ESA Planetary Science Archive
Overview and
Inter-operability aspects

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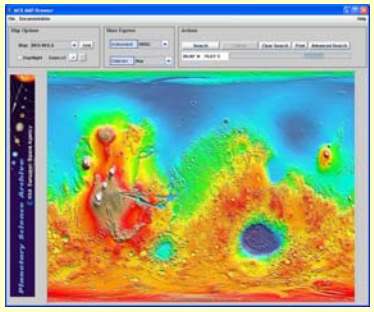


Planetary Science Archive

- Available since March 2004:
  - http://www.rssd.esa.int/PSA
- Active development, PSA 3.0 to come in December/January

- PSA Data Handling Team @ ESA-ESAC (Spain)
  - David Heather lead
  - Archive Scientist, setting up the requirements
  - Interface with Instrument Teams
  - Validating Data Sets

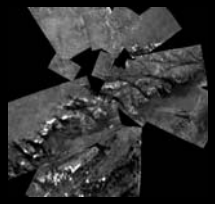
- PSA Development Team @ ESA-ESAC (Spain)
  - Christophe Arviset lead
  - PSA systems software development

PSA Main drivers

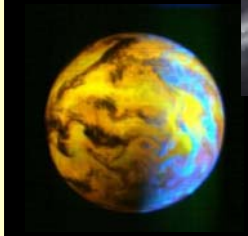
- All data in a single archive
- All data in PDS format
- Re-use other ESA archive work (eg astronomy)
- Modular and flexible architecture
- Interoperable
  - IPDA
  - Data Model PDS format
  - Data access protocol

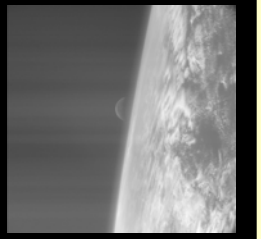
PSA : one archive, several missions

Huygens

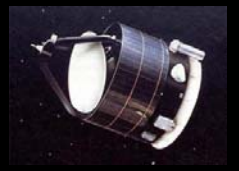


Rosetta



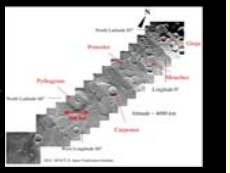


Giotto

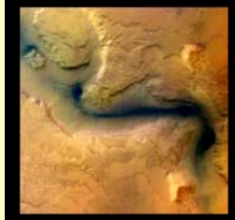


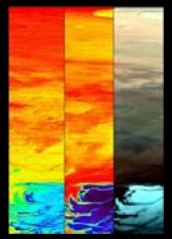
All Data in PDS Format

Smart-1

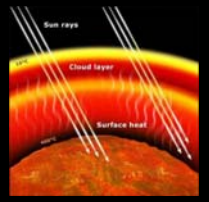


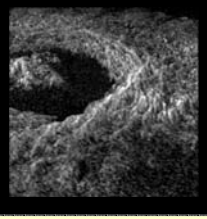
Mars Express

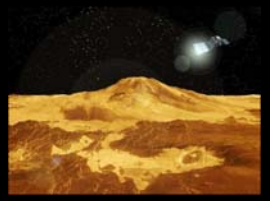




Venus Express







Christophe ARVISET

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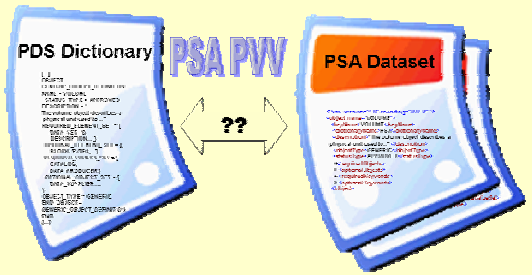
All in PDS format

- Compatibility of long existing PDS format for all US planetary missions
- PDS format being taken up by IPDA
  - Compatibility with other planetary missions
  - Globalisation of planetary archiving standards



- Datasets produced by various Instrument Teams

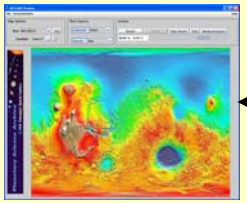
- Need to validate and verify any volume / dataset according to:
  - Planetary Data System standards reference (PDS, NASA).
  - Specific PSA constraints and extensions.

