CDSE
COPERNICUS
DATA SPACE
ECOSYSTEM

CDSE AI Capabilities

AI and EO: From Innovation to Services

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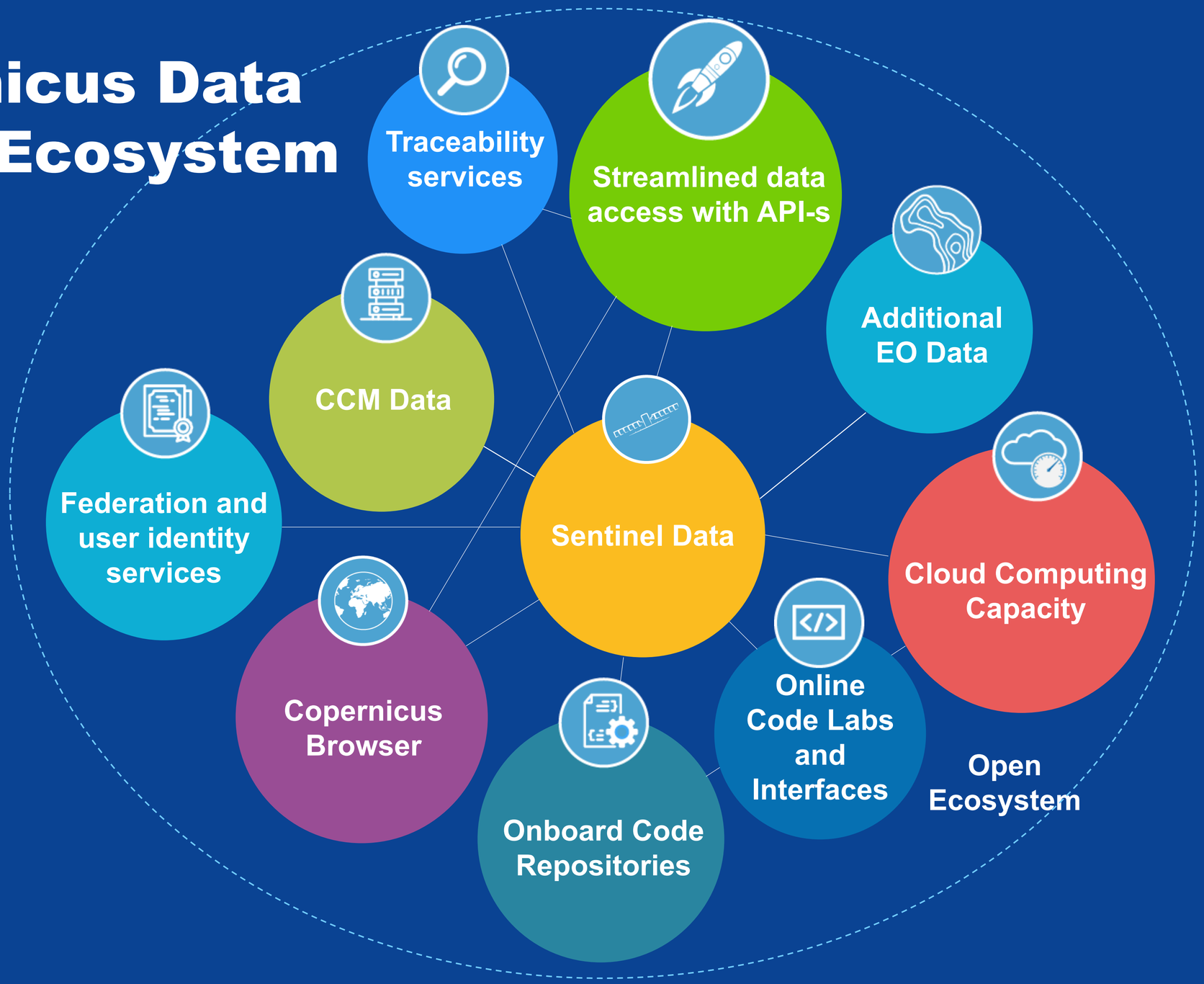
Copernicus

