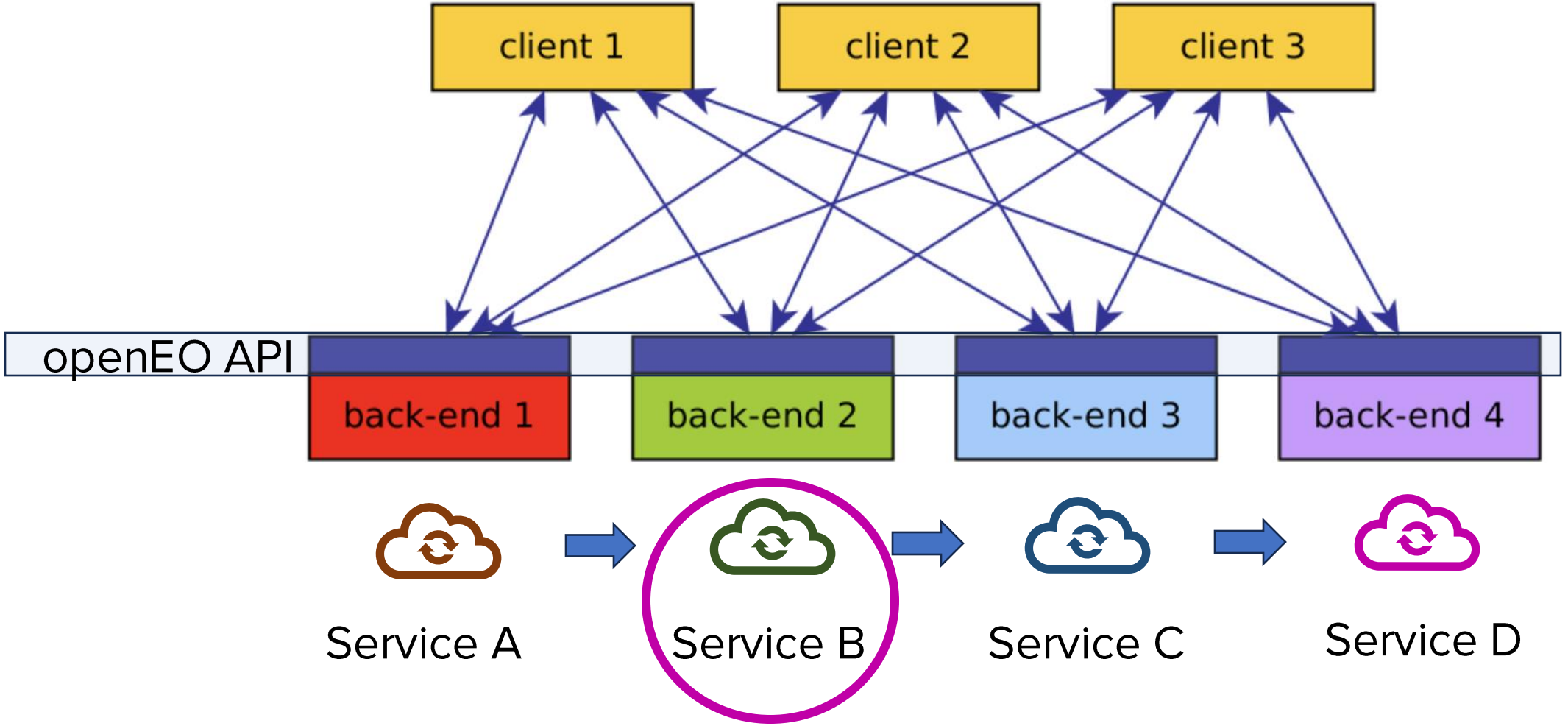
Machine Learning API for Earth Observation Data Cubes

