

Proba-V QWG Meeting #13

Introduction and Objectives

Fabrizio Niro

- Mission Status and Outlook
- QWG Agenda items
 - ✓ Status and Calibration
 - ✓ Collection 2
 - ✓ Continuity with S3
 - ✓ Experimental Phase
- Meeting Objectives
- Actions and Agenda

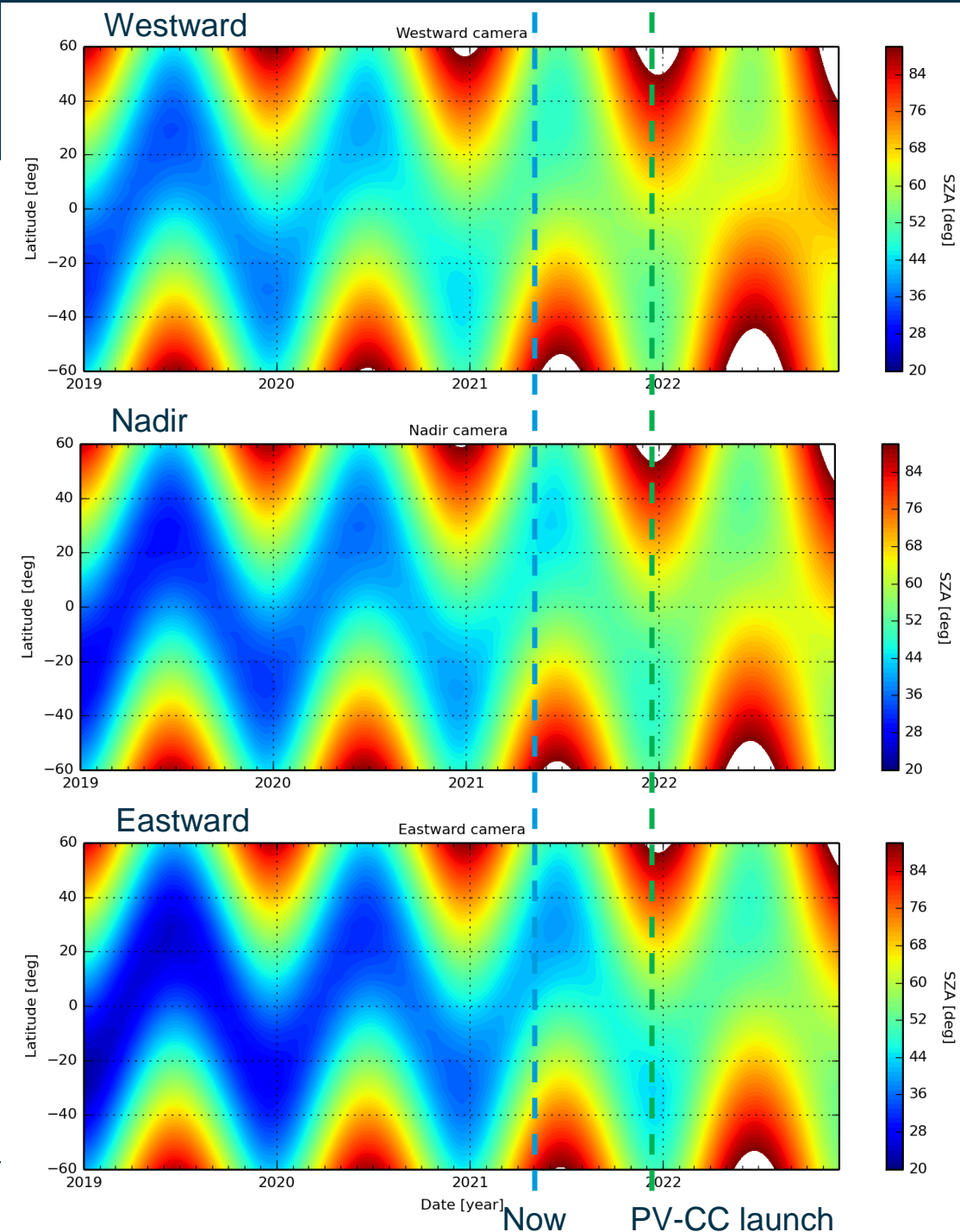
Mission Status and Outlook

Mission Status

- Mission in **Experimental Phase** since 1st July 2020 with reduced acquisition over Europe/Africa
- **Performances** are still within MRD with no major sign of degradation, notably for radiometry and geometry
- Orbit **drift** continues as expected and this introduces constraints for the planned synergy with PV-CC
- Most urgent need at the moment is to agree on the start of **C2 reprocessing**, verification results very promising, various projects are awaiting C2 dataset