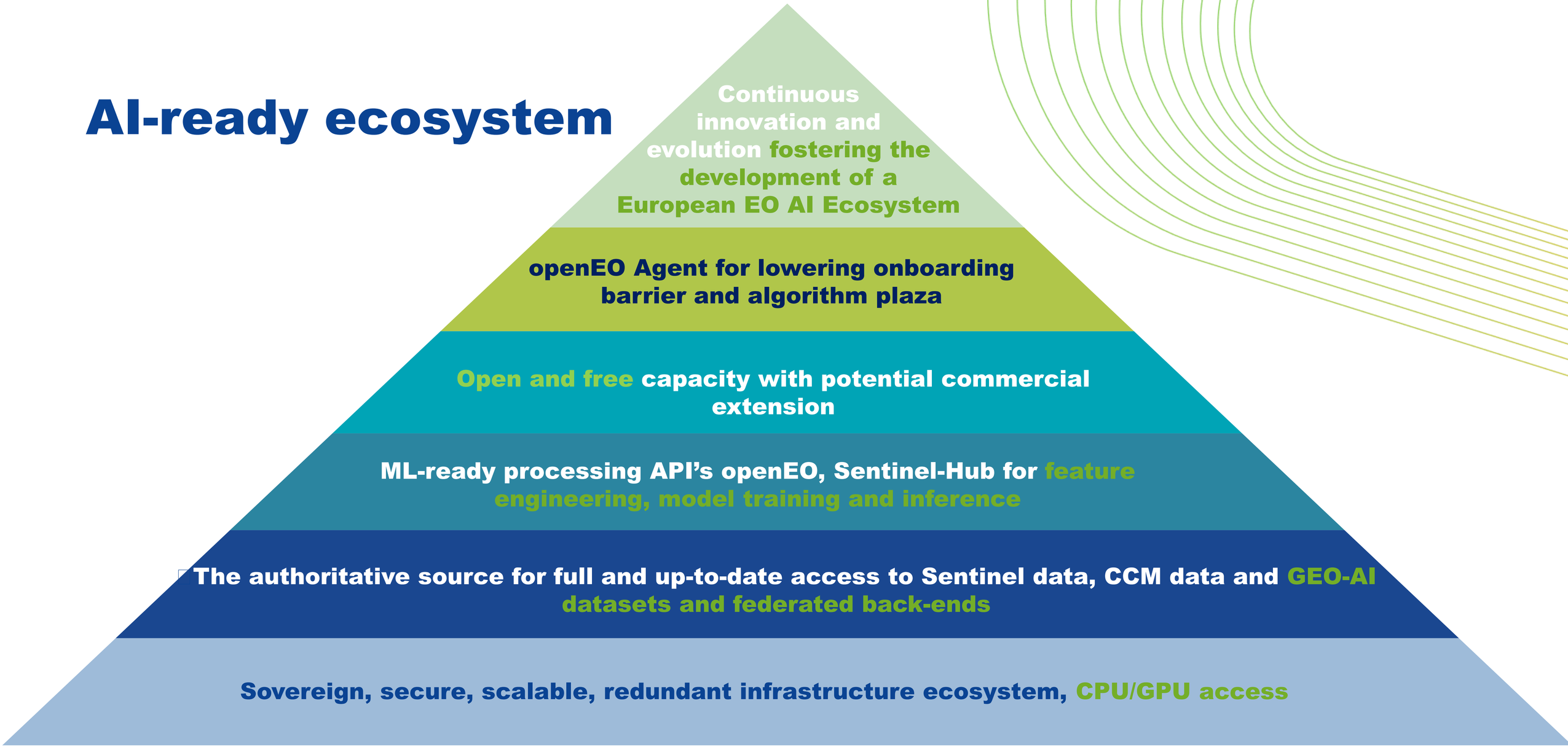
Largest data space for the largest EO programme