- PVV ensures PDS/PSA compliancy in all datasets accessible from PSA.
  - PVV distributed to Instrument Teams for pre-validation

An open 3-tier architecture :

Separate the Data from the Presentation

Standard GUI



Map Based GUI

DataSet Browser

External Archives / Applications

Inter-operability Module

Middle Tier
(Java / XML)

Meta Data in Database

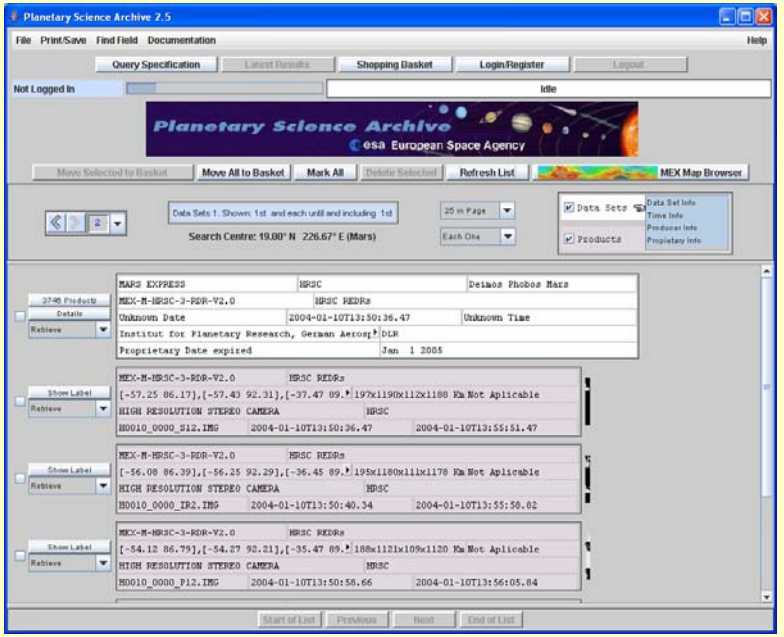
DB Ingest

Data Products on hard disks

Business logic:
access to database
access to data products

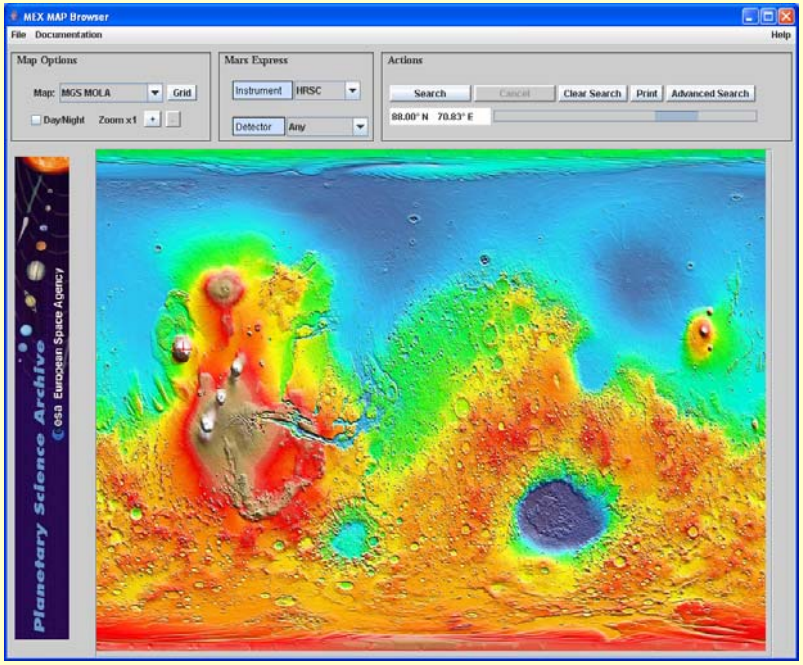
