ESA Planetary Science Archive's

Guest Storage Facility

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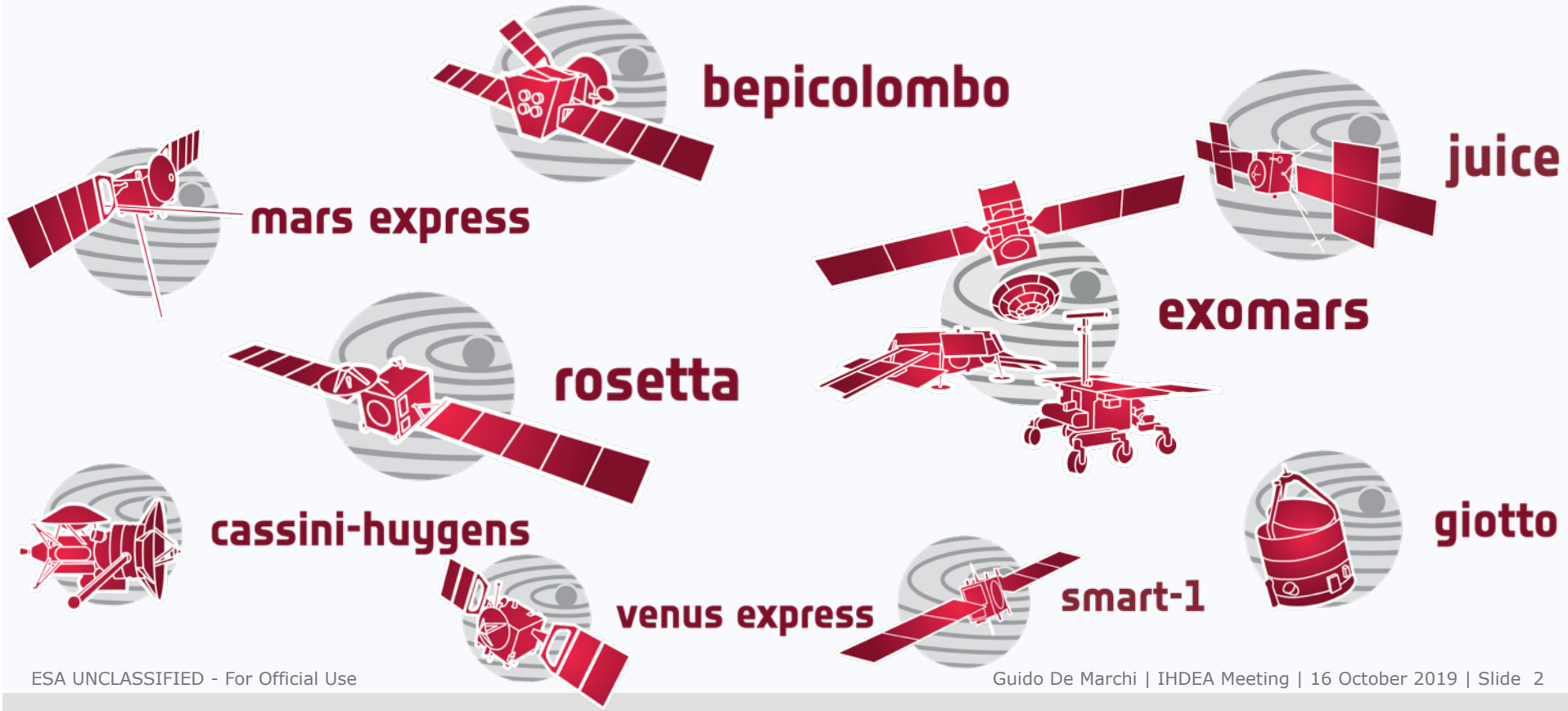
ESA's Planetary Science missions



Planetary Science Archive

Mission: Promoting scientific experiments exploring the Solar System

Products available in the PSA

- Raw and calibrated data
- Products are peer reviewed
- Accessible for free
- 80 TB out of 8 missions and >80 instruments

Adopts PDS3 and PDS4 standards

- All recent missions use PDS V4
- We also support CDF on Rosetta for Heliophysics community

Why a Guest Storage Facility?

- **Maximise access to scientific data products**
  - Complexity of PDS format might hinder delivery of data to archives
  - It takes significant effort (time and money) to implement PDS conversion
- **One location to get all relevant Higher Level Science Products**
  - Derived, high level products are important to get good science
  - Ideally to be found in the PSA along with data from the mission
- **Flexibility for complex situations**
  - Some cases are complicated, we need flexibility that PDS cannot easily offer
  - GSF allows for provision of new data types not yet defined in PDS format
  - PDS format is very complex, subject to interpretation

Some examples

- **UPWARDS**

  EU-funded project with MEX/EM16, data delivered to PSA in PDS4 (2018)

  Format of some data not defined in PDS4, cannot be ingested.

