



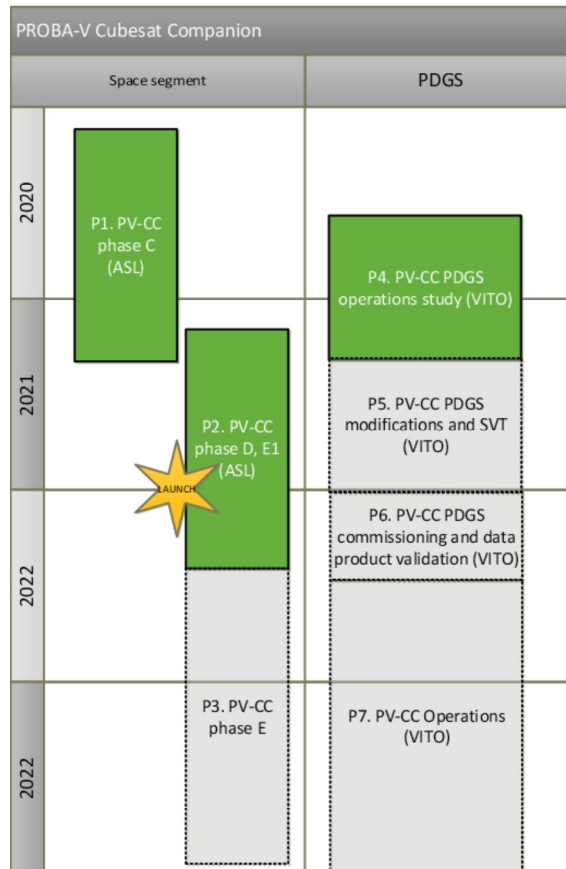
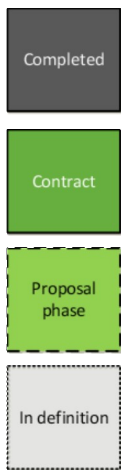
PV-CC PDGS development

