How to Obtain Cassini Data via NASA'S Planetary Data System

Mark R. Showalter, Mitchell K. Gordon,
Michael F. A'Hearn, Charles H. Acton,
Raymond E. Arvidson, Reta F. Beebe,
Lisa Gaddis, Susan K. LaVoie,
Richard A. Simpson, and Raymond J. Walker

What is the PDS?

- PDS's mission is to collect, archive and make accessible data relevant to NASA's planetary missions and research programs.
- PDS is a Federation of "Nodes" supporting research into specific disciplines.
- We serve as the bridge between mission/instrument teams and the *science* users.

PDS Organization

	PDS Discipline Node	Location	Contact
Science Nodes	Atmospheres	New Mexico State	Reta Beebe
	Geosciences	Washington U.	Ray Arvidson
	Plasma/Particle Interactions	UCLA	Ray Walker
	Rings	SETI Institute	Mark Showalter
	Small Bodies	U. Maryland	Mike A'Hearn
Support Nodes	Engineering	JPL	Dan Crichton
	Imaging	USGS Flagstaff/ JPL	Lisa Gaddis/ Sue LaVoie
	Navigation & Ancillary Information Facility (NAIF)	JPL	Chuck Acton
	Radio Science	Stanford	Dick Simpson

Cassini Raw Images

http://saturn.jpl.nasa.gov/multimedia/images/raw/

Images | Videos | Products

Multimedia - Images - Raw Images Raw Images Go

***ESA Huygens Raw Image Gallery:* Looking for ESA's Huygens Probe images? THEY ARE NOT HERE! The European Space Agency has posted all of the unedited, unprocessed raw images snapped by the Huygens probe as it descended to Titan on Jan. 14, 2005.**
+ ESA Huygens Raw Image Gallery

Welcome to the Cassini raw image beta page, where the raw images from the Cassini spacecraft are hosted. The images are provided in JPEG compressed format and are not calibrated or validated. For more information check out the description of how often and when Cassini plays back image data to Earth. Also, be sure to visit our frequently asked questions section for information about the raw images.

Browse the latest raw images or select one or more parameters below, then click on "Search Images" at the bottom on the page to refine your own search. Click on the search parameter to see a definition.

Browse Latest 500 Raw Images

OR

Search Raw Images

Camera: Narrow Angle, Wide Angle — *Use Control Key to Select Multiple Cameras*

Target: ATLAS, CALYPSO, DIONE, ENCELADUS — *Use Control Key to Select Multiple Targets*

Observation Time: Newest *OR* Start (mm/dd/yyyy) (hh:mm) UTC; End (mm/dd/yyyy) (hh:mm) UTC

Distance from Target: Closest *OR* Min, Max

Search Images

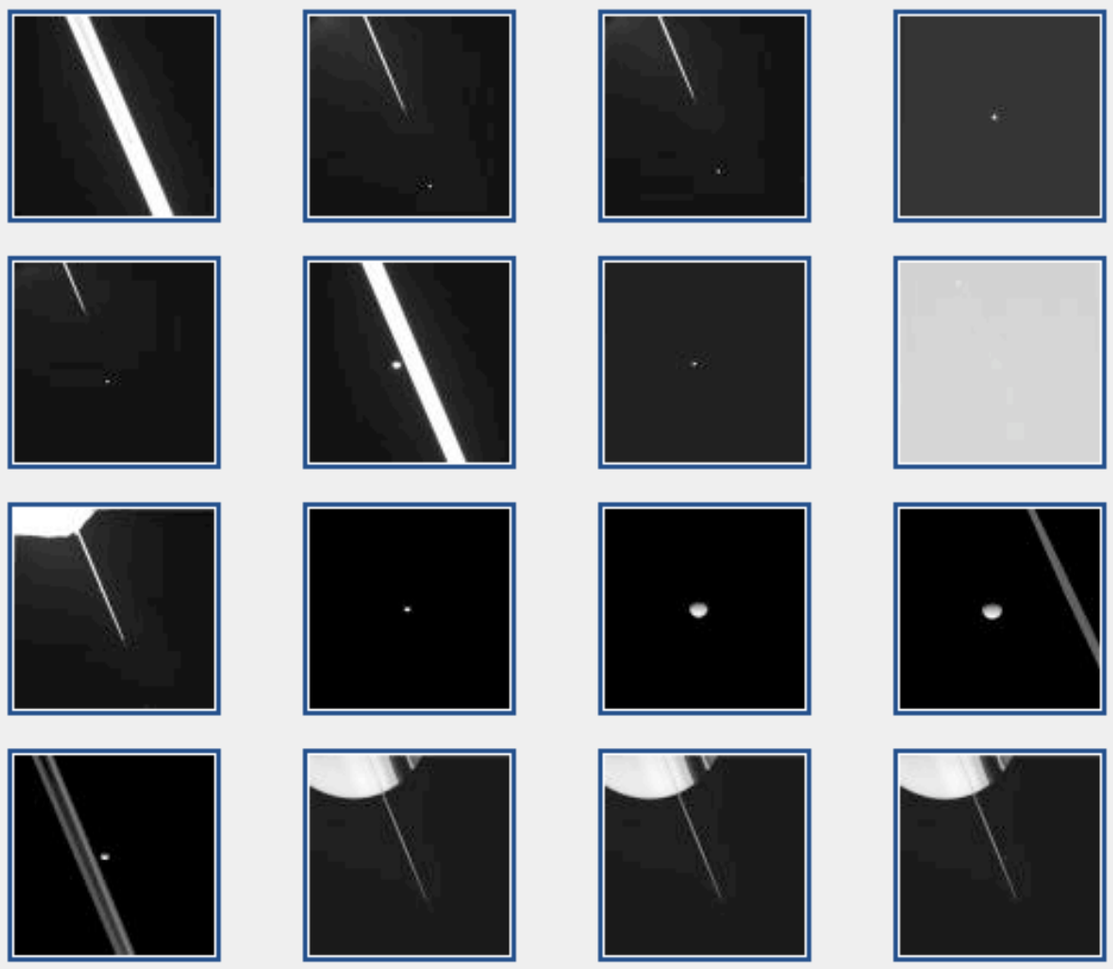
Search Images | Reset

Images | Videos | Products

Multimedia - Images - Raw Images - Results Raw Images Go

The latest 500 raw images are displayed below.

Displaying results 1 to 16 of 500



Next »

Result Page: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

Press Releases & Education

http://saturn.jpl.nasa.gov/multimedia/

http://photojournal.jpl.nasa.gov/

Cassini Archival Data

- Archival Cassini data is available to the public in a series of quarterly releases, beginning July 2005.
- Each release encompasses data obtained between 9 and 12 months prior to the release date.
- The first delivery also included cruise and Jupiter encounter data.

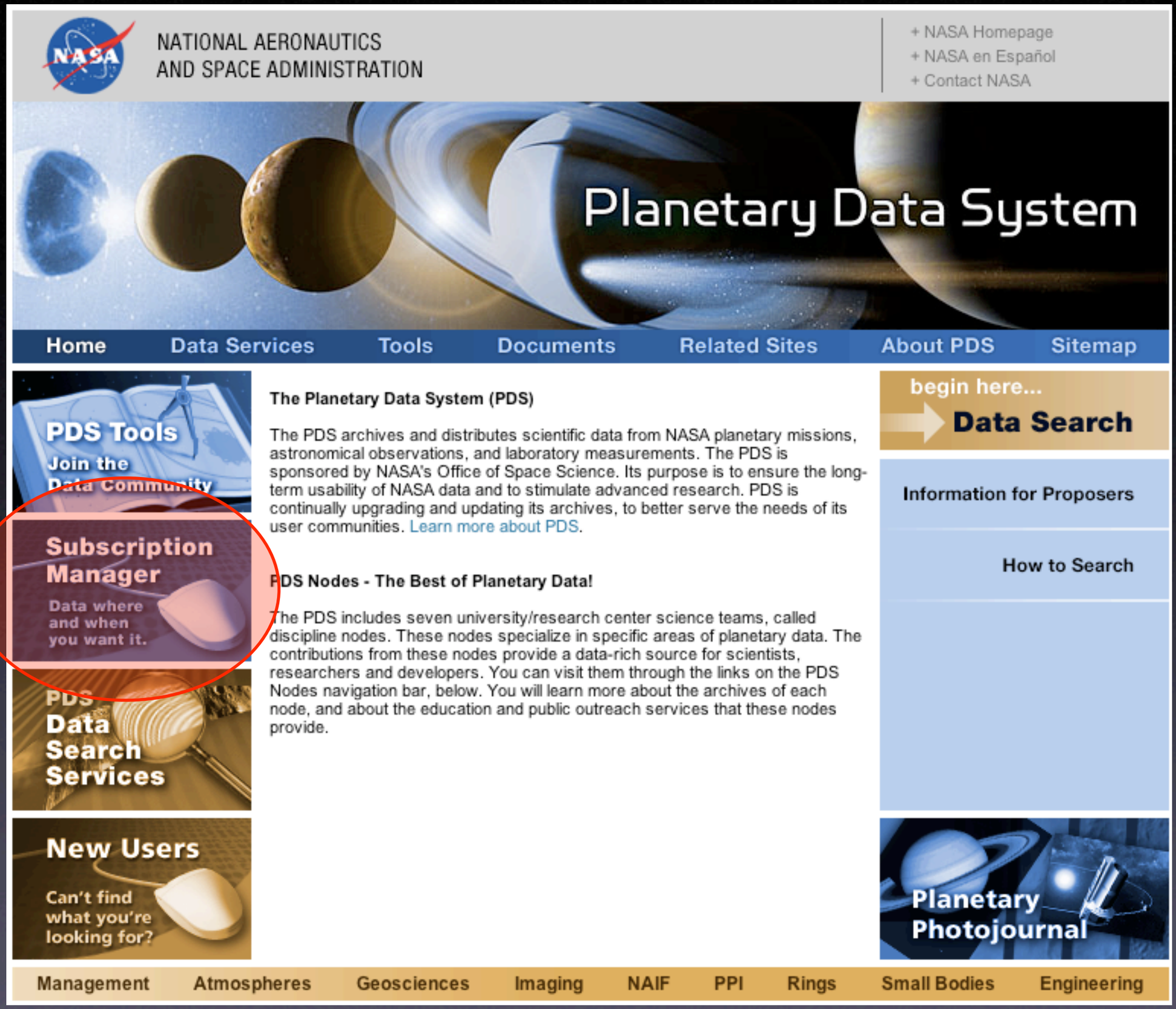
To Find Out What's Coming Next...

