

Planetary Science Archive

Users Quick Guide

MEX Data Workshop

11-15th June 2008

ESAC

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PSA Definition and Purpose

The *Planetary Science Archive (PSA)* is the initiative, the setup, the process and the implementation to preserve data from ESA's spacecraft to planetary bodies, as well as supplementary information acquired in laboratories or ground-based observatories.

The prime objectives of the PSA are:

- to support the experimenter teams in the preparation for the spacecraft and ground-based long-term archives
- to enable and ensure the (long-term) preservation of these archives
- distribution of scientific useful data to the world wide scientific community
- provision of supplementary data services aiming to maximize the usage of planetary mission data and ease the scientific data analysis.

The PSA will be advised by a PSA Scientific Advisory Group that meets at least yearly.

The PDS Standard

- **All PDS compatible data formats conform to a unified standard format incorporating documentation, calibration, and raw and processed data files.**
- **The format distinguishes:**
 - **Data files**
 - **The lowest level is that of the data files themselves. At this level each file will have a PDS label either appended to the beginning of the file or, more often, in a separate but proximate file. "One file, one label" is the general rule.**
 - **Meta-data Files**
 - **At the intermediate level are files which describe the circumstances and parameters of the data collection (for example: the instrument used, the observatory site, the type of data collected, etc.). These files are called "catalog objects" or just "catalog" files.**
 - **Volume/Dataset Description Files**
 - **These files are included on any distribution medium intended to be an entire, self-contained archive - for example, a set of DVDs or a ZIP file. The volume description files detail the organization of the data in the archive (in terms of directories, e.g.) and any additional documentation and software which might be included.**
- **The PDS Standards are defined in the PDS Standards Reference Document.**
- **A Data Dictionary exists for the PDS and PSA which contains all keywords and values permitted by the Standard. Definitions of all keywords can be found here. A useful online version is also available.**

The PDS Standard

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 - Volume/Dataset Description File
 - These files are included in the data archive - for example, they detail the organization of the data and any additional documentation.
- The PDS Standards are defined in the PDS Standard
- A Data Dictionary exists for the PDS Standard. Definitions of all parameters are available.

```

PDS_VERSION_ID                = PDS3

/* FILE DATA ELEMENTS */
RECORD_TYPE                    = FIXED_LENGTH
RECORD_BYTES                   = 10420
FILE_RECORDS                   = 60291
LABEL_RECORDS                  = 2

/* POINTERS TO DATA OBJECTS */
^IMAGE_HEADER                  = 3
^IMAGE                          = 4

/* IDENTIFICATION DATA ELEMENTS */
FILE_NAME                      = "H0887_0000_ND2.IMG"
DATA_SET_ID                    = "MEX-M-HRSC-3-RDR-V2.0"
DETECTOR_ID                    = MEX_HRSC_NADIR
...
PROCESSING_LEVEL_ID            = 2
RELEASE_ID                     = 0012
REVISION_ID                    = 0000

/* TIME DATA ELEMENTS */
SPACECRAFT_CLOCK_START_COUNT  = "1/0044420119.56188"
SPACECRAFT_CLOCK_STOP_COUNT   = "1/0044420414.62539"
START_TIME                     = 2004-09-28T02:56:14.637Z
STOP_TIME                      = 2004-09-28T02:59:53.654Z
...
OBJECT                         = IMAGE
INTERCHANGE_FORMAT             = BINARY
LINES                          = 60288
LINE_PREFIX_BYTES              = 68
LINE_SAMPLES                   = 5176
SAMPLE_TYPE                    = MSB_INTEGER
SAMPLE_BITS                    = 16
BANDS                           = 1
BAND_STORAGE_TYPE              = BAND_SEQUENTIAL
MAXIMUM                        = 206
MEAN                           = 79.8813
MINIMUM                        = 23
STANDARD_DEVIATION             = 23.3757
END_OBJECT
    
```

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```

PDS_VERSION_ID                = PDS3

/* FILE DATA ELEMENTS */
RECORD_TYPE                    = FIXED_LENGTH
RECORD_BYTES                   = 10420
FILE_RECORDS                   PDS_VERSION_ID                = PDS3
LABEL_RECORDS                 LABEL_REVISION_NOTE         = "2004-09-28: JZ/ESA Draft 1"
                                RECORD_TYPE                    = FIXED_LENGTH
                                RECORD_BYTES                   = 80
/* POINTERS TO DATA OBJECTS */
^IMAGE_HEADER                 ^IMAGE
                                RELEASE_ID                     = 0001
                                REVISION_ID                    = 0000
                                OBJECT                         = INSTRUMENT
                                INSTRUMENT_HOST_ID             = MEX
                                INSTRUMENT_ID                  = HRSC

/* IDENTIFICATION DATA 1 */
FILE_NAME                     INSTRUMENT_NAME               = "HIGH RESOLUTION STEREO CAMERA"
DATA_SET_ID                   INSTRUMENT_TYPE               = "CCD CAMERA"
DETECTOR_ID                   INSTRUMENT_DESC                = ""
...
                                Instrument Overview
                                =====
                                The High Resolution Stereo Camera (HRSC), originally developed for the
                                Russian-led Mars-96 mission, was selected as part of the Orbiter
                                payload for ESA's Mars Express mission. The HRSC is a pushbroom
                                scanning instrument with nine CCD line detectors mounted in parallel
                                in the focal plane. Its unique feature is the ability to obtain
                                near-simultaneous imaging data of a specific site at high resolution,
                                with along-track triple stereo, four colours and five different
                                phase angles, thus avoiding any time-dependent variations of the
                                observational conditions. An additional Super-Resolution Channel (SRC)
                                a framing device will yield nested images in the metre-resolution range
                                for detailed photogeologic studies. The spatial resolution from the
                                nominal periapsis altitude of 250 km will be 10 m px 1, with an image
                                swath of 53 km, for the HRSC and 2.3 m px 1 for the SRC.
                                During the mission's nominal operational lifetime of 1 martian year
                                (2 Earth years) and assuming an average HRSC data transfer share of 40%,
                                it will be possible to cover at least 50% of the martian surface at
                                a spatial resolution of 15 m px 1. More than 70% of the surface
                                can be observed

PROCESSING_LEVEL_ID           RELEASE_ID
REVISION_ID

/* TIME DATA ELEMENTS */
SPACECRAFT_CLOCK_START_TIME  SPACECRAFT_CLOCK_STOP_TIME
START_TIME                    STOP_TIME
...
OBJECT
INTERCHANGE_FORMAT            LINES
LINE_PREFIX_BYTES             = 68
LINE_SAMPLES                   = 5176
SAMPLE_TYPE                    = MSB_INTEGER
SAMPLE_BITS                    = 16
BANDS                          = 1
BAND_STORAGE_TYPE             = BAND_SEQUENTIAL
MAXIMUM                        = 206
MEAN                           = 79.8813
MINIMUM                        = 23
STANDARD_DEVIATION            = 23.3757
END_OBJECT
    
```

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PDS_VERSION_ID                = PDS3

/* FILE DATA ELEMENTS */
RECORD_TYPE                    = FIXED_LENGTH
RECORD_BYTES                   = 10420

FILE_RECORDS                   PDS_VERSION_ID                = PDS3
LABEL_RECORDS                 LABEL_REVISION_NOTE         = "2004-09-28: JZ/ESA Draft 1"
                                RECORD_TYPE                    = FIXED_LENGTH
                                RECORD_BYTES                   = 80
/* POINTERS TO DATA OBJECTS */
                                RELEASE_ID                     = 0001
                                REVISION_ID                    = 0000
^IMAGE_HEADER                 OBJECT                         = INSTRUMENT
^IMAGE                         INSTRUMENT_HOST_ID           = MEX
                                INSTRUMENT_ID                  = HRSC

/* IDENTIFICATION DATA 1 */
OBJECT                         = INSTRUMENT_INFORMATION
FILE_NAME                      INSTRUMENT_NAME             = "HIGH RESOLUTION STEREO CAMERA"
DATA_SET_ID                    INSTRUMENT_TYPE             = "CCD CAMERA"
DETECTOR_ID                    INSTRUMENT_DESC              = ""
...
                                Instrument Overview
                                =====
                                The High Resolution Stereo Camera (HRSC), originally developed for the
                                Russian-led Mars-96 mission, was selected as part of the Orbiter
                                payload for ESA's Mars Express mission. The HRSC is a pushbroom
                                scanning instrument with nine CCD line detectors mounted in parallel
                                in the focal plane. Its unique feature is the ability to obtain
                                near simultaneous imaging data of a specific site at high resolution

/* TIME DATA ELEMENTS */
SPACECRAFT_CLOCK_START        SPACECRAFT_CLOCK_STOP
START_TIME                    STOP_TIME
...
OBJECT                         INTERCHANGE_FORMAT
                                LINES
                                LINE_PREFIX_BYTES
                                LINE_SAMPLES
                                SAMPLE_TYPE
                                SAMPLE_BITS
                                BANDS
                                BAND_STORAGE_TYPE
                                MAXIMUM
                                MEAN
                                MINIMUM
                                STANDARD_DEVIATION
END_OBJECT
    
```



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```

PDS_VERSION_ID          = PDS3

/* FILE DATA ELEMENTS */
RECORD_TYPE             = FIXED_LENGTH
RECORD_BYTES            = 10420
FILE_RECORDS            = 1
LABEL_RECORDS           = 1

/* POINTERS TO DATA OBJECTS */
^IMAGE_HEADER           = IMAGE_HEADER
^IMAGE                   = IMAGE

/* IDENTIFICATION DATA 1 */
FILE_NAME                = FILE_NAME
DATA_SET_ID              = DATA_SET_ID
DETECTOR_ID              = DETECTOR_ID
...
PROCESSING_LEVEL_ID     = PROCESSING_LEVEL_ID
RELEASE_ID               = RELEASE_ID
REVISION_ID              = REVISION_ID

/* TIME DATA ELEMENTS */
SPACECRAFT_CLOCK_START = SPACECRAFT_CLOCK_START
SPACECRAFT_CLOCK_STOP  = SPACECRAFT_CLOCK_STOP
START_TIME               = START_TIME
STOP_TIME                = STOP_TIME
...
OBJECT                   = OBJECT
INTERCHANGE_FORMAT      = INTERCHANGE_FORMAT
LINES                    = LINES
LINE_PREFIX_BYTES       = LINE_PREFIX_BYTES
LINE_SAMPLES            = LINE_SAMPLES
SAMPLE_TYPE              = SAMPLE_TYPE
SAMPLE_BITS              = SAMPLE_BITS
BANDS                    = BANDS
BAND_STORAGE_TYPE       = BAND_STORAGE_TYPE
MAXIMUM                  = MAXIMUM
MEAN                     = MEAN
MINIMUM                  = MINIMUM
STANDARD_DEVIATION      = STANDARD_DEVIATION
END_OBJECT
    