Status update

PROBA-V QWG#13 - 22/04/2021

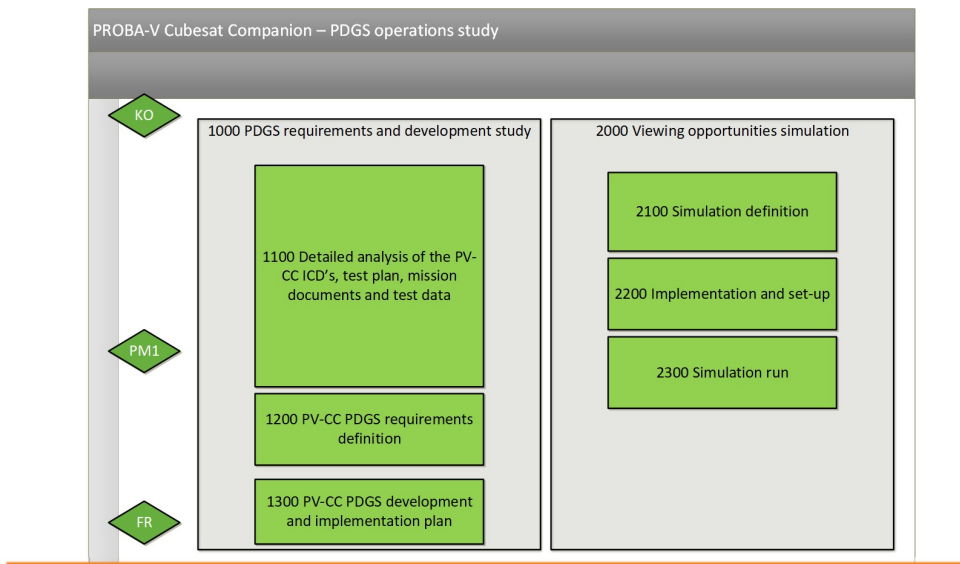


PDGS DEVELOPMENT STATUS





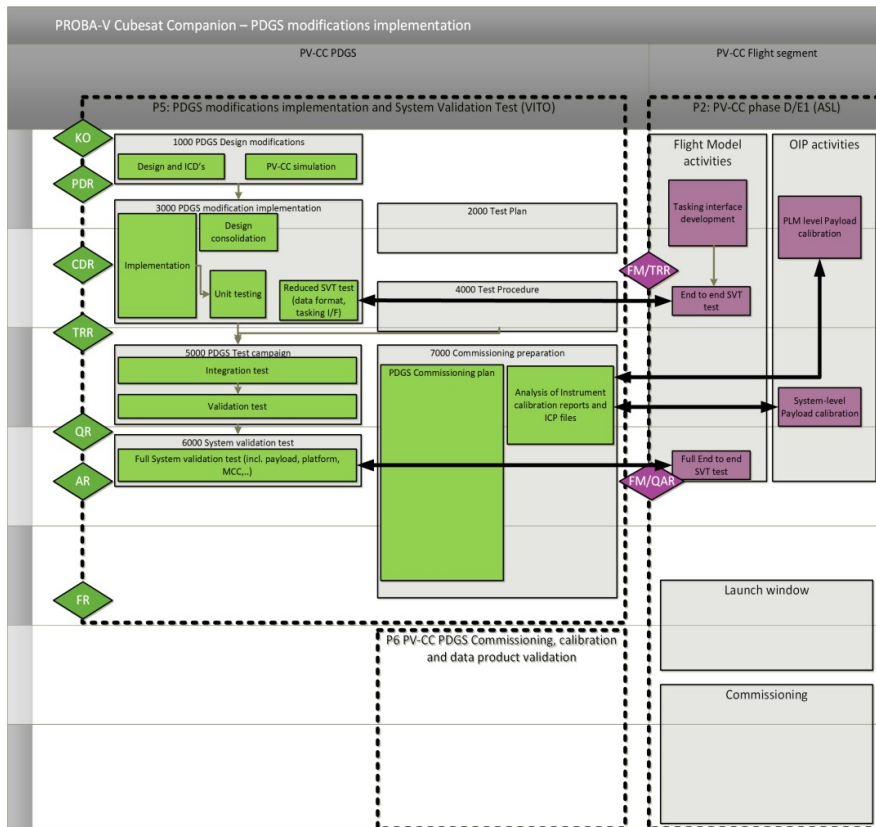
Project activities - completed





Way forward

timeline





PV-CC CAL VAL PLAN



PV-CC CAL/VAL phases

The PV-CC mission phases are:

- Phase 1: Launch and early orbit
- Phase 2: Commissioning
- Phase 3: IOD operations
- Phase 4: End of life

