MONTHLY OPERATIONS REPORT

MOR#099

Reporting period from 16-Feb-2022 to 15-Mar-2022

DOCUMENT CONTROL

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Issuing authority

Change record

Release	Date	Pages	Description	Editor(s)/Reviewer(s)
1.0	18/03/2022	All	Initial version	

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1. Summary

PROBA-V's operational lifetime ended on 30 June 2020. From July 1st onwards, the mission continues to exist with emphasis of acquiring the European and African continent until October 2021 and some experiments.

On March 14, a planned upgrade of the power infrastructure of the VITO data center took place. During this day, the reprocessing activities were stopped, and the distribution facility was off-line. At 17h, all activities were resumed at a normal level.

In terms of the C2 reprocessing activities, the focus is on provision of period January 2018 – June 2020. At the time of writing, we are processing October 2019.

2. System Infrastructure

Category	% Up Time	% Down Time (*)
Switches	100.0	0.0
Database Servers	97.31	2.69
Mid Term File Servers	99.2	0.8
Short Term File Servers	99.23	0.77
Master Servers	98.58	1.42
Worker Nodes	98.7	0.3
PDF	99.03	0.97

Table 1: System Infrastructure availability for this reporting period

(*) Scheduled downtime due to a power supply change of the VITO Datacenter. User were informed:
https://www.vito-eodata.be/PDF/image/news2/2022_03_09/09_03_2022_scheduled_down_time.html

3. Image Processing Services

3.1. Dissemination service

Product type	Added to catalogue	Ordered	Delivered
PROBAV_L1C	0	0	0
PROBAV_L2A_100M	0	0	1
PROBAV_L2A_300M	0	0	0
PROBAV_L2A_1KM	0	0	0
PROBAV_L3_S1_TOA_100M	0	60	181
PROBAV_L3_S1_TOC_100M	0	64	187
PROBAV_L3_S1_TOC_NDVI_100M	0	0	0
PROBAV_L3_S5_TOA_100M	0	0	0
PROBAV_L3_S5_TOC_100M	0	0	0
PROBAV_L3_S5_TOC_NDVI_100M	0	219	370
PROBAV_L3_S1_TOA_300M	0	7	9
PROBAV_L3_S1_TOC_300M	0	0	2
PROBAV_L3_S10_TOC_300M	0	0	0
PROBAV_L3_S10_TOC_NDVI_300M	0	290	2619
PROBAV_L3_S1_TOA_1KM	0	0	5
PROBAV_L3_S1_TOC_1KM	0	0	0
PROBAV_L3_S10_TOC_1KM	0	144	160
PROBAV_L3_S10_TOC_NDVI_1KM	0	0	40

Table 2: Ordered and delivered products for this reporting period

3.2. End-user activity

7 new user(s) were registered in this reporting period.
The total number of users registered for PROBA-V data and that have ordered data is **2028** with **124** different nationalities representing **1473** different companies/universities.

Product type	Africa	Asia	Europe	N-America	Oceania	S-America
PROBAV_L1C	0	0	0	0	0	0
PROBAV_L2A_100M	0	0	1.44	0	0	0
PROBAV_L2A_300M	0	0	0	0	0	0
PROBAV_L2A_1KM	0	0	0	0	0	0
PROBAV_L3_S1_TOA_100M	0	0	1359.96	0	0	0
PROBAV_L3_S1_TOC_100M	0	0	1417.55	0	0	0
PROBAV_L3_S1_TOC_NDVI_100M	0	0	0	0	0	0
PROBAV_L3_S5_TOA_100M	0	0	0	0	0	0
PROBAV_L3_S5_TOC_100M	0	0	0	0	0	0
PROBAV_L3_S5_TOC_NDVI_100M	7.00	0.06	3.97	0	0	0
PROBAV_L3_S1_TOA_300M	0	0	0.03	0	0	70.51
PROBAV_L3_S1_TOC_300M	0	0	0.09	0	0	0
PROBAV_L3_S10_TOC_300M	0	0	0	0	0	0
PROBAV_L3_S10_TOC_NDVI_300M	0	22.85	38.81	0	0	0
PROBAV_L3_S1_TOA_1KM	0	0	0.10	0	0	0
PROBAV_L3_S1_TOC_1KM	0	0	0	0	0	0
PROBAV_L3_S10_TOC_1KM	0	0.23	0	0	0	0
PROBAV_L3_S10_TOC_NDVI_1KM	0.03	0	0.00	0	0	0

Table 3: Data download (GB) in total per Origin of the User for the reporting period