```

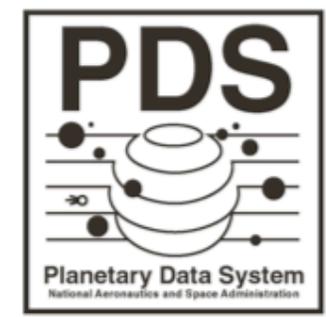
PDS_VERSION_ID
LABEL_RECORDS
RECORD_TYPE
RECORD_BYTES
RELEASE_ID
REVISION_ID
INSTRUMENT_ID
INSTRUMENT_NAME
OBJECT
INSTRUMENT_ID
INSTRUMENT_NAME
INSTRUMENT_NAME
Instrument
The High Resolution
Russian-language
payload for
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Up to hi
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INDEX
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AREA

JPL D-7669, Part 2

Planetary Data System Standards Reference

February 1, 2006
Version 3.7



Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

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PDS_VERSION_ID          = PDS3

/* FILE DATA ELEMENTS */
RECORD_TYPE             = FIXED_LENGTH
RECORD_BYTES            = 10420
FILE_RECORDS            =
LABEL_RECORDS           =

/* POINTERS TO DATA OBJECTS */
^IMAGE_HEADER           =
^IMAGE                   =

/* IDENTIFICATION DATA ELEMENTS */
FILE_NAME                =
DATA_SET_ID              =
DETECTOR_ID              =
...
PROCESSING_LEVEL_ID     =
RELEASE_ID               =
REVISION_ID              =

/* TIME DATA ELEMENTS */
SPACECRAFT_CLOCK_START =
SPACECRAFT_CLOCK_STOP  =
START_TIME               =
STOP_TIME                =
...
OBJECT                   =
  INTERCHANGE_FORMAT     =
  LINES                   =
  LINE_PREFIX_BYTES      =
  LINE_SAMPLES           =
  SAMPLE_TYPE            =
  SAMPLE_BITS            =
  BANDS                   =
  BAND_STORAGE_TYPE     =
  MAXIMUM                 =
  MEAN                   =
  MINIMUM                =
  STANDARD_DEVIATION     =
END_OBJECT
    
```

V6 MGISO009-03-01 ELEMENT DEFINITIONS		
AVERAGE_INCLINATION	[PDS-GEOM-SIGN]	REAL <exp>
The average_inclination element provides the value of the angle of inclination of the predicted orbit with respect to the xy-plane of the J2000 coordinate system.		
AVERAGE_ORBIT_PERIHELION_TIME	[PDS-GEOM-SIGN]	REAL
The average_orbit_perihelion_time element provides the value of the perihelion time of the predicted orbit. This time is based on the elements used to generate the orbital ephemeris for the current mapping pass. It represents an average over the orbit cycle, and is not the result of post-orbit navigation solutions. The current orbit elements are copied from the orbit header file of the ALT-RDR type, or, if unavailable, from the orbit header file of the C-RDR.		
AVERAGE_PERTURBATION_ARGUMENT	[PDS-GEOM-SIGN]	REAL <exp>
The average_perturbation_argument element provides the value of the angle in the plane of the predicted orbit from the ascending node in the xy-plane of the J2000 coordinate system to the perihelion.		
AVERAGE_PLANETARY_RADIUS	[PDS-GEOM-SIGN]	REAL <exp>
The average_planetary_radius element provides the value of the planetary radius of the radiometer target, used to compare radiometric, longitudinal, latitude, and albedo surface temperature and atmospheric composition to surface emissivity.		
AVERAGE_SEMIMAJOR_AXIS	[PDS-GEOM-SIGN]	REAL <exp>
The average_semimajor_axis element provides the value of the semi-major axis of the predicted orbit.		
AXES		INTEGER(1,4)
The axes element identifies the number of axes or dimensions of an array or cube data object.		
AXIS_INTERVAL		CONTEXT DEPENDENT
The axis_interval element identifies the spacing of value(s) for an ordered sequence of regularly sampled data objects along a defined axis. For example, a spectrum measured in the 0.4 to 3.5 micrometer spectral region at 0.1 micrometer intervals, but whose values are stored in descending order in an ARRAY object would have an axis_interval = 0.1. For ARRAY objects with more than 1 axis, a sequence of values is used to identify the axis_interval associated with each axis_name.		
AXIS_ITEMS		INTEGER(1,4)
The axis_items element provides the dimension(s) of the axes of an array data object. For arrays with more than 1 dimension, this element provides a sequence of values corresponding to the number of axes specified. The rightmost item in the sequence corresponds to the most rapidly varying axis, by default.		
AXIS_NAME		CHARACTER(30)
The axis_name element provides the sequence of axis names of a cube or array data object, and identifies the order in which the axes are stored in the object. By default, the first axis name in the sequence identifies the array dimension that varies the slowest, followed by the next slowest, and continuing so the rightmost axis name varies the fastest. The number of names specified must be equal to the value of the axes element. Note: For ISIS cube data objects, the most frequently varying axis is listed first, as defined, in the sequence.		
AXIS_ORDER_TYPE		CHARACTER
The axis_order_type element is used to identify the storage order for elements of a multidimensional ARRAY object. The default storage order for an ARRAY object provides the rightmost or last axis of a sequence varies the fastest. This is the ordering used in the C programming language and is equivalent to ROW_MAJOR storage order for FORTRAN elements with tables. Specifying an AXIS_ORDER_TYPE of FIRST_FASTEST may be used for ARRAYS that must be labeled and referenced in the reverse, and is the ordering used in the Fortran programming language.		
AXIS_START		CONTEXT DEPENDENT
The axis_start element identifies the starting value(s) for an ordered sequence of regularly sampled data objects. For example, a spectrum that was measured in the 0.4 to 3.5 micrometer spectral region at 0.1 micrometer intervals, but whose values are stored in descending order would have axis_start = 3.5 and		

PDS Resources

- <http://pds.jpl.nasa.gov>
- More information on the PDS and complete versions of the Standards Reference and Data Dictionary
- The Data Dictionary can be found here
- Supporting Software Tools can be downloaded here



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Planetary Data System: Home

PDS Data Dictionary Lookup

Welcome to the PDS Data Dictionary Lookup. We may search on Elements or Objects.

You may refine your search by entering a value in the search box.

Elements Objects

Search

Elements: A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Title - Elements	Description
a_sola_radius	The a_sola_radius element provides the value of the semimajor axis of...
abstract_desc	The ABSTRACT_DESC contains an abstract for the product of...
abstract_text	The abstract_text element provides a free-form...
accumulation_count	The ACCUMULATION_COUNT element identifies the number of measurement...
address_text	The address_text data element provides an unlimited-length...
airmass	The AIRMASS element defines the astronomical ratio 'airmass', which is...
algorithm_desc	The algorithm_desc element describes the data...
algorithm_name	The algorithm_name element provides (where applicable) the...
algorithm_version_id	The algorithm_version_id element identifies...
alias_name	The alias_name element provides an alternative term or...
alt_along_track_footprint_size	The alt_along_track_footprint_size element provides the...
alt_course_resolution	The alt_course_resolution element provides the value of...
alt_cross_track_footprint_size	The alt_cross_track_footprint_size element provides the...
alt_flag_group	Additional flag fields (unused)...
alt_flag_group	The ALT_FLAG_GROUP element identifies the following flag...
alt_footprint_latitude	The alt_footprint_latitude (VDF06) element provides the...
alt_footprint_longitude	The alt_footprint_longitude (VDF05) element provides the...
alt_footprints	The footprints element provides the value of the number of...
alt_gain_factor	The alt_gain_factor elements provide the values of the...
alt_particle_group	The alt_particle_group of the alt_footprint_longitude...
alt_sky_factor	The alt_sky_factor elements provide the values of the...
alt_spacescraft_position_vector	The alt_spacescraft_position_vector element provides the...
alt_spacescraft_velocity_vector	The alt_spacescraft_velocity_vector element provides the...

PDS Data Dictionary Lookup Detail

Column Name = alias_name

Element Name = alias_name
 Data Type = CHARACTER
 Unit = none
 SQL Value Type = VARCHAR2
 Minimum Column Value = 16K
 Maximum Column Value = 16K
 Minimum Length = 16A
 Maximum Length = 30
 Default =

Change Date = 1993-07-02
 Status Type = APPROVED
 Source Name = PDS DNM Crdts
 SQL Format = CHARACTER
 M, SQL Format = char(30)
 Display Format = JUSTLEFT
 Std Val Output Flag = N
 Text Flag = N
 Available Value Type =

Description

The alias_name element provides an alternative term or identifier for a data element or object.

Note: In the PDS, values for alias_name are accepted as input to the data system, but automatically changed into the approved term to which they relate.

No Standard Values exist for this Element.