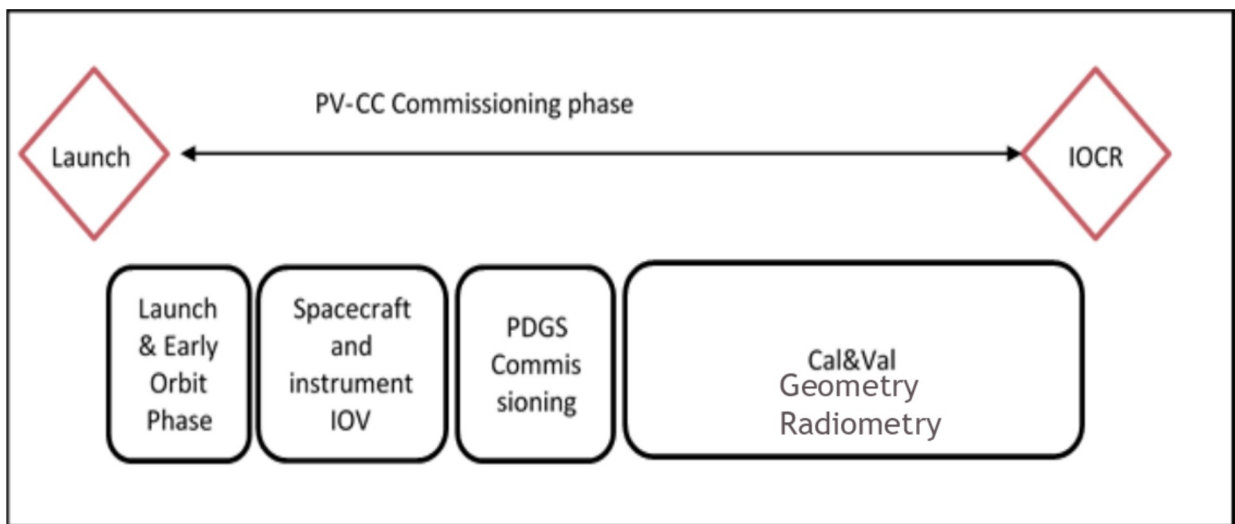
Cal/val activities



Cal/Val during the commissioning

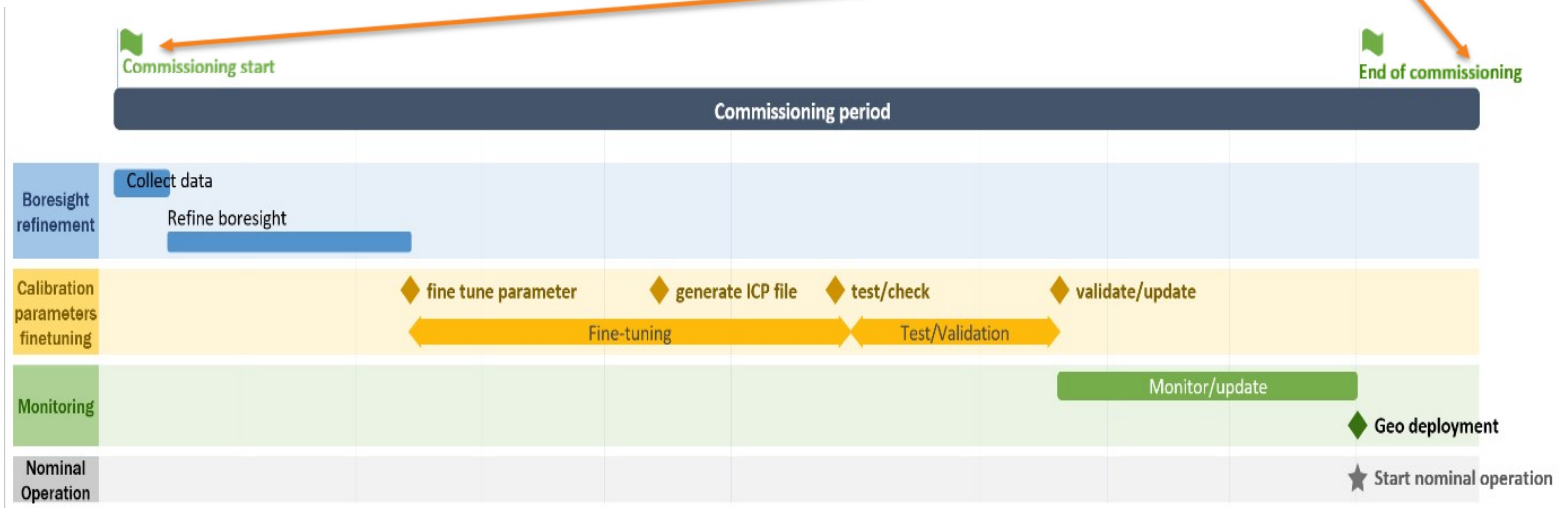
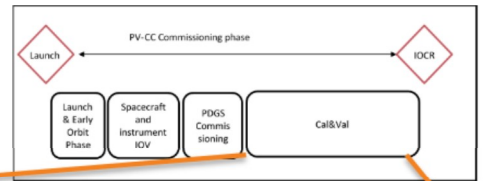


Cal/Val during the commissioning phase





Cal/Val plan (geometry)





Cal/Val plan (geometry)

- GCP database from Landsat/Sentinel2 is prerequisite
- Initial satellite boresight refinement
- GCP distortion calculation (chip matching + cross correlation)
- Parameter inversion based on robust Least square fitting and outliers removal
 - Interior orientation (focal length, CCD polynomial distortions)
 - Exterior orientation (boresight angles)
- Band to band co-registration
- Generation of geometric ICP file
- Co-registration with other sensors (Landsat/Sentinel2, etc..)