PSA Standard User Interface

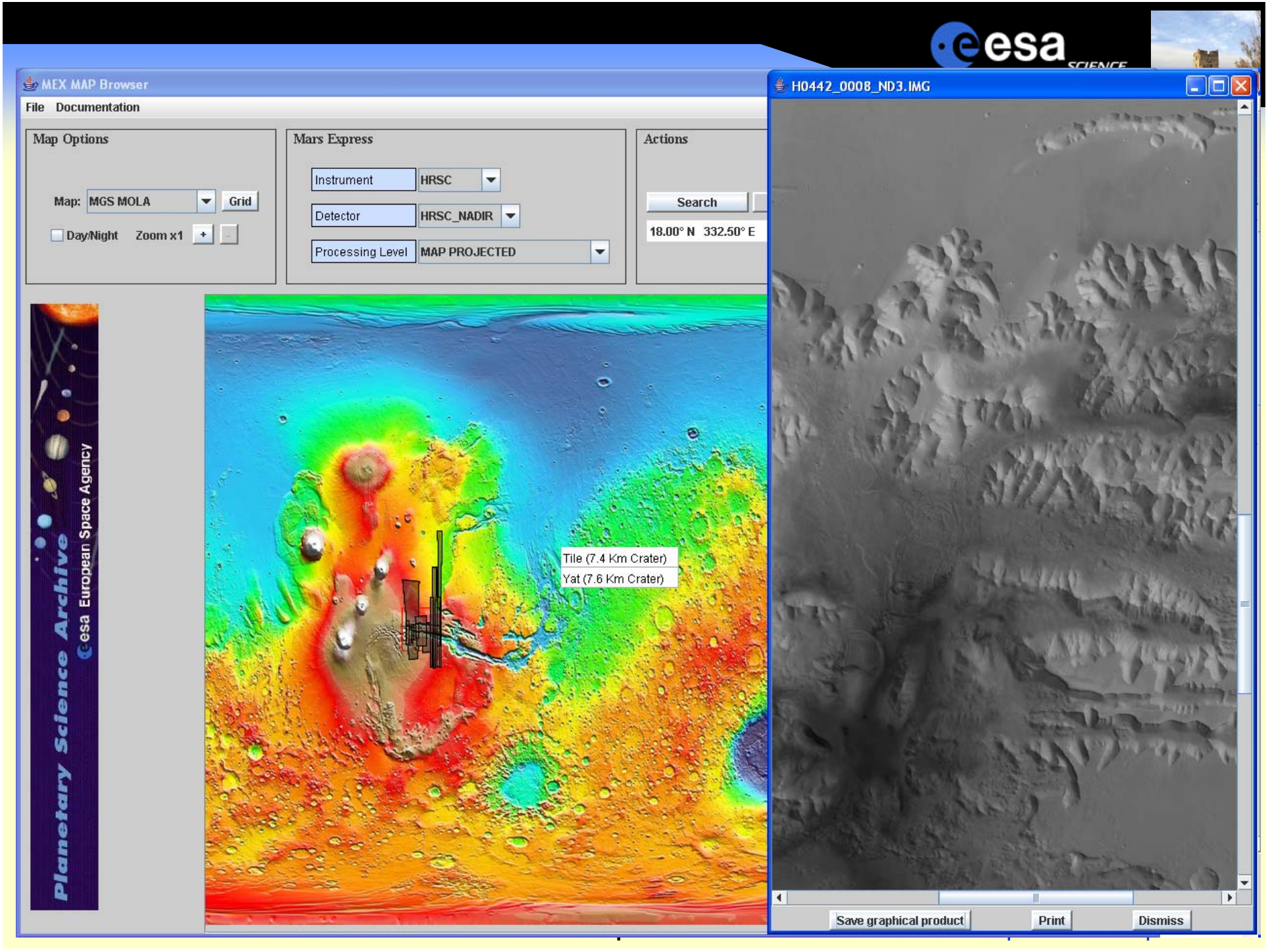
- User friendly web access : Java Applet
  - http://www.rssd.esa.int/PSA
- Powerful queries, organized by panel
  - General query panels
  - Mission / instrument specific panels
- Hierarchical data presentation
  - 1 Dataset -> several dataproducts
- Public data accessible to all, proprietary data accessible only to privileged users
- Images preview (icons, full image)
- Quick download (1 click) at various processing levels, shopping basket retrieval



