Ceres: AI IPC Prediction Platform

Assisting Humanitarian Response with Geospatial Intelligence

Team Ceres

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Who We Are and Our Passion

Zero Hunger is the #2 UN Sustainable Development Goal.

We are Team Ceres, we leveraging the recent advances in AI technology to create meaningful tools to assist humanitarian organizations in their operations.

The Global Hunger Crisis

- Current IPC analysis is performed on the ground by humanitarian organizations.
- This is a slow and resource-intensive process.
- This poses a challenge for humanitarian organizations to allocate aid effectively.

Our Innovation: Ceres Platform

Ceres AI IPC Prediction leverages Google DeepMind's Alpha Earth geospatial embeddings combined with LightGBM ML models to predict IPC phases.

- Embeddings offer rich information about the environment.
- In a format AI models love.
- Collected and updated continuously.
- Versatile for use in a variety metrics.

How It Works: Technical Overview

1. **Input Data Sources:**
   - Country/Region IPC historical data
   - Country/Region Satellite embeddings
2. **AI Model:** LightGBM trains on the data
3. **Backend:** Python FastAPI manages and serves predictions and historical data
4. **Frontend:** React + Recharts displays the data in a human friendly way.

Prototype Demonstration

Interactive Dashboard Features:

- Country/Region selection interface
- Historical IPC phase data
- AI predicted IPC phase predictions
- About page with more technical information

Demo: Afghanistan and its regions.

Future Impact and Next Steps

- Continious and faster IPC phase prediction enables effective and efficient humanitarian aid management.
- Helps achieve UN SDG 2 by 2030 by supporting humanitarian decision-making
- Uses the latest and cutting edge software technologies.
- Scale to higher resolution data.
- Could be extended to metrics for other UN Sustainable Development Goals.

Thank You

Team Ceres: Leveraging AI for Efficient Humanitarian Operations

Questions?