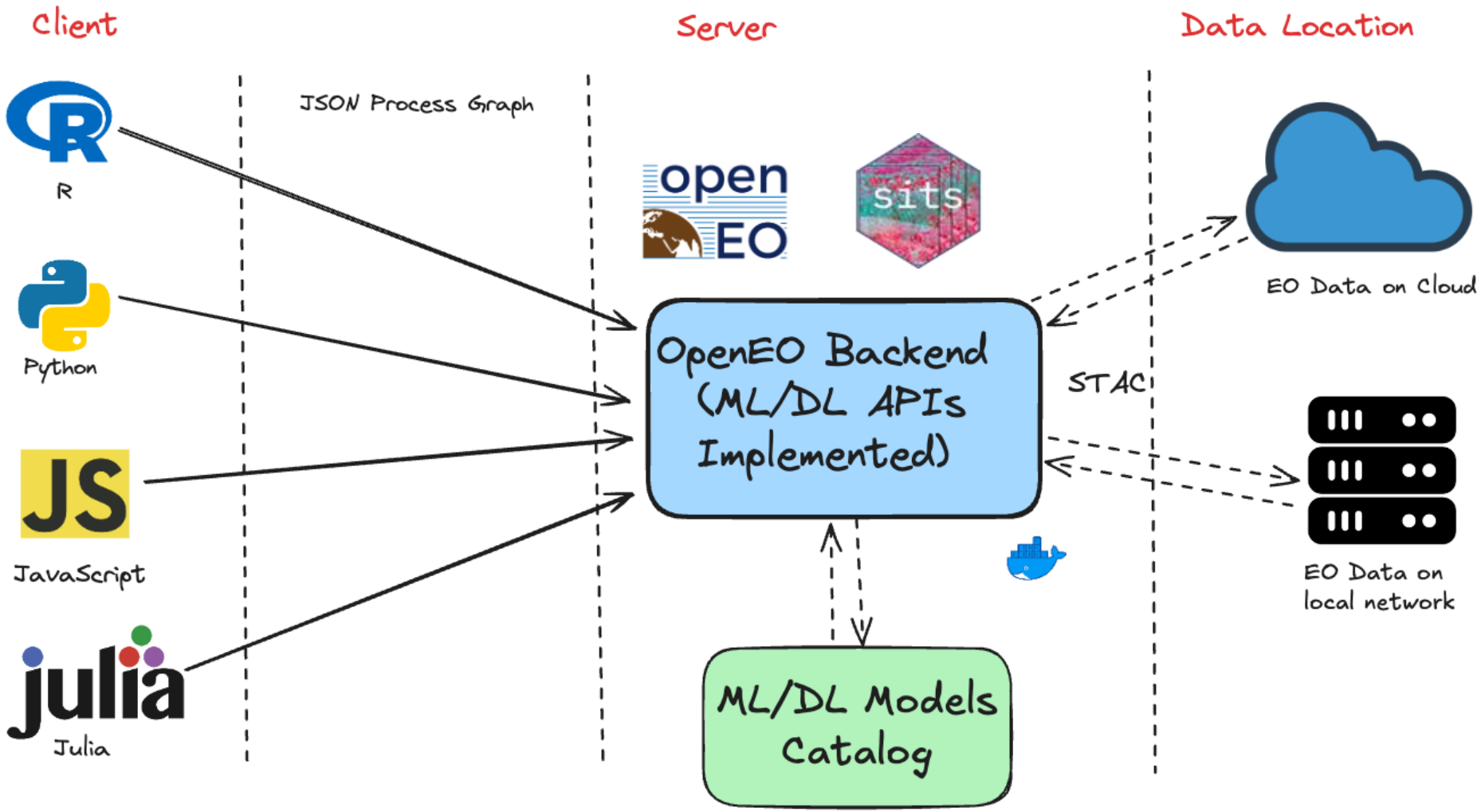
OPEN EARTH MONITOR

Brian Pondi - University of Münster
Rolf Simoes - OpenGeoHub Foundation

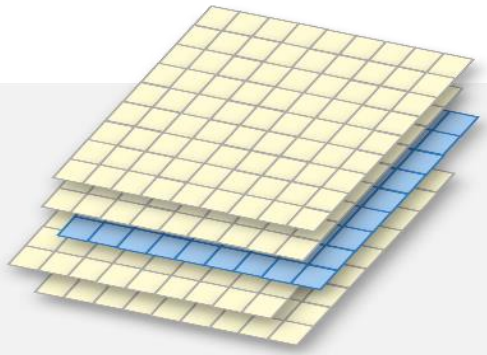
openEO



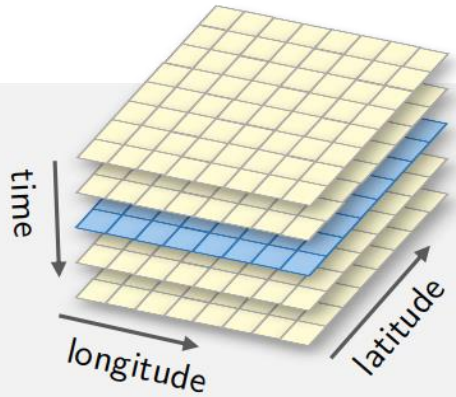
ML Service powered by SITS


Client
Server
Data Location
JSON Process Graph
R
Python
JavaScript
Julia
open EO
sits
OpenEO Backend (ML/DL APIs Implemented)
ML/DL Models Catalog
STAC
EO Data on Cloud
EO Data on local network