Show All | 2004 | **2005** | 2006 | 2007 | 2008

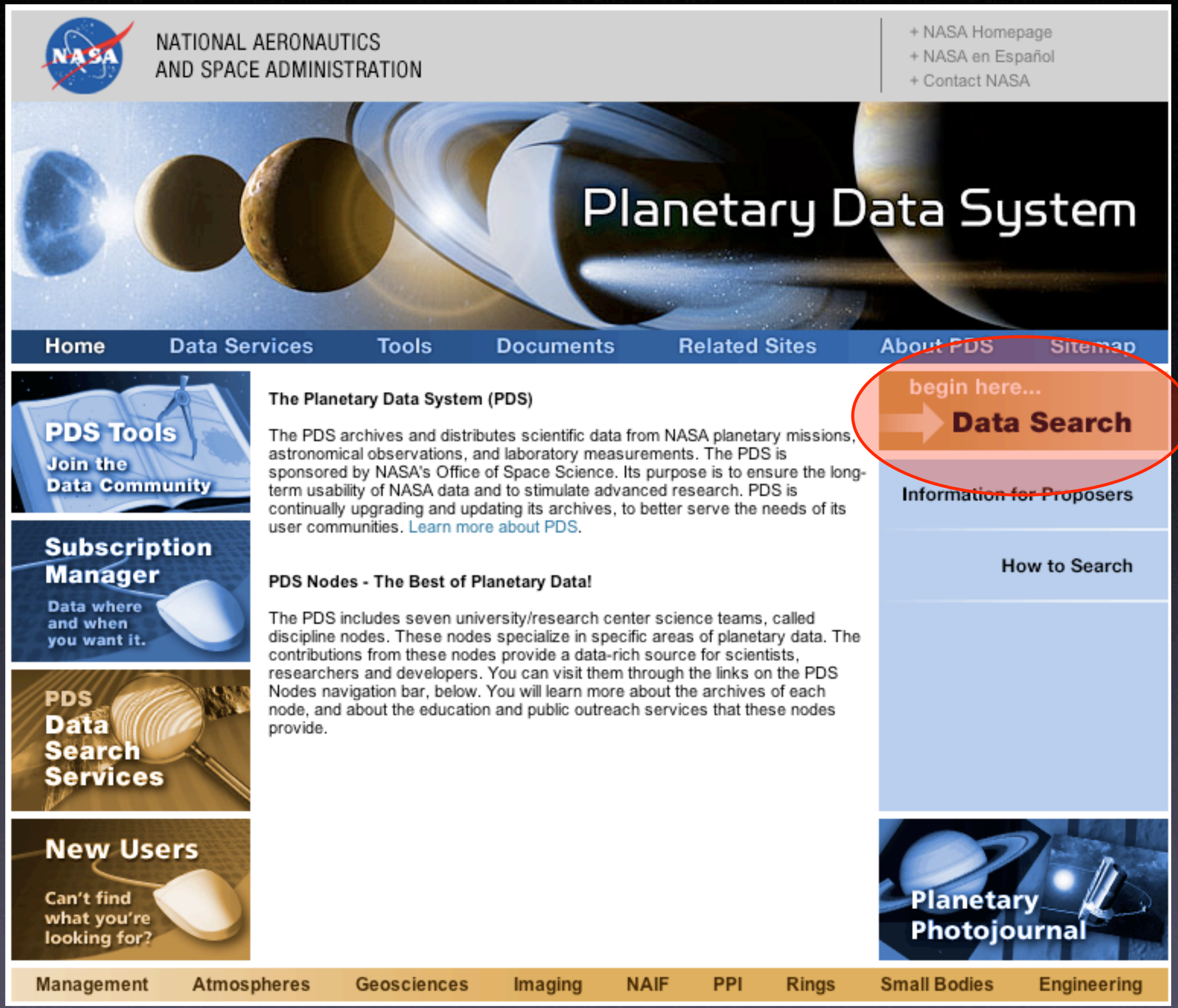
Date	Orbit	Activity Description
Jan-03-2005	c	Cassini short engine burn number 10A to stay on course
Jan-14-2005	c	Entry interface alt=1270 km, Tc c/a -2.1 h
Jan-14-2005	c	Close Flyby (altitude = 60,000 km; 37,300 mi) of moon Titan
Jan-14-2005	c	Cassini passage through Ring plane [South to North] (1,110,000 km; 690,000 mi wrt Saturn)
Jan-16-2005	c	Cassini short engine burn number 11 to stay on course
Jan-16-2005	c	Distant Flyby (altitude = 113,000 km; 70,000 mi) of moon Methone
Jan-16-2005	c	Distant Flyby (altitude = 108,000 km; 67,000 mi) of moon Mimas
Jan-16-2005	c	Closest distance (290,000 km; 180,000 mi) to Saturn on rev c
Jan-16-2005	c	Distant Flyby (altitude = 91,000 km; 56,000 mi) of moon Pallene
Jan-16-2005	c	Cassini passage through Ring plane [North to South] (360,000 km; 220,000 mi wrt Saturn)
Jan-28-2005	c	Cassini short engine burn number 12 to stay on course
Feb-01-2005	c	Farthest distance (3,600,000 km; 2,200,000 mi) from Saturn. Start rev c.
Feb-12-2005	3	Cassini short engine burn number 13 to stay on course
Feb-15-2005	3	Close Flyby (altitude = 1,600 km; 1,000 mi) of moon Titan
Feb-16-2005	3	Distant Flyby (altitude = 103,000 km; 64,000 mi) of moon Pandora
Feb-16-2005	3	Protective measures to ensure safe passage through area of increased Ring particle concentration. High gain antenna used like umbrella to shield Cassini.
Feb-17-2005	3	Distant Flyby (altitude = 73,000 km; 46,000 mi) of moon Epimetheus
Feb-17-2005	3	Distant Flyby (altitude = 77,000 km; 48,000 mi) of moon Atlas
Feb-17-2005	3	Distant Flyby (altitude = 83,000 km; 52,000 mi) of moon Calypso
Feb-17-2005	3	Cassini passage through Ring plane [South to North] (210,000 km; 130,000 mi wrt Saturn)
Feb-17-2005	3	Closest distance (211,000 km; 131,000 mi) to Saturn on rev number 3
Feb-17-2005	3	Close Flyby (altitude = 1,300 km; 800 mi) of moon Enceladus
Feb-17-2005	3	Cassini views the Earth as it passes behind Enceladus
Feb-17-2005	3	Distant Flyby (altitude = 6,000 km; 4,000 mi) of moon Polydeuces
Feb-18-2005	3	Cassini short engine burn number 14 to stay on course
Feb-26-2005	3	Cassini passage through Ring plane [North to South] (2,650,000 km; 1,650,000 mi

http://saturn.jpl.nasa.gov/operations/cassini-calendar-ALL.cfm

Sign up with the PDS Subscription Manager to receive notifications when new data becomes available.



http://pds.jpl.nasa.gov/



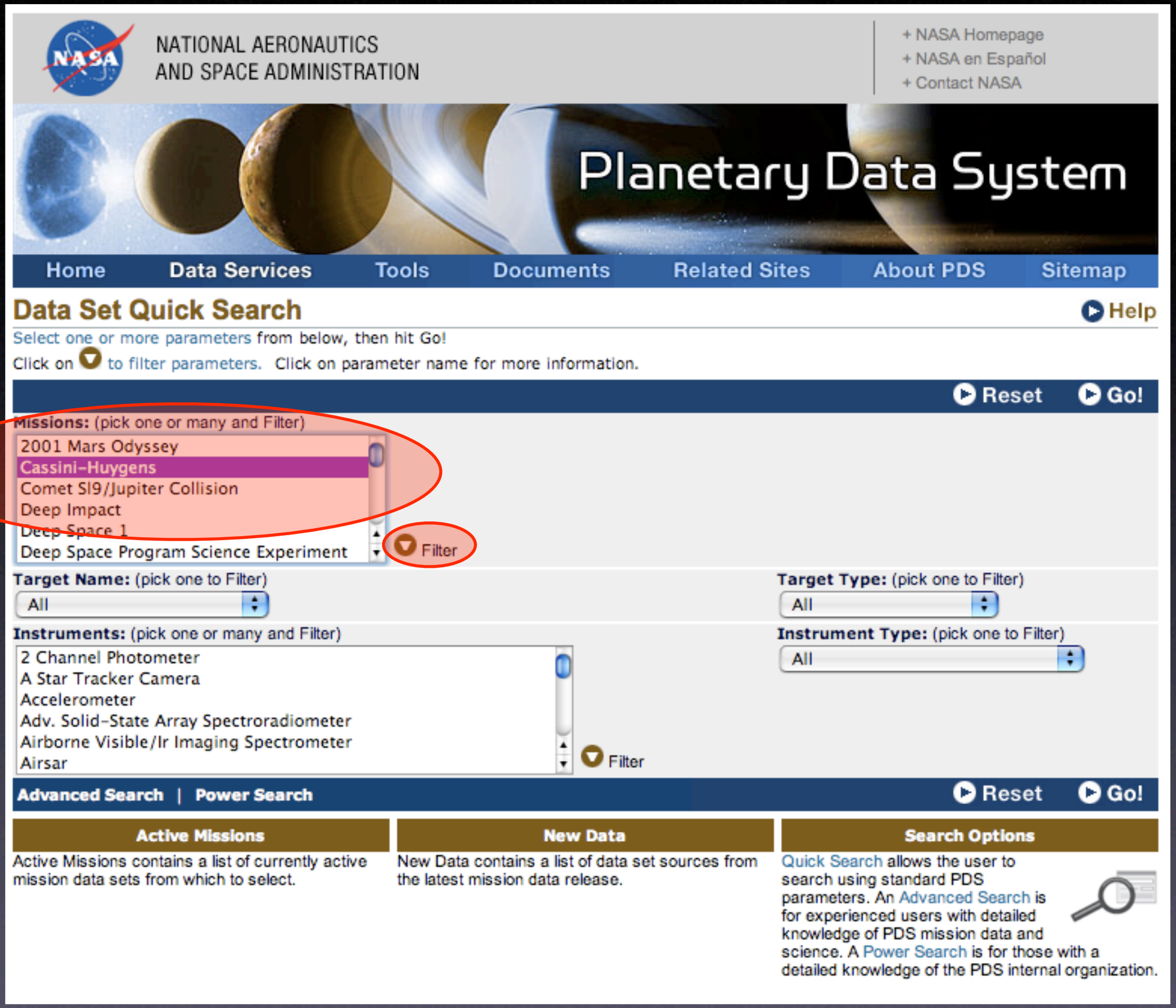
Begin a general search for data here.

