



MONTHLY OPERATIONS REPORT

MOR#098

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

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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.

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 March 2019.

2. System Infrastructure

| Category | % Up Time | % Down Time |
|-------------------------|-----------|-------------|
| Switches | 100.0 | 0.0 |
| Database Servers | 100.0 | 0.0 |
| Mid Term File Servers | 100.0 | 0.0 |
| Short Term File Servers | 100.0 | 0.0 |
| Master Servers | 100.0 | 0.0 |
| Worker Nodes | 100.0 | 0.0 |
| PDF | 100.0 | 0.0 |

Table 1: System Infrastructure availability for this reporting period

3. Image Processing Services

3.1. Dissemination service

| Product type | Added to catalogue | Ordered | Delivered |
|-----------------------------|--------------------|---------|-----------|
| PROBAV_L1C | 0 | 0 | 2 |
| PROBAV_L2A_100M | 0 | 1 | 2 |
| PROBAV_L2A_300M | 0 | 0 | 2 |
| PROBAV_L2A_1KM | 0 | 5 | 7 |
| PROBAV_L3_S1_TOA_100M | 0 | 73 | 69 |
| PROBAV_L3_S1_TOC_100M | 0 | 69 | 67 |
| PROBAV_L3_S1_TOC_NDVI_100M | 0 | 4 | 5 |
| PROBAV_L3_S5_TOA_100M | 0 | 1 | 2 |
| PROBAV_L3_S5_TOC_100M | 0 | 0 | 4 |
| PROBAV_L3_S5_TOC_NDVI_100M | 0 | 144 | 152 |
| PROBAV_L3_S1_TOA_300M | 0 | 149 | 153 |
| PROBAV_L3_S1_TOC_300M | 0 | 0 | 3 |
| PROBAV_L3_S10_TOC_300M | 0 | 0 | 2 |
| PROBAV_L3_S10_TOC_NDVI_300M | 0 | 0 | 15 |
| PROBAV_L3_S1_TOA_1KM | 0 | 4 | 15 |
| PROBAV_L3_S1_TOC_1KM | 0 | 7 | 10 |
| PROBAV_L3_S10_TOC_1KM | 0 | 0 | 2 |
| PROBAV_L3_S10_TOC_NDVI_1KM | 0 | 586 | 552 |

Table 2: Ordered and delivered products for this reporting period

3.2. End-user activity

12 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 **2020** with **124** different nationalities representing **1466** different companies/universities.