- The **authoritative source** for full and up-to-date archives of Sentinel user data, digitally traced
- **Immediately available, free and open data**
    - Currently 85 PB and more than 100 PB by 2028
- Governed by a Service Level Agreement, ensuring continuity and trust (up to **December 2028** with optional extension until **December 2032**)
- **Open ecosystem** of advanced services

Copernicus Data Space Ecosystem



AI-ready ecosystem



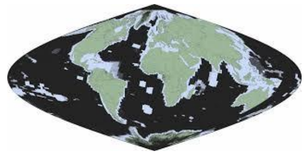
GEO AI Datasets ecosystem

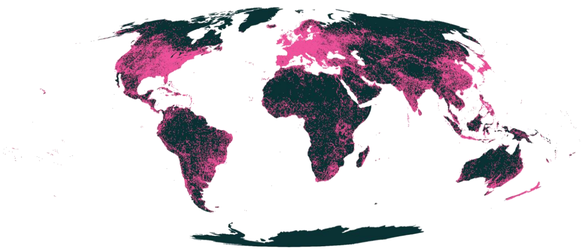
Making geoAI datasets available within CDSE/CREODIAS significantly lowers the barrier to AI development by enabling faster access, easier testing, and tight integration with Copernicus data.

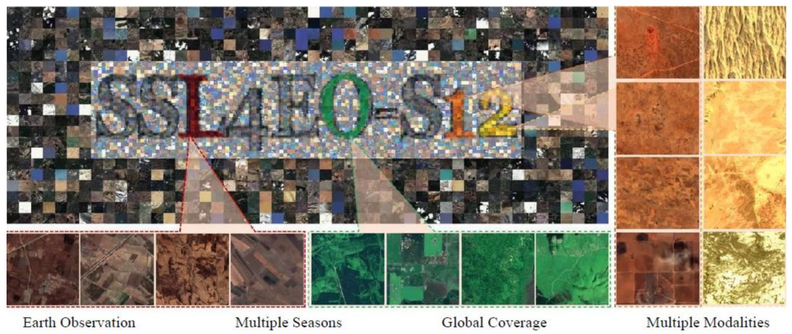
Embeddings datasets at CDSE - optimized for fast inference, vector search and scalable downstream geoAI applications.

Datasets:

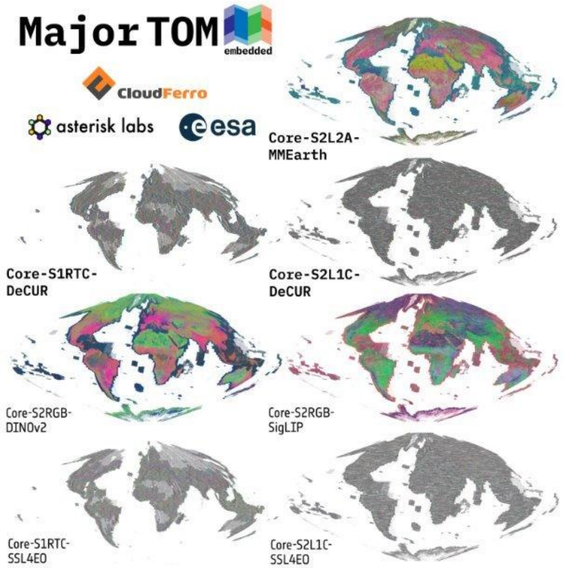
- MajorTOM
- SSL4EO-S12
- OlmoEarth
- MMEarth
- BigEarthNet-S1/S2
- EuroSAT MS/RGB
- CloudSEN12
- SatlasPretrain
- TerraMesh







MajorTOM embeddings: SSL4EO, MMEarth, SigLIP, DINOv2, DeCUR, (CORSA)



Additional embedding datasets coming soon...

