PDC Schedule and Config Mgmt

(for a PSM audience)

PLATO STESCI Workshop III

Barcelona, 19 November 2019

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Schedule until Mission PDR

Schedule based on ESA review milestones and previous joint PDC/PSM schedule, with essential updates:

- *Since Q2 2019: PSM evaluation of algorithm justifications for on-ground L0/L1 data processing. Ongoing.
- *Q4 2019 - Q1 2020: PSM science performance tests of on-board algorithms.
- *Q4 2019: PDC/PSM update of PMC-SGS SIP and WPDs in preparation for Mission PDR review.
- *Q4 2019 (kick-off) --> Q1 2020: **PMC-Internal L2/L3 Requirements Review** (about 20 reviewers), in preparation for GSRQR 2021; PSM input: L2/L3 User Requirement Documents (URDs) and justifications.

- Q1 2020: PMC-SGS SIP and WPDs: signature loop.
- Q1 2020: New draft issue of L0/L1 Ground Data Processing URDs
- ***Q2 2020: ESA Mission Preliminary Design Review**: includes current status of PMC-SGS SIP and WPDs (GSRQR is target for PMC-SGS SIP and WPDs preparation)

Mission PDR Ground Segment Docs

Ground Segment documents will probably include:

- *Science Implementation Requirements Document (SIRD)
- *PMC-SGS SIP
- SOC SIP
- Mission Implementation Requirements Doc (MIRD)
- Mission Implementation Plan (MIP)
- *SGS Design (Overview) Document
- *Inputs to Mission Operations Concept Document (MOCD)
- Inputs to Mission Architecture Description Doc (MADD)

(*) these include PSM contributions.

Exact procedure to be made available this month by ESA.

Green: Common to Mission PDR and GSRQR.

Schedule from Mission PDR to GSRQR

- *Q3 2020-Q2 2021: Completion of on-ground L0/L1 Algorithm Theoretical Baseline Documents (ATBDs) **and PSM review.**
- *2020-2021: PSM provides:
  - Test cases, list of algorithms, other data (PIC, 1st stellar model grids)
  - Algorithms / pseudo-codes / prototype codes (python, C, java)
  - Data type specifications (joint PDC/PSM delivery)
- *2020 2nd PMC-Internal Review (**TBC**, in preparation of GSRQR to cover the documents not included in the PMC-internal L2/L3 Requirements Review, e.g. management and design); may not happen if L2/L3 Requirements Review is delayed.
- End 2020/ early 2021: PDC provides first version of PDC-DB.
- ***Mid 2021: Critical Milestone Review -- demonstrate that the organization of the consortium is such that it is capable of delivering in time what it promises (mostly payload, but also GS).**
- 2021-2022: Implementation of on-ground L0/L1 data processing modules
- ***Q4 2021: Ground Segment ReQuirements Review (GSRQR)**. Over 60 documents to be reviewed including URDs, Design description and justification. PSM input includes: URDs, use cases to generate Data Products; contribution to Product Definition documents.

Schedule from GSRQR to Launch

- Mid 2022: scientific validation of on-ground L0/L1 processing modules by PSM
- Q1 2023: First version of EAS/SAS implemented
- Q4 2023: ESA GS Design Review
- Q2 2024: EAS and SAS operational
- H1 2025: System Operations Validation Test 1: End-to-end tests
- Q4 2025: GS Implementation Review
- Q1 2026: System Operations Validation Test 2: End-to-end tests
- Q3 2026: GS Readiness Review
- Q4 2026: Launch

