Geographical Information System for Sustainable Agriculture in Kenya and Beyond

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Problem Statement

Lack of accurate, timely and reliable satellite earth observation and associated data, its integration with agricultural research data and interpretation to support an effective decision-making process. In addition, the effect of weather and climate variability has increased risks to agricultural performance.
Proposed Solution

The project is building local capacity to access and use space-based data and cloud resources to aggregate field and farm level data into mapable (GIS ready) information that provide insight in addressing a host of challenges, for example where did it rain? Where did crops fail? and how many people were impacted?, how much fertilizer (tons) are needed in a particular area among others.
Project Status Update

- Satellite processing platform
  - Sen2Agri: (difficulties setting up, Challenges with available documentation & support)
  - Initial setup of Open Data Cube + JupyterHub
- Geotagging of smallholder fields using feature phone without internet (in development)
- Agroweather Insight generation
- Farmer survey to collect info on planting and crops (impact of desert locust on farming activities)
- Crop modelling with DSSAT and GeoWRSI
- AWS Stack used: EC2 instances and RDS Databases. (planned: Elastic Kubernetes Service)
Challenges and Roadblocks

- Limited support in setting up local Sen2Agri server
- Covid-19 movement restrictions affected user engagement plans
- Expertise in automatic field delineation missing
Next Steps and Expected Impact

- Geotag 1,000 smallholder farmer fields
- Web application for insight dissemination: Aggregate info on a dashboard to enable monitoring of crop development
  - Increased access to ground truthed agricultural activities for public sector organisations
  - Improved decision-making capabilities for policy makers and agricultural researchers based on in-situ and remotely sensed data