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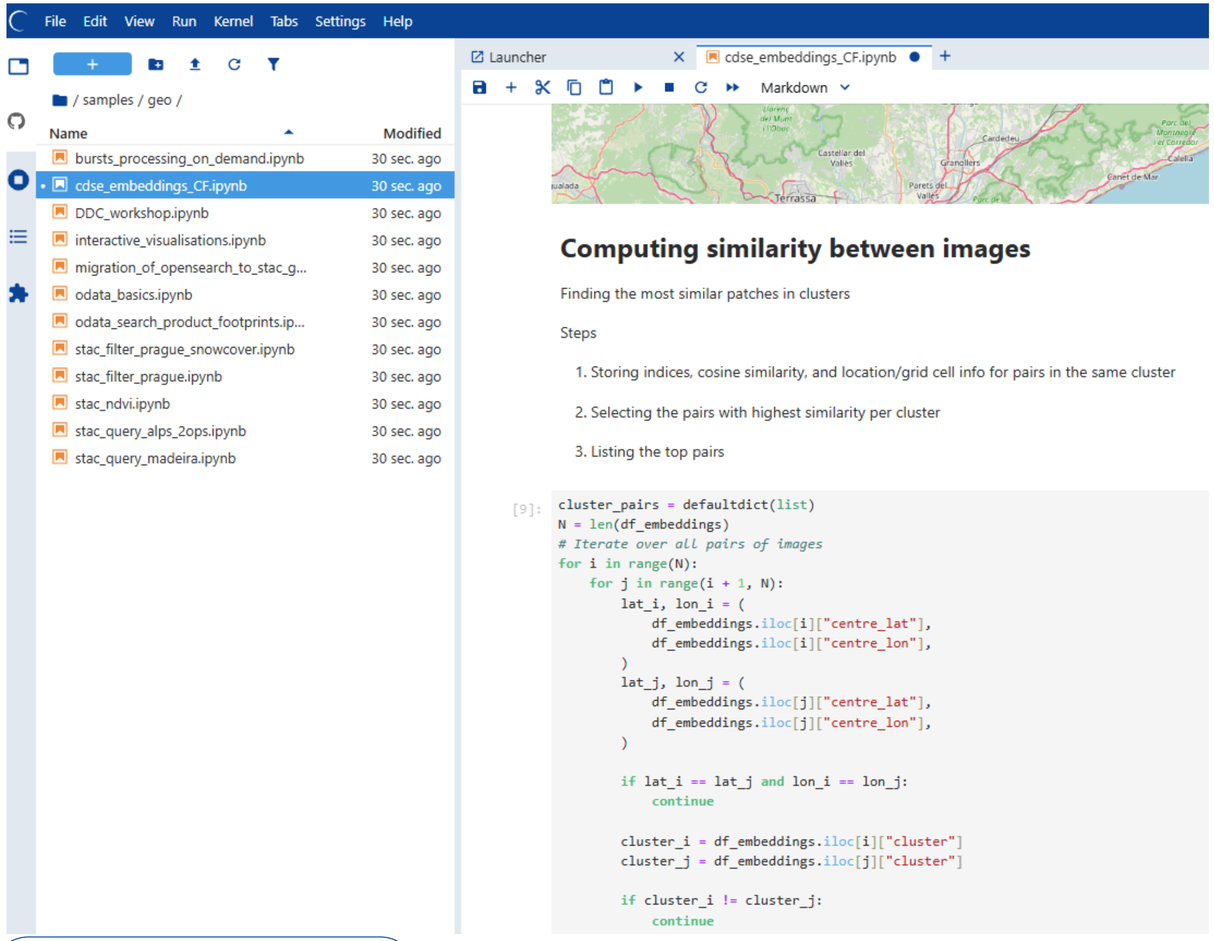