General Classification

SYSTEM

System Classification

COMMON

Object Name Required

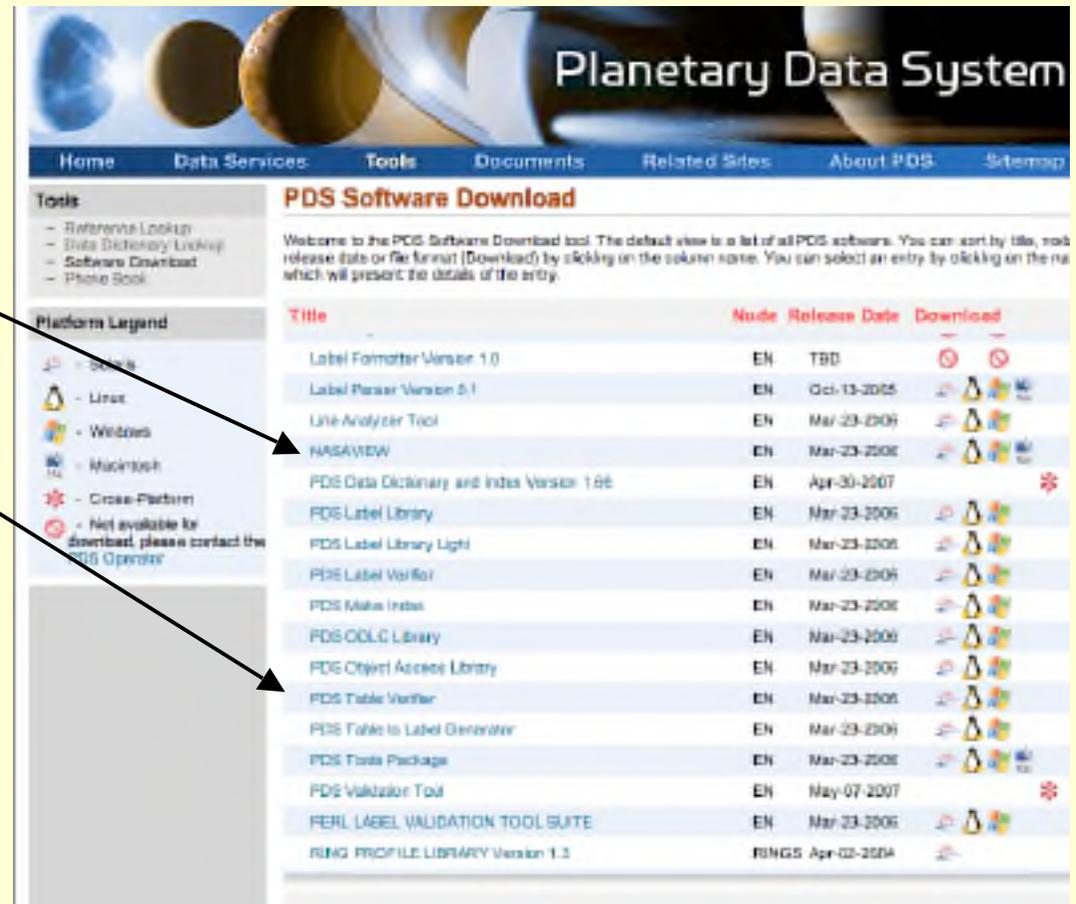
alias M

No Aliases exist for this Element.

No Forbidden Rule exists for this Element.

A Few PDS Tools

- <http://pds.jpl.nasa.gov>
- Go to the Tools menu
- Click on Software Download
- **NASA View**
 - A useful tool for visualising labels and simple small data products
- **PDS Table Verifier**
 - A tool for reading tables and ensuring they are correctly formatted



Planetary Data System

Home Data Services **Tools** Documents Related Sites About PDS Sitemap

Tools:

- Reference Lookup
- Data Dictionary Lookup
- **Software Download**
- Phone Book

Platform Legend

- Solaris
- Linux
- Windows
- Macintosh
- Cross-Platform
- Not available for download, please contact the PDS Operator

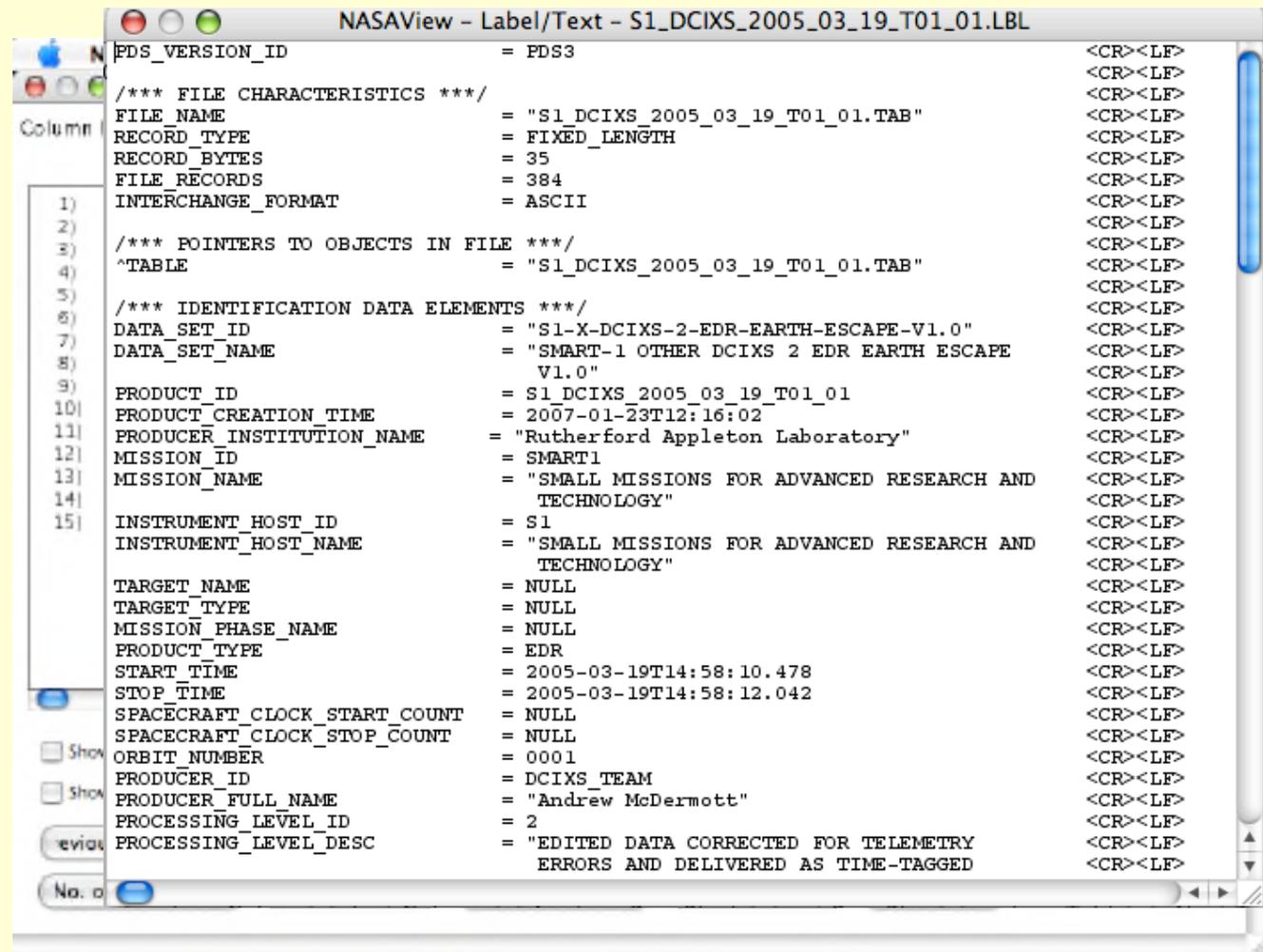
PDS Software Download

Welcome to the PDS Software Download tool. The default view is a list of all PDS softwares. You can sort by title, node, release date or file format (Download) by clicking on the column name. You can select an entry by clicking on the name which will present the details of the entry.

Title	Node	Release Date	Download
Label Formatter Version 1.0	EN	TBD	
Label Parser Version 2.1	EN	Oct-13-2005	
Line Analyzer Tool	EN	Mar-23-2006	
NASAView	EN	Mar-23-2006	
PDS Data Dictionary and Index Version 1.0b	EN	Apr-30-2007	
PDS Label Library	EN	Mar-23-2006	
PDS Label Library Light	EN	Mar-23-2006	
PDS Label Workflow	EN	Mar-23-2006	
PDS Make Index	EN	Mar-23-2006	
PDS ODLG Library	EN	Mar-23-2006	
PDS Object Access Library	EN	Mar-23-2006	
PDS Table Verifier	EN	Mar-23-2006	
PDS Table to Label Generator	EN	Mar-23-2006	
PDS Tools Package	EN	Mar-23-2006	
PDS Validator Tool	EN	May-07-2007	
PERL LABEL VALIDATION TOOL SUITE	EN	Mar-23-2006	
RING PROFILE LIBRARY Version 1.3	RING5	Apr-02-2004	

NASA View Example

- **NASAVIEW can open simple PDS compliant data**
- **Click on File -> Open Object and select the product you want to see**
- **You can also click on Label -> Full Label to view the complete PDS label with full information on the data product being viewed**

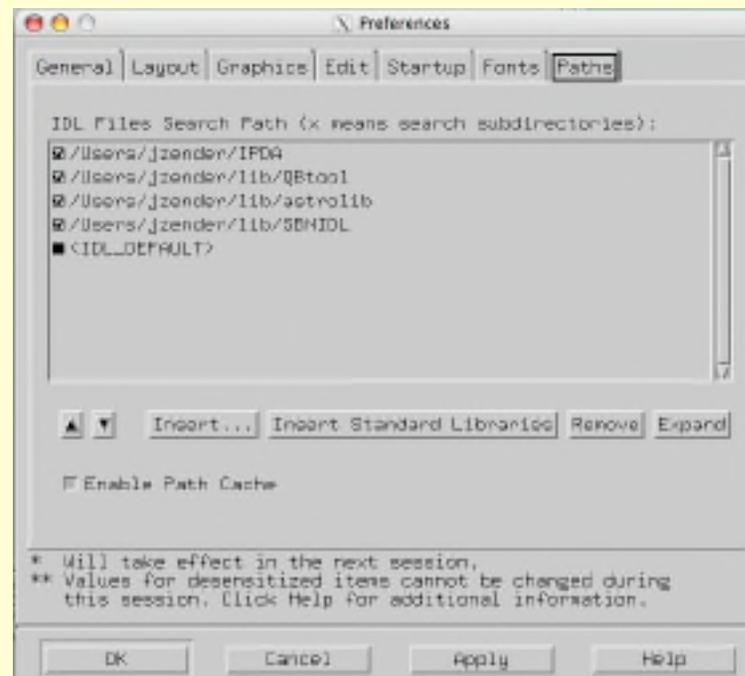


```

NASAVIEW - Label/Text - S1_DCIXS_2005_03_19_T01_01.LBL
PDS_VERSION_ID          = PDS3
<CR><LF>
<CR><LF>
/**** FILE CHARACTERISTICS ****/
<CR><LF>
FILE_NAME                = "S1_DCIXS_2005_03_19_T01_01.TAB"
<CR><LF>
RECORD_TYPE              = FIXED_LENGTH
<CR><LF>
RECORD_BYTES             = 35
<CR><LF>
FILE_RECORDS             = 384
<CR><LF>
INTERCHANGE_FORMAT      = ASCII
<CR><LF>
/**** POINTERS TO OBJECTS IN FILE ****/
<CR><LF>
^TABLE                   = "S1_DCIXS_2005_03_19_T01_01.TAB"
<CR><LF>
/**** IDENTIFICATION DATA ELEMENTS ****/
<CR><LF>
DATA_SET_ID              = "S1-X-DCIXS-2-EDR-EARTH-ESCAPE-V1.0"
<CR><LF>
DATA_SET_NAME            = "SMART-1 OTHER DCIXS 2 EDR EARTH ESCAPE
V1.0"
<CR><LF>
PRODUCT_ID               = S1_DCIXS_2005_03_19_T01_01
<CR><LF>
PRODUCT_CREATION_TIME    = 2007-01-23T12:16:02
<CR><LF>
PRODUCER_INSTITUTION_NAME = "Rutherford Appleton Laboratory"
<CR><LF>
MISSION_ID               = SMART1
<CR><LF>
MISSION_NAME             = "SMALL MISSIONS FOR ADVANCED RESEARCH AND
TECHNOLOGY"
<CR><LF>
INSTRUMENT_HOST_ID      = S1
<CR><LF>
INSTRUMENT_HOST_NAME    = "SMALL MISSIONS FOR ADVANCED RESEARCH AND
TECHNOLOGY"
<CR><LF>
TARGET_NAME              = NULL
<CR><LF>
TARGET_TYPE              = NULL
<CR><LF>
MISSION_PHASE_NAME       = NULL
<CR><LF>
PRODUCT_TYPE             = EDR
<CR><LF>
START_TIME               = 2005-03-19T14:58:10.478
<CR><LF>
STOP_TIME                = 2005-03-19T14:58:12.042
<CR><LF>
SPACECRAFT_CLOCK_START_COUNT = NULL
<CR><LF>
SPACECRAFT_CLOCK_STOP_COUNT = NULL
<CR><LF>
ORBIT_NUMBER             = 0001
<CR><LF>
PRODUCER_ID              = DCIXS_TEAM
<CR><LF>
PRODUCER_FULL_NAME       = "Andrew McDermott"
<CR><LF>
PROCESSING_LEVEL_ID      = 2
<CR><LF>
PROCESSING_LEVEL_DESC    = "EDITED DATA CORRECTED FOR TELEMETRY
ERRORS AND DELIVERED AS TIME-TAGGED"
<CR><LF>
  