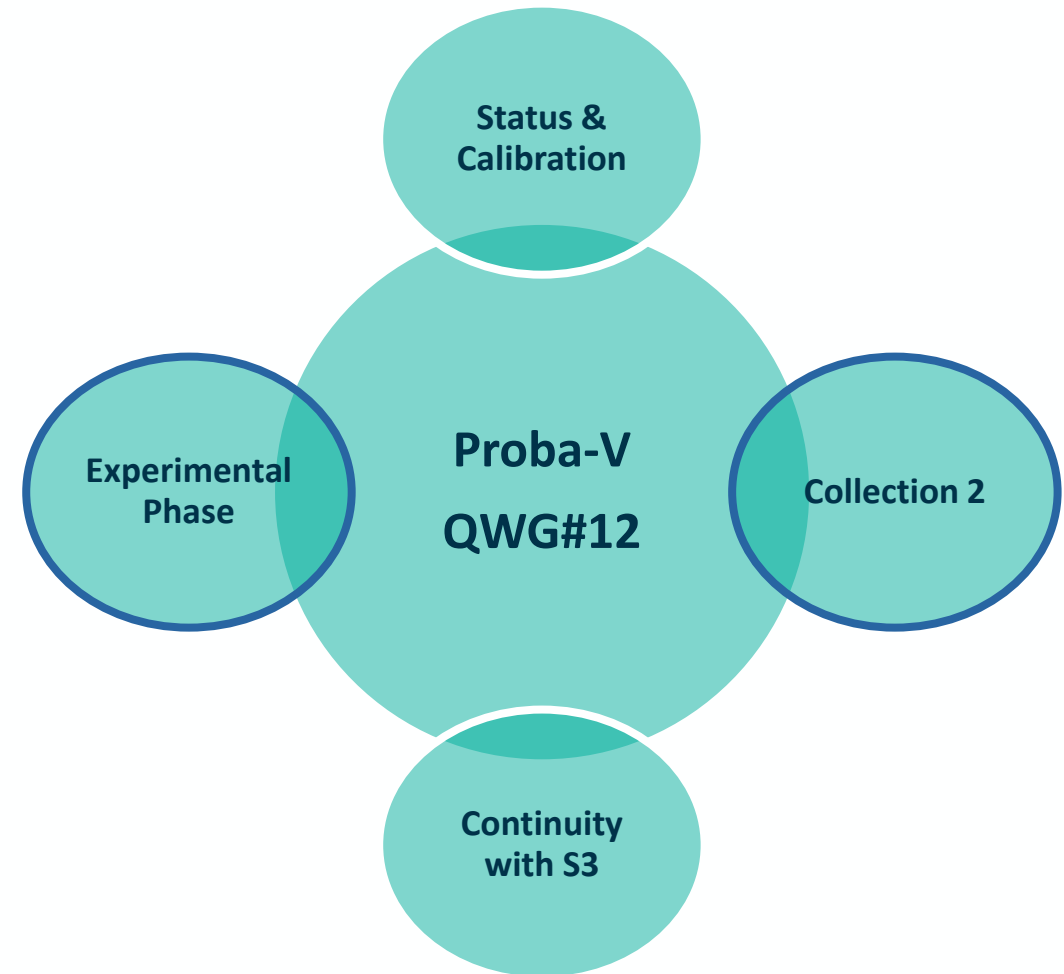
Mission Outlook

- **PV-CC** development progresses significantly with consolidation of PDGS and Cal/Val Plan
- How we operate Proba-V beyond **Oct 2021**? PV-CC launch schedule is on the critical path
- PV-CC **Exploitation** needs to be further elaborated owing to the limited overlap with Proba-V, synergy with other Sentinels (notably S-2) to be investigated