  → Not available to the community

- **High Resolution Stereo Camera, Digital Terrain Models**

  Author is member of MEX HRSC team (also in EU-funded project), accepted paper, wants to share products before retirement

  → High impact MEX science products risk being lost

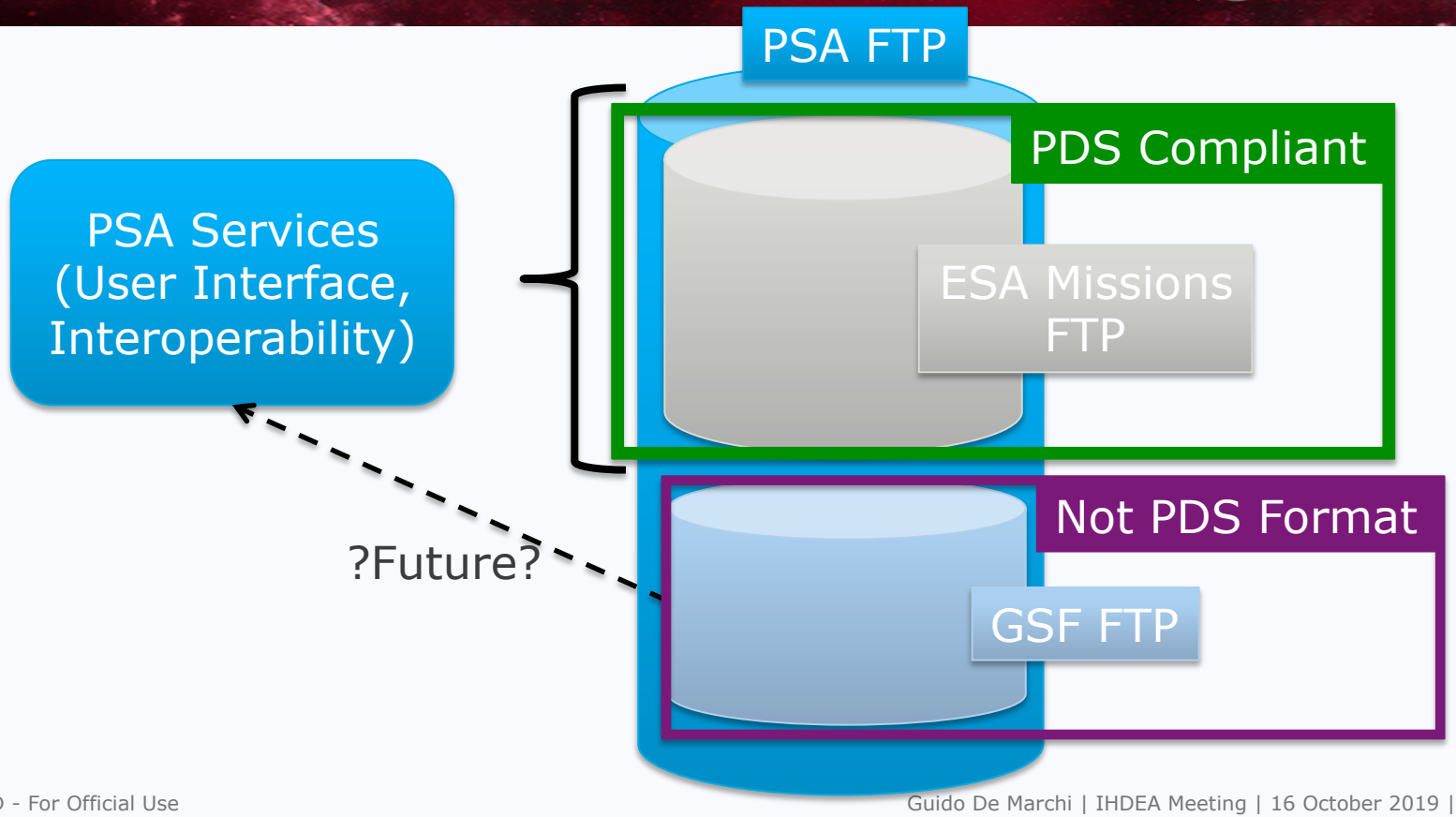
- **PlanMAP**

  EU-funded project to create cartographic maps, uses commercial GIS standards.

