



# BELHARMONY

Harmonization of multi-mission high resolution time series: application to BELAIR

**Programme**  
STEREO III

**Contract**  
SR/00/356

**Start - End**  
1 December 2017 - 30 October 2020

**Project type**  
Exploration

<https://eo.belspo.be/belharmony>  
<https://eo.belspo.be/belharmony-webstory>

## Context and objectives

The BELHARMONY project responds to the need of the Belgian and international EO community to have improved consistency in time series generated on the basis of a constellation of medium to high resolution satellite sensors. There is a clear tendency in the use of higher spatial resolution satellite sensor both for land and water applications. Due to the low revisit time of these sensors and the frequent cloud coverage, many applications require data from different missions to be combined in order to have more frequent observations. This joint use of data from different sensors raise some clear concerns about data consistency.

The overall objective of the BELHARMONY project is to assess and improve the consistency of multi-sensor high resolution time series generated on the basis of the following sensors: Deimos-1, Sentinel-2, Landsat-8 and PROBA-V.

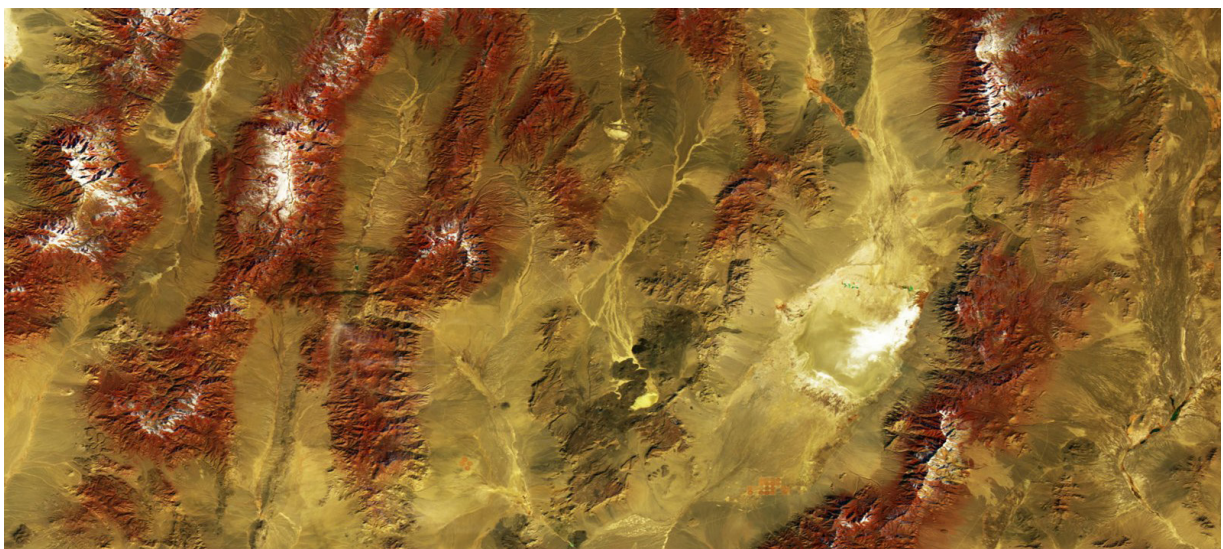
## Project outcome

### Scientific results

- A validated approach for harmonizing time series which can be transferred to other missions.
- A peer-reviewed paper on the derivation of vicarious gains to harmonize S2A/S2B/L8/PROBA-V/DEIMOS-1 data (Sterckx & Wolters, 2019).
- Spectral adjustment functions to correct for the impact of spectral response differences.

### Societal (including environmental) relevance

In support of environmental and climate monitoring from space high resolution time series are needed. This requires that data from different sensors can be seamlessly combined. The harmonization approach developed in the Belharmony project can support this.



## Products and services

Harmonized time series of Sentinel-2, Landsat-8, Proba-V and Deimos-1 (processed with the Belharmony processing chain) over the Belair sites are available at the MEP PROBA-V Mission Exploitation Platform (MEP). Access to the data can be provided upon request.

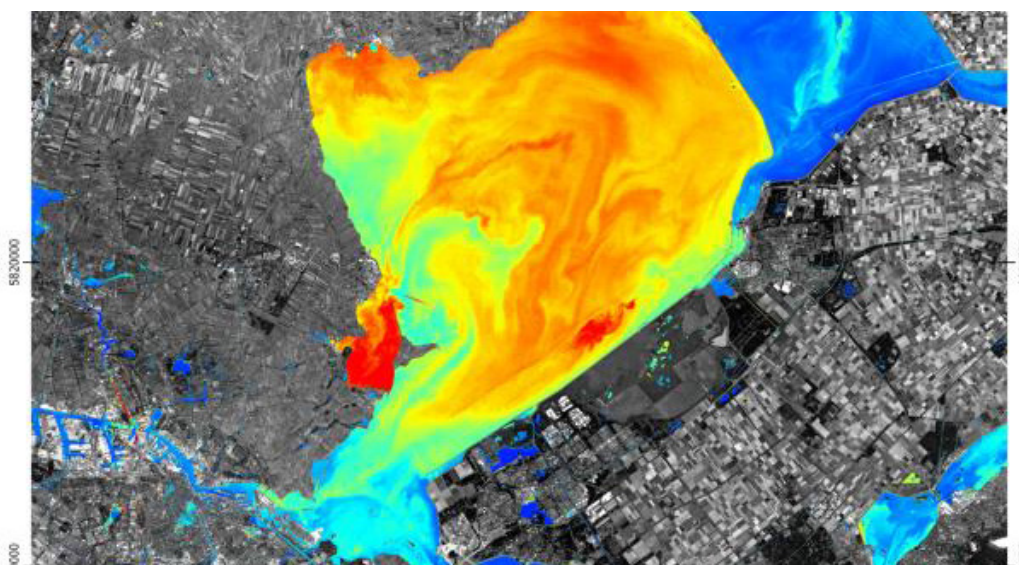
The iCOR-SNAP plugin for S2 and L8 which is used by the external user community will be updated to give users the option to apply the BELHARMONY derived gains for S2 and L8 prior to the atmospheric correction.

## Potential users

The Belgian remote sensing community might be interested in the harmonized multi-mission high resolution time series over the BELAIR sites.

Space agencies and/or data providers are probably interested in the results of the consistency analyses performed in the project.

Non-EO end-users: harmonized time series of BIOPAR products.



### Project leader(s)

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### Belgian partner(s)

*VERBEIREN Boud* | VUB - Department of Hydrology and Hydraulic Engineering (HYDR)  
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### Location

Belgium : The Belair sites : Litora, Sonia and Hesbania

### Website

<https://belharmony.vito.be>



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