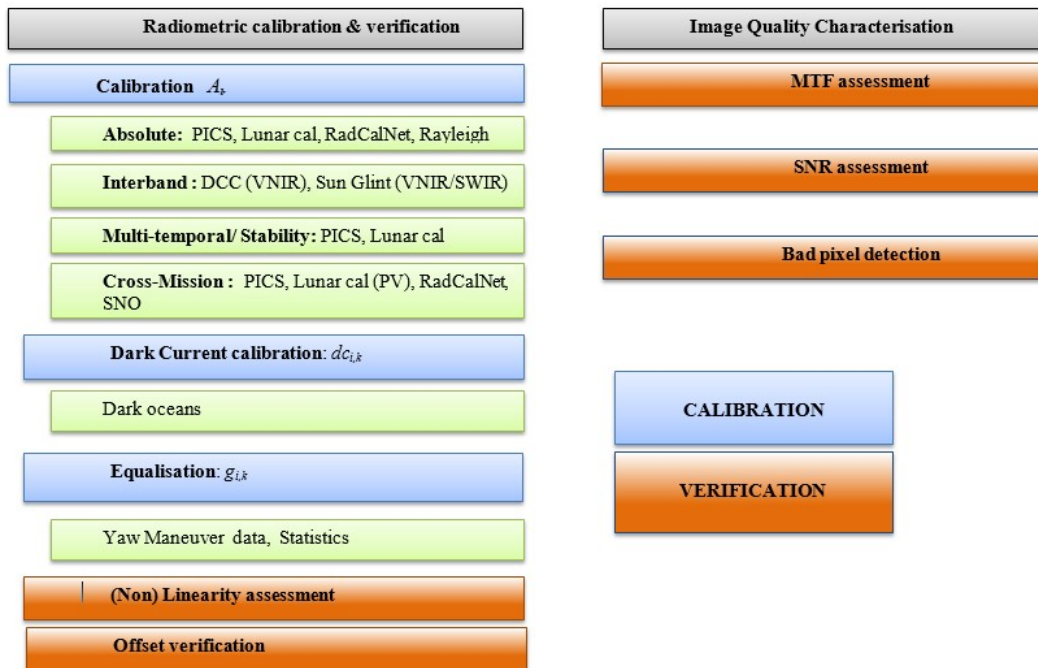


Cal/Val plan (radiometry)

- PROBA-V heritage
- Differences wrt PROBA-V commissioning
 - Availability of Landsat8, Sentinel-2, Sentinel-3
 - Availability of RadCalNet sites
 - LIME lunar model (very good absolute accuracies)
 - Yaw maneuvers
- Complexities
 - the longer revisit time at nadir (approximately 12 days, TBC)
 - possible larger sensitivity to thermal environment changes



Cal/Val plan (radiometry)

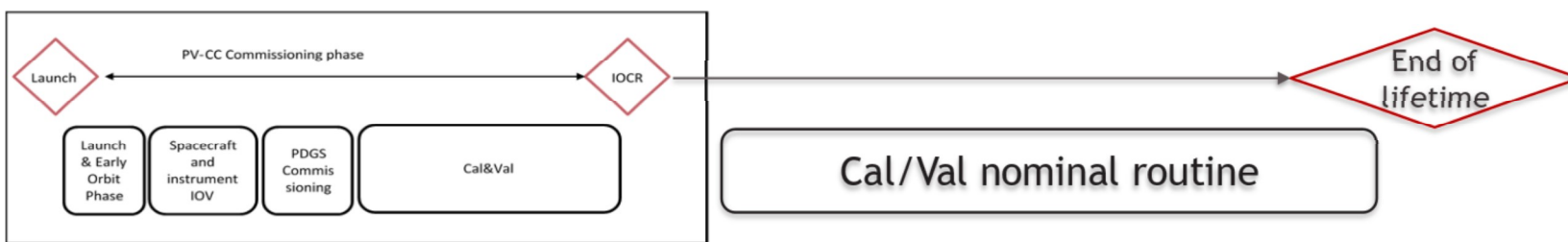




Cal/Val during
the nominal operation



Cal/Val during the nominal operation





Cal/Val activities (geometry)