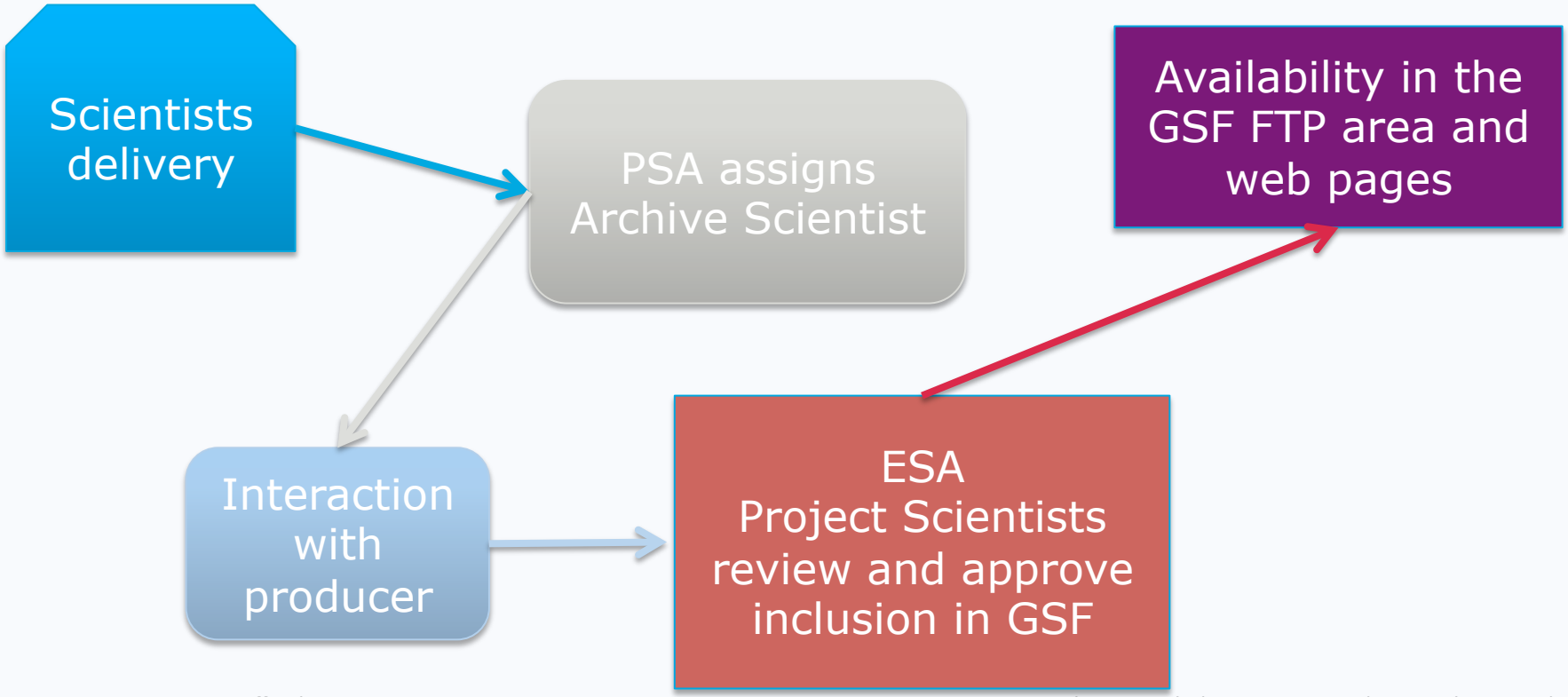
  No agreed PDS4 formats to store the products; limited archival resources

  → Valuable scientific products, highly shared in the community, challenging (impossible?) to render/embed in PDS4

PSA Guest Storage Facility



How it works


Scientists delivery
PSA assigns Archive Scientist
Availability in the GSF FTP area and web pages
Interaction with producer
ESA Project Scientists review and approve inclusion in GSF

Conditions

- **No rules on format**
  - Producers deliver what they think is the most useful format
  - No published paper required (**but strongly encouraged**)
- **Data User Guide is mandatory**
  - Description of what is provided, and for which purposes
  - Point of contact also mandatory
- **Criteria considered for acceptance**
  - Products must be relevant for ESA's missions, and/or come from scientists in ESA member states, and/or be funded by European grants
  - ESA project scientists make final decision
- **After approval, data hosted in PSA FTP area**
  - ESA Digital Object Identifier can be provided on demand
  - Visible in the ESDC/PSA webpages

From paper to data in 3 clicks

From the paper…

The first author acknowledges support for her studies from the Indonesian Endowment Fund of Education (LPDP). This work forms part of the European Union's Seventh Framework Programme under iMars grant No. 607379 and by the German Space Agency (DLR Bonn), grant 50QM1702 (HRSC on Mars Express). Partial funding was obtained from the STFC "MSSL Consolidated Grant" ST/K000977/1. Green Open Access Funding is provided by University College London. The authors acknowledge the Principal Investigator, Ralf Jaumann, of the HRSC instrument onboard the Mars Express mission for providing datasets in the archive. Level-2 Input Datasets of the HRSC instrument have been downloaded from the ESA Planetary Science Archive (http://archives.esac.esa.int/psa). We also express gratitude to the MOLA team for the usage of MOLA data. In addition, the authors would like to thank Marita Wählisch for kind assistance with the areoid conversion and last but not least, Alexander Dumke for the exterior orientation processing results used within this work. The HRSC orbital strip and mosaiced products of the DTMs and ORIs which are described in this paper are available from the ESA Guest Storage Facility which can be found using the DOI of the HRSC data collection as follows: https://doi.org/10.5270/esa-0j79yk8. They can also be browsed, downloaded and visualised through the iMars web GIS at http://www.i-mars.eu/web-gis (Walter et al., 2018).