```

SBN IDL

- **SBNIDL is an IDL package that is maintained and distributed by PDS's Small Bodies Nodes. It allows most PDS compliant products to be read in to the IDL software.**
- **To retrieve the latest fully tested release or previous releases, check out the page <http://pdssbn.astro.umd.edu/nodehtml/software.shtml>**
- **Within your IDLDE, select the File->Preferences and check that you path contains the SBNIDL.**



Planetary Science Archive

Users Quick Guide

Classical User Interface

By J. Zender and D. J. Heather
8 June 2007, Version 2.0

Step 1

- a) Open the PSA www home page at <http://www.rssd.esa.int/psa>
- b) Select “Classical User Interface” on your left or in the yellow box



Step 2

- a) You must click ‘Trust’ to accept the certificate and run the PSA applet.

Step 3

The “PSA Browser Start Page” will appear on your screen and will automatically start to load

Login/Registering

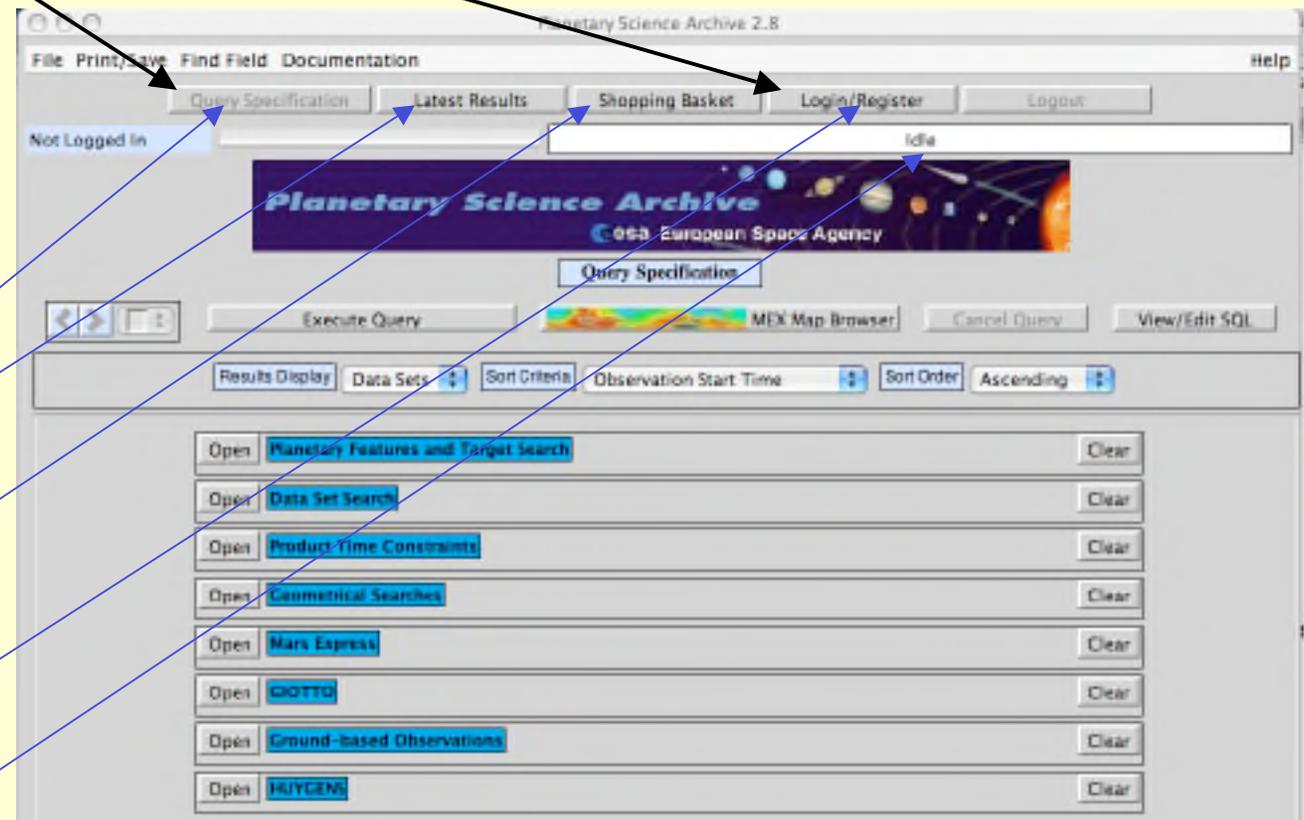
Step 4

- Select the “Login/Register” View and login or request new user id.
- After having logged in, select the “Query Specification” View

The Planetary Science Archive (PSA) is structured in 5 different ‘views’,

- The “Query Specification” view, that allows you to define your query against the database
- The “Latest Result” view, that allows you to view the result of your previous query.
- The “Shopping Basket” view, that allows you to select your items of interest and order them later (free of charge).
- The “Login/Register”, that you should know by now (if not, please register to have the full functionality of the PSA)
- The “Request Monitor” view to monitor your requests

By clicking/selecting the individual views you can ‘walk around’ in the PSA.



Define Your Query

Step 3

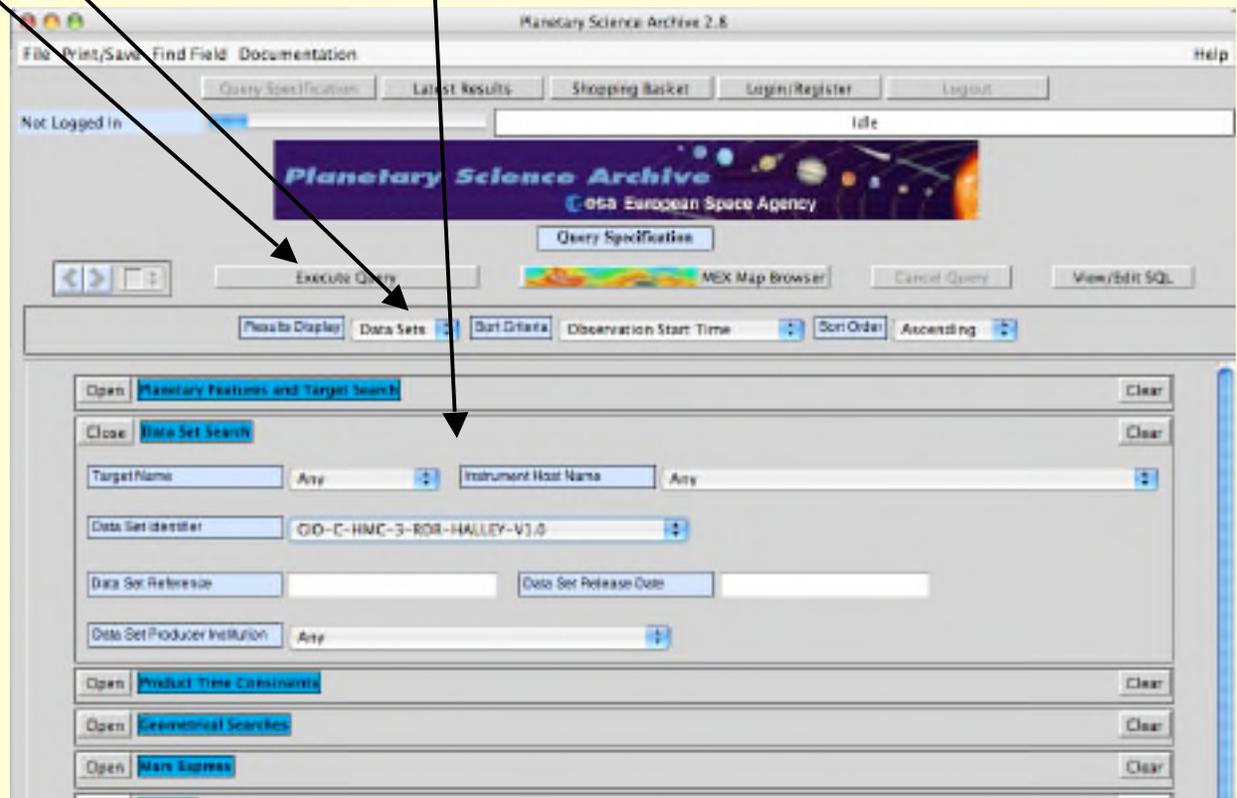
- Open a “Query Panel” and select your search criteria
- Select your “Result Display” view options
- Execute the query

Opening several “Query Panels” will logically-AND the constraints within the individual query panels.