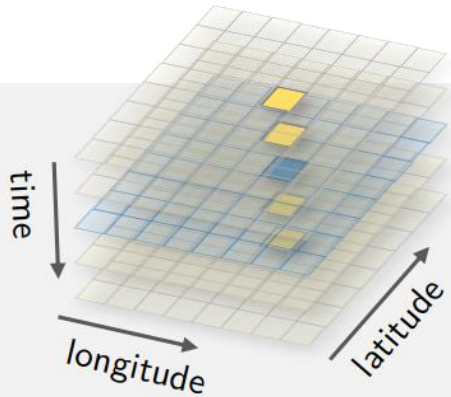
Data cubes



EO image collection



EO data cube



Time series selection

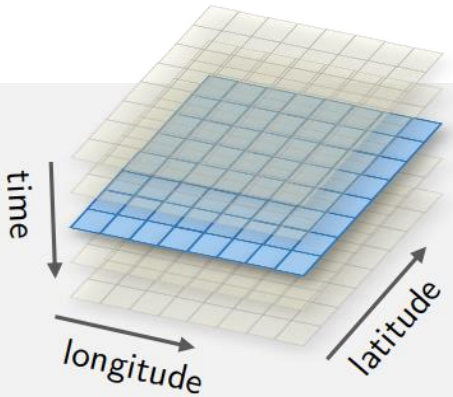
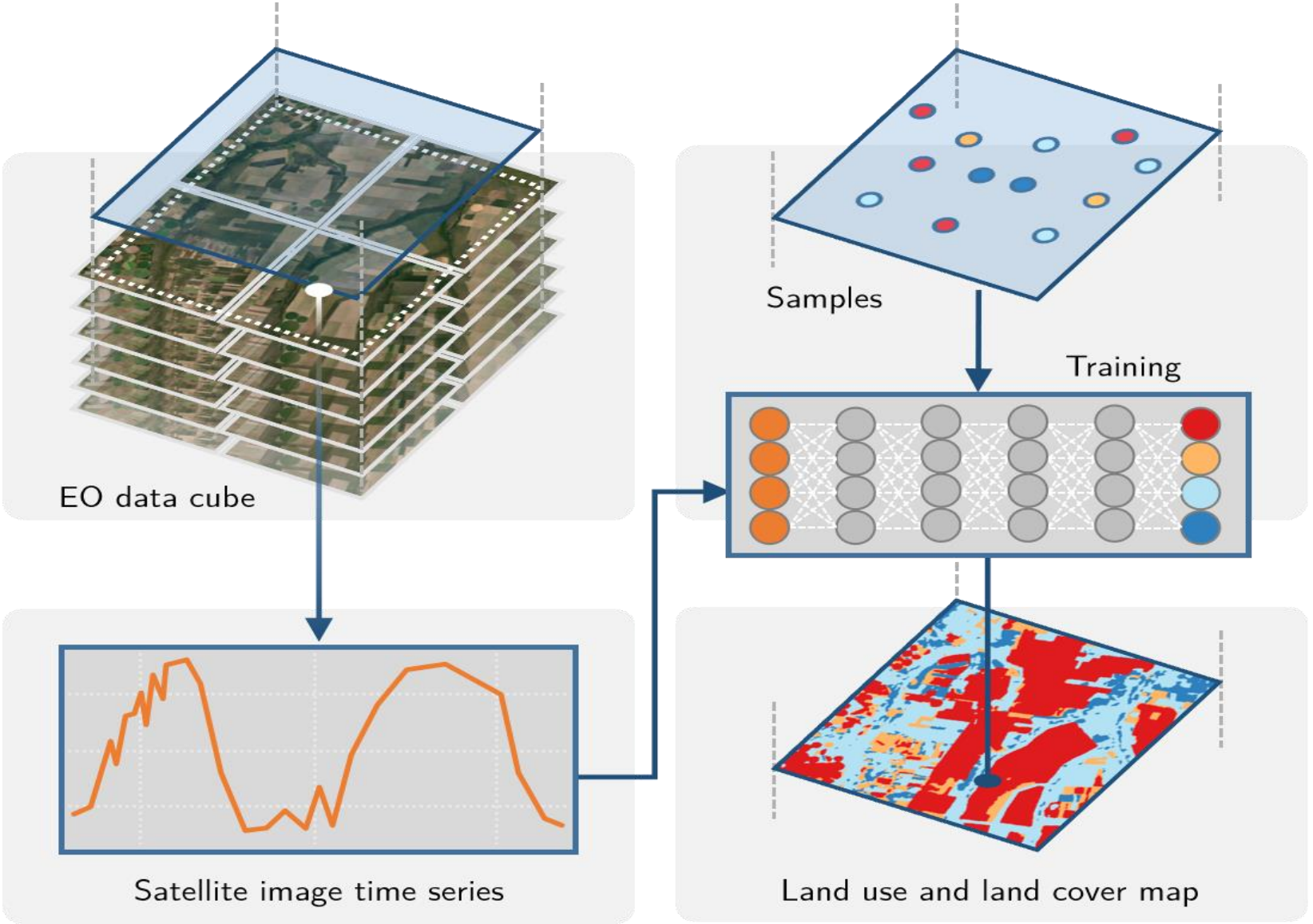


