

FINDR – Fast and Intuitive Data Retrieval for Earth Observation



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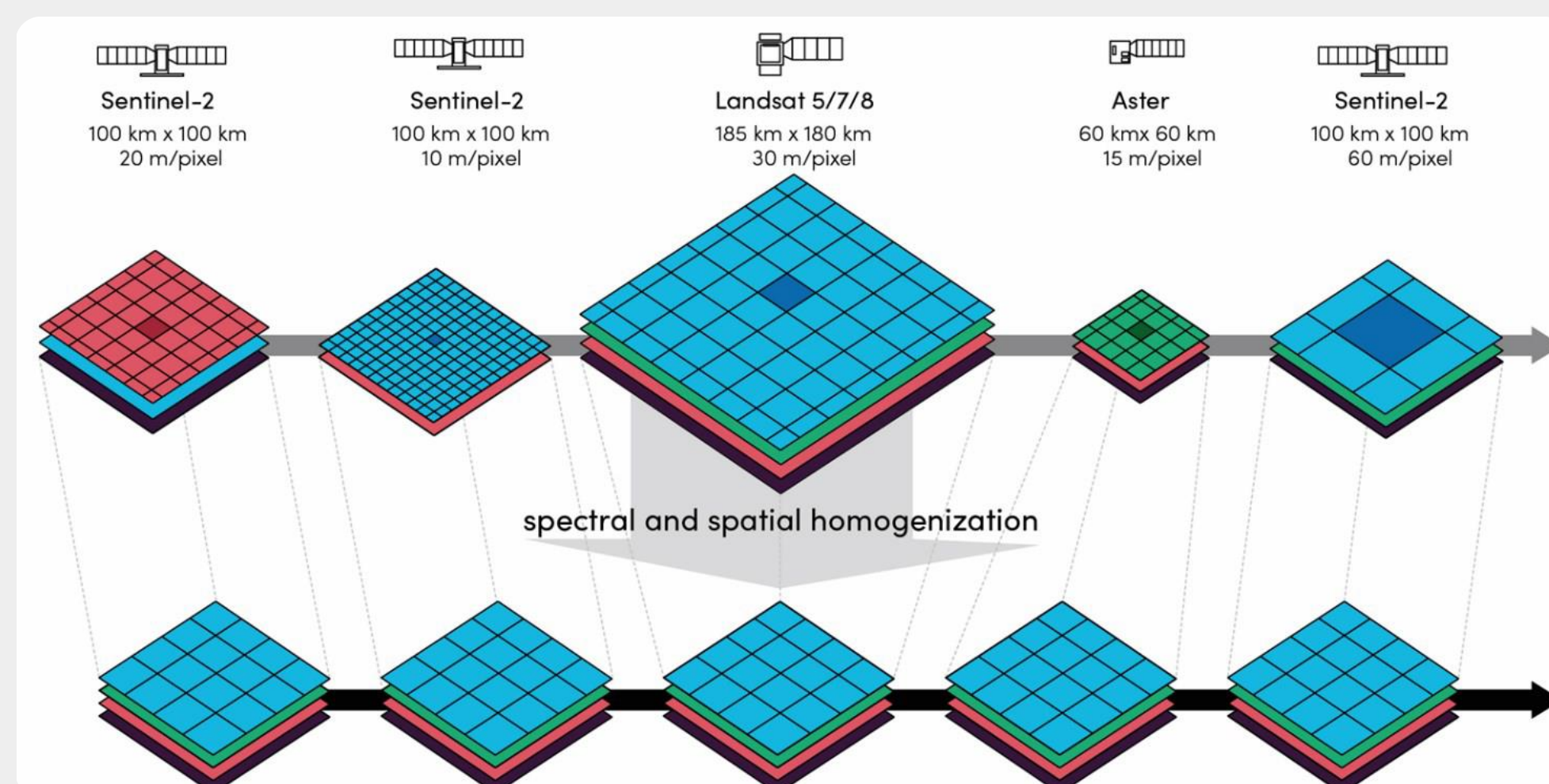
1 Introduction

The United Nations (UN) predict that global food consumption will increase by about 50% in 2050, despite water scarcity, without more arable land, and under changing climatic conditions. Thereby, securing a required food supply is connected to the ability to monitor crop health. In view of a total global agricultural area of around 1.5 billion hectares, the only applicable solution is satellite-based Earth Observation (EO). However, with a growing amount of not inter-compatible data and an increasing number of data providers, this becomes a progressively complex task. The Information and Communication Technology (ICT) platform FINDR aims to provide simplified access to unified EO data to enrich products of value adding service providers (VASPs) that directly support the decision making of primary food producers (PFPs).

2 Methods

FINDR provides universal and unified access to EO data. Besides, it enables accurate near-future forecasts on data availability to manage data ingestion and a homogenization approach to allow for obstacle-free integration of EO data from different providers.