The following points will be reviewed and discussed within this QWG Meeting:

- Mission Status and Calibration
- Collection 2
- Continuity with S3
- Experimental Phase



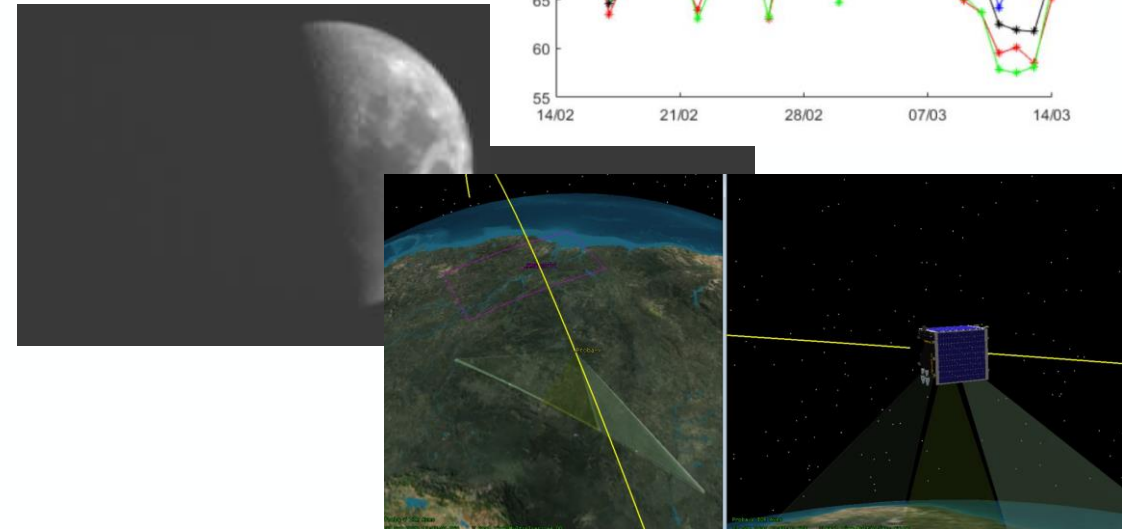
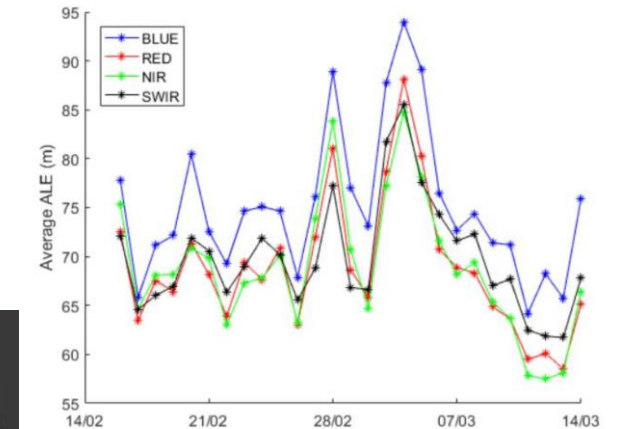
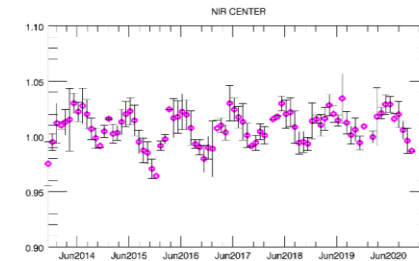
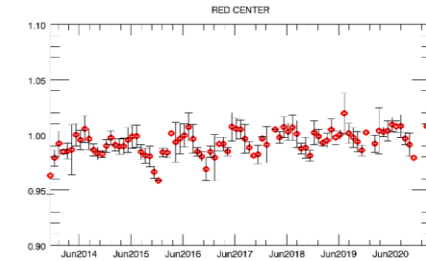
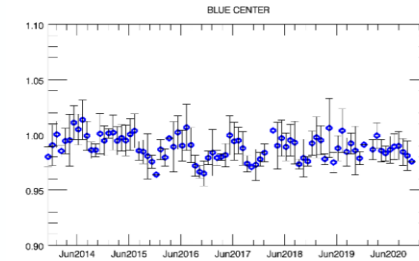
1. Mission Status and Calibration