http://pds.jpl.nasa.gov/

Sample Query:

Find VIMS Cubes of Phoebe

- Select Mission
- Click “Filter”



http://starbrite.jpl.nasa.gov/pds/

Sample Query:

Find VIMS Cubes of Phoebe

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

+ NASA Homepage
+ NASA en Español
+ Contact NASA

Planetary Data System

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

Data Set Quick Search — Help

Select one or more parameters from below, then hit Go!

Click on to filter parameters. Click on parameter name for more information.

Reset | Go!

Missions: (pick one or many and Filter)

Cassini-Huygens

Filter

Target Name: (pick one to Filter)

All

Target Type: (pick one to Filter)

All

Instruments: (pick one or many and Filter)

Radar
Radio And Plasma Wave Science
Radio Science Subsystem
Spice Kernels
Ultraviolet Imaging Spectrograph
Visual And Infrared Mapping Spectrometer

Filter

Instrument Type: (pick one to Filter)

All

Advanced Search | Power Search

Reset | Go!

Active Missions	New Data	Search Options
Active Missions contains a list of currently active mission data sets from which to select.	New Data contains a list of data set sources from the latest mission data release.	Quick Search allows the user to search using standard PDS parameters. An Advanced Search is for experienced users with detailed

- Select VIMS

- Click "Go!"

NATIONAL AERONAUTICS
AND SPACE ADMINISTRATION

+ NASA Homepage
+ NASA en Español
+ Contact NASA

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

Search Results (1 data sets found)

Help

Data Set	Instrument Host	Information About the Data Set	Data Products & Related Files	Other Resources
1. The VIMS QUBE EDR data is an assorted collection of IR and visual spectral cubes ranging from 0.3 - .51 microns generated by the Cassini Mission to Saturn.	CO	View Information for CO-E/V/J/S-VIMS-2-QUBE-V1.0	Search for Products with Imaging Website	• Atmospheres Website • Rings Website

Page 1 | New Search

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FIRSTGOV Your First Click to the U.S. Government

+ Freedom of Information Act
+ NASA 2003 Strategic Plan
+ NASA Privacy Statement, Disclaimer, and Accessiblity Certification
+ Copyright/Image Use Policy

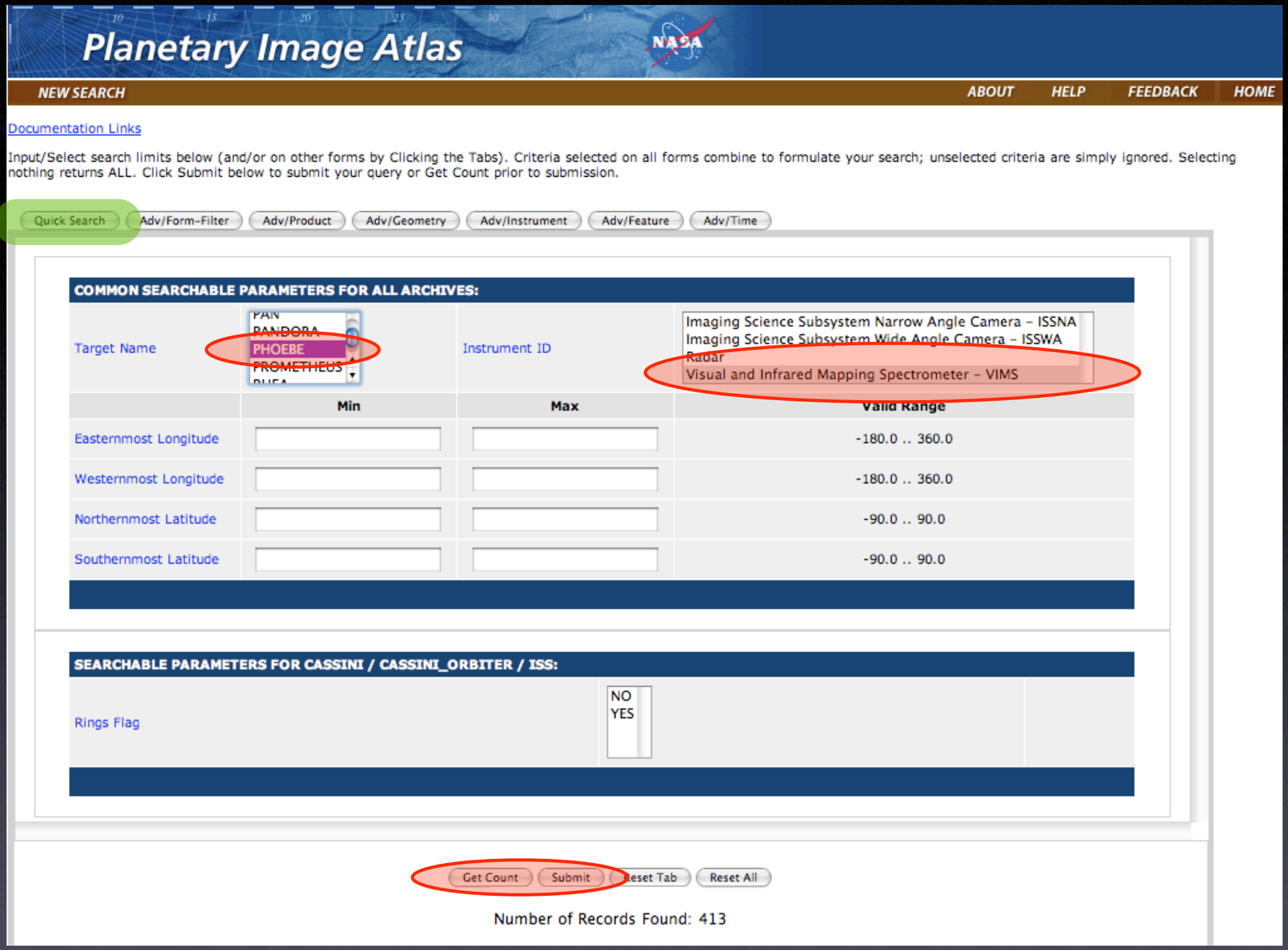
Curator: Valerie L. Henderson
Webmaster: Brian Truong
NASA Official: William Knopf
Last Updated: 31 Dec 1969
+ Comments and Questions

Sample Query:

Find VIMS Cubes of Phoebe

- Click "Search for Products with the Imaging Website"
- Note that alternative resources are also available.

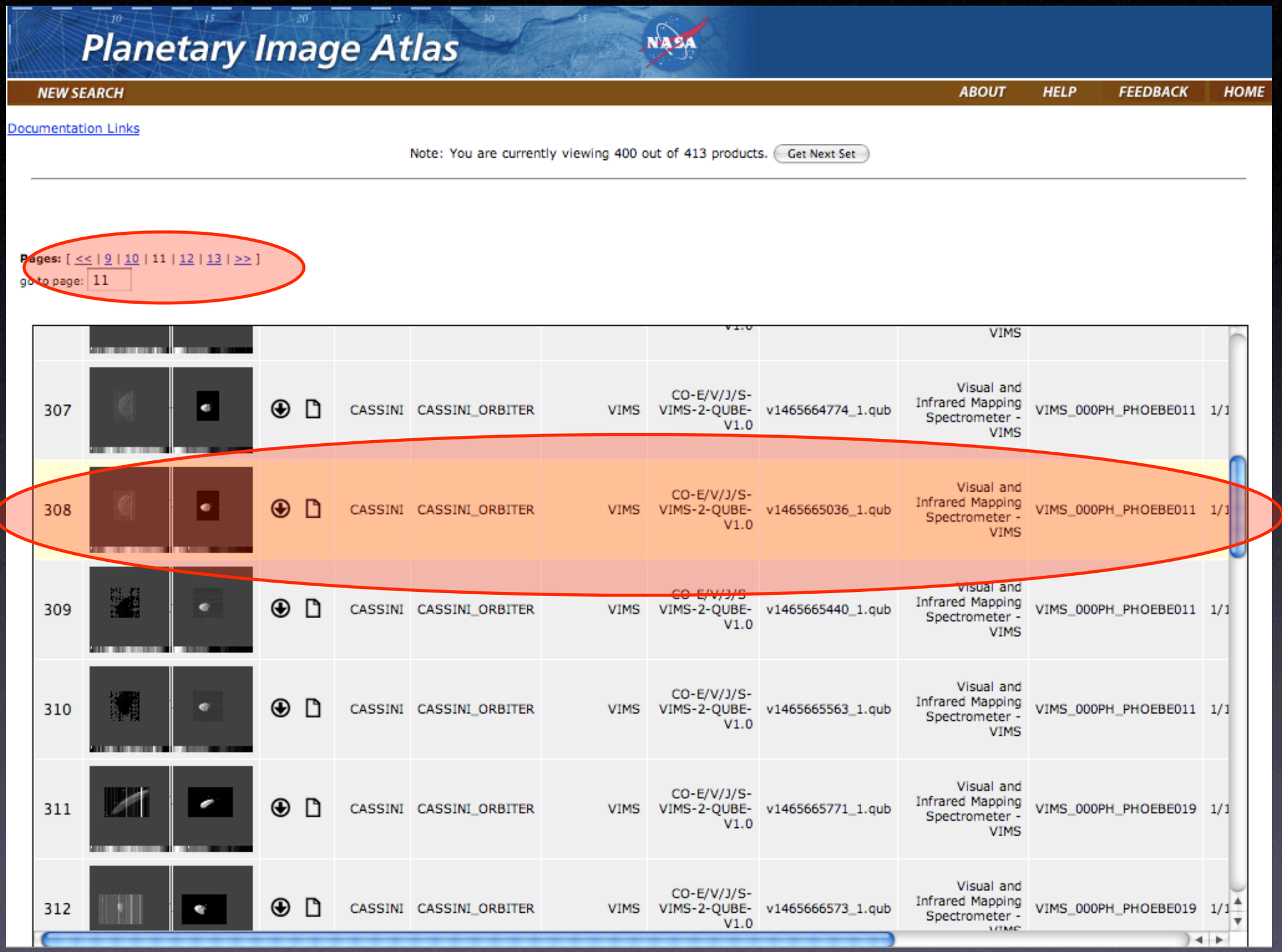
- Select "Phoebe" and VIMS
- Click "Get Count" to find 413 matches
- Click "Submit" for data