Not opening any “Query Panel” will result in the display of all available datasets

The PSA contains data conform to the Planetary Data System Standard. A ‘Data Product’ is e.g. a PDS-labeled file containing an image. A ‘Data Set’ is a full directory hierarchy containing documentation, catalogues, indexes, data products and any other information.

In the “Result Display” view options, you can select to see Data Products, Data Sets or both in the “Result Panel”



Browse your Results and Select

Step 4

- a) If you want individual data products, 'view' the products by clicking on 'xxx Products'
- b) If you want to download the whole data set, 'mark' the dataset as selected and move it to the Shopping Basket

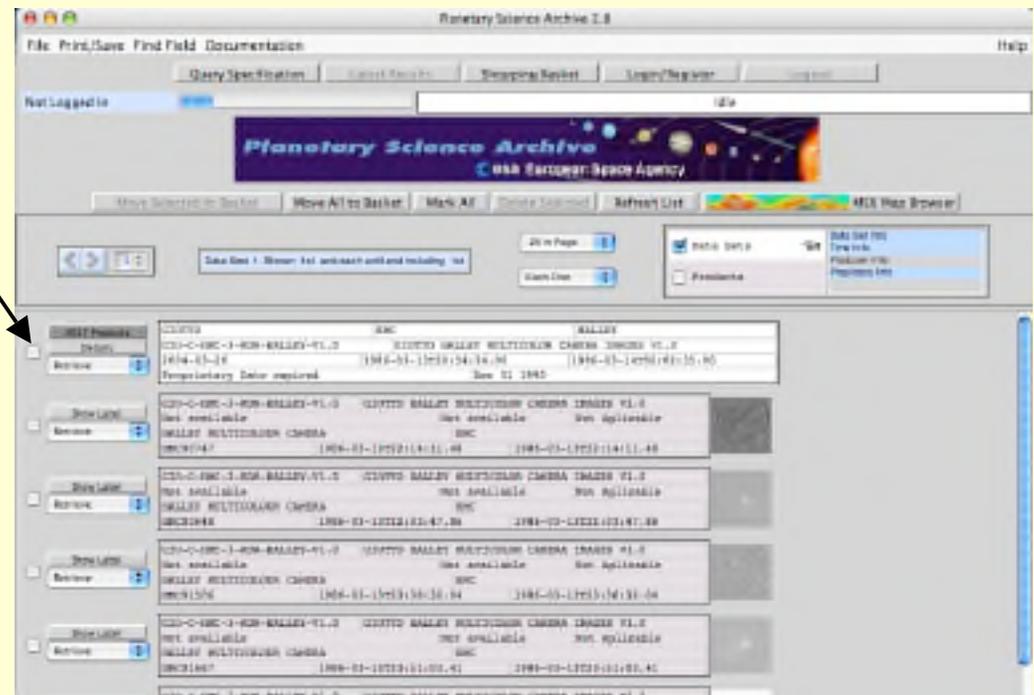
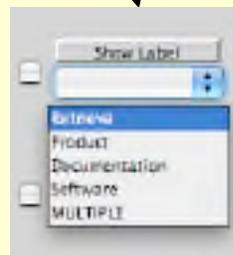


Step 4:

- c) 'mark' the data products that you want to download as selected and move them into the 'Shopping' Basket

Step 4 Alternative:

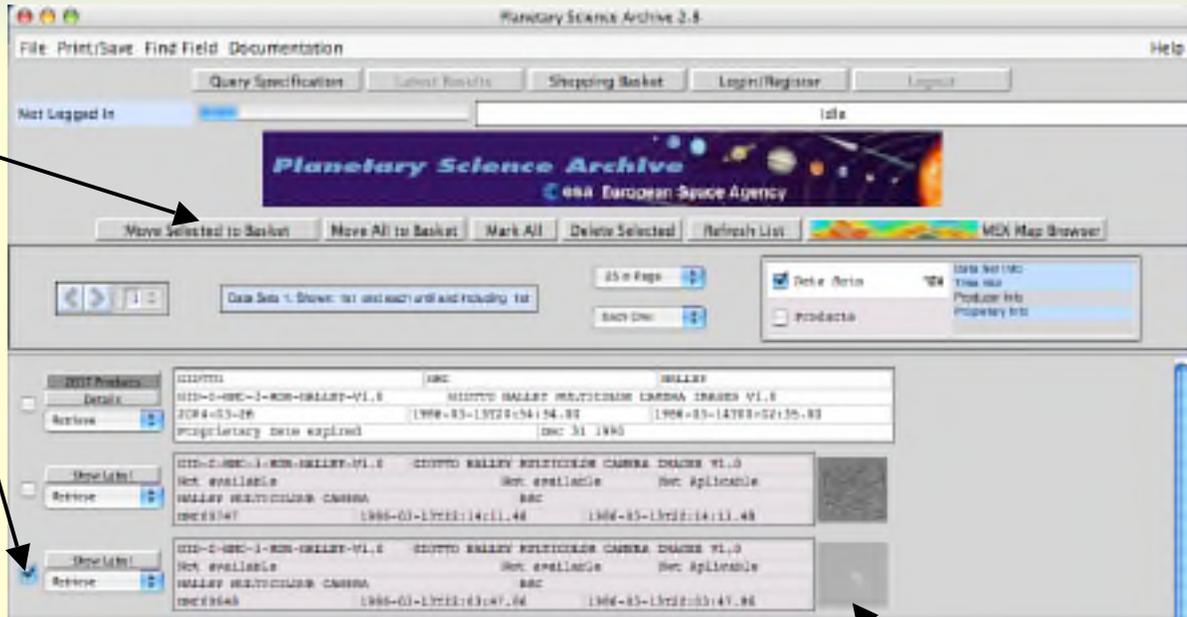
You can download a Data Products, associated software and documentation directly, using the 'Retrieve' menu on the left side of each Data Product



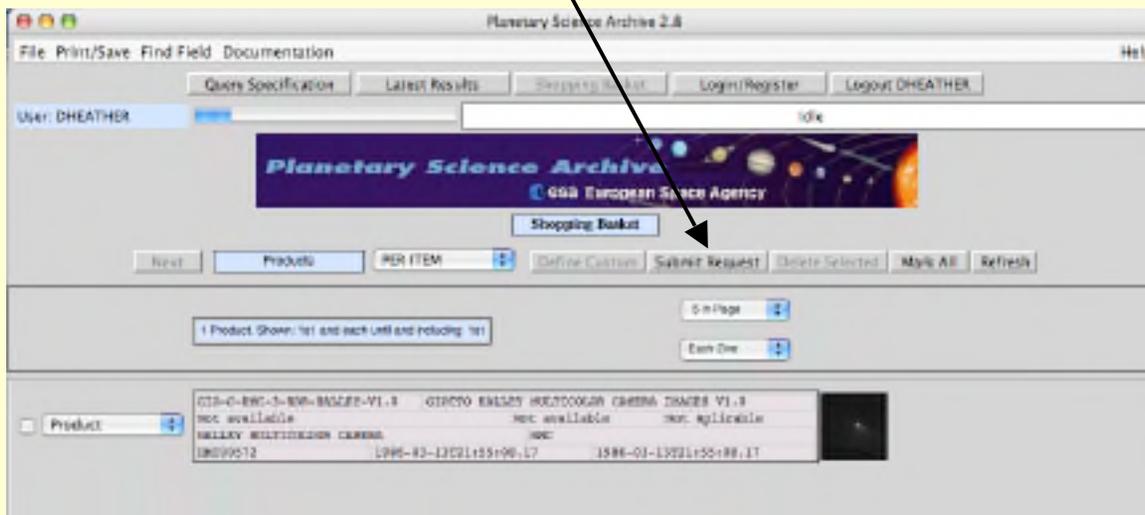
Order via the Shopping Basket

Step 5:

- 'mark' the Data Product that you want to download and move it to the basket
- You can then open the Shopping Basket window
- When you are happy with your selections, click on 'Submit Request'



To have a somewhat larger view of the data product, click on the icon and it will be displayed in a separate window.



Downloading / Retrieving the Data

Step 6:

- a) 'select' your data packing option
- b) 'Confirm' and wait for an email that will inform you on the ftp retrieval of the data you have selected

Confirmation of Request Page

Request Summary

User ID	DHEATHER
Number of Items	1 Product
Estimated Total Product Size, Mb	0.29
FTP Download Time	Perform Estimation ----- Not Yet Calculated -----

Tar Option

- compressed tar (one file)
- zip (one file)
- tar (one file)
- no tar (files loose)

Confirm Abort

```

To: dheather@rssd.esa.int

Dear Planetary Science Archive User,

Your retrieval request has been successfully processed.

Please follow the instructions below to access/browse the
ftp area where your data is located:

ftp psa.ssac.esa.int
anonymous
<your email address as password>
prompt
cd /pub/dheather
binary
dir

Alternatively, you can also access your files directly from
your browser at:
ftp://psa.ssac.esa.int/pub/dheather/DHEATHER6231.zip
where you will be able to see some of the products on-line.

Your data will remain at this location for 7 days.

The Planetary Science Archive (PSA) can be accessed at
http://www.rssd.esa.int/psa

You can also get more information about the PSA project by
accessing the PSA web pages at the same address.

If you have any comments or questions, please contact the PSA HelpDesk
at the following email address:
psahelp@rssd.esa.int

Regards,

The PSA Team
    
```

Your email confirmation contains all you need to know to download the data within the next week from the PSA server.

Planetary Science Archive

Users Quick Guide

Map Based User Interface

By J. Zender and D. J. Heather

08 June 2007, Version 1.1

- Step 1
- Open the PSA www home page at <http://www.rssd.esa.int/psa>
 - Select “Map-based User Interface” on your left or in the yellow box

- Step 2
- The “PSA Browser Start Page” will appear on your screen. Click ‘Start PSA Map’ to initiate the applet.

Welcome to the Planetary Science Archive

... data access via ...

Dataset Browser Interface	Classical User Interface	Map-based Interface
User Guide	User Guide	User Guide
Notification Management User Guide		

Please direct your comments to [our support desk](#).

25 April 2007: Release of data from the Huygens Data Trajectory Working Group (DTWG)

Announcement of the Mars Express Data Workshops

11-15 June 2007: HRSC & OMEGA, ESAC, Villafraanca del Castillo (Madrid, Spain)
 1-5 October 2007: ASPERA, IRS, SPICAM ESAC, Villafraanca del Castillo (Madrid, Spain)
 For more information and registration, please contact the workshop pages.