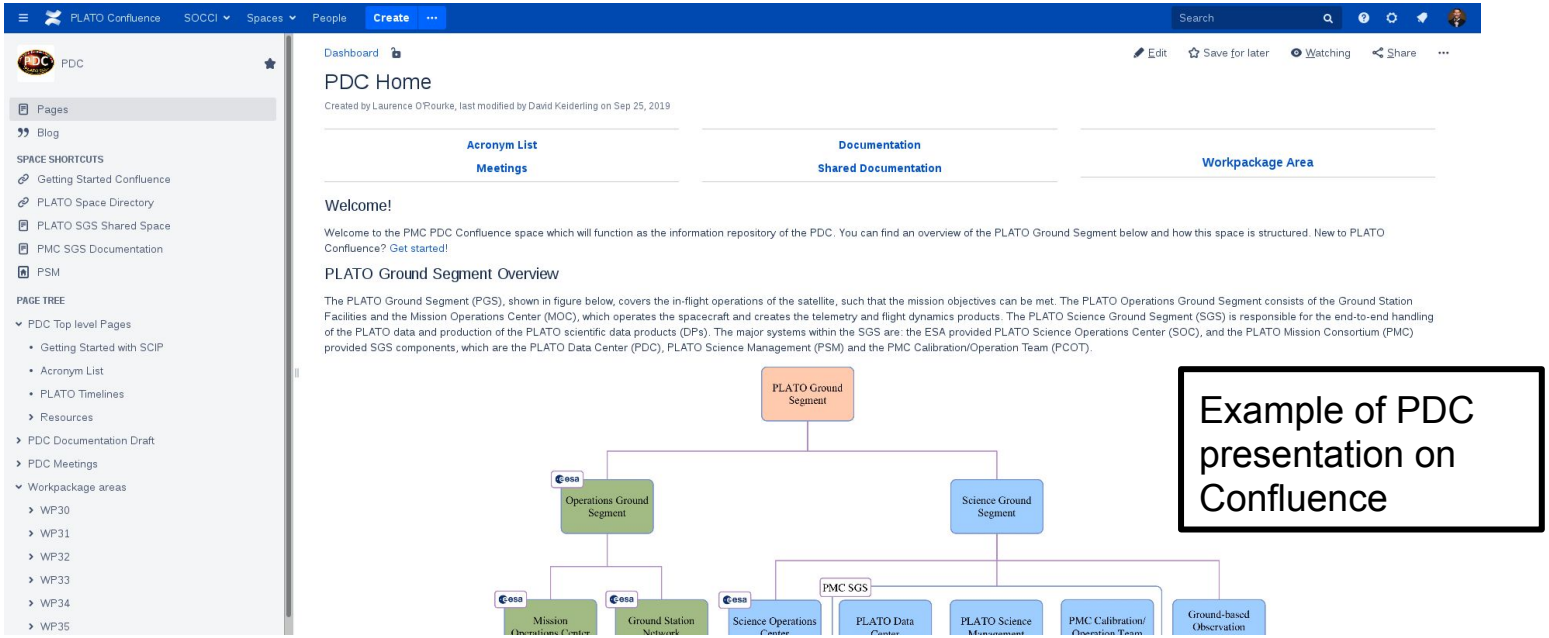
Simplified Schedule

	PDC L1	PDC L2/L3	PSM L2/L3	
2019 Q4: Current URDs from PSM being reviewed internally	Algorithms	PDC system	Algorithms	The two upcoming years are important years for PSM! Focus on core science!
2020 Q2 Mission PDR PSM contributes	ATBDs A and coding	PDC system	Algorithms	
2021 Q2 Critical Milestone Q4 GS Requirement Review PSM contributes to URDs, use cases, PDDs, Design Documents, SIP/WPDs, interface documents, etc. [link: click here]	ATBDs B/C and coding	PDC system	Algorithms	
2022	Coding	Coding	PDC support	
2023 Q4 GS Design Review	Tests	Coding	PDC support	
2024	Validation	EAS/SAS operational	PDC support	
2025	E2E tests	E2E tests	E2E tests	
2026	E2E tests	E2E tests	E2E tests	

PDC Configuration Management:

SGS Common Infrastructure for PLATO (SCIP)

- SGS Common Infrastructure for PLATO (SCIP) was introduced at PW 8
- Consists of:
  - Confluence: Project knowledgebase (Wiki): https://issues.cosmos.esa.int/platowiki/
  - JIRA: Action item tracker, project management tool: https://issues.cosmos.esa.int/plato/
  - Bitbucket: Code repository (**mostly PDC** / Git based): https://repos.cosmos.esa.int/plato/



Example of PDC presentation on Confluence

PDC Configuration Management:

SGS Common Infrastructure for PLATO (SCIP): Useful Links

- PDC Space: https://issues.cosmos.esa.int/platowiki/x/s4BD
- PSM Space: https://issues.cosmos.esa.int/platowiki/x/CYEh

- Getting started: https://issues.cosmos.esa.int/platowiki/x/sodD
- Acronyms: https://issues.cosmos.esa.int/platowiki/x/mIFd
- Schedule: https://issues.cosmos.esa.int/platowiki/x/voBd
- *Meetings Overview: https://issues.cosmos.esa.int/platowiki/x/KoJD

Available content will be expanded with time!