http://pdsimg.jpl.nasa.gov/forms/

You have reached the Quick Search tab of the Cassini Image Atlas. This is a good URL to bookmark!

- Scroll through the thumbnail images to find what interests you.
- Click on an image to see it.



- Download the data or view the PDS label

- Scroll here for more information

Planetary Image Atlas

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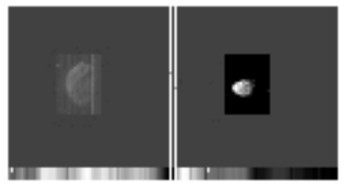
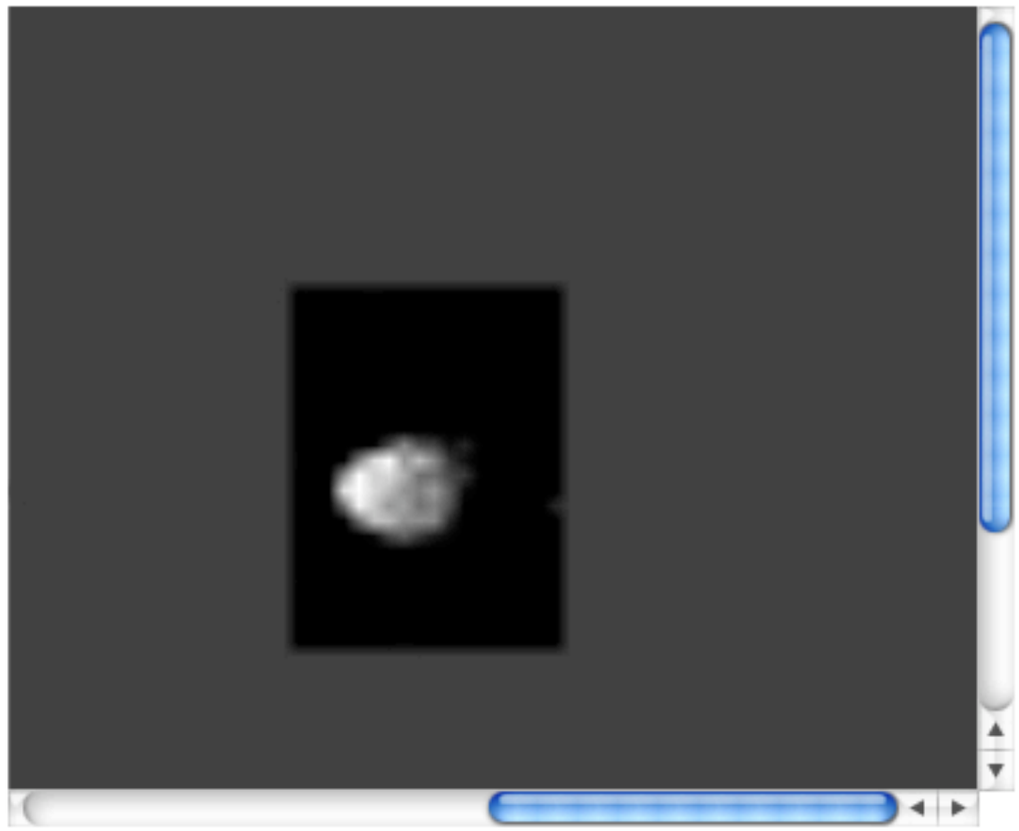
Documentation Links

Download Data File

Download Label





View Meta Data | View Errata Info

Image Parameters	
CATEGORY:	null
DATATYPE:	N/A
DATA_SET_ID:	CO-E/V/J/S-VIMS-2-QUBE-V1.0
DETECTOR:	null
EASTERNMOST_LONGITUDE:	1e+32
FILE_NAME:	v1465665036_1.qub
INSTRUMENT:	VIMS
INSTRUMENT_ID:	Visual and Infrared Mapping Spectrometer - VIMS
INSTRUMENT_MODE_ID:	IMAGE

```
PDS_VERSION_ID                  = PDS3

/* File Structure */

RECORD_TYPE                     = FIXED_LENGTH
RECORD_BYTES                    = 512
FILE_RECORDS                    = 723

/* Pointers to Data Objects */

^HEADER                         = ("v1465665036_1.qub", 1)
^HISTORY                        = ("v1465665036_1.qub", 23)
^QUBE                           = ("v1465665036_1.qub", 48)

/* Identification Data Elements */

MISSION_NAME                    = "CASSINI-HUYGENS"
MISSION_PHASE_NAME              = "PHOEBE ENCOUNTER"
INSTRUMENT_HOST_NAME            = "CASSINI ORBITER"
INSTRUMENT_NAME                 = "VISUAL AND INFRARED MAPPING SPECTROMETER"
INSTRUMENT_ID                   = VIMS
DATA_SET_ID                     = "CO-E/V/J/S-VIMS-2-QUBE-V1.0"
PRODUCT_ID                      = "1_1465665036.10313"
PRODUCT_VERSION_TYPE            = "FINAL"
FLIGHT_SOFTWARE_VERSION_ID      = "8.1"
SOFTWARE_VERSION_ID             = "VIMS 10.0 03-02-2004"
TARGET_NAME                     = "PHOEBE"
TARGET_DESC                     = "Phoebe"
IMAGE_OBSERVATION_TYPE          = SCIENCE
SPACECRAFT_CLOCK_CNT_PARTITION  = 1
SPACECRAFT_CLOCK_START_COUNT    = "1/1465665080.126"
SPACECRAFT_CLOCK_STOP_COUNT     = "1/1465665415.032"
NATIVE_START_TIME               = "1465665036.10313"
NATIVE_STOP_TIME                = "1465665393.12472"
START_TIME                      = 2004-163T16:46:32.403
STOP_TIME                       = 2004-163T16:52:29.538
HOUSEKEEPING_CLOCK_COUNT        = 1465665411.131
PRODUCT_CREATION_TIME           = 2004-164T10:10:55.000
OBSERVATION_ID                  = "VIMS_000PH_PHOEBE011"
COMMAND_FILE_NAME               = "VIMS_000PH_PHOEBE011_ISS.V4.ioi"
COMMAND_SEQUENCE_NUMBER         = 75
EARTH_RECEIVED_START_TIME       = 2004-164T16:43:39.829
EARTH_RECEIVED_STOP_TIME        = 2004-164T16:44:17.912
MISSING_PACKET_FLAG             = NO
DESCRIPTION                     = "N/A"
PARAMETER_SET_ID                = "VIMS_000PH_PHOEBE011_ISS_002"
SEQUENCE_ID                     = "S01"
SEQUENCE_TITLE                  = "VIMS_000PH_PHOEBE011_ISS"
TELEMETRY_FORMAT_ID             = UNK
DATA_REGION                     = "N/A"
OVERWRITTEN_CHANNEL_FLAG        = OFF

/* Instrument Status (IR, Visible) */
   /* In the following section, parameters with single values apply to */
   /* both the IR and visible portions of the instrument.   Parameters */
   /* with two values apply to the IR and the visible respectively.  For */
   /* parameters with more than two values, see the accompanying comment */
   /* for an indication of how the values are to be applied. */

INSTRUMENT_MODE_ID              = "IMAGE"
```

Sample PDS Label

- An ASCII text file describing each data file.
- Uses a simple “parameter = value” format.
- Is readable by both humans and computers.
- Describes the file structure as well as the observation.
- Supports essentially all common data file formats (e.g. FITS, ISIS, VICAR, ...)
- Ensures that NASA’s data will still be comprehensible in 50 or 100 years.

Sample Query #2: Fine-tuning a Search for Titan Images

Quick Search | Adv/Form-Filter | Adv/Product | Adv/Geometry | Adv/Instrument | Adv/Feature | Adv/Time

COMMON SEARCHABLE PARAMETERS FOR ALL ARCHIVES:

Target Name	TETHYS TITAN UNK VENUS	Instrument ID	Imaging Science Subsystem Narrow Angle Camera – ISSNA Imaging Science Subsystem Wide Angle Camera – ISSWA Radar Visual and Infrared Mapping Spectrometer – VIMS

	Min	Max	Valid Range
Easternmost Longitude			-180.0 .. 360.0
Westernmost Longitude			-180.0 .. 360.0
Northernmost Latitude			-90.0 .. 90.0
Southernmost Latitude			-90.0 .. 90.0

SEARCHABLE PARAMETERS FOR CASSINI / CASSINI_ORBITER / ISS:

Rings Flag	NO YES

Get Count | Submit | Reset Tab | Reset All

Number of Records Found: 2495

Quick Search returns 2495 matches!