Mission Status

- **Operational Phase** discontinued on 30 June 2020 to limit impact of the orbital drift and prepare PV-CC
- **Experimental Phase** started on 1st July 2020: acquisitions of Europe/Africa + ad-hoc campaigns
- Two experimental **acquisitions** (super-resolution, lunar) planned, results to be presented
- **No major anomalies** or degradation effects observed in the Flight and Ground Segment side

Calibration

- **Radiometric** performances remain excellent and stable throughout the mission, although some drift are being observed and will be corrected within C2
- New **ICP** calibration files were consolidated for C2 reprocessing campaign
- **Geometric** performances are still well within MRD requirements with no sign of degradation

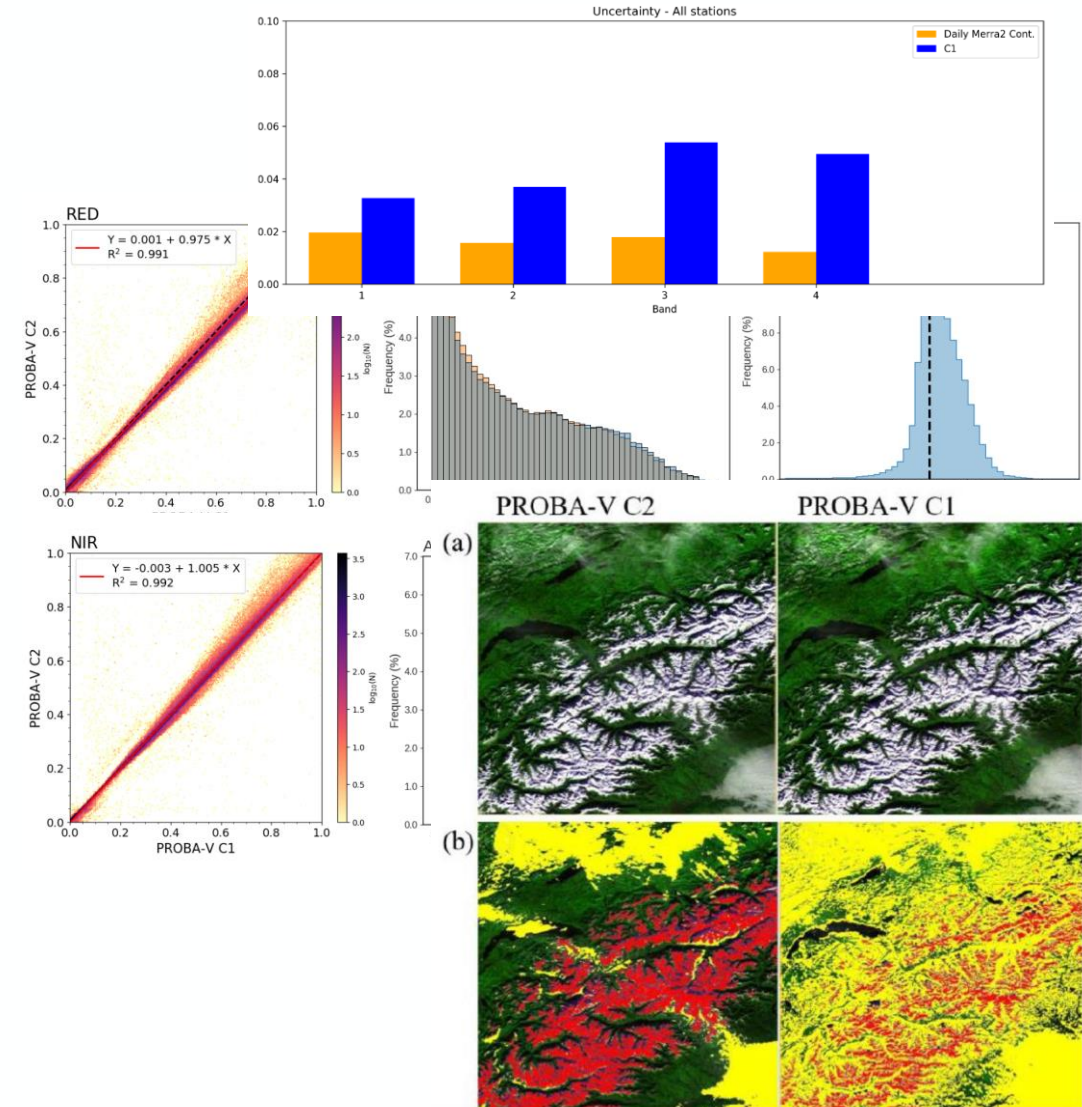


A/C Development and Validation

- The **development** of C2 A/C algorithm (advanced SMAC) was completed at HYGEOS and SW delivered to VITO (ATBD, Validation Report)
- The **validation** results show clear C2 improvements, using ACIX protocols, as compared to C1
- Several **technical** issues were addressed and solved in the integration within PDGS, thanks to VITO support

C2 Verification and C3 preparation

- The 1st Phase of C2 **verification** started at VITO considering global processing of 5 days; the full chain is being verified: from raw data → L3 data
- Preliminary results are very promising, showing clearly the C2 **improvements** brought by the new Cloud Mask and A/C algorithm
- Several upgrades being discussed for **C3**, reprocessing the full VGT archive (including SPOT) is the main recommendation, which is being explored at ESA