- » **Daily operations**
 - » From nominal data, selected ROI's are automatically processed
- » **Weekly operations**
 - » Verification of the L1C geometric accuracy
- » **Monthly operations**
 - » Verification of the L2 geometric accuracy
- » **Monthly update (if needed) of the ICP-GC**
 - » Update frequency can be reduced if stability is further confirmed
 - » Update frequency can be increased (e.g. once a week) in the very unlikely event of rapid degradation



Cal/Val activities (radiometry)

- Moon, Deserts, RadCalNet, SNO, Oceans night, DCC, Rayleigh, ...
- Operational acquisition scenario still TBC (regional/global acquisitions scenario vs full tasking-based acquisition approach.
 - For PROBA-V “land” calibration sites part of nominal acquisitions; for calibration acquisitions for Moon/DCC/Rayleigh/Dark current
 - For PV-CC probably specific tasking requests for all calibration sites
 - => MCC Tasking Interface calculates SNO opportunities

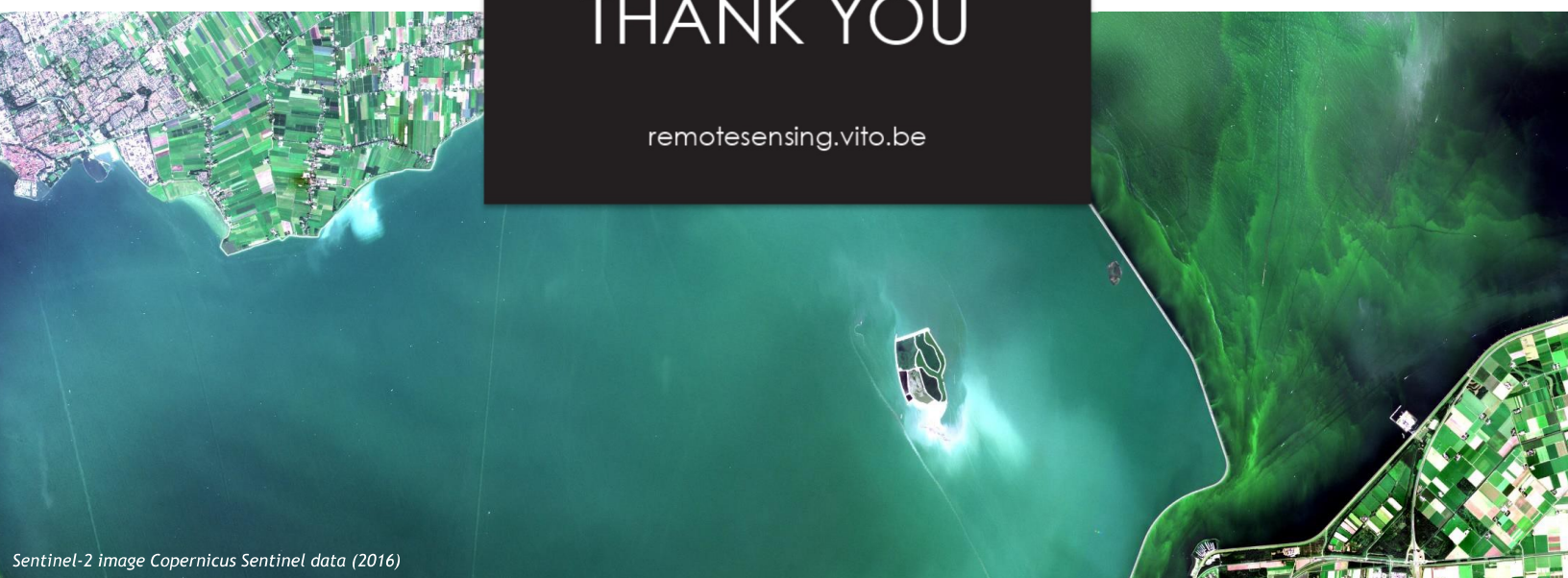


PV-CC EXPLOITATION PLAN



THANK YOU

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Sentinel-2 image Copernicus Sentinel data (2016)