Planetary Image Atlas

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Documentation Links

Input/Select search limits below (and/or on other forms by Clicking the Tabs). Criteria selected on all forms combine to formulate your search; unselected criteria are simply ignored. Selecting nothing returns ALL. Click Submit below to submit your query or Get Count prior to submission.

Quick Search | Adv/Form-Filter | Adv/Product | Adv/Geometry | Adv/Instrument | Adv/Feature | Adv/Time

SEARCHABLE PARAMETERS FOR CASSINI / CASSINI_ORBITER / ISS:

Spice Product ID			
Coordinate System Name	EQUATORIAL INERTIAL CART COORD		
	Min	**Max**	**Valid Range**
Central Body Distance			0 .. 1039040000
Center Latitude			-90.0 .. 90.0
Center Longitude			-180.0 .. 360.0
Declination			-90.0 .. 90.0
Emission Angle			0.0 .. 180.0
Incidence Angle			0.0 .. 180.0
Lower Left Latitude			-90.0 .. 90.0
Lower Left Longitude			-180.0 .. 360.0
Lower Right Latitude			-90.0 .. 90.0

Select coordinate system first! (Even if there's only one).

Get Count | Submit | Reset Tab | Reset All

Number of Records Found: 2495

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Documentation Links

Please send feedback if something does not work as expected.

Quick Search | Adv/Form-Filter | Adv/Product | Adv/Geometry | Adv/Instrument | Adv/Feature | Adv/Time

SEARCHABLE PARAMETERS FOR CASSINI / CASSINI_ORBITER / ISS:

Spice Product ID			
Coordinate System Name	EQUATORIAL INERTIAL CART COORD		
	Min	**Max**	**Valid Range**
Central Body Distance			0 .. 1039040000
Center Latitude			-90.0 .. 90.0
Center Longitude			-180.0 .. 360.0
Declination			-90.0 .. 90.0
Emission Angle			0.0 .. 180.0
Incidence Angle			0.0 .. 180.0
Lower Left Latitude			-90.0 .. 90.0
Lower Left Longitude			-180.0 .. 360.0
Lower Right Latitude			-90.0 .. 90.0

Get Count | Submit | Reset Tab | Reset All

Number of Records Found: 2495

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Documentation Links

Input/Select search limits below (and/or on other forms by Clicking the Tabs). Criteria selected on all forms combine to formulate your search; unselected criteria are simply ignored. Selecting nothing returns ALL. Click Submit below to submit your query or Get Count prior to submission.

Quick Search | Adv/Form-Filter | Adv/Product | Adv/Geometry | Adv/Instrument | Adv/Feature | Adv/Time

Minimum Ring Radius			0.0 .. 10129399808
North Azimuth Clock Angle			0.0 .. 360.0
Phase Angle			0.0 .. 180.0
Pixel Scale	0	1	0 .. 14737.599609375
First Planet Center			-1701.0 .. 326819
Second Planet Center			1647.0 .. 186601
Right Ascension			0.0 .. 360.0
Ring Center Latitude			-90.0 .. 90.0
Ring Center Longitude			-180.0 .. 360.0
Ring Emission Angle			0.0 .. 180.0
Ring Incidence Angle			0.0 .. 180.0
SC Planet Position Vector 1			-347504000 .. 306235008
SC Planet Position Vector 2			-875793984 .. 260759008
SC Planet Position Vector 3			-372697984 .. 82288800

Constrain scale to < 1km/pixel

Get Count | Submit | Reset Tab | Reset All

Count drops to 255

Number of Records Found: 255

Planetary Image Atlas

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Documentation Links

Input/Select search limits below (and/or on other forms by Clicking the Tabs). Criteria selected on all forms combine to formulate your search; unselected criteria are simply ignored. Selecting nothing returns ALL. Click Submit below to submit your query or Get Count prior to submission.

Quick Search | Adv/Form-Filter | Adv/Product | Adv/Geometry | Adv/Instrument | Adv/Feature | Adv/Time

SEARCHABLE PARAMETERS FOR CASSINI / CASSINI_ORBITER / ISS:

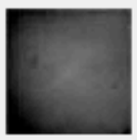
Method Description			
Antiblooming State Flag	OFF ON	Calibration Lamp State Flag	N/A OFF ON
Data Conversion Type	12BIT 8LSB TABLE	Delayed Readout Flag	NO YES
First Filter Name	IR3 IR4 IR5 IRP0	Second Filter Name	BL1 BL2 CB1 CB2
Gain Mode ID	12 ELECTRONS PER DN 215 ELECTRONS PER DN 29 ELECTRONS PER DN 95 ELECTRONS PER DN	Instrument Mode ID	FULL SUM2 SUM4
Instrument Compression Type	LOSSLESS LOSSY NOTCOMP	Light Flood State Flag	OFF ON
Parallel Clock Voltage Index	10 11	Prepare Cycle Index	0 1

Select only IR filters

Get Count | Submit | Reset Tab | Reset All

Count drops to 29

Number of Records Found: 29

Item #	Thumbnail (View Browse Page)	Download Data / View Label	MISSION	SPACECRAFT	INSTRUMENT	COORDINATE_SYSTEM_NAME	DATA_SET_ID	FILE_NAME	FILTER_NAME_1	FI
1			CASSINI	CASSINI_ORBITER	ISS	EQUATORIAL INERTIAL CART COORD	CO-S-ISSNA/ISSWA-2-EDR-V1.0	N1477472212_5.IMG	IRP0	
2			CASSINI	CASSINI_ORBITER	ISS	EQUATORIAL INERTIAL CART COORD	CO-S-ISSNA/ISSWA-2-EDR-V1.0	N1477472365_5.IMG	IRP0	
3			CASSINI	CASSINI_ORBITER	ISS	EQUATORIAL INERTIAL CART COORD	CO-S-ISSNA/ISSWA-2-EDR-V1.0	W1477495869_1.IMG	IR3	
4			CASSINI	CASSINI_ORBITER	ISS	EQUATORIAL INERTIAL CART COORD	CO-S-ISSNA/ISSWA-2-EDR-V1.0	N1481629242_2.IMG	IRP0	
5			CASSINI	CASSINI_ORBITER	ISS	EQUATORIAL INERTIAL CART COORD	CO-S-ISSNA/ISSWA-2-EDR-V1.0	N1481629340_2.IMG	IRP0	
6			CASSINI	CASSINI_ORBITER	ISS	EQUATORIAL INERTIAL CART COORD	CO-S-ISSNA/ISSWA-2-EDR-V1.0	N1481629438_1.IMG	IRP0	
7			CASSINI	CASSINI_ORBITER	ISS	EQUATORIAL INERTIAL CART COORD	CO-S-ISSNA/ISSWA-	N1481629536_1.IMG	IRP0	

Select the image to view

To select products for generated report:

- Select all on this page
- Select all in this collection (Warning: this may be slow)

Generate a summary if you wish

SELECT PARAMETERS FOR REPORT

REPORT PARAMETERS FOR ALL ARCHIVES:

- DATATYPE
- DATA_SET_ID
- EASTERNMOST_LONGITUDE
- FILE_NAME
- INSTRUMENT_ID

REPORT PARAMETERS FOR CASSINI / CASSINI_ORBITER / ISS:

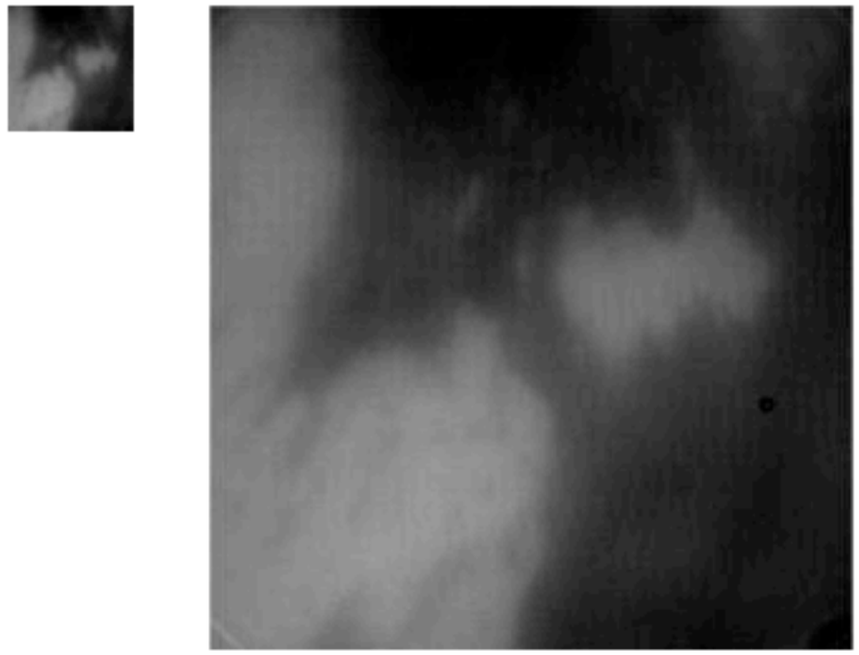
- ANTIBLOOMING_STATE_FLAG
- BIAS_STRIP_MEAN
- CALIBRATION_LAMP_STATE_FLAG
- CENTER_LATITUDE
- CENTER_LONGITUDE

Planetary Image Atlas

Documentation Links

Download Data File

Download Label



View Meta Data | View Errata Info

EARTH_RECEIVED_STOP_TIME:	0000-00-00 00:00:00
EASTERNMOST_LONGITUDE:	153.612
ELECTRONICS_BIAS:	112
EMISSION_ANGLE:	0.727257
EXPECTED_MAXIMUM_1:	58.8522
EXPECTED_MAXIMUM_2:	64.8854
EXPECTED_PACKETS:	397
EXPOSURE_DURATION:	82000
FILE_NAME:	N1477472212_5.IMG
FILE_SPECIFICATION_NAME:	data/1477438740_1477481438/N1477472212_5.IMG
FILTER_NAME_1:	IRP0
FILTER_NAME_2:	CB3

Other Data Sets

Instrument		PDS Nodes	Notes
CIRS	Composite Infrared Spectrometer	Atmospheres, Rings	
UVIS	Ultraviolet Imaging Spectrometer	Atmospheres, Rings	
Radar		Imaging	
RSS	Radio Science Subsystem	Atmospheres	low-level products
		Atmospheres, Rings	derived products
CDA	Cosmic Dust Analyzer	Small Bodies	
Other In-Situ Data		PPI	

What You (& We) Get

- Data files are in binary formats as defined by the instrument teams.
  - ISS: Raw images in VICAR format.
  - VIMS: Raw image cubes in ISIS format.
  - CIRS: Raw and calibrated spectra grouped into 12-hour blocks.
  - UVIS: Various binary formats, ISIS for cubes.
- A PDS label describes every data file.
- Documentation appears on every archive volume.
- For raw data sets, calibration software is always provided.
  - However, not all platforms are supported.
- Data sets have not yet been thoroughly peer-reviewed.
  - Caution is always advised when analyzing new data.