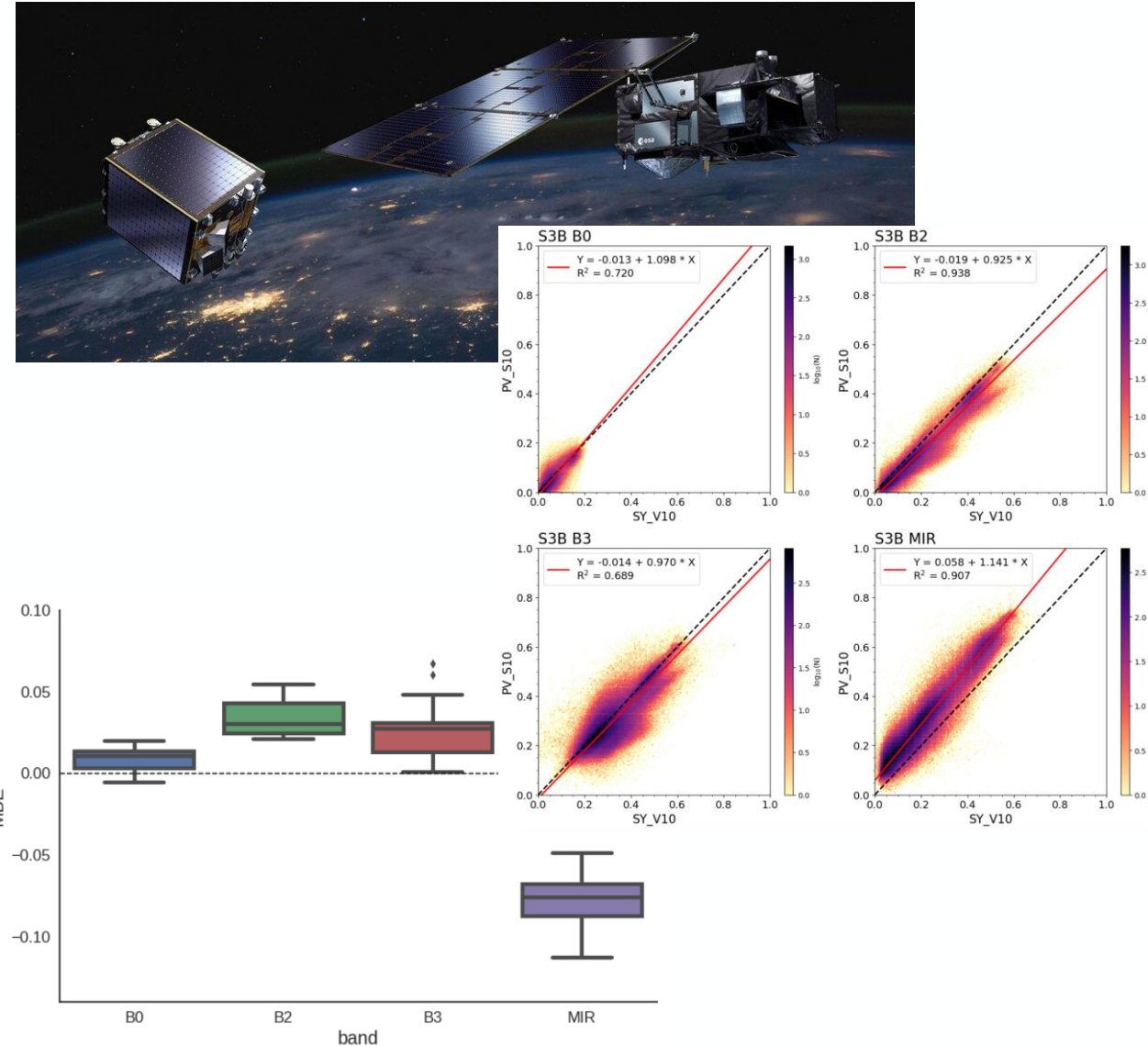
3. Continuity

S3-VGT Continuity Assessment

- VITO presented during last QWG an assessment of **continuity** of S3 SYN-VGT products against Proba-V TOC S1 and S10
- **Discrepancies** were reported, which are mostly linked to radiometric absolute calibration, notably in MIR band, and atmospheric correction approaches, mainly AOD estimation
- A bug in **NDVI** was also reported due to computation of NDVI at TOA, not TOC level, need also to combine **S3-A/B** for compositing
- Issues being addressed in the frame of **S-3 MPC**, new IPF will address some of these issues

Continuity for CGLS

- Majority of CGLS **biophysical** products already switched to S3 (S2 for WB)
- S3/PV **consistency** assessment will be based on C2 dataset (waiting for reprocessing)



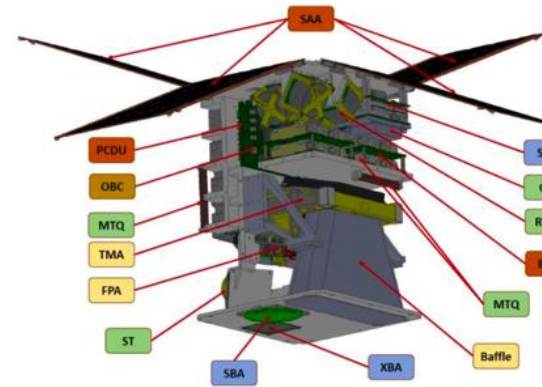
4. Experimental Phase and PV-CC

Experimental Phase

- Currently on-going since 1st July 2020 with limited acquisition scenario over Europe/Africa
- Two **experiments** were successfully carried out (lunar and super-resolution); potential new experiments to be triggered by QWG

PV-CC

- FS development on-going at ASL with expected **launch** in the time frame Dec 21 - Jan 22
- Significant progress in **PDGS** development with good collaboration ESA/VITO/ASL: tasking approach, calibration workflow
- First version of PV-CC **Cal/Val Plan** prepared by VITO building on practices and tools developed for Proba-V, additional use of SNO with S-2/3
- PV-CC **Exploitation Plan** need to be further elaborated, initial ideas from Uni. Valencia on using DL for data fusion with S-2, S-3



Dec. Ref. 1310174-18 PV-CC ops study -009-VITO-PDGS-PL-1.0
 Version V1.0
 Date 24/03/2021