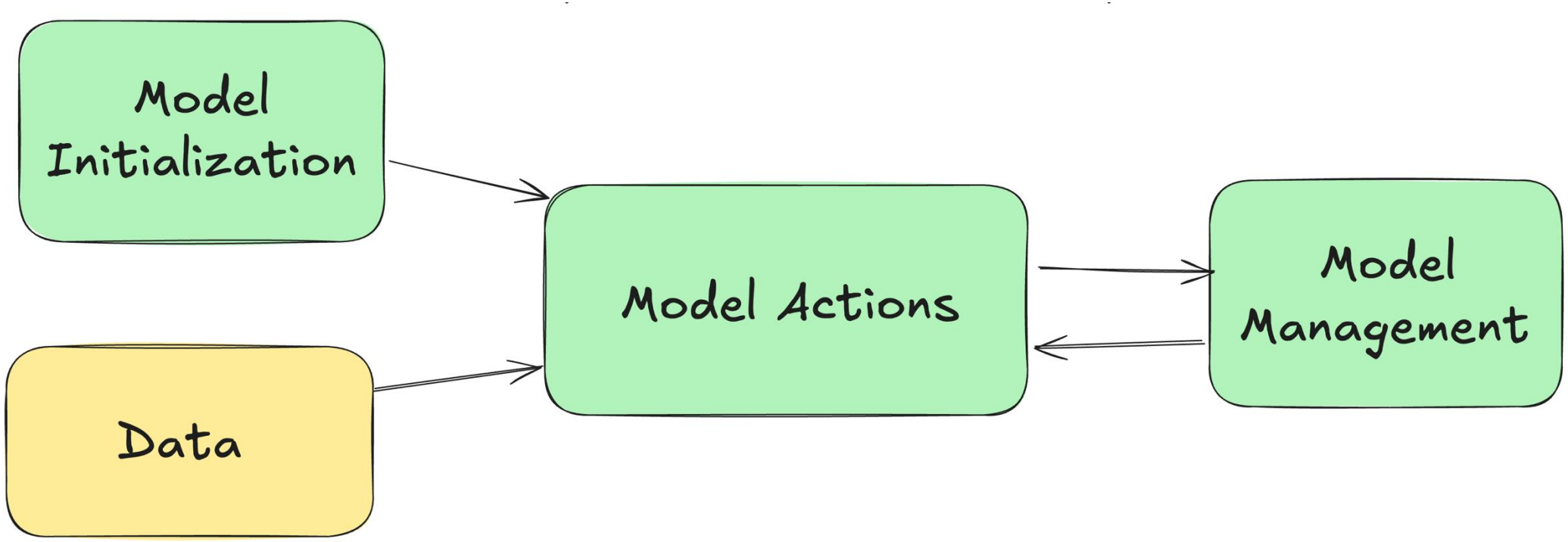
Image selection

Source: SITS Book

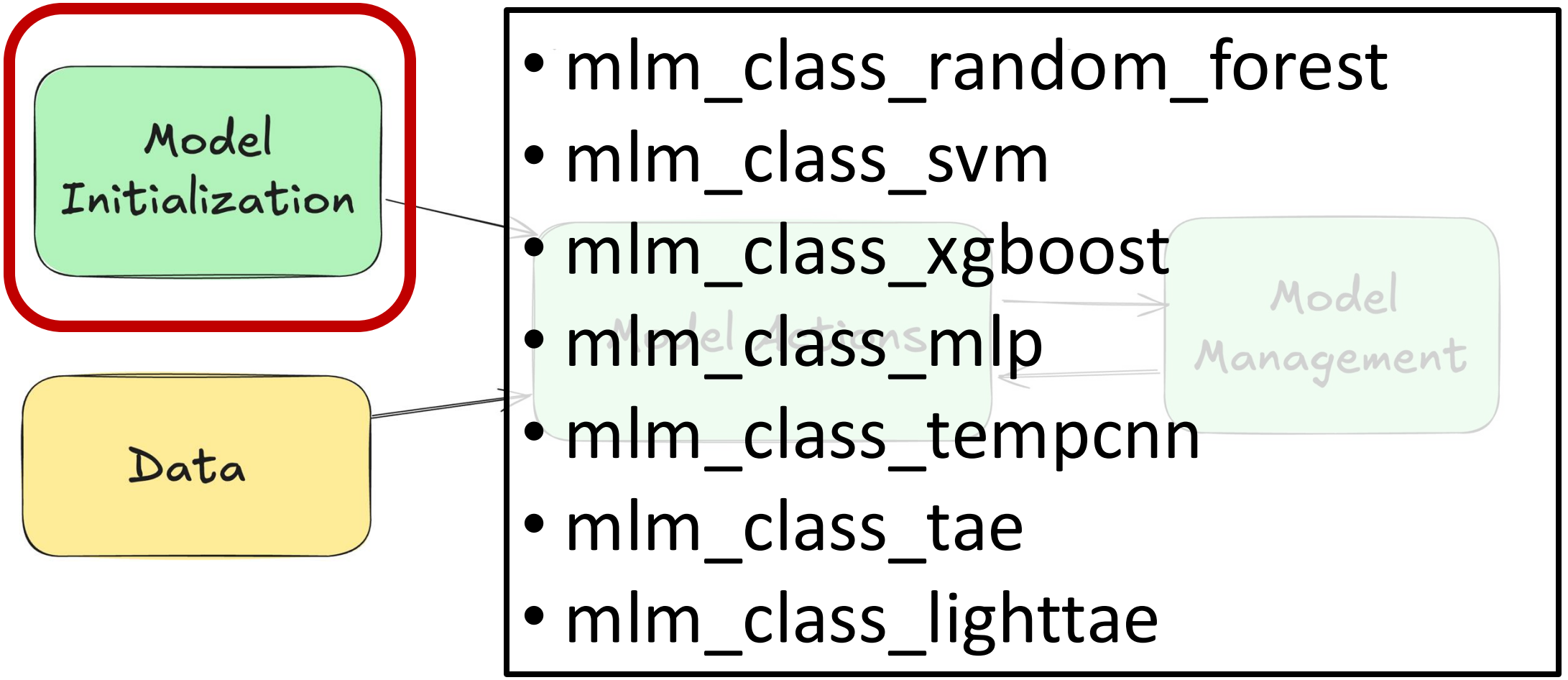
SITS: Big EO data analytics



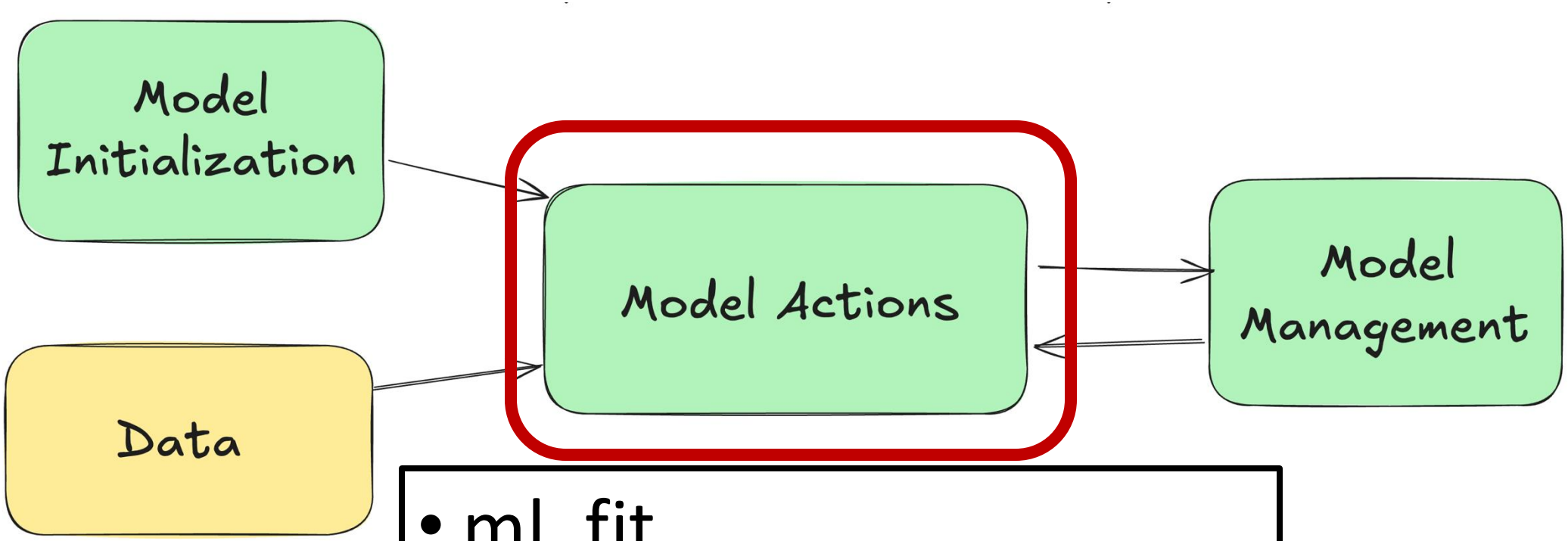
openEO ML API Components



openEO ML API Components

