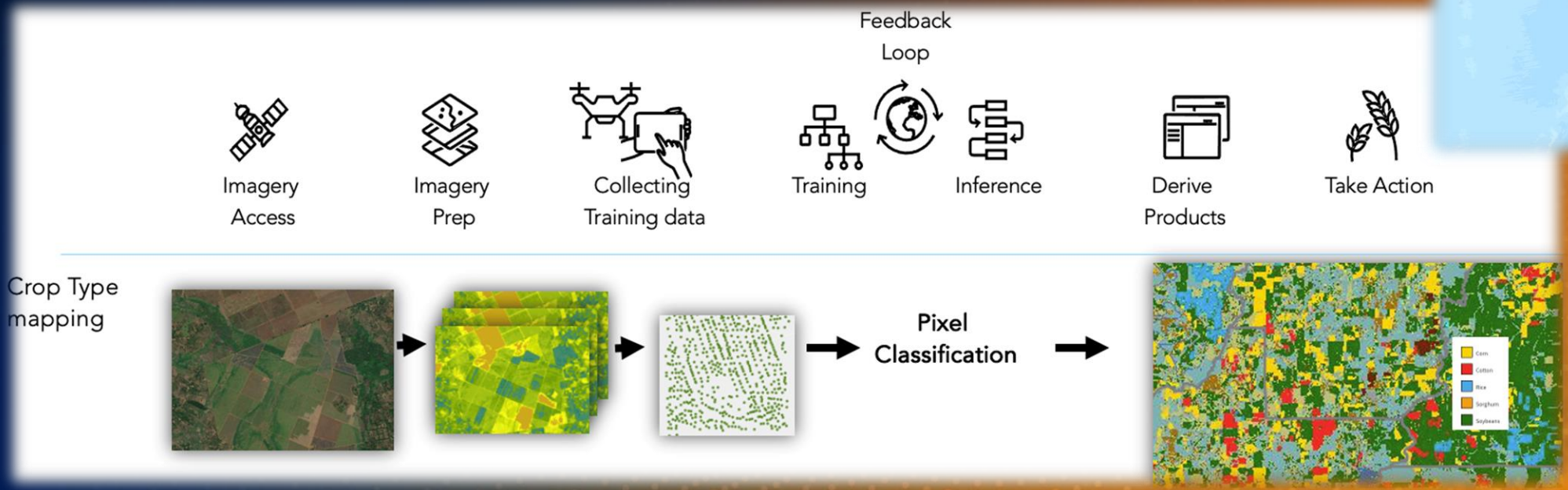


Forecasting

Identify trends and model variables

- Change Detection
- Suitability & predictive modelling
- Machine Learning





Yield forecasting

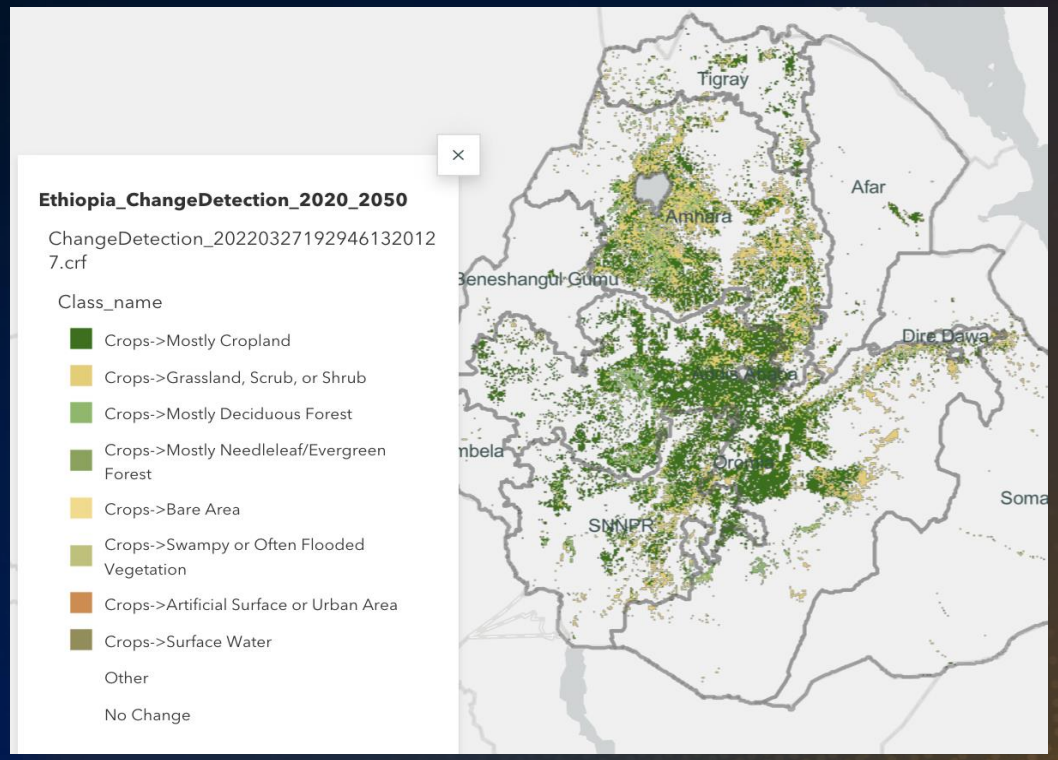
