



Land Monitoring

Feedback on PROBA-V C1 Follow-on with Sentinel-3

Roselyne Lacaze

HYGEOS

on behalf the CGLOPS-1 consortium



Global Land Operations - Portfolio

VEGETATION



Leaf Area Index (LAI)
Fraction of Absorbed Photosynthetically Active Radiation (FAPAR)
Fraction of vegetation cover (FCOVER)
Normalized Difference Vegetation Index (NDVI)
Vegetation Condition Index
Vegetation Productivity Index
Dry Matter Productivity
Burnt Area
Moderate Yearly Land Cover
Surface Soil Moisture
Soil Water Index

ENERGY



Top-of-Canopy reflectance
Surface Albedo
Land Surface Temperature

Free and Open Access

WATER



Lake and river water level
Lake Water Quality
Lake surface water temperature
Water Bodies

CRYOSPHERE



Snow water equivalent
Snow cover extent
Lake Ice Extent



PROBA-V products

Variable	Temporal coverage	Temporal resolution	Spatial coverage	Spatial resolution	Sensor	Timeliness
LAI - FAPAR - FCOVER	1999 - present 2014 - present	10 days	Global	1 km 300 m	SPOT/VGT PROBA-V	3 days
NDVI - VCI	1999 - present 2014 - present	10 days	Global	1 km 300 m	SPOT/VGT PROBA-V	3 days
Dry Matter Productivity	1999 - present 2014 - present	10 days	Global	1 km 300 m	SPOT/VGT PROBA-V	3 days
Burnt Areas	2014 - present	1 day	Global	300 m	PROBA-V	3 days
Dynamic land cover	2015	1 year	Global	100m	PROBA-V	offline
Surface Albedo	1999 - present 2014 - present	10 days	Global	1 km	SPOT/VGT PROBA-V	3 days
Water Bodies	1999 - present 2014 - present	10 days	Global	1 km 300 m	SPOT/VGT PROBA-V	3 days

VPI and TOC-r discontinued in August 2018: only archive available



Use of PROBA-V Collection 1

1km

- L2A TOA reflectance
 - Surface Albedo
 - *NDVI V3 (to be released)*
- S1 TOC reflectance
 - LAI/FAPAR/FCOVER V2
 - DMP V2
 - Water Bodies V2
- S10 TOC reflectance
 - NDVI V2.2

100m

- S1 TOC reflectance
 - Landcover

300m

- S1 TOA reflectance
 - LAI/FAPAR/FCOVER V1
 - DMP V1
- S1 TOC reflectance
 - Burnt Areas V1 & V2
 - Water Bodies V1
 - Landcover
- S10 TOC reflectance
 - NDVI V1



Feedback on PROBA-V C1 - Operations

- No incidents in respect to PROBA-V input data
- However, we noted that:
 - 29th March, 17th April and 17th May 2020: a single overpass is missing
 - 7th April 2020: missing data Asia
 - 5th May 2020: missing data over NW America, New Zealand, East Australia
 - 6th May 2020: missing data over West Australia, Asia, Europe and Africa
- Impact on CGLOPS-1 products: **NONE**
 - Daily processing steps were able to run with less data
 - No noticeable impact on synthesis products.