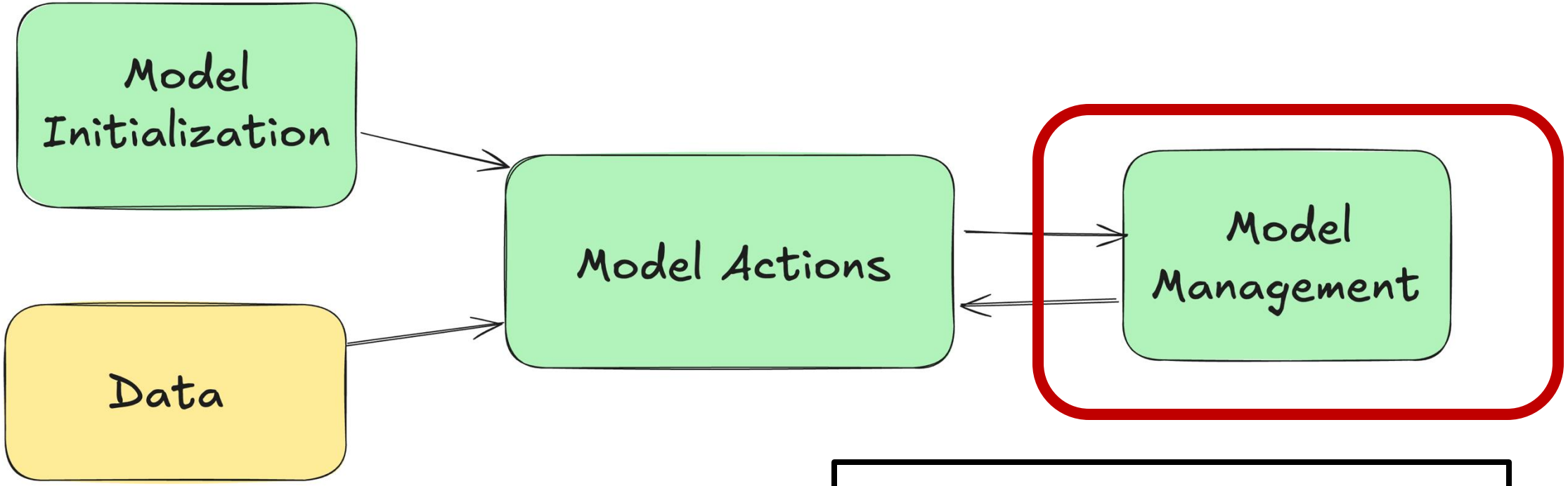


openEO ML API Components



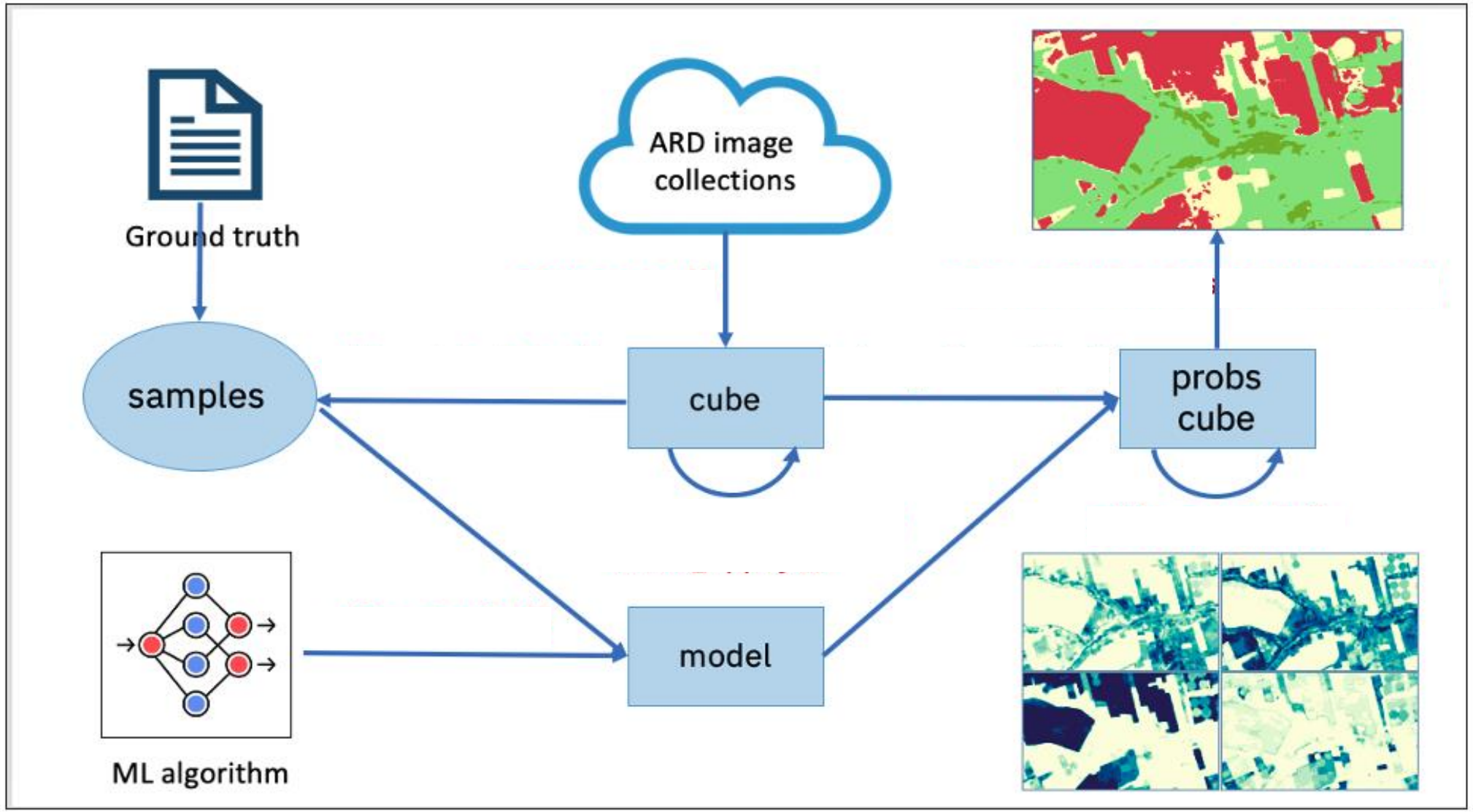
- ml_fit
- ml_predict
- ml_predict_probabilities
- ml_uncertainty_class
- ml_smooth_class

openEO ML API Components



- save_ml_model
- load_ml_model

openEO ML API Workflow



CODE DEMO

DURING Q & A

Conclusion

New ML Capabilities in the openEO Ecosystem

OpenEO users can gain the power of **SITS**-based analytics with minimal effort

openEO-craft is a fast prototyping open-source package to create openEO services in R

CONTACT US

Brian Pondi: brian.pondi@uni-muenster.de
Rolf Simoes: rolf.simoes@opengeohub.org

OpenEOcraft : https://github.com/Open-Earth-Monitor/openeocraft