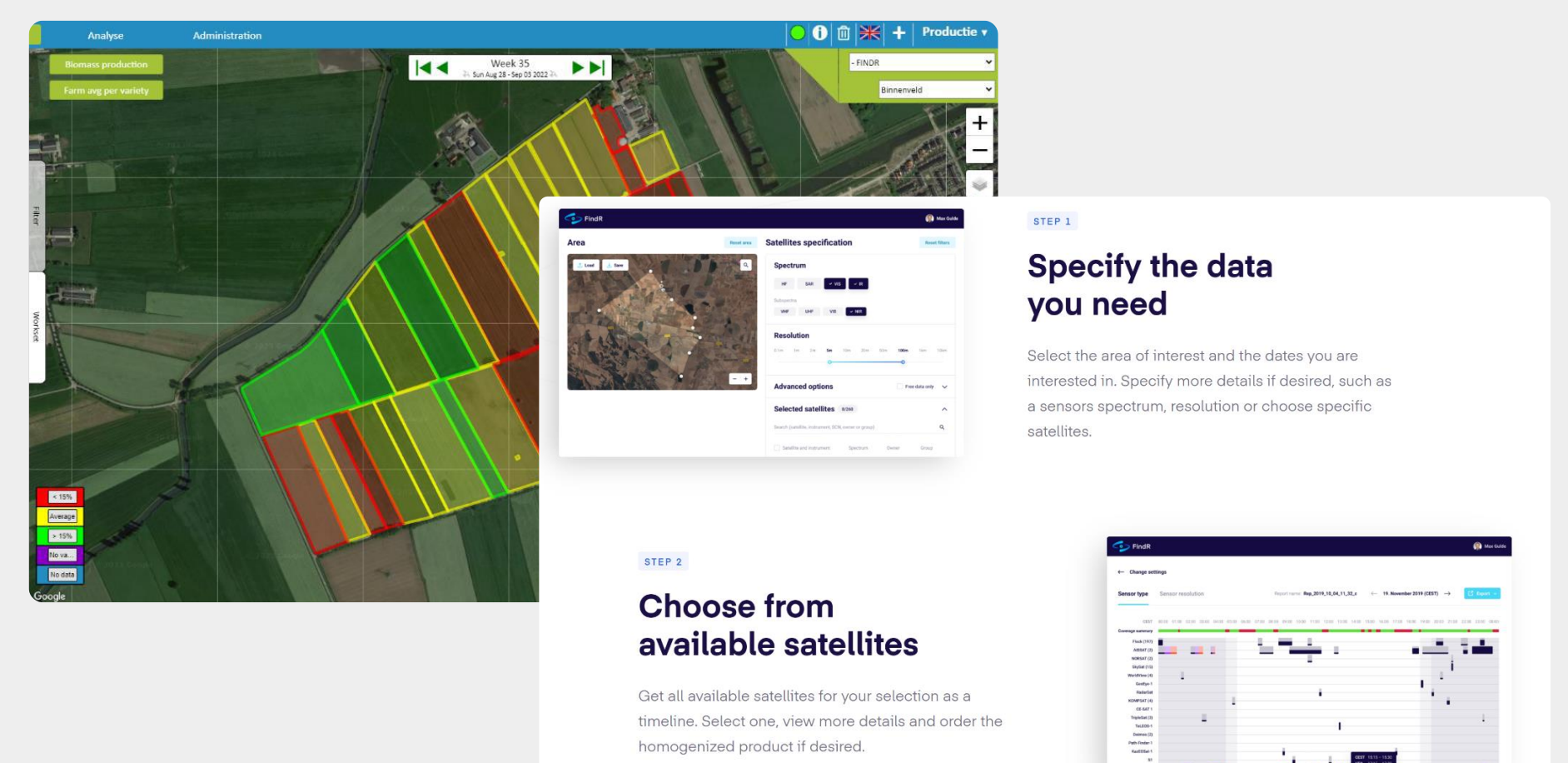
- Fraunhofer EMI implemented a forecasting-tool based on a patented method for rapid sensor access assessment. Additionally, EMI maintained the integration of EO data from multiple sources.
- Methods for spectral and spatial homogenization of heterogenous data were developed and implemented as a service by GFZ.
- Cyfronet merged all services into the ICT platform and provided a scalable infrastructure including a data management system in a cloud-environment.
- eLEAF acted as a VASP and used and evaluated data generated by FINDR to support local farmers and PFPs.



Representation of the homogenization approach developed by GFZ.

3 Results

The ICT platform FINDR provides a Graphical User Interface (GUI) in addition to an Application Programming Interface (API). The latter, allowed eLEAF to integrate FINDR data into their own value-adding tool (FieldLook). Analyzing the extracted information together with the PFPs facilitated the identification of advances and shortcomings of multiple farming activities such as, e.g., biomass production or required rest-period for non-grazing.



User interfaces of ELEAF's FieldLook Tool and the ICT platform FINDR.

Partners

- Fraunhofer Institute for High-Speed Dynamics, Ernst-Mach-Institut, EMI
- Helmholtz Center Potsdam German Research Center for Geosciences, GFZ
- eLEAF
- ACK Cyfronet AGH
- constellr GmbH