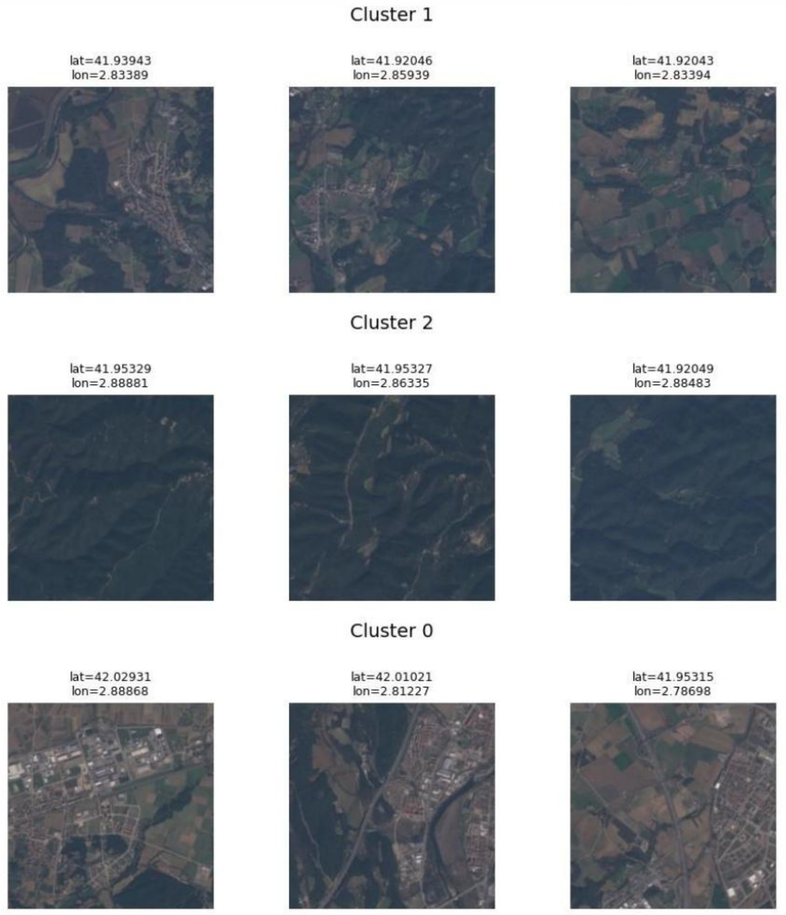
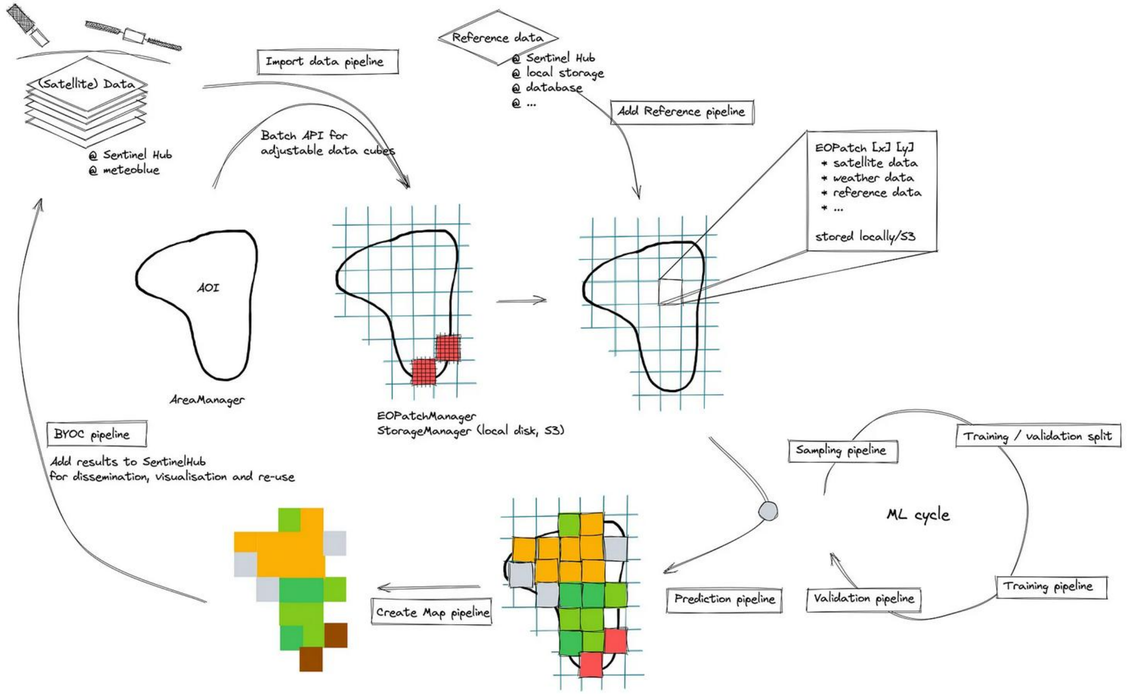
Example notebook tutorial available