Announcements		History (2004, 2005)	
Apr 2007	Next data deliveries for ASPERA (MPI and ELS) instrument on Mars Express. (in progress)	21 Apr 2007	Cassini-Huygens: release of the data from the Huygens Data Trajectory Working Group (DTWG)
Apr 2007	Next data deliveries for SPICAM on Mars Express.	21 March 2007	Cassini-Huygens: release of the Huygens Surface Science Package (SSP) data
Dec1998-Feb-2007	Rosetta, Peer Review of first data innovation	7 Feb 2007	OMEGA data update up to orbit 1899

PSA version 2.8

Start PSA MAP

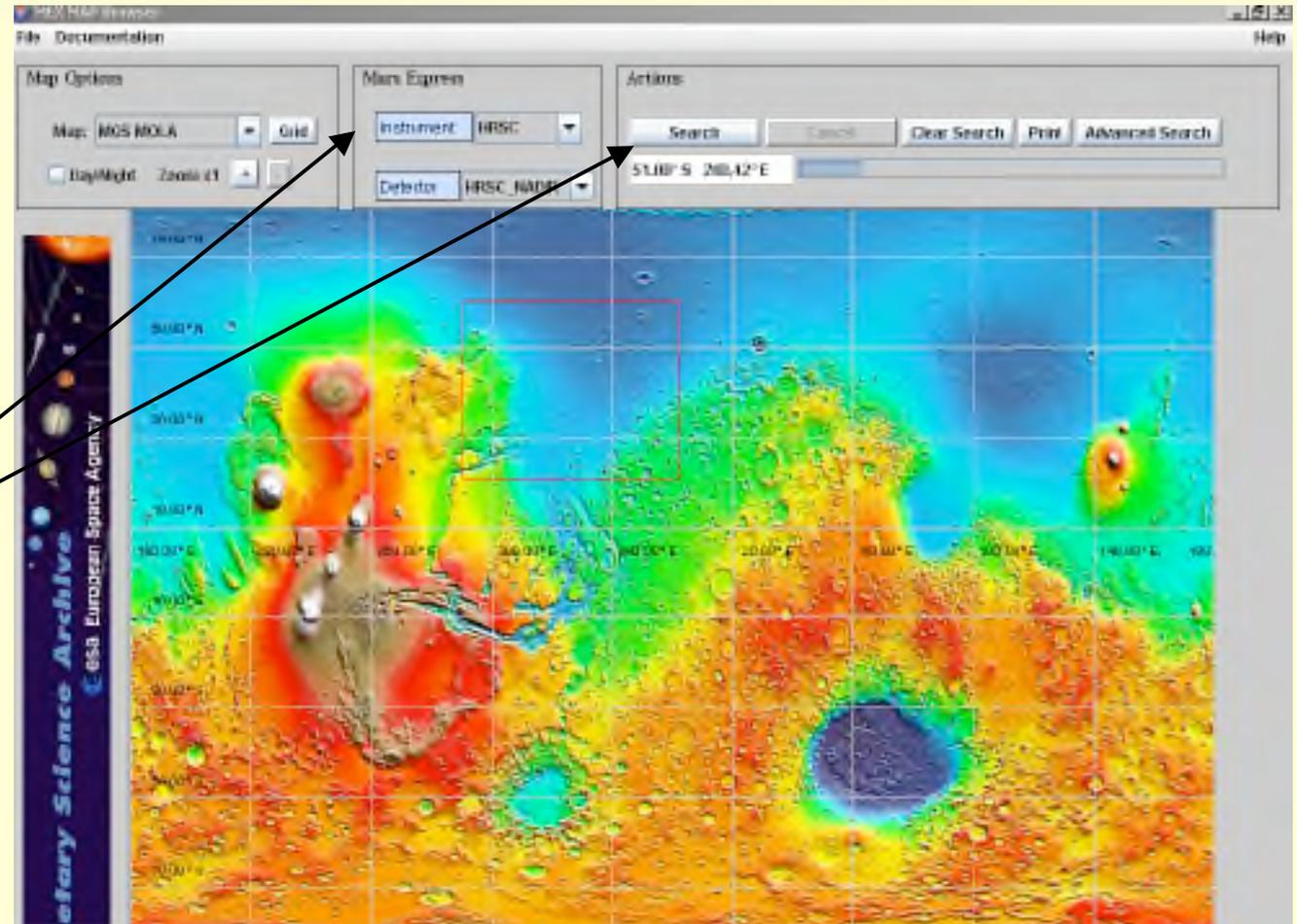
Set the search applet (URL/Device)

(Check the Full list of options for running the PSA)

Please press

Close of the window will terminate the PSA browser and work may be lost.

Send your questions about the Planetary Science Archive to [PSA Helpdesk](#)

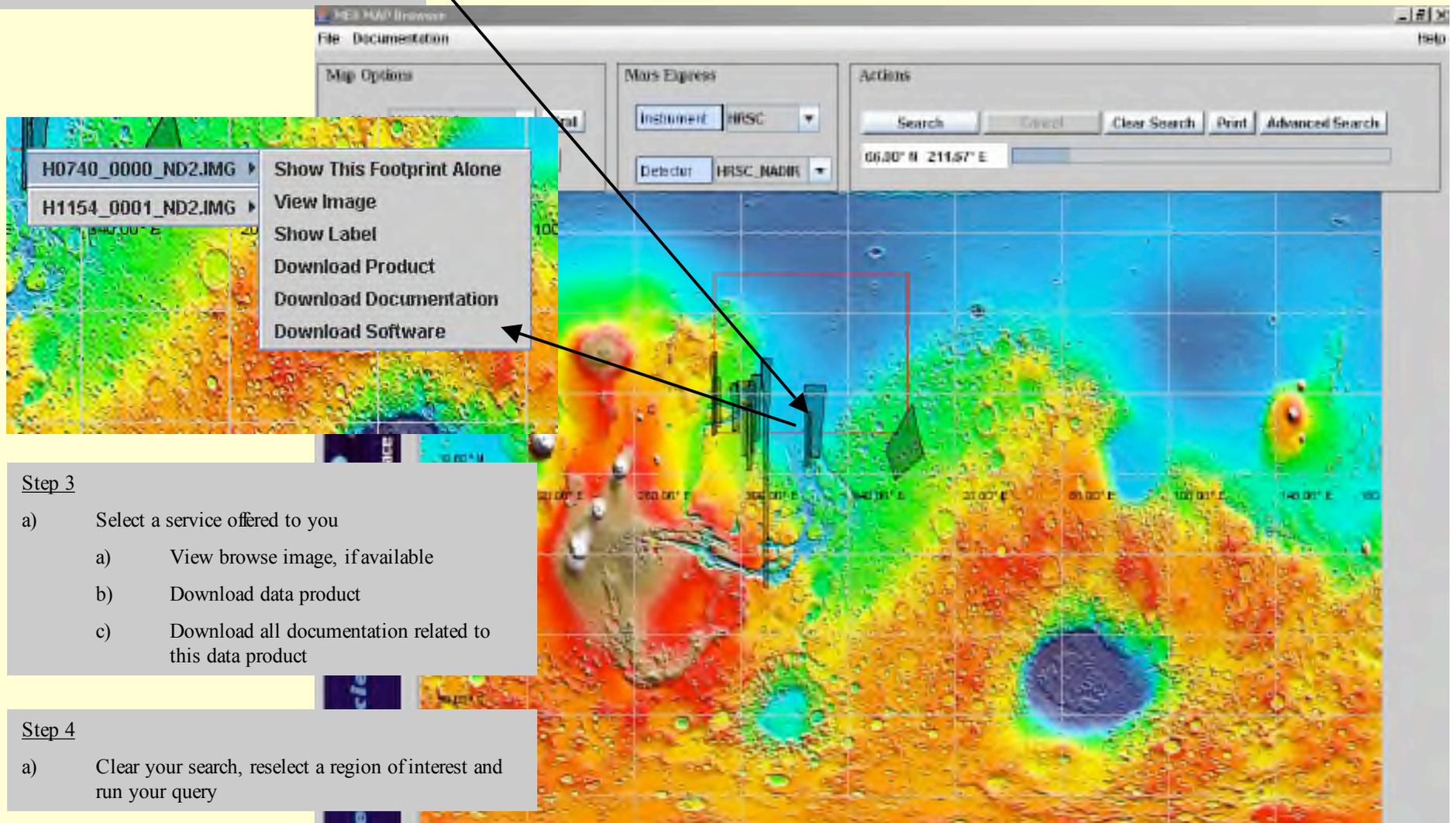


Step 1

- a) Define a Region of Interest (ROI) by marking an area on the map with your mouse.
- b) A red-colored rectangle will be visualize your ROI
- c) Select your Instrument of choice and, if required, an instrument detector
- d) Execute the query

Step 2

- a) Analyze the footprint resulting from your query
- b) Select a footprint by moving the mouse over it and pressing a mouse button



Step 3

- a) Select a service offered to you
 - a) View browse image, if available
 - b) Download data product
 - c) Download all documentation related to this data product

Step 4

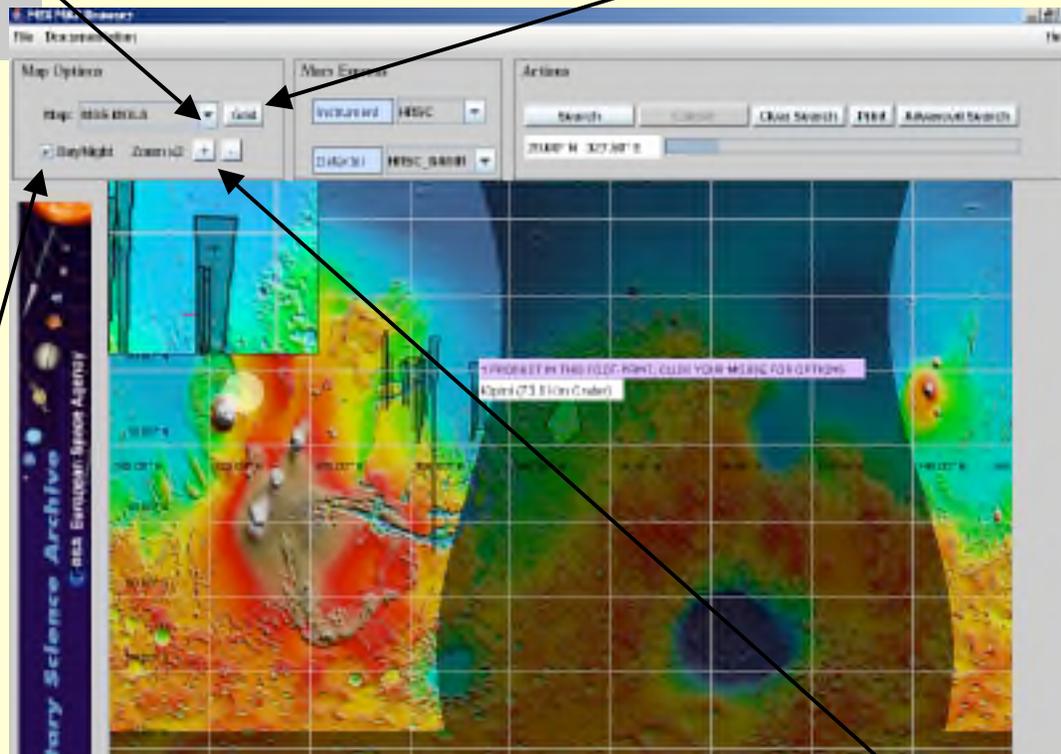
- a) Clear your search, reselect a region of interest and run your query

Options

Option 1: Background map

- Select between several background maps
- Load an own map via the FILE entry of the Main Menu.