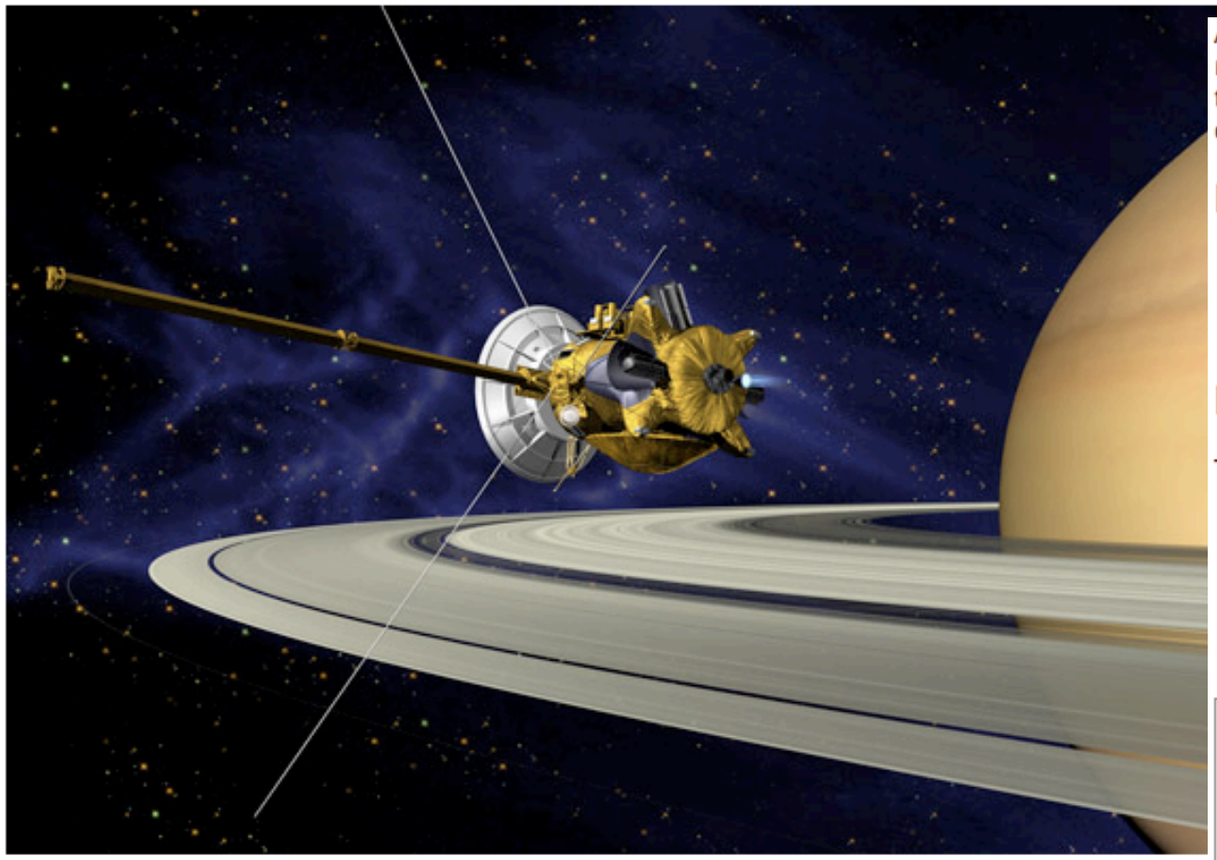
What PDS Provides

- All delivered archive volumes are on line.
- Some explanatory information is provided.
  - We are still learning about these data sets ourselves.
  - Teams have had 20 years; we have had three months.
- Search engines and data processing/calibration tools are in development.
- Expert help is available upon request.
- *Note:* At this early stage, it is still recommended that you contact an instrument team member if you plan to analyze their data.
  - They know much more about their data sets (including any "quirks") than we do.

Cassini Home Page at the Rings Node

Planetary Rings Node

The Cassini Mission



This page is currently under development.

Introduction

The PDS Rings Node is archiving, cataloging and distributing Cassini data sets relevant to the rin system of Saturn and Jupiter.

We plan to provide entire data sets for the instruments obtaining ring data. Catalogs to allow sea for ring data are in development.

Cassini entered Saturn orbit in July 2004. The first data release is on July 1, 2005. Subsequent da releases will come at three month intervals. The first release will include all of the data from the phase (including the Jupiter encounter), Saturn Orbit Insertion, and the first three months of the

Although the Cassini instrument teams and the PDS both endeavor to review data sets carefully prior to release, it is always possible for errors to slip through. We recommened caution when using any data that have been released for less than three months. Please contact the Rings Node if you find any errors or anomalies in any Cassini data sets.

Mission and Spacecraft

- MISSION.CAT: Overview of the Cassini mission
- INSTHOST.CAT: Overview of the Cassini spacecraft
- Detailed spacecraft diagrams

Data Sets and Instrument Information

The five Cassini instruments most directly supporting ring science are:

- **CIRS**: Composite Infrared Spectrometer
- **ISS**: Imaging Science Subsystem
- **RSS**: Radio Science Subsystem
- **UVIS**: Ultraviolet Imaging Spectrograph
- **VIMS**: Visual and Infrared Mapping Spectrometer

Links to Instrument Information and Data			
Instrument	Images	Occultations	Spectra
CIRS		7/1/2006 *	CIRS spectra
ISS	ISS images		
RSS		4/1/2006 *	
UVIS	UVIS images	4/1/2006 *	UVIS spectra
VIMS	VIMS spectral images	4/1/2006 *	VIMS spectral images

* Anticipated date of first release.

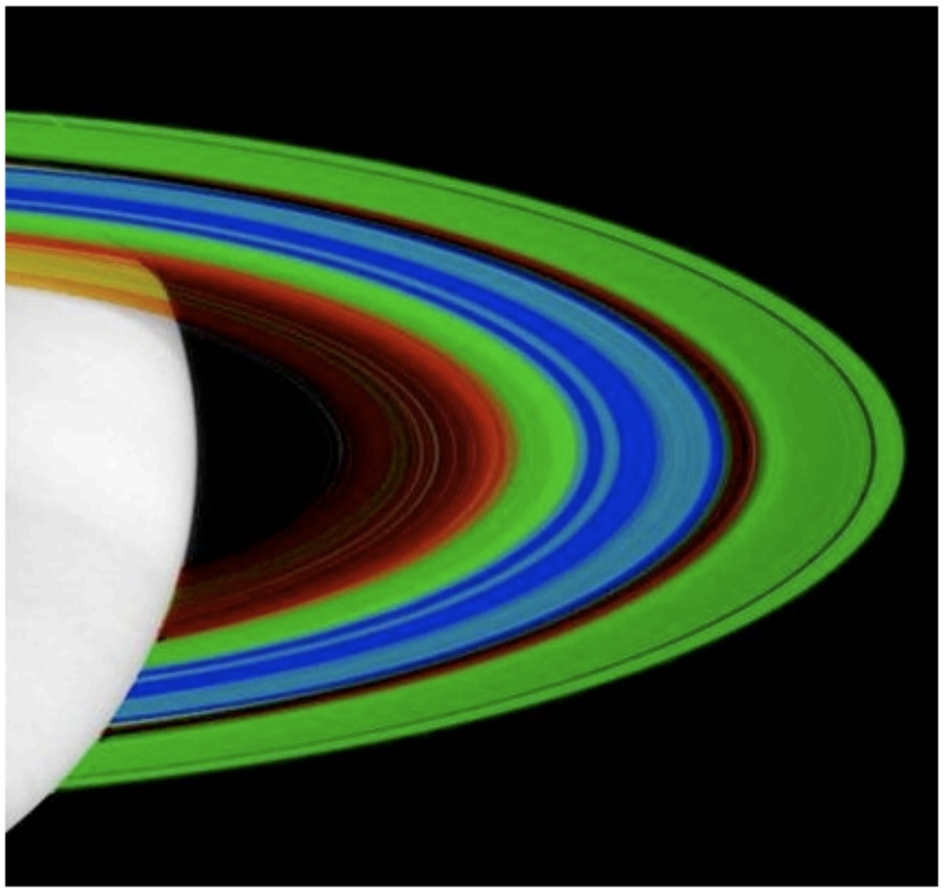
Supplemental Cassini Web Sites

- NASA's Cassini Home Page (*Recommended*).
- Cassini Mission Home Page
- Latest Cassini press releases
- Composite Infrared Spectrometer (CIRS)
- Imaging Science Subsystem (ISS)
- Radio Science Subsystem (RSS)
- Ultraviolet Imaging Spectrograph (UVIS)
- Visual and Infrared Mapping Spectrometer (VIMS)
- Other Instruments

http://pds-rings.seti.org/cassini/

Sample Data Set Support Page at the Rings Node

Cassini CIRS Data



Introduction

The Cassini Composite Infrared Spectrometer (CIRS) consists of two spectrometers (far-Infrared and mid-Infrared). It measures the infrared energy from Saturn, its rings and its moons. CIRS observations of Saturn's rings should determine the thermal structure of the the rings and provide insights into ring material composition and ring particle size.