| Product type | Africa | Asia | Europe | N- America | Oceania | S- America |
|-----------------------------|--------|-------|---------|---------------|---------|---------------|
| PROBAV_L1C | 0 | 0.02 | 1.27 | 0 | 0 | 0 |
| PROBAV_L2A_100M | 0 | 0.01 | 2.21 | 0 | 0 | 0 |
| PROBAV_L2A_300M | 0 | 0.00 | 0 | 0 | 0 | 0 |
| PROBAV_L2A_1KM | 0 | 0.07 | 0 | 0 | 0 | 0.00 |
| PROBAV_L3_S1_TOA_100M | 0 | 0.04 | 1277.49 | 0.62 | 0 | 0 |
| PROBAV_L3_S1_TOC_100M | 0 | 0.02 | 1449.86 | 0.00 | 0.00 | 0 |
| PROBAV_L3_S1_TOC_NDVI_100M | 0 | 0.11 | 0 | 0 | 0 | 0 |
| PROBAV_L3_S5_TOA_100M | 0 | 0.05 | 0.00 | 0 | 0 | 0 |
| PROBAV_L3_S5_TOC_100M | 0 | 0.05 | 0.86 | 0 | 0 | 0 |
| PROBAV_L3_S5_TOC_NDVI_100M | 0 | 0.21 | 948.16 | 0 | 0 | 0 |
| PROBAV_L3_S1_TOA_300M | 0 | 0.01 | 0.04 | 0 | 0 | 1568.23 |
| PROBAV_L3_S1_TOC_300M | 0 | 0.05 | 0.02 | 0 | 0 | 0 |
| PROBAV_L3_S10_TOC_300M | 0 | 0.08 | 0 | 0 | 0 | 0 |
| PROBAV_L3_S10_TOC_NDVI_300M | 0 | 0.01 | 3.01 | 0 | 0 | 0 |
| PROBAV_L3_S1_TOA_1KM | 0 | 0.03 | 0.43 | 0 | 0 | 0 |
| PROBAV_L3_S1_TOC_1KM | 0 | 0.01 | 0 | 0.05 | 0 | 0 |
| PROBAV_L3_S10_TOC_1KM | 0 | 0.01 | 0 | 0 | 0 | 0 |
| PROBAV_L3_S10_TOC_NDVI_1KM | 0 | 54.48 | 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 | 1.28 |
| PROBAV_L2A_100M | 2.22 |
| PROBAV_L2A_300M | 0.00 |
| PROBAV_L2A_1KM | 0.07 |
| PROBAV_L3_S1_TOA_100M | 1278.15 |
| PROBAV_L3_S1_TOC_100M | 1449.88 |
| PROBAV_L3_S1_TOC_NDVI_100M | 0.11 |
| PROBAV_L3_S5_TOA_100M | 0.05 |
| PROBAV_L3_S5_TOC_100M | 0.91 |
| PROBAV_L3_S5_TOC_NDVI_100M | 948.37 |
| PROBAV_L3_S1_TOA_300M | 1568.28 |
| PROBAV_L3_S1_TOC_300M | 0.07 |
| PROBAV_L3_S10_TOC_300M | 0.08 |
| PROBAV_L3_S10_TOC_NDVI_300M | 3.02 |
| PROBAV_L3_S1_TOA_1KM | 0.46 |
| PROBAV_L3_S1_TOC_1KM | 0.05 |
| PROBAV_L3_S10_TOC_1KM | 0.01 |
| PROBAV_L3_S10_TOC_NDVI_1KM | 54.48 |

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

| Company | # Downloads |
|------------------------------|-------------|
| NENU | 546 |
| ICMBIO | 149 |
| LSCE | 144 |
| DESCARTES UNDERWRITING | 123 |
| COMPANY | 35 |
| ZELL AND ASSOCIATES | 16 |
| JOINT RESEARCH CENTRE | 11 |
| FOSU | 7 |
| VITO | 5 |
| UNIVERSIDAD NACIONAL DE LOJA | 5 |

Table 5: Top 10 user companies for the reporting period

| Country | # Users |
|----------------|---------|
| CHINA | 224 |
| BELGIUM | 168 |
| INDIA | 99 |
| FRANCE | 93 |
| BRAZIL | 85 |
| UNITED STATES | 83 |
| ITALY | 81 |
| NETHERLANDS | 70 |
| UNITED KINGDOM | 66 |
| GERMANY | 63 |

Table 6: Top 10 countries with most registered users

List of issues raised by users:

- PDF: N.A. - Frank Rizzo - 2022/1/17 - Imagery

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 from 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-097_2022_01_v1.0.pdf | 20/01/2022 | 18/01/2022 | 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 |
|-----------------------------------|-------------|-----------|-------|---------|
| None | | | 0 | |
| 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 |
|--|------------------|------------------|----------------------|---------|
| PDF: N.A.- Frank Rizzo - 2022/1/17 - Imagery | 17/01/2022 20:23 | 19/01/2022 15:02 | 2,00 | |
| KPI value (1 if ≥ 95.0 % < 2 NWD) | | | 1 | |

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

(*) Response time is expressed in working days with a resolution of 0.25

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:

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

| 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 March 2019.

After C2 for period January 2018 to June 2020 is finished, we will continue from October 2013 – December 2017.