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PDC: David Keiderling (MPSSR) -- keiderling@mps.mpg.de

PDC System and PDC-DB

- Main PDC-DB is the central data hub, located at MPSSR in Goettingen. Data to be moved back and forth between MPSSR and data centers. In-house Data Management System (DMS) to be written.
- ESAC (Spain) hosting SOC and public archive
- DMS will include functions (an Application Programming Interface, API) for PDC developers to e.g. read data, write data, etc.
- Discussion of third meeting of the PLATO Ground Segment Engineering Working Group @ PW9:
  - PLATO SGS Architecture Overview Document – Draft
  - (SOC/PDC/PSM/PCOT)
  - PMC-SGS Architecture Design Document – Draft

PDC Data Analysis Support Tools

- WP38: PDC tools to inspect individual light curves

- Main goal of PDC-WP38 for coming months: **Seek input from PSM to define requirements for the support tools.** Kick-off interaction with PSM this Thursday at 12:30 (led by Patrick Gaulme). PDC already has a list of basic tools, but PSM must provide further input.

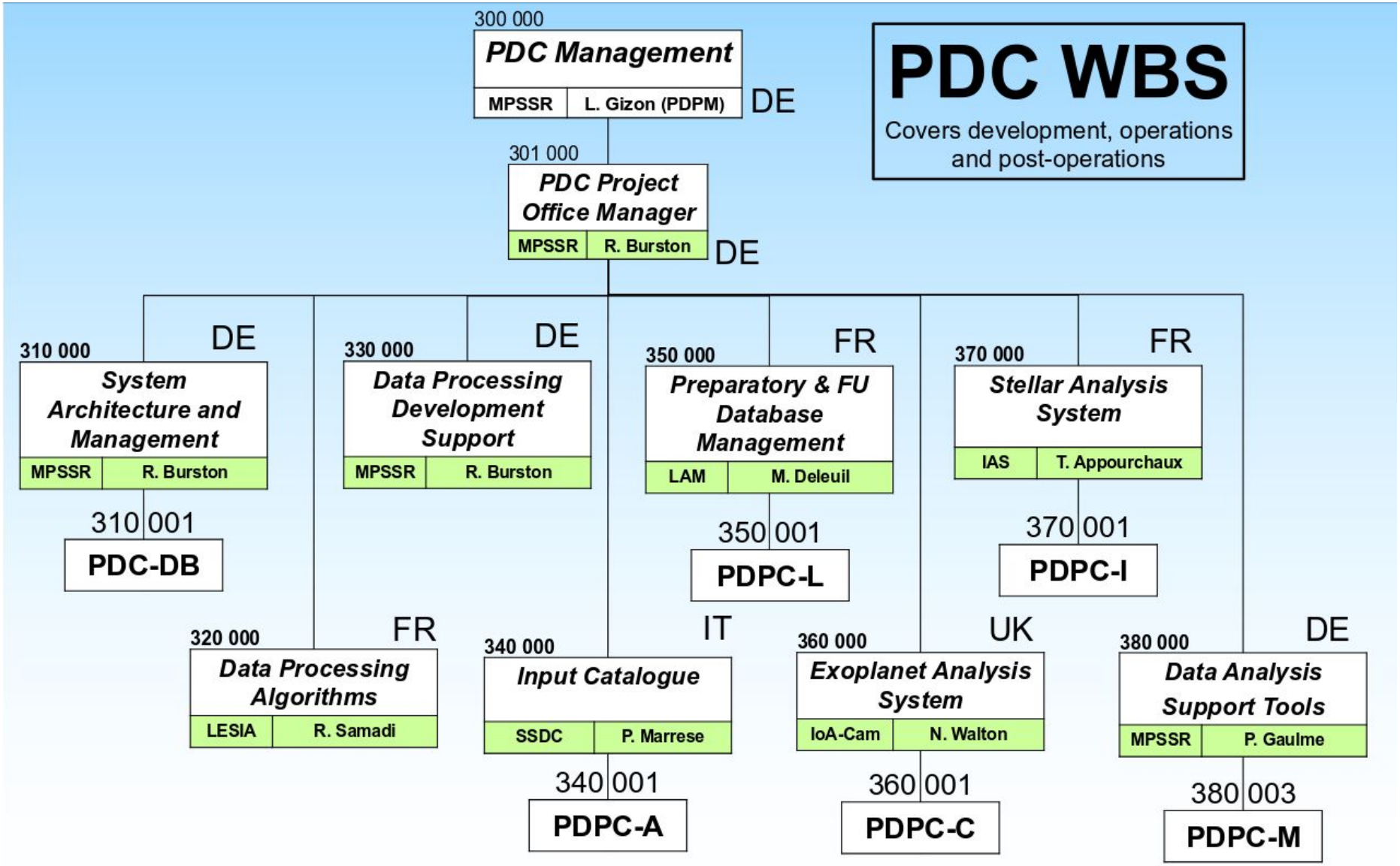
- Client user interface being developed:
  - visualization of data on laptop computer (whereby actual code runs on distant server at MPSSR).
  - Current tests with simple functionalities (e.g., filtering light curves) developed by Pascal Guterman (LAM)