Forecasting on impact of global issues

Conflicts have a lasting effect on global production and supply

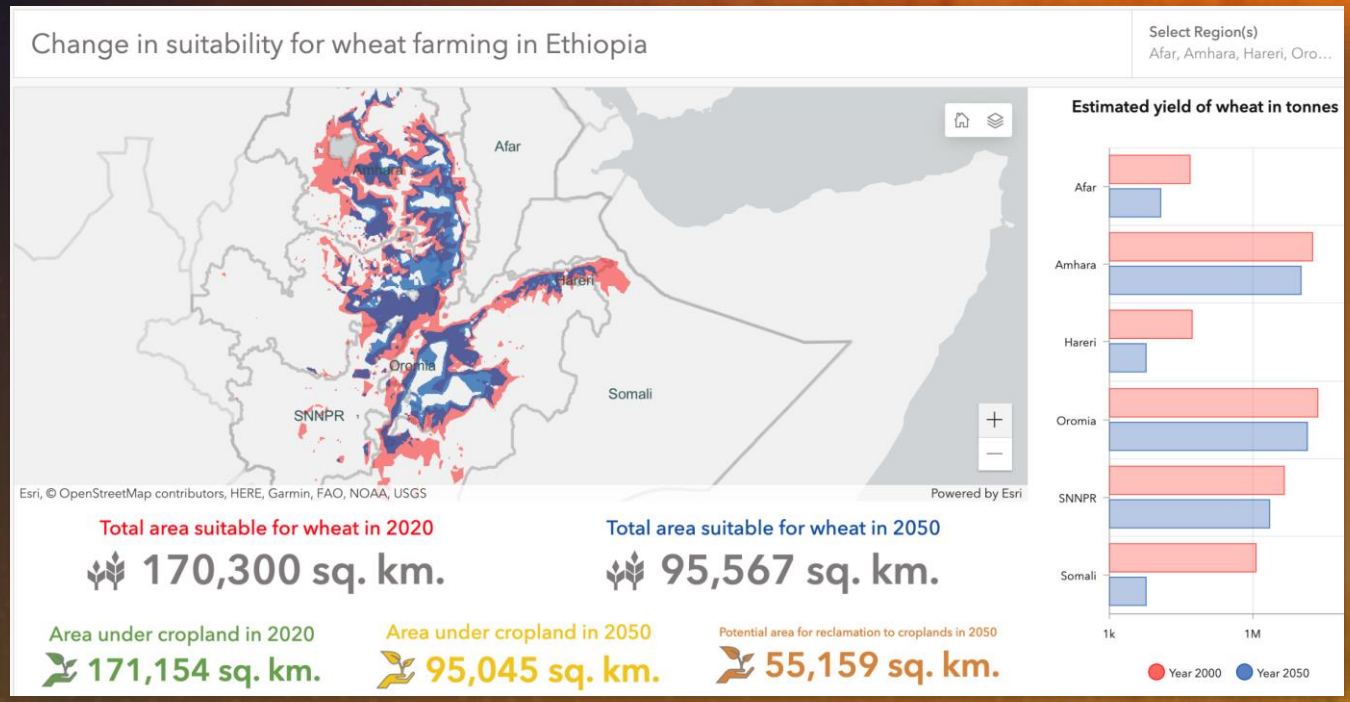
Long Term Forecasting – Impact of Climate Change