Option 4: visualize a grid on top of your background image



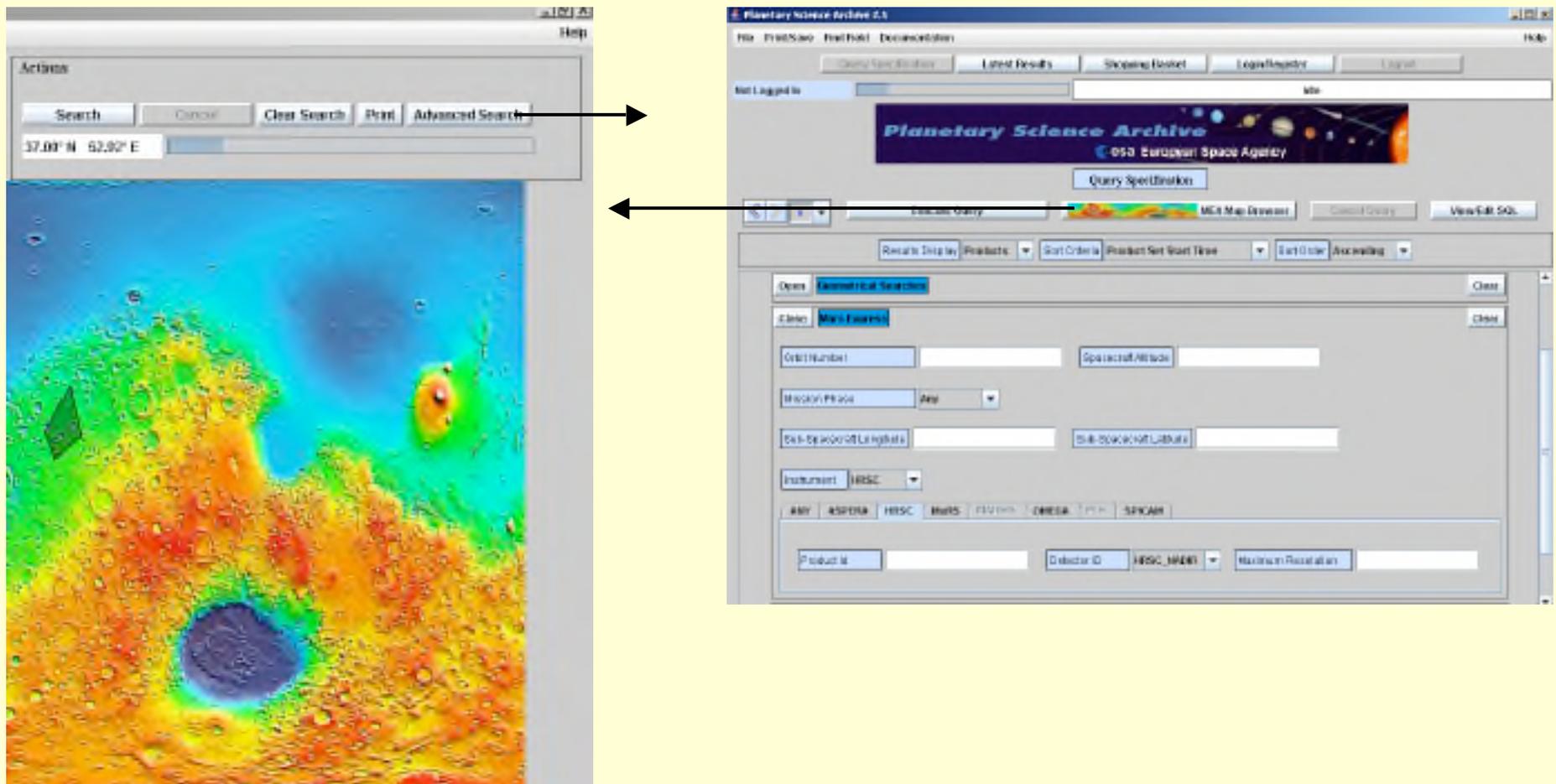
Option 2: visualize day night boundary and the intersection of the Sun to the center of Mars.

Option 3: display a zoom window that allows you to better select individual data products

Map-based Interface vs Advanced Interface

Switch between the map-based interface to the advanced interface of the PSA and vice versa.

The results you receive from your queries from within the advanced interface are taken over to the map-based interface and displayed there in case of Mars data for which geometry information is existing (HRSC, OMEGA) is available. This gives you the full flexibility of the advanced interface coupled to the visual power of the map-based concept.



The image displays two screenshots of the Planetary Science Archive (PSA) interface, illustrating the transition between a map-based view and an advanced search interface.

Left Screenshot (Map-based Interface): Shows a map of Mars with a color-coded topographic relief. The map is centered on 37.00° N, 62.92° E. The interface includes a search bar with buttons for "Search", "Cancel", "Clear Search", "Print", and "Advanced Search".

Right Screenshot (Advanced Interface): Shows the "Planetary Science Archive 2.1" search interface. It features a search bar, a "Query SpectraLink" button, and a "Map Map Download" button. Below the search bar, there are various filters and options, including "Results Display" (Products), "Sort Criteria" (Product Set Start Time), and "Sort Order" (Ascending). The interface also includes a "Data" section with fields for "Orbit Number", "Spectral/Altitude", "Mission Phase", "Dis-Spacecraft Longitude", and "Dis-Spacecraft Latitude". The "Instrument" dropdown is set to "HRSC".

Two black arrows indicate the transition: one points from the "Advanced Search" button in the map-based interface to the advanced search interface, and another points from the "Map Map Download" button in the advanced interface back to the map-based interface.

Planetary Science Archive

Users Quick Guide

PSA Data Set Browser Interface

By J. Zender and D. J. Heather
08 June 2007, Version 1.1

Overview

- **Direct Browsing of Datasets**
- **Data Downloads**
- **Accessing the PSA archive with an FTP-client**
- **Automatic Download Scripts / Mirror Scripts**
- **Your Comments**

Step 1

- a) Open the PSA www home page at <http://www.rssd.esa.int/psa>
- b) Select “Data set Browser Interface” on your left or in the yellow box

The screenshot shows the Planetary Science Archive website. The left sidebar contains a menu with the following items:

- Data Access
 - Classical User Interface
 - Map-based User Interface
 - Dataset Browser Interface
- Services and Help
 - FAQ
 - PSA Home Page
 - PSA Quick Guide
 - Archival Data Export
 - Workshops
- Mission Related
 - Giotto
 - Beppi-Columbo
 - Huygens
 - Venus Express
 - Mars Express
 - Rosetta
- Restricted Items
 - Facilities
 - Document Portal
 - My Portal
- Restricted Access Login
 - User ID:
 - Pass:
 -
- Lost/Broken Password (?)
- Restricted Search (Guest)
 -
- Advanced Search
- Bookmarks
 - Make this my Home Page

The main content area features the heading "Welcome to the Planetary Science Archive" and a yellow box with the following options:

Dataset Browser Interface	Classical User Interface	Map-based Interface
User Guide	User Guide	User Guide
Notification Management User Guide		

Below the yellow box, there is a blue banner with the following text:

25 April 2007: Release of data from the Huygens Data Trajectory Working Group (DTWG)

Announcement of the Mars Express Data Workshops
 11-15 June 2007: HRSC & OMEGA, ESAC, Villafraanca del Castillo (Madrid, Spain)
 1-5 October 2007: ASPERA, PFS, SPICAM ESAC, Villafraanca del Castillo (Madrid, Spain)
 For more information and registration, please contact the workshop pages.

At the bottom, there are two tables:

Announcements	
Apr 2007	Next data deliveries for ASPERA (NPI and ELS) instrument on Mars Express. (in progress)
Apr 2007	Next data deliveries for SPICAM on Mars Express.
Dec/06-Feb-2007	Rosetta, Peer Review of first data submission.

History (2004, 2005)	
20 Apr 2007	Cassini-Huygens: release of the data from the Huygens Data Trajectory Working Group (DTWG)
20 March 2007	Cassini-Huygens: release of the Huygens Surface Science Package (SSP) data
7 Feb 2007	OMEGA data update up to orbit 1899

Direct Browsing of Datasets

- From the Dataset Browser entry page, select the instrument of interest.
- Only public datasets are available through this interface! So you will not find
 - Datasets before public release
 - Datasets in Peer Review

Welcome to the
Planetary Science Archive
Dataset Browser

The Dataset Browser offers experienced archive users the possibility to access the full dataset information in a quick and straightforward way. The datasets are accessed using the ftp protocol, it must however be noted that the PSA is not based on the typically known ftp servers. This will be transparent to most users. When using this service for batch download or as a mirror functionality, we would appreciate to get a quick note to [our support desk](#), to avoid performance problems that could affect other users. Only public available datasets will be accessible via this service.

