



AI4FOOD

NoR Sponsoring Report

29/08/2023



Goals of the project

- Address the challenges associated with data fusion and advanced time series analytics of EO data.
 - Create a modular and open-source framework library, named FuseTS, designed to facilitate fused data streams for continuous time-series analytics over land environments.
 - The resulting framework should support users in doing local processing but also seamlessly integrate with cloud-based infrastructure as on demand services through an API or GUI.
 - Evaluate the frameworks in an experimental setup.



Usage of NoR based resources

The resources on the NoR have helped the AI4FOOD project to:

- Create the FuseTS library by providing access to cloud resources and data access that could be used for the development and testing of the different features from the toolbox.
- Validate the performance and effectiveness of the toolbox by enabling cloud access to different use cases. This allowed project partners to execute the FuseTS services in several application contexts.
- Integrate the FuseTS service into cloud based platforms such as openEO.
- Provide direct access to the FuseTS services.



Highlights to society

AI4FOOD has provided a powerful and user-centric toolbox to assist users in extracting relevant information from long time series from Sentinel-1 and Sentinel-2 data, which is a challenging tasks.

- Data fusion is an interesting concept in the context of land monitoring, where a temporal dense time series is crucial to detect various. For example, in areas affected by frequent cloud cover, optical satellite imagery is often insufficient to reconstruct detailed time series. FuseTS, developed by AI4FOOD, provides several options for users to fuse and enhance different EO data streams.
- FuseTS also provides services for information extraction. These services can be used to support change detection for gradual trends, abrupt changes, and periodical behavior e.g. related to growing seasons. Such extractions from these fused data streams require a time series modelling and analytics framework, which is provided by FuseTS



Resources

- **General project description**
<https://eo4society.esa.int/projects/ai4food/>
- **FuseTS GitHub repository**
<https://github.com/Open-EO/FuseTS>
- **FuseTS Documentation**
<https://open-eo.github.io/FuseTS/>
- **FuseTS Notebooks**
<https://open-eo.github.io/FuseTS/>