Suitability modelling

Agricultural Landscape Ethiopia 2050



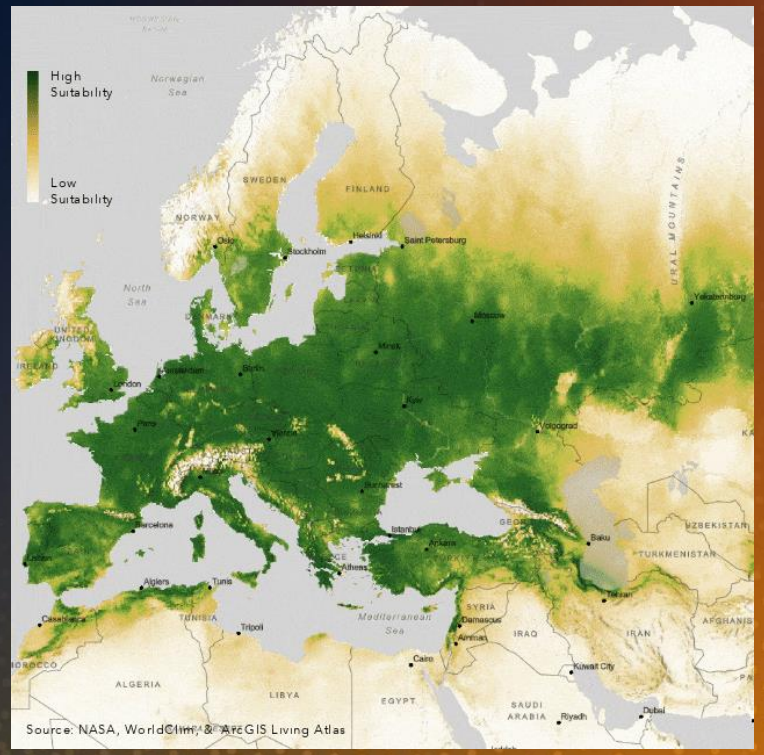
Change in cropland in Ethiopia between 2020 and 2050