The CIRS archive consists of two, multi-volume data sets.

> CO-J-CIRS-2/3/4-TSDR-V1.0 contains data from the Jupiter encounter.
>
> CO-S-CIRS-2/3/4-TSDR-V1.0 spans the entire Saturn portion of the mission.

The archive volumes contain CIRS data products, instrument documentation, calibration files, calibration algorithms, representative software for handling the CIRS data files, and documentation necessary to produce higher level calibrated products.

Getting Started

Users are strongly encouraged to review a CIRS AAREADME.TXT file. This file appears in the root directory of every volume. (Some of the header information in the AAREADME.TXT files varies from one volume to the next, but the body of information in the files is the same.)

Further details of the CIRS archive volumes can be found in the "Software Interface Specification" (SIS) Documents. These are found in the DOCUMENTS directory on each volume.

- The Data Product and Label SIS is available as DOCUMENT/DATASIS.PDF and DOCUMENT/DATASIS.TEX.
- The Volume Organization SIS is available as DOCUMENT/VOLSIS.PDF and DOCUMENT/VOLSIS.TEX.

The CATALOG subdirectory on each volume contains a wealth of information about the CIRS instrument, team and data set. See, in particular:

- COCIRS_xxxx/CATALOG/DATASET.CAT: Description of the data sets.
- COCIRS_xxxx/CATALOG/INST.CAT: Description of the CIRS instrument.
- COCIRS_xxxx/CATALOG/INSTHOST.CAT: Description of the Cassini spacecraft.
- COCIRS_xxxx/CATALOG/MISSION.CAT: Description of the Cassini mission.

A file ERRATA.TXT in the root directory of each volume documents any anomalies or deviations from PDS standards.

The SOFTWARE directory on each volume provides calibration and geometry software and details and further information on performing these processing activities.

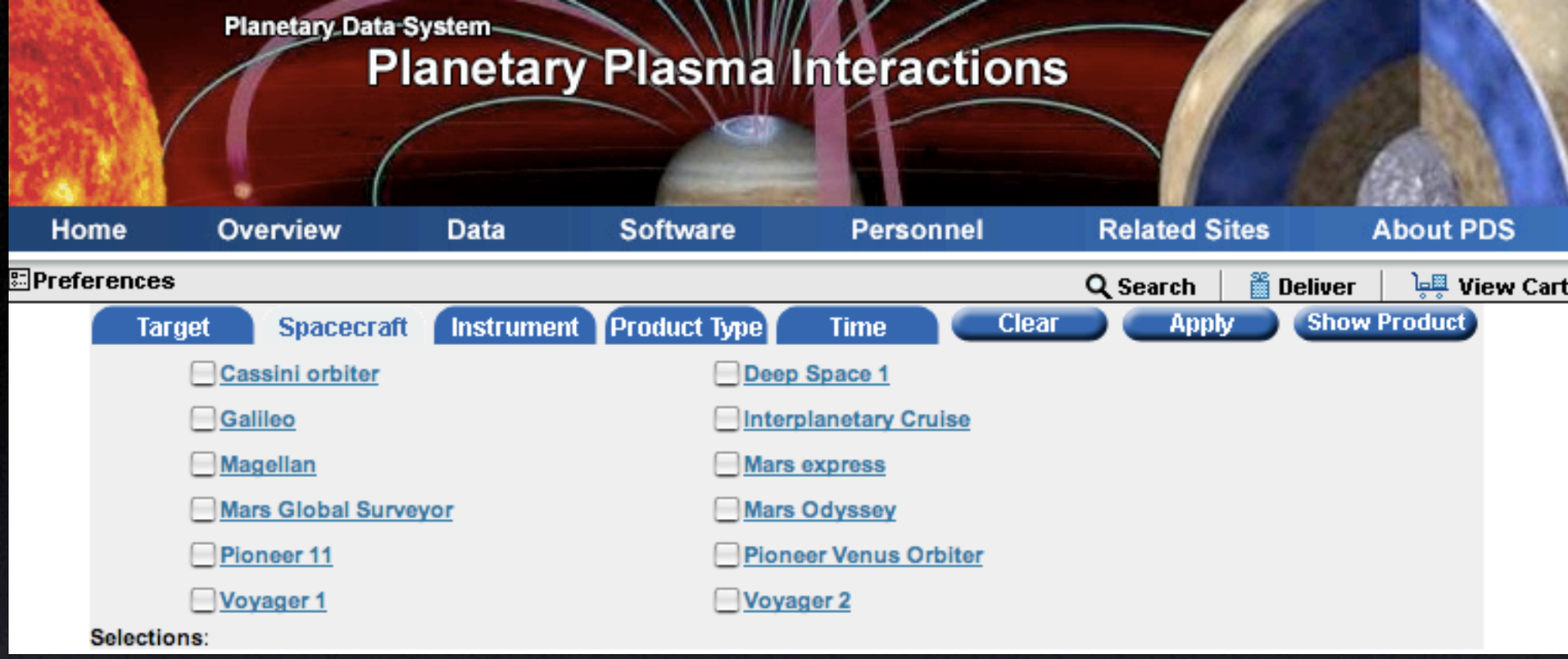
Additional descriptions of the instrument can be found at the Cassini CIRS web page.

Finding the Data You Want

The PDS Rings Node will have data search options available as quickly as possible. In the mean time, you can use the Volume ID, coupled with either subdirectory and file names (browse the data directories), or the INDEX.TAB files to find your data.

http://pds-rings.seti.org/cassini/cirs/

Cassini Pages at the PPI Node



http://pds-ppi.igpp.ucla.edu/ditdos?search

CASSINI DATA HOLDINGS...

The PDS/PPI Node maintains fields and particle data from NASA's planetary missions. You can explore

All Cassini data holdings

or view data in one of the following ways:

Target:

- Venus
- Earth
- Jupiter
- Saturn
- Interplanetary Cruise

Instrument:

- Cassini Plasma Spectrometer (CAPS)
- Ion and Neutral Mass Spectrometer (INMS)
- Magnetospheric Imaging Instrument (MIMI)
- Magnetometer (MAG)
- Radio and Plasma Wave Science (RPWS)
- Spacecraft Ephemeris

http://www.igpp.ucla.edu/pdsppi/Cassini.htm

Dust Data at the Small Bodies Node

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

SBN Asteroid/Dust Subnode

Cassini CDA Archive

The Cassini CDA (Cosmic Dust Analyzer) data will be available in one-year segments in the table below. Data volumes will be added to the table as they become available.

For a brief overview of the contents of each volume, see the AAREADME.TXT file in the root level of the volume. For descriptions of the Cassini mission and spacecraft, the CDA instrument, and this data set, see the catalog files in the CATALOG directory. For the Software Interface Specification (SIS) document for the CDA data, see the DOCUMENT directory.

Browse:	Start time:	Stop time:	Download size:	Download:
COCDA_0001	1999-085	2000-100	28 MBytes	COCDA_0001.tar.gz
COCDA_0002	2000-100	2001-100	212 MBytes	COCDA_0002.tar.gz
COCDA_0003	2001-100	2002-100	340 MBytes	COCDA_0003.tar.gz
COCDA_0004	2002-100	2003-100	274 MBytes	COCDA_0004.tar.gz

Note: Data from the Cassini HRD (High Rate Detector) are in progress and will be provided on this site later.