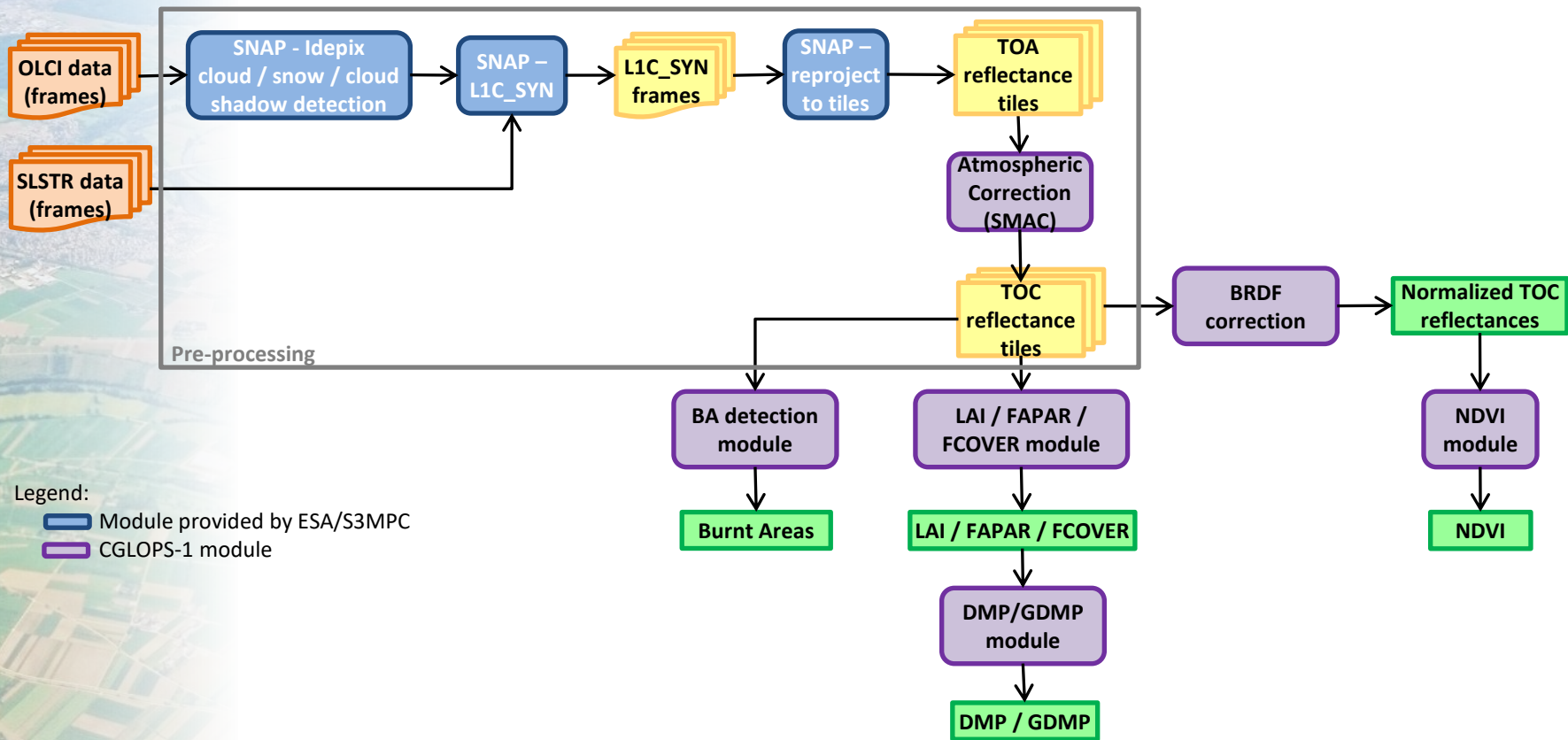


Feedback on PROBA-V C1 - Operations

- Information about the issues encountered:
 - 7th April 2020: missing data Asia – missing Transmission Frame files
 - 5th and 6th May 2020: missing data – GPS issues on the platform
 - 29th March, 17th April and 17th May 2020: a single overpass missing – no explanation



From 1st July 2020 onwards: continuity with Sentinel-3 - Workflow





From 1st July 2020 onwards: continuity with Sentinel-3 - Strategy

- Focus on Collection 300m products: NRT production based upon Sentinel-3 data (OLCI and SLSTR)
- No longer NRT production of Collection 1km time series (as it is today):
 - Collection 1km time series will continue by downscaling Sentinel-3 300m products (NDVI, LAI/FAPAR/FCOVER, DMP/GDMP)
 - Downscaling tools developed by JRC
 - No assessment of full 1km time series consistency yet available.
 - In addition, tool with a default resampling method available on the CGLS website
 - Albedo Collection 1km:
 - No longer production in CGLOPS
 - Continuation in C3S
 - Water Bodies:
 - Continuation till September 2020 from PROBA-V
 - From October 2020 onwards, monthly products from Sentinel-2



From 1st July 2020 onwards: continuity with Sentinel-3 – Roadmap over one year

- Public dissemination of first Sentinel-3 CGLOPS biophysical products
 - « demonstration » stage: limited commitment on quality
- In parallel, exhaustive Quality Assessment of S3 biophysical products
- Consolidation of S3 biophysical products
 - Remove or decrease limitations identified in QA
 - Update QA to check/quantify if/how limitations are removed/decreased
 - Update processing chains
- Disseminate consolidated S3 biophysical products.
- Later on, align PROBA-V 300m products on S3 biophysical products
 - Once PROBA-V Collection 2 is available.



Conclusions

- PROBA-V data were reliable for NRT operations during the whole operational mission life
- The large delays encountered during the development of the Sentinel-3 processing chains have some impacts:
 - Limited commitment on the quality of the first disseminated S3 products
 - “degraded” service during few weeks: relaxed timeliness on LAI, FAPAR, Fcover, DMP/GDMP
- Need for PROBA-V C2 as soon as possible for alignment with S3 biophysical products to get fully consistent 300m time series
 - Early access to one-year of PROBA-V C2 would be appreciated



Land Monitoring