PSA Mars Map Based Interface

- Interface for Mars Express image data
  - http://www.rssd.esa.int/PSA
  - Java Applet
- No need to be an expert
  - Easy for general public
- Area selection by mouse
  - Display images footprints
- Image download by 1 mouse click
  - Some are big (be patient!)
- Go back and forth to the standard interface to refine search parameters




esa SCIENCE
MEX MAP Browser
File Documentation
Map Options
Map: MGS MOLA
Grid
Day/Night
Zoom x1
Mars Express
Instrument
HRSC
Detector
HRSC_NADIR
Processing Level
MAP PROJECTED
Actions
Search
18.00° N 332.50° E
Planetary Science Archive
esa European Space Agency
Tile (7.4 Km Crater)
Yat (7.6 Km Crater)
H0442_0008_ND3.IMG
Save graphical product
Print
Dismiss

PSA Data Set Browser Interface

- Opening Screen

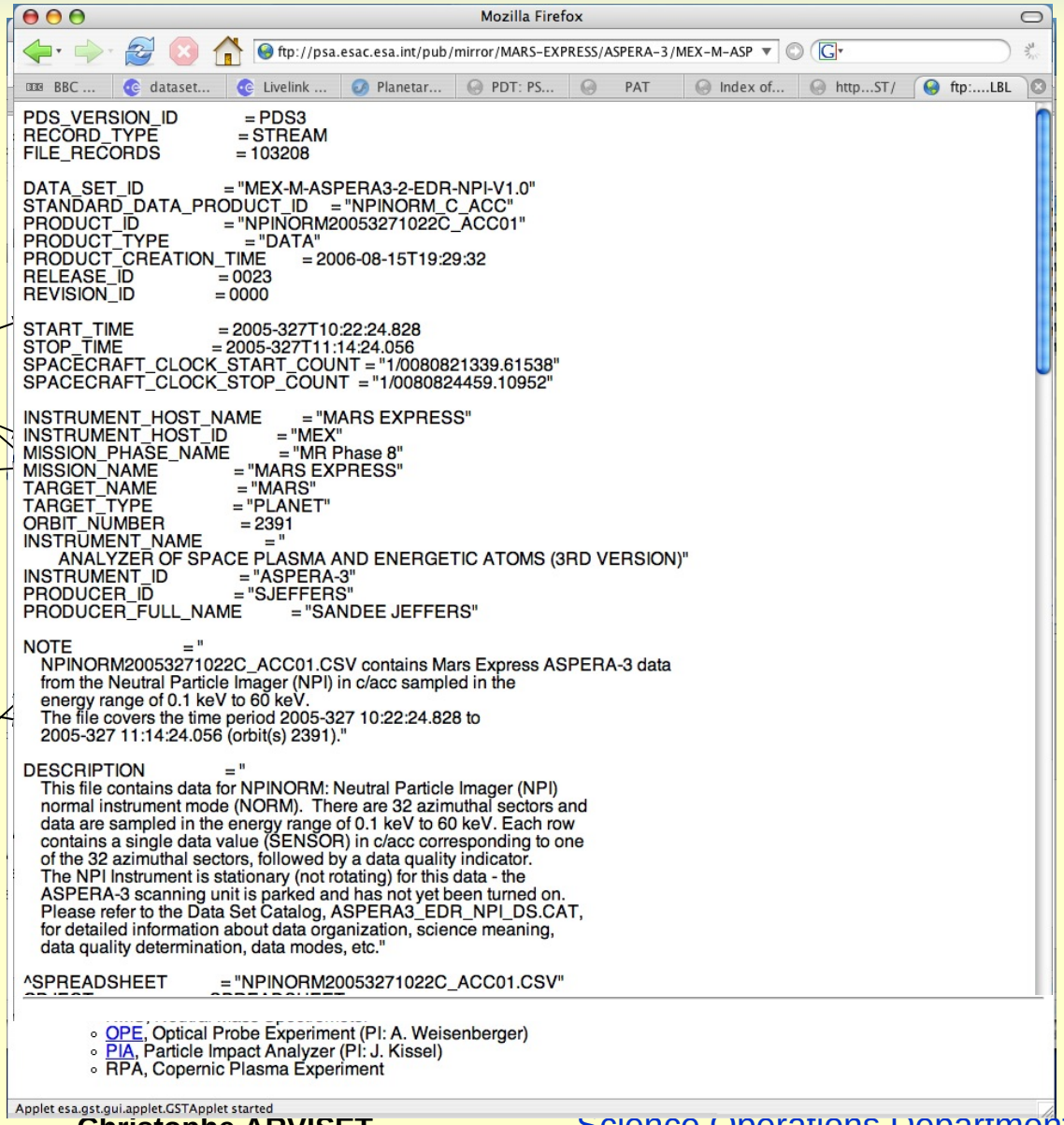
Click on the instrument that interests you