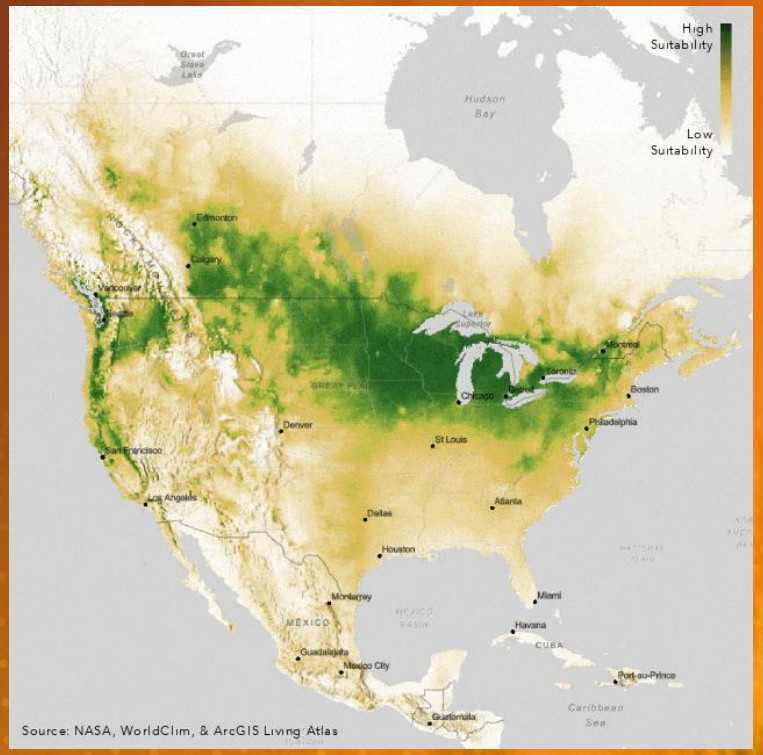


- Temperature
- Precipitation
- Soil PH

Forecasting Climate Change & the 2050 Wheat Landscape

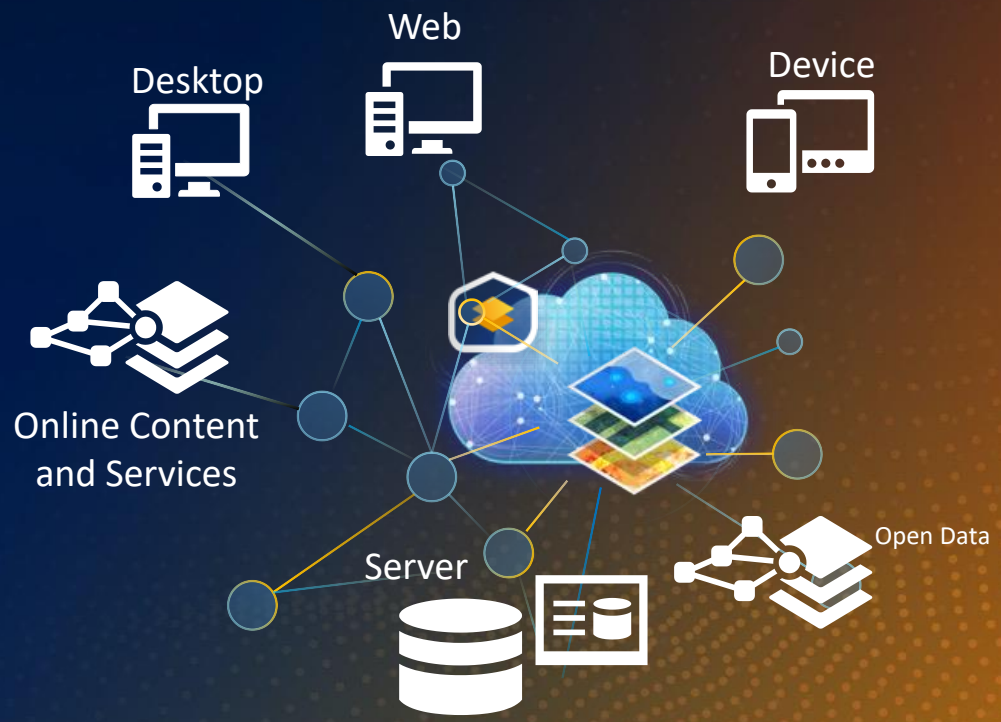
Machine learning





A Geospatial Infrastructure

Planning → Data Collection → Data Management → Mapping → Analysis, Monitoring & Modelling → Forecasting & Decision Support → Sharing & Collaboration



- ✓ Collect – efficient & accurate
- ✓ Organise – easily accessible - collect once – use many times
- ✓ Analyze – mapping, visualisation, analysis
- ✓ Collaborate - Sharing actionable information

Supporting Agricultural value chain

A Call to Action

- Establish a baseline
- Measure and monitor change
- Forecast and plan for the future

✓ Scalable – from Regional to field level precision agriculture

✓ Sustainable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