From paper to data in 3 clicks

… to the landing page

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DOI FOR UCL-MSSL_IMARS_HRSC_V1.0

Data Set / Bundle	UCL-MSSL_iMars_HRSC_V1.0
Description	A high spatial resolution (50m) Digital Terrain Model (DTM) and orthorectified Image (ORI) have been produced for the Martian South Polar Residual ice-Cap (SPRC)for 33 HRSC strips and the associated ORIs at 12.5m. In addition, a 50m DTM mosaic has been created alongside a 12.5m ORI mosaic. For the ORI mosaic, Individual HRSC image strips have been corrected for different surface scattering properties prior to mosaicing.
Contact Point	Alfiah Rizky Diana Putri (alfiah.putri.15@ucl.ac.uk) and Jan-Peter Muller (j.muller@ucl.ac.uk)
Data Access	ftp://npsa01.esac.esa.int/pub/mirror/Guest-Storage-Facility/UCL-MSSL_iMars_HRSC_V1.0/
Data browse	www.i-mars.eu/web-gis and press "S" to show South polar view
Product User Guide	Link to the PUG
DOI	10.5270/esa-0j79yk8
Version History	V1.0 First version of this data set
Citation Guidelines	European Space Agency, 2019, UCL-MSSL_iMars_HRSC_V1.0, https://doi.org/10.5270/esa-0j79yk8
Associated Publication(s)	Putri, A. R. D., Sidiropoulos, P., Muller, J. P., Walter, S. H., & Michael, G. G. (2019). A New South Polar Digital Terrain Model of Mars from the High Resolution Stereo Camera (HRSC) onboard the ESA Mars Express. *Planetary and Space Science*. DOI: 10.1016/j.pss.2019.02.010
Mission(s)	Mission : Mars Express Instrument : HRSC mars express
Primary Target(s)	Mars
Related Data Sets	ftp://psa.esac.esa.int/pub/mirror/MARS-EXPRESS/HRSC/MEX-M-HRSC-5-REFDR-DTM-V1.0/DATA/

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Primary Target(s)	Mars
Related Data Sets	ftp://psa.esac.esa.int/pub/mirror/MARS-EXPRESS/HRSC/MEX-M-HRSC-5-REFDR-DTM-V1.0/DATA/

Index of ftp://npsa01.esac.esa.int/pub/mirror/Guest-Storage-Facility/UCL-MSSL_iMars_HRSC_V1.0/

Up to higher level directory

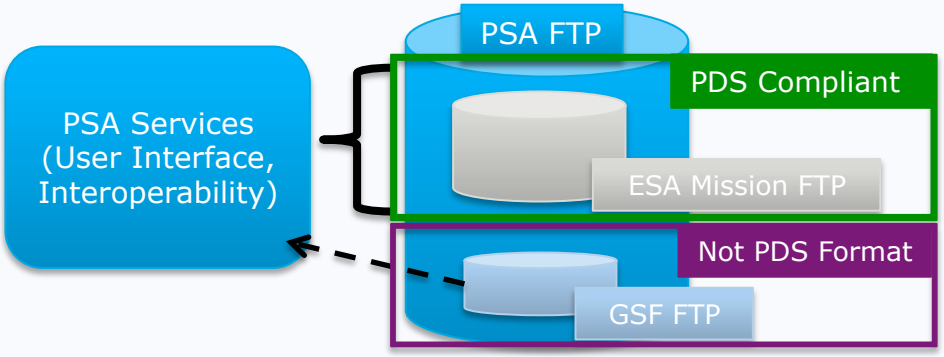
Name	Size	Last Modified
HRSC_SPRC_MOSAIC		18/04/2019 18:28:00 GMT+2
HRSC_SPRC_ORBITAL		18/04/2019 18:41:00 GMT+2
File: PUG-UCL-HRSC.pdf	1612 KB	28/05/2019 11:21:00 GMT+2

…to data download

One-slide summary

A solution to capture valuable scientific products that are often shared in the science community and that are currently challenging (impossible?) to embed in a PDS4 bundle to be archived.

- Products need not be PDS compliant
- Must have a "Data User Guide"
- Supporting publication encouraged
- Can get DOI if wanted



GSF is our answer to some critical needs of **today**

GSF does not change missions' duty to adhere in full to PDS standards