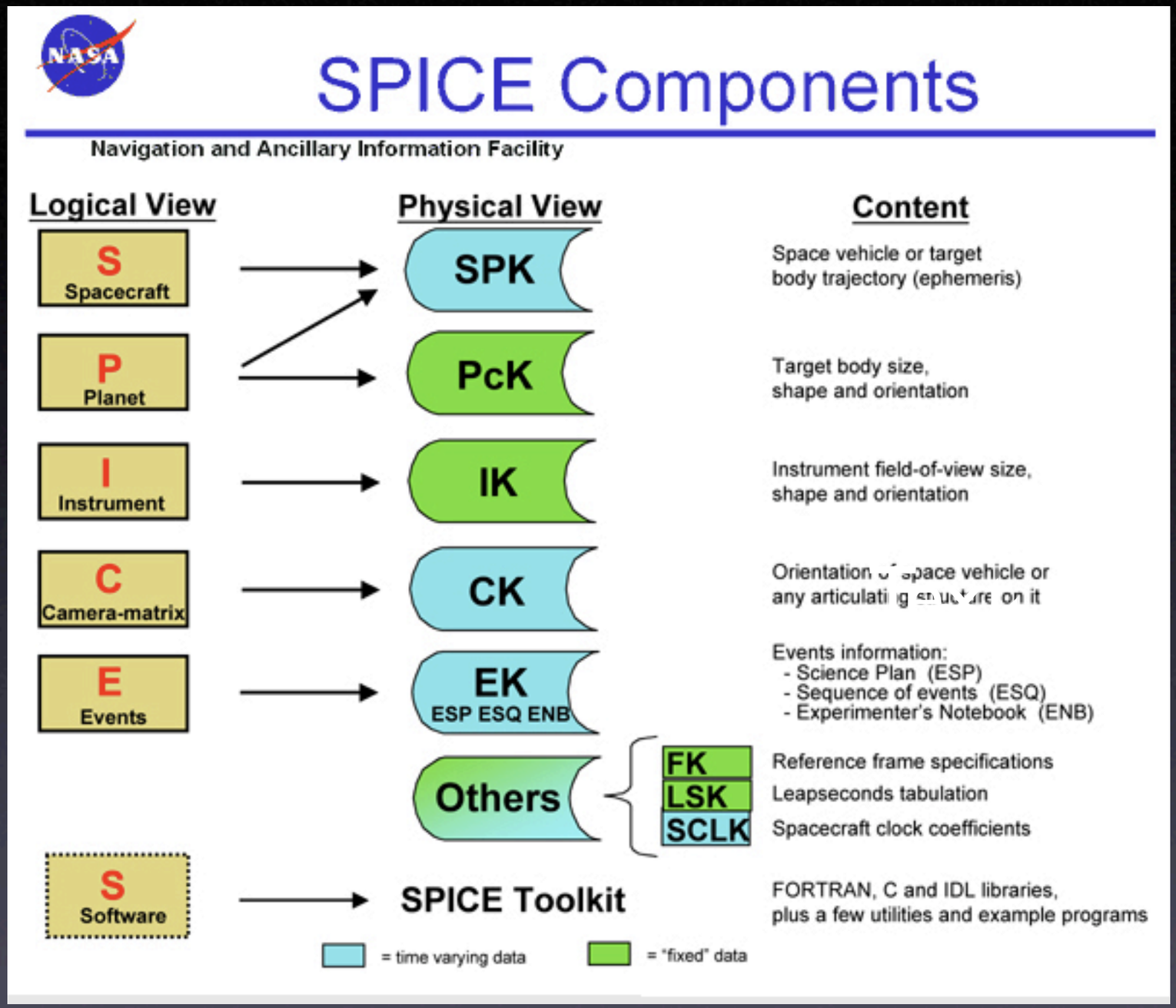
Return to Asteroid/Dust Archive

http://sbn.psi.edu/archive/cocda/

Available Software for Data Analysis

- ISS & VIMS
  - Calibration
    - ISS: see volume COISS_0011.
    - VIMS: see each volume's SOFTWARE directory.
  - Data analysis software:
    - VICAR: http://www-mipl.jpl.nasa.gov/
    - ISIS: http://wwwflag.wr.usgs.gov/USGSFlag/Data/software/software.html
    - CAVIAR: Runs via IDL. Publicly available soon.
    - CASVU: For ring studies. Publicly available soon.
- CIRS
  - Calibrated data are archived but calibration algorithms may change.
  - VANILLA software for selecting data is in every SOFTWARE directory.
    - Only LINUX and Solaris are currently supported.
- UVIS
  - Calibration software and readers are in every SOFTWARE directory.
  - Cubes can be analyzed with ISIS.

“SPICE” Software and Data at the NAIF Node



- NAIF = “Navigation and Ancilliary Information”
- All Cassini support information (ephemeris, pointing, instrument, planetary body properties, etc.) is stored in “SPICE Kernels”
- The SPICE Toolkit lets programmers access this information easily.
  - Available in C, IDL and FORTRAN
  - For LINUX, Windows, Mac OS, Solaris, others

http://naif.jpl.nasa.gov/naif/

Kernels: ftp://naif.jpl.nasa.gov/pub/naif/CASSINI/kernels/
Toolkit: ftp://naif.jpl.nasa.gov/pub/naif/toolkit/

Archive Data Volumes

If you find yourself here, DON'T PANIC!

Index of /cds

Name	Last modified	Size	Descr
Parent Directory	30-Sep-2005 14:28	-	
ASTROM_0001_IN_PEER_..>	13-Nov-2003 11:38	-	
COCIRS_0010/	27-Jul-2005 16:06	-	
COCIRS_0011/	27-Jul-2005 16:09	-	
COCIRS_0012/	17-Jul-2005 04:11	-	
COCIRS_0101/	17-Jul-2005 07:13	-	
COCIRS_0102/	17-Jul-2005 09:57	-	
COCIRS_0103/	17-Jul-2005 12:11	-	
COCIRS_0104/	19-Jul-2005 11:46	-	
COCIRS_0107/	19-Jul-2005 11:48	-	
COCIRS_0110/	19-Jul-2005 11:50	-	
COCIRS_0201/	19-Jul-2005 11:51	-	
COCIRS_0205/	19-Jul-2005 11:53	-	
COCIRS_0207/	19-Jul-2005 11:56	-	
COCIRS_0209/	19-Jul-2005 11:56	-	
COCIRS_0210/	19-Jul-2005 11:59	-	
COCIRS_0301/	19-Jul-2005 12:00	-	
COCIRS_0304/	19-Jul-2005 12:00	-	
COCIRS_0306/	27-Jul-2005 16:06	-	
COCIRS_0401/	19-Jul-2005 12:02	-	
COCIRS_0402/	19-Jul-2005 12:05	-	
COCIRS_0403/	19-Jul-2005 12:09	-	
COCIRS_0404/	19-Jul-2005 12:14	-	

Index of /cds/COISS_2007

Name	Last modified	Size	Description
Parent Directory	26-Sep-2005 17:36	-	
AAREADME.TXT	23-Jun-2005 07:24	34k	
CATALOG/	27-Jul-2005 16:03	-	
DATA/	27-Jul-2005 16:03	-	
DOCUMENT/	27-Jul-2005 16:03	-	
ERRATA.TXT	23-Jun-2005 07:29	10k	
INDEX/	27-Jul-2005 16:03	-	
LABEL/	27-Jul-2005 16:03	-	
VOLDESC.CAT	23-Jun-2005 07:46	2k	

Apache/1.3.33 Server at pds-rings.arc.nasa.gov Port 80

Cassini Volume Naming

Index of /cds

Name	Last modified	Size	De
Parent Directory	30-Sep-2005 14:28	-	
COCIRS_0010/	27-Jul-2005 16:06	-	
COCIRS_0011/	27-Jul-2005 16:09	-	
COCIRS_0012/	17-Jul-2005 04:11	-	
COCIRS_0101/	17-Jul-2005 07:13	-	
COCIRS_0102/	17-Jul-2005 09:57	-	
COCIRS_0103/	17-Jul-2005 12:11	-	
COCIRS_0104/	19-Jul-2005 11:46	-	
COCIRS_0107/	19-Jul-2005 11:48	-	
COCIRS_0110/	19-Jul-2005 11:50	-	
COCIRS_0201/	19-Jul-2005 11:51	-	
COCIRS_0205/	19-Jul-2005 11:53	-	
COCIRS_0207/	19-Jul-2005 11:56	-	
COCIRS_0209/	19-Jul-2005 11:56	-	
COISS_2006/	27-Jul-2005 16:06	-	
COISS_2007/	27-Jul-2005 16:06	-	
COUVIS_0001/	11-Sep-2005 18:41	-	
COUVIS_0002/	11-Sep-2005 18:46	-	
COUVIS_0003/	11-Sep-2005 18:53	-	
COVIMS_0001/	27-Jul-2005 16:09	-	
COVIMS_0002/	27-Jul-2005 16:09	-	
COVIMS_0003/	27-Jul-2005 16:07	-	

Names are of the form:

COxxxx_nnnn

where

- CO = "Cassini Orbiter"
- xxxx = Instrument ID

  ISS, VIMS, CIRS, UVIS, CDA, etc.

- nnnn = a 4-digit sequence number

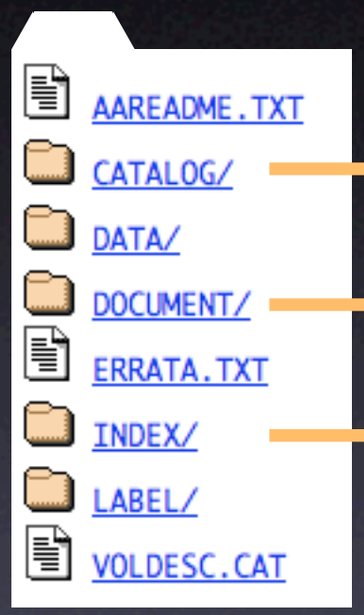
AAREADME.TXT:
an overview of the archive volume.

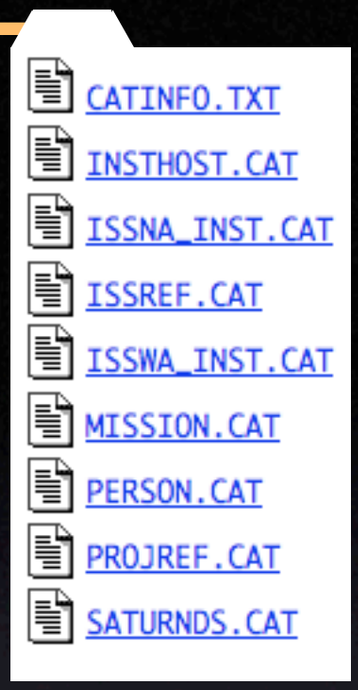
ERRATA.TXT:
summary of any known errors.

LABEL/:
optional directory contains additional information about data file formats.

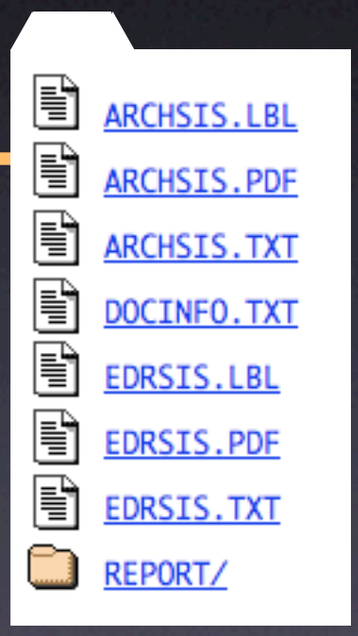
SOFTWARE/:
optional directory contains calibration or analysis programs.

VOLDESC.CAT:
a brief, computer-readable description of the volume.



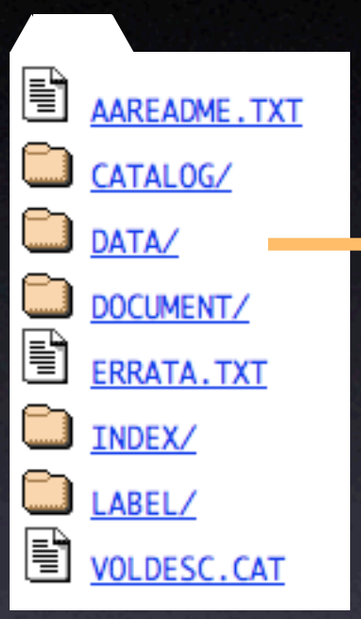


CATALOG/: Text files describing the mission, instrument, data set, etc.



DOCUMENT/: Detailed descriptions of the volume structure and file formats.

INDEX.TAB: an index of every data file on the volume as a comma-delimited table.
INDEX.LBL: defines