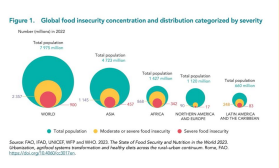
INTRODUCTION

I- Aligned with SDG Goals

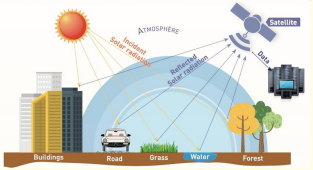
agenda 2063 aims to achieve “A prosperous Africa based on inclusive growth and sustainable development”. (Goal - 5)

SDG-2 “Ending hunger, achieving food security, improving nutrition and promoting sustainable agriculture by 2030”.

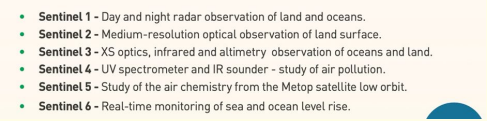


II - What does food insecurity means?

Situation in Africa: Only a few african countries have managed to achieve food security, 61% experience food insecurity



III - Role of space technology in Agriculture: What is remote sensing



ESA/EUMETSAT/ECMWF Outline of Copernicus program (20 satellite by 2030 > global)

PROBLEM DEFINITION before explaining rs

Huge database available with the Copernicus, and today we can do focused analysis on vegetation health like using the eVI index

+

Open source cloud computing capabilities such as GEE (possible to do it by everyone (free))

OBJECTIVE OF THE POSTER:

Develop and test AI-driven vegetation monitoring framework

(Sentinel-2, GEE, CNN > deep learning similar to computer vision, Methodology of training Machine learning > unsupervised ML)

METHOD:

Compute eVI “manually” over 3-month temporal window analysis using GEE (which is already great)

Now we are going further in innovation and leverage AI technology by training a model that will predict automatically areas of vegetation that needs attention (spatial vegetation) > computation into CNN and ask CNN to make prediction using Google COLAB (free tool)

Then, to validate the output of our model, we compare the output of the model to threshold classification baseline

If Accuracy > 90% then, AMAZING we’ve done it

RESULTS - Feasibility study on the area of RWANDA

WAY FORWARD

Our feasibility study was great

Now we can do

- 25-26: Pilot validation : Build a prototy web dashboard
- 27-29: Scaling - expand the coverage (GEOGRAPHY) and include more data 1 and 3) to update our dashboard with information
- 30-32: Empowerment??
- 33-35: Pan-African AI-EO Observatory supporting precision and innovative agricultural practices in Africa

- END GAME Tying back to AI and Rem sensing: make satellite data easily ac to both expert and non-expert users. Instead of using complex graphical in users can ask questions like “Show S images of Mount Etna from February cloud cover < 10%.” > EarthQA is an a intelligence–based question answerin that allows users to retrieve Earth obs satellite images through natural langu queries.

  close the loop > how it will impact loc +SDG Goal

REFERENCES -

Made with GAMMA