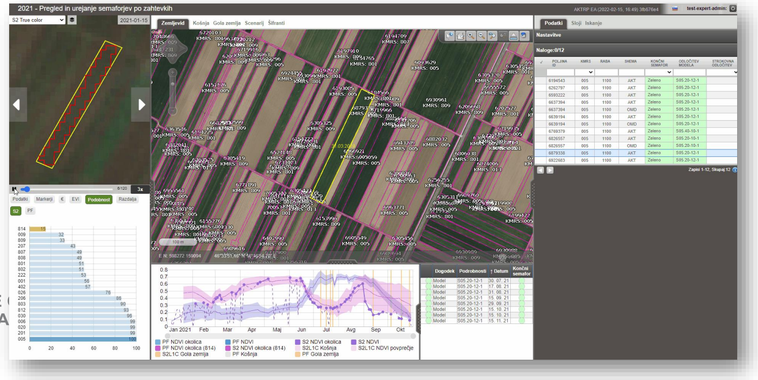




AI and CDSE powering Common Agriculture Policy

- **Signals - Feature engineering**
  - openEO, Process API, Statistical API/Batch Processing API, Batch Statistical API
  - CARD BS, CARD4L, CARD DOH6/12, MAJA, FORCE
- **Markers - Model training and inference**
  - Jupyter Lab, OpenEO
  - IaaS, Managed Kubernetes
- **Analysis and dissemination of results**
  - Copernicus Browser
  - IaaS, S3
  - OGC APIs
- **Next steps**
  - Integration of embeddings in the process