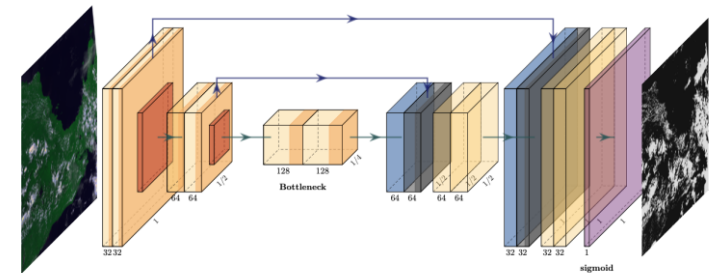
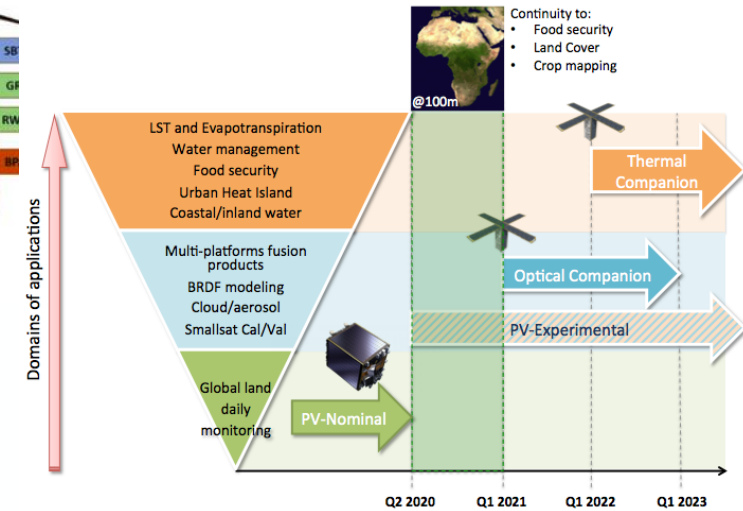
PV-CC Cal/Val plan

Status information

Security classification:		State:	Draft
Current version number:	V1.0	Date of first issue:	24/03/2021
Prepared by:	Bavo Delaure, Iakander Benhadi, Sindy Stercx	Date:	24/03/2021
Verified by:	Bavo Delaure	Date:	24/03/2021
Approved by:	Bavo Delaure	Date:	24/03/2021

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1/44



Open Actions (<http://proba-v.skytek.com/home>)



	Action	Owner	Deadline	Status
AI10.15	To explain in the C2 User Manual the algorithmic choice and the derived cloud mask when handling the GOOD flags.	VITO	Release C2	Open
AI11.8	To propose a way to flag products acquired during the Experimental Phase and implement this flag as part of C2.	VITO	Release C2	Open
AI12.06	To test domain adaptation methodology for assessing radiometric consistency between Proba-V and S3-SYN-VGT products and validate/compare with consistency assessment performed by VITO in the frame of MPC	VITO/UV/Brockmann	Next QWG	Open
AI12.11	To discuss internally on the possibility to fund a C3 reprocessing in the frame of a LTDP-type of activity, for improving multi-temporal consistency with the past SPOT-VGT archive	ESA	Baseline C3	Open
AI12.12	To review in details the CEOS CARD4L readiness of Proba-V dataset and identify potential C3 improvements towards fulfilment of CARD4L goal requirements	ESA/VITO	Baseline C3	Open
AI12.13	To investigate whether S3 TOA uncertainty method can be shared with QWG, VITO to estimate the impact of adding an additional uncertainty layer in TOA and TOC products in terms of product and overall archive size as well as required update in PDGS	ESA/VITO	Baseline C3	Open
AI12.14	To provide to VITO further details and validation results for the Copernicus DEM, VITO to assess the effort required for updating the DEM and the GCP database using S2 GRI for C3	ESA/VITO	Baseline C3	Open



C2 reprocessing

- To review the C2 verification results
- To agree on the start of C2 reprocessing
- To review C2 processing and validation plan
- To brainstorm and consolidate list of evolutions towards C3

Experimental Phase

- To discuss on potential new experimental acquisitions
- To review and discuss the current status of PV-CC FS/GS
- To present and discuss PV-CC Cal/Val Plan
- To discuss on Proba-V extension plan beyond Oct 2021
- To brainstorm and discuss PV-CC Exploitation Plan: synergy with Proba-V and Sentinels

21/4/2021

Mission Status
Calibration & Data Quality
9:00 – 11:00

Coffee – 11:00 – 11:20

Algorithm C2 Baseline and
proposal for C3
11:20 – 12:20

Discussion 12:20 – 13:00

22/4/2021

Continuity
Experimental Phase + PV-CC
9:00 – 11:00

Coffee – 11:00 – 11:20

PV-CC Cal/Val and Exploitation
11:00 – 11:40

Wrap-up and Final Discussion
11:40 – 13:00