Product Type	Global
L1C	0
PROBAV_L2A_100M	1.44
PROBAV_L2A_300M	0
PROBAV_L2A_1KM	0
PROBAV_L3_S1_TOA_100M	1359.96
PROBAV_L3_S1_TOC_100M	1417.55
PROBAV_L3_S1_TOC_NDVI_100M	0
PROBAV_L3_S5_TOA_100M	0
PROBAV_L3_S5_TOC_100M	0
PROBAV_L3_S5_TOC_NDVI_100M	11.03
PROBAV_L3_S1_TOA_300M	70.54
PROBAV_L3_S1_TOC_300M	0.09
PROBAV_L3_S10_TOC_300M	0
PROBAV_L3_S10_TOC_NDVI_300M	61.66
PROBAV_L3_S1_TOA_1KM	0.10
PROBAV_L3_S1_TOC_1KM	0
PROBAV_L3_S10_TOC_1KM	0.23
PROBAV_L3_S10_TOC_NDVI_1KM	0.03

Table 4: Data download (GB) in total for the reporting period

Company	# Downloads
JOINT RESEARCH CENTRE	2329
SHNU	291
UNI. VALENCIA	242
CALLISTO	219
NANJING UUNIVERSITY	159
FST	149
DESCARTES UNDERWRITING	123
ENSH	37
VITO	7
ICMBIO	7

Table 5: Top 10 user companies for the reporting period

Country	# Users
CHINA	226
BELGIUM	168
INDIA	100
FRANCE	93
BRAZIL	86
UNITED STATES	84
ITALY	81
NETHERLANDS	70
UNITED KINGDOM	66
GERMANY	63

Table 6: Top 10 countries with most registered users

List of issues raised by users:

No issues

4. Image Calibration services

For the next phase in its lifetime, PROBA-V will acquire only a limited amount of segments, for accommodating instrument sanity, while it is in a hibernate condition. The instrument is kept in stand-by for reasons the thermal stability.

A limit number of calibration images will be acquired to monitor both radiometric and geometric sanity of the instrument. The acquisitions will serve both methods 'at once' as much as possible.

For radiometry it is decided that lunar measurements over the full cycle will be continued every month. As an addition to this, few dark current (DC) acquisitions will be done to allow for the automated monitoring of the dark signal and bad pixel detection. The DC will be acquired for all 3 cameras. The amount of calibrations in a month will be 19 form lunar and 2 for DC resulting in < 1GByte in data.

To combine acquisitions for absolute radiometric and geometric calibration, a survey is still on-going to identify the appropriate location/site. The calibration region needs to contain both a radiometric reference in the absolute scale and sufficient geometric features. A good candidate is currently being investigated : Railroad Valley, which is an instrumented RadCalNet-site. The wider range area also contains quite a few geometric features to be used to perform a limited geometric assessment.

Figure 1: Railroad Valley area

5. KPI metrics

5.1. Management Service

5.1.1. PROV-KPI-0010: Reporting

Report	Due Date	Delivery Date	Delay	Remarks
PROBAV_D6_MOR-098_2022_02_v1.0.pdf	20/02/2022	18/02/2022	0	
KPI value (1 if 100% within time)			1	

Table 7: PROV-KPI-0010 calculation for this reporting period

5.2. System infrastructure services

5.2.1. PROV-KPI-0040: Network availability

Network	Issue	Reported at	Solved by	Delay	Remarks
LAN	None			0	
Inter-site	None			0	
Internet	None			0	
KPI value (1 if max. delay < 18h)				1	

Table 8: PROV-KPI-0040 calculation for this reporting period

5.2.2. PROV-KPI-0041: System infrastructure availability

Issue	Reported at	Solved by	Delay	Remarks
Power infrastructure upgrade datacenter	13/03 19:00	14/03 17:00	0	Scheduled downtime
KPI value (1 if max. delay < 18h)			1	

Table 9: PROV-KPI-0041 calculation for this reporting period

5.3. End-user support services

5.3.1. PROV-KPI-0050: Helpdesk response time

Issue	Created at	Answered by	Delay	Remarks
KPI value (1 if ≥ 95.0 % < 2 NWD)			1	

Table 10: PROV-KPI-0050 calculation for this reporting period

5.4. KPI evaluation

Each KPI is assigned a weighing factor (w) from 0 to 10, this weighing factor is used to calculate the service credits due according to the formula:

$$\text{Service Credit} = \frac{\sum_i w_i (1 - KPI_i)}{\sum_i w_i} \times \max Monthly\ Service\ Credit$$

KPI Reference	Description	Metric	1-KPI	Weight	Result
PROV-KPI-0010	Reporting	1	0	10	0
PROV-KPI-0040	Network availability	1	0	6	0
PROV-KPI-0041	System infrastructure availability	1	0	6	0
PROV-KPI-0050	Helpdesk response time	1	0	9	0
			Totals	31	0
			Service credit coefficient	0%	
			Service Credit	0	

Table 11: Service credit evaluation for this reporting period

6. Ongoing and future activities

6.1. Reprocessing activities

In this reprocessing phase, the focus is on provision of the C2 collection of period January 2018 – June 2020. At the time of writing, we are processing October 2019.
After C2 for period January 2018 to June 2020 is finished, we will continue from October 2013 – December 2017.