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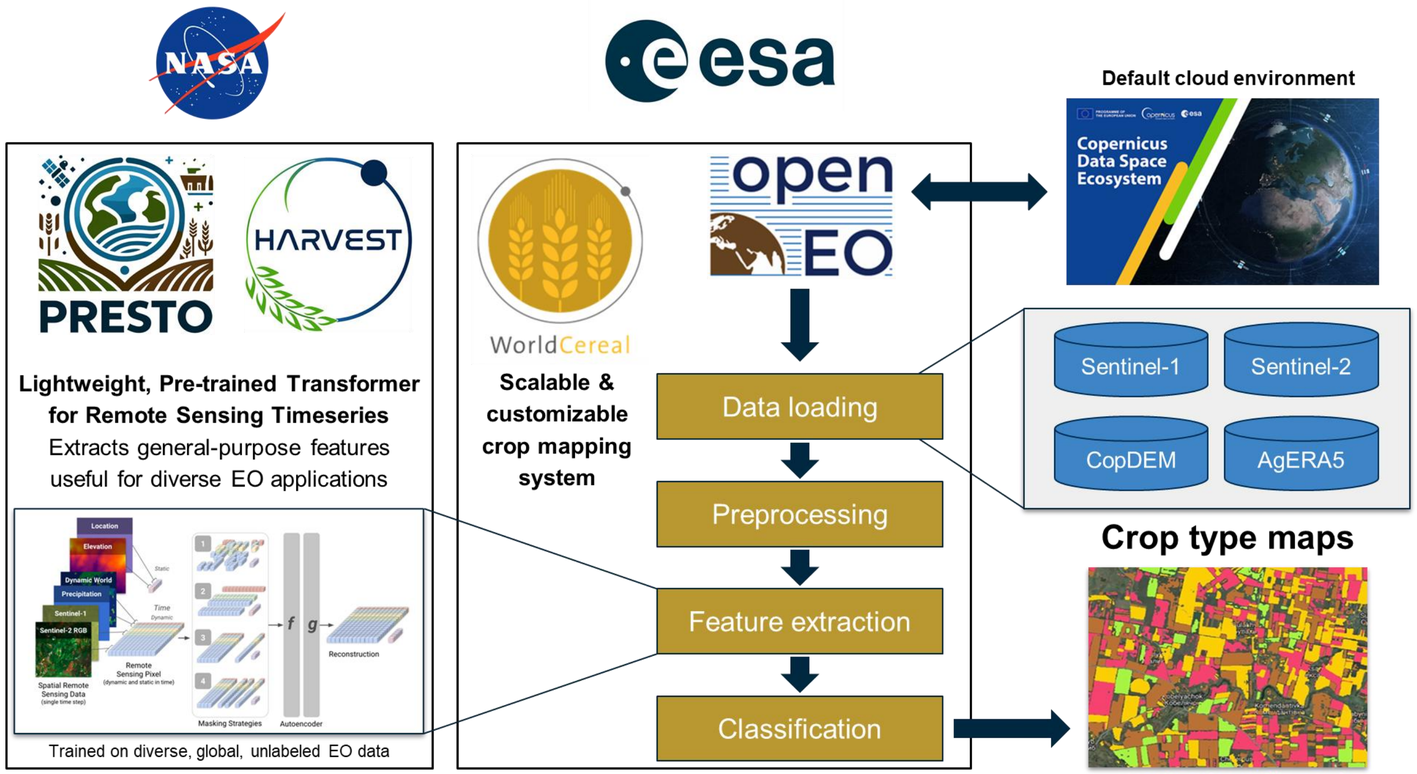
CDSE

PROGRAMME
THE EUROPEA

ESA World Cereal Project → EO Plaza



GET STARTED

Provided by:
WorldCereal

Service links:
Website URL

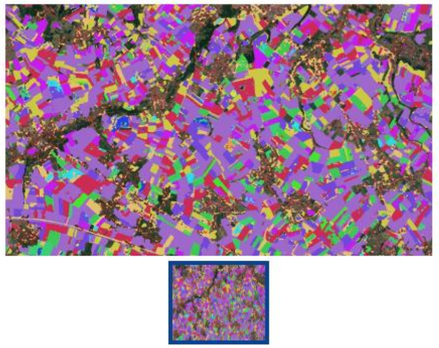
Navigate to:
Overview
Usage example
Parameters
Results
References

Prototype

ESA worldcereal global crop type detector

A crop type detection algorithm for global use

sentinel-1 | sentinel-2 | ESA WorldCereal | ESA



Overview

The ESA WorldCereal Crop Type Detector combines Sentinel-1 (SAR) and Sentinel-2 (optical) time series with meteorological inputs and in-situ observations to produce local to global 10 m crop-type maps, processed at scale via openEO within the Copernicus Data Space Ecosystem. It generates pixel-level embeddings using the Nasa Harvest' "Presto"

openEO AI agent (Upcoming)

1

Natural Language Query

"Generate a cloud-free composite of Brussels for summer 2025"

2

LLM Agent (MCP Server)

Translates intent into openEO process graph

3

openEO Processing

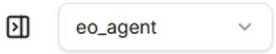
Federated execution on CDSE cloud

4

Actionable Results

Maps, time series, analysis delivered

Open Standard	Built on openEO API — not locked into any proprietary ecosystem
Federated	Processes execute across multiple backends, wherever the data resides, linked to user account
Low threshold	Lowering the bar for custom code processing and conversion, free tier



Hi, Victor Verhaert!

Type your message...