Select the data set you wish to look at

Browse through the directories to locate the files you want

Right click the product you want to save etc. to bring up the menu

Left click to view directly (where possible)



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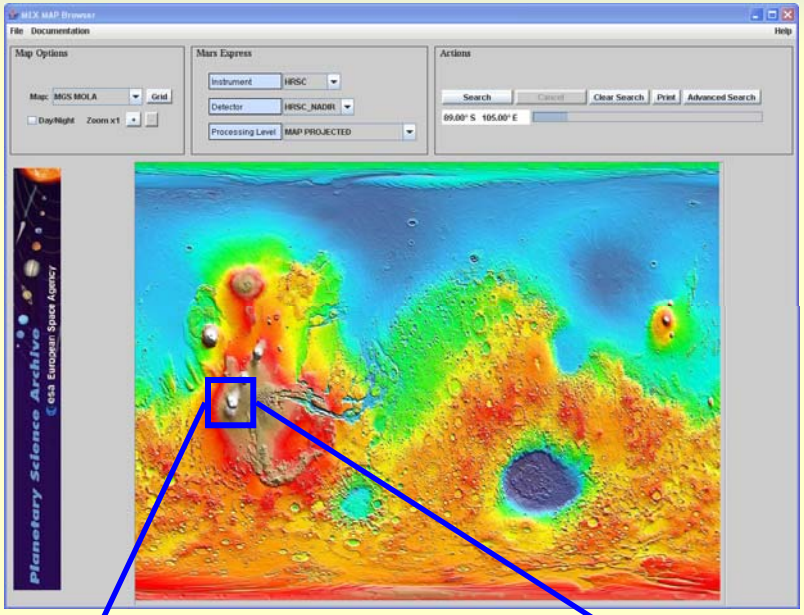
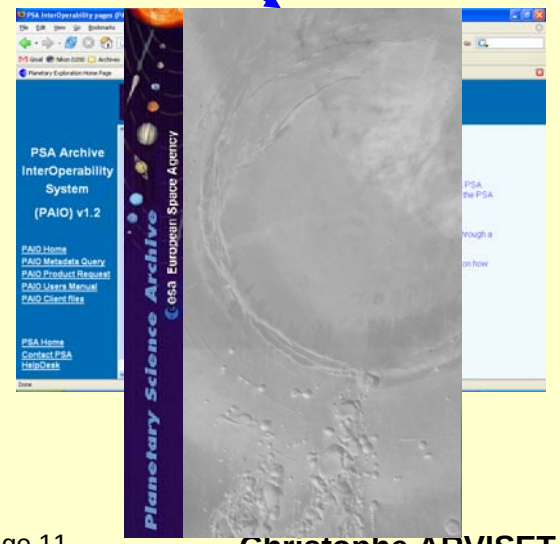
Interoperability ESA PSA – NASA PDS





- Prototype in development In the IPDA context
- From Mars Map Browser, Select region of interest
- Contact PSA and PDS using the PDAP (Planetary Data Access Protocol)
  - Re-use of IVOA experience
  - Adapted to PDS
- Display NASA PDS and ESA PSA images

Interoperability aspects in Planetary

- IPDA has representatives from all national agencies active in planetary data collection

- Standards being defined in IPDA
  - Data Generation Process
  - Data access protocols (eg PDAP)
  - Data Model (PDS evolution)

- Closer link required between IPDA and EuroPlanet
  - In particular IDIS and IPDA standards

- Closer link required between Planetary and Astronomy
  - Registry
  - Access protocols
  - But very different Data Model and data generation process