You can directly access data from:

- Mars Express [\(please read and follow acknowledgement note\)](#)
 - [ASPERA3](#), Analyser of Space Plasmas and Energetic Atoms (PI: R. Lundin, IRF)
 - [HRSC](#), High/Super Resolution Stereo Camera (PI: G. Neukum, Freie Universität Berlin)
 - [OMEGA](#), Observatoire pour la Microbiologie, l'Eau, les Glaces et l'Activité (PI: J-P. Bibring, IAS Paris)
 - [SPICAM](#), Spectroscopy for Investigation of Characteristics of the Atmosphere of Mars (PI: J-L. Bertaux, Service d'Aéronomie/CNRS)
 - [MaRS](#), Mars Express Radio Science (PI: M. Pätzold, University of Cologne)
- Huygens [\(please read and follow acknowledgement note\)](#)
 - [DISR](#), Descent Imager Spectral Radiometer (PI: M. Tomasko, University of Arizona)
 - [DWE](#), Doppler Wind Experiment (PI: M. Bird, University of Bonn)
 - [GCMS](#), Gas Chromatograph Mass Spectrometer (PI: H. Niemann, NASA/GSFC)
 - [SSP](#), Surface Science Package (PI: J. Zarnecki, UK Open University)
 - [ACP](#), Aerosol Collector and Pyrolyzer (PI: G. Israel, Service d'Aéronomie/CNRS)
 - [HASI](#), Huygens Atmospheric Structure Instrument (PI: M. Fouchignoni, Observatory Paris-Meudon)
 - [Huygens Housekeeping Data](#) (ESOC/ESTEC, O. Witasse)
- Giotto
 - [DID](#), Dust Impact Detector System (PI: J.A.M. McDonnell)
 - [EPA](#), Energetic Particle Analyser
 - [GRE](#), Radio Science Experiment (PI: P. Edenhofer)

Data Download

- **When using a web browser, please insure to use an appropriate method to download your data,**
 - E.g. in MOZILLA the ‘Save Link Target As...’
- **Be aware that you download only the file selected,**
 - ...
 - Detached label files (e.g. LBL and DAT) need to be both downloaded to get the full data product!
 - Any linked files, .e.g. ^DESCRIPTION = “INSTRUMENT.PDF” will not be attached to the downloaded file!



Accessing the PSA archive with an FTP-client

- You will be able to connect to the PSA archive with any ftp client, e.g. ncftp, ftp, fuqu, etc
 - Using <ftp://psa.esac.esa.int/pub/mirror>
 - Or directly the mission related subpage <ftp://psa.esac.esa.int/pub/mirror/MARS-EXPRESS>

Automatic Download Scripts / Mirror Scripts

- You can use any automatic download script (mirror, etc) to recursively download the data on the PSA.
- Before installing a regular download scheme on your side (mirror, etc), please inform us by sending a short note to psahelp@rssd.esa.int. We will keep an eye on the load of network and server such that other users are not disturbed. In such cases, we will contact you and propose alternative time periods and options to download the data you are interested in.
- Be aware that the files that you see in your www-browser or your ftp-client are not the physical files, but a link into the PSA database system. When downloading data, the PSA server resolves the link on the fly and delivers the data back to you.
- When building mirror scripts, you can compare your data items against size or time with the ones on the PSA server.

Be careful when using automatic downloads, as the size of the datasets can be huge (several 100GBytes or larger)! Please contact the PSA Helpdesk beforehand.

Planetary Science Archive

Users Quick Guide

Notification Management

By J. Zender and D. J. Heather
08 June 2007, Version 1.1

Overview

- **Registration**
- **Notification Rules**
- **Notification via Email**
- **Comments and Suggestions**

Registration I

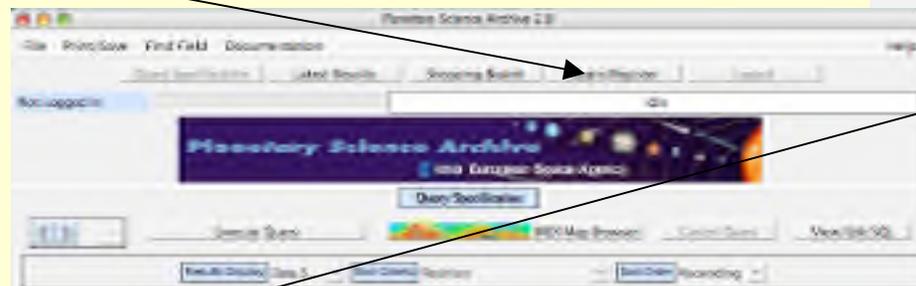
1. Goto Login Page



2. Login with your user id / password



3. Goto Login Page



4. Select 'Change Notification Setting'

Registration II

Select Add

View Return

Dismiss

Planetary Science Archive
 esa European Space Agency

Change Notification Setting

Mission: INTERNATIONAL ROSETTA MISSION
 Instrument Host: All
 Instrument: All

Add

Notification List:

Mission	Instrument Host	Instrument
MARS EXPRESS	MEX	HRSC
CASSINI-HUYGENS	HP	All
INTERNATIONAL ROSETT...	All	All

Delete

Dismiss

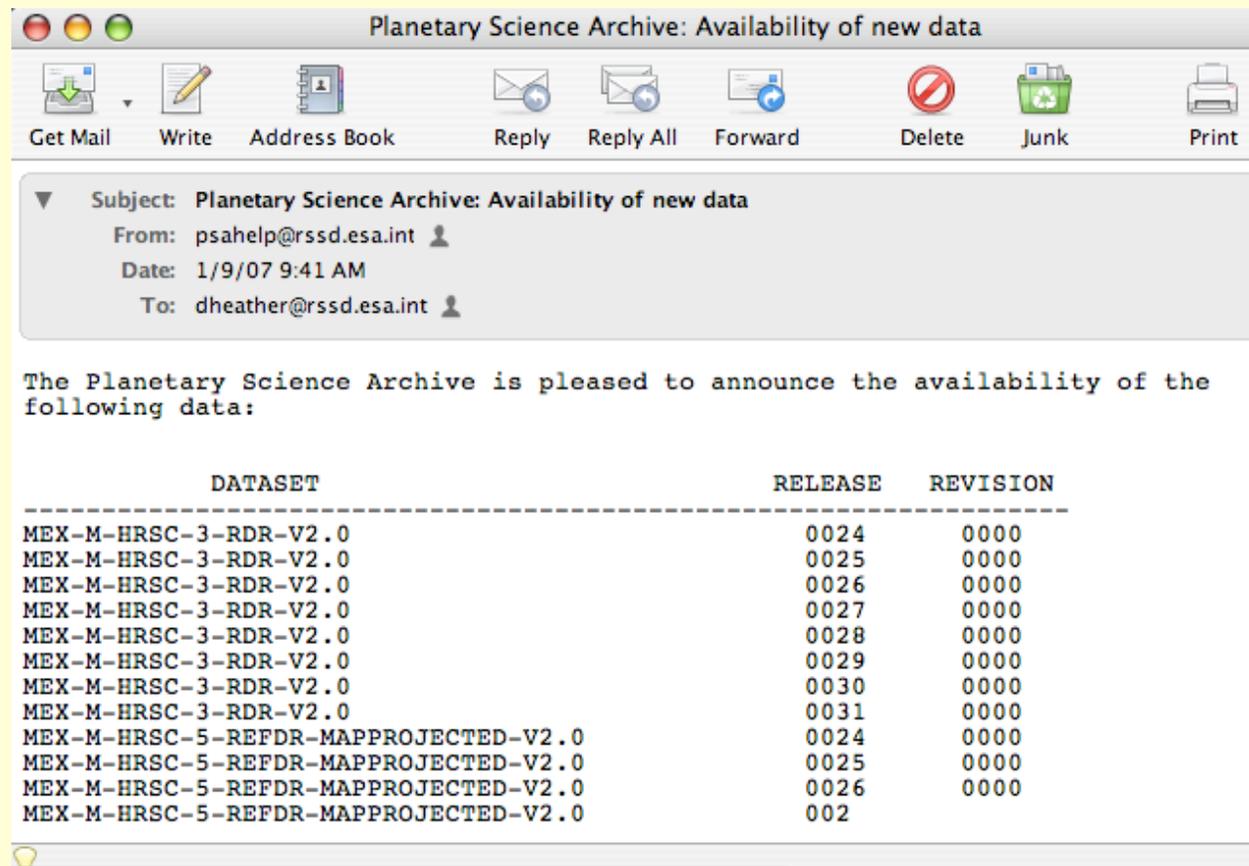
Notification Rules

- **Notification will be done shortly after**
 - A new dataset was ingested into the archive
 - A new dataset release was ingested into the archive
 - The ERRATA.TXT was modified, in other words an important piece of information about the dataset was made available.
- **Notification will be done using email service**
 - Ensure that your PSA account setting, especially your email address is correct
- **You will be informed on the following changes:**

Mission	Instrument Host (Spacecraft)	Instrument	Notification
ALL	ALL	ALL	You will be informed on any change in the archive.
SPECIFIC	ALL	ALL	You will be informed an any change relating to data for a specific mission.
SPECIFIC	SPECIFIC	ALL	You will be informed on any change relating to data obtained from a specific spacecraft.
SPECIFIC	SPECIFIC	SPECIFIC	You will be informed on any change relating to a specific instrument.

Notification via Email

Once you have registered, you will receive e-mails with announcements of the new data in the archive that you are interested in.



Planetary Science Archive: Availability of new data

Get Mail Write Address Book Reply Reply All Forward Delete Junk Print

Subject: Planetary Science Archive: Availability of new data
 From: psahelp@rssd.esa.int
 Date: 1/9/07 9:41 AM
 To: dheather@rssd.esa.int

The Planetary Science Archive is pleased to announce the availability of the following data:

DATASET	RELEASE	REVISION
MEX-M-HRSC-3-RDR-V2.0	0024	0000
MEX-M-HRSC-3-RDR-V2.0	0025	0000
MEX-M-HRSC-3-RDR-V2.0	0026	0000
MEX-M-HRSC-3-RDR-V2.0	0027	0000
MEX-M-HRSC-3-RDR-V2.0	0028	0000
MEX-M-HRSC-3-RDR-V2.0	0029	0000
MEX-M-HRSC-3-RDR-V2.0	0030	0000
MEX-M-HRSC-3-RDR-V2.0	0031	0000
MEX-M-HRSC-5-REFDR-MAPPROJECTED-V2.0	0024	0000
MEX-M-HRSC-5-REFDR-MAPPROJECTED-V2.0	0025	0000
MEX-M-HRSC-5-REFDR-MAPPROJECTED-V2.0	0026	0000
MEX-M-HRSC-5-REFDR-MAPPROJECTED-V2.0	002	

Comments and Suggestions

- Please send us your remarks psahelp@rssd.esa.int
- In case of problems, please visit the FAQ page before contacting us
- In case you can not find the data you are looking for, please read the Mission Specific pages on the PSA home page (<http://www.rssd.esa.int/psa>)