Hide Tool Calls

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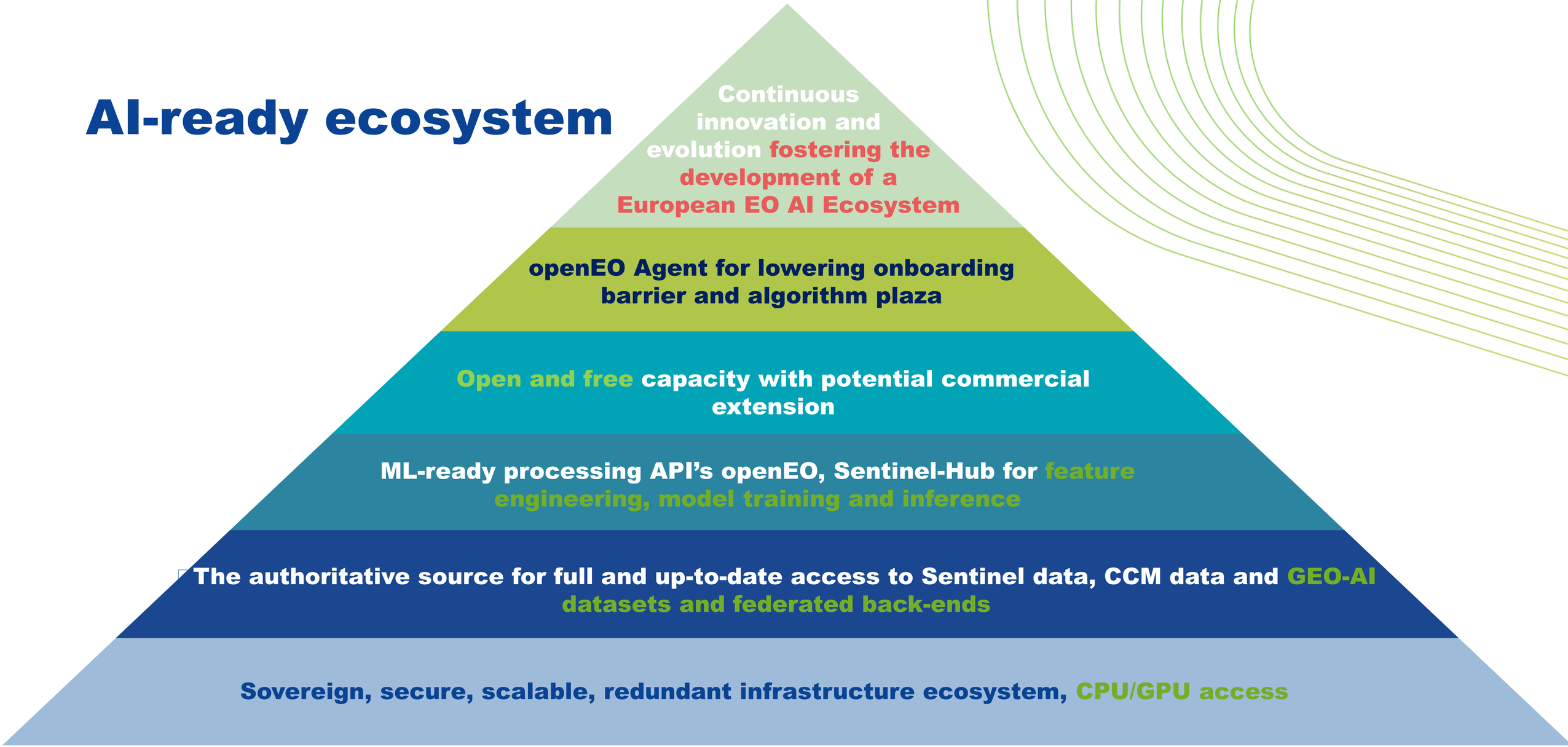
AI-ready ecosystem



CDSE

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Open. Federated. European. AI-Ready.

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PROGRAMME OF
THE EUROPEAN UNION

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