Upcoming change in PDC management

Ray Burston (PDC Project Office Manager) will move back to Australia from ca. March 2020. (Hannah Schunker offered a faculty position there.)

A new PDC Project Office Manager will be nominated soon.

Thank you


PDC WBS
Covers development, operations and post-operations
300 000
PDC Management
MPSSR
L. Gizon (PDPM)
DE
301 000
PDC Project Office Manager
MPSSR
R. Burston
DE
310 000
System Architecture and Management
MPSSR
R. Burston
DE
310 001
PDC-DB
330 000
Data Processing Development Support
MPSSR
R. Burston
DE
350 000
Preparatory & FU Database Management
LAM
M. Deleuil
FR
350 001
PDPC-L
370 000
Stellar Analysis System
IAS
T. Appourchaux
FR
370 001
PDPC-I
320 000
Data Processing Algorithms
LESIA
R. Samadi
FR
340 000
Input Catalogue
SSDC
P. Marrese
IT
340 001
PDPC-A
360 000
Exoplanet Analysis System
IoA-Cam
N. Walton
UK
360 001
PDPC-C
380 000
Data Analysis Support Tools
MPSSR
P. Gaulme
DE
380 003
PDPC-M

- ✓ Imagettes
- ✓ Light curves and centroids
- ✓ Housekeeping
- ✓ Quality data

- ✓ Planetary transit candidates and their parameters
- ✓ Asteroseismological analysis
- ✓ Stellar rotation periods and stellar activity properties
- ✓ Seismically-determined stellar masses, radii and ages of stars
- ✓ TTV planetary systems

- ✓ List of confirmed planetary systems, which will be fully characterised by combining information from the planetary transits, the seismology of the planet-hosting stars, and the results of ground-based observations.

L0 → L1 → L2 → Lg → L3

- ✓ Calibrated Light curves
- ✓ Processed imagettes
- ✓ Ancillary data
- ✓ Quality data

- ❖ Ground-based observations for filtering false planet transits:
  - ✓ Low-precision spectroscopy (1-2 m telescopes);
  - ✓ High-resolution imaging (2 m telescopes);
  - ✓ On and off transit photometry (1-2 m telescopes);
  - ✓ High-resolution spectroscopy (4-8 m telescopes);
  - ✓ Rossiter-McLaughlin (RM) observations (8 m telescopes).
- ❖ Ground-based observations for the characterisation of planets:
  - ✓ High-resolution spectroscopy (1-2 m, 4 m and 8 m telescopes);
  - ✓ Rossiter-McLaughlin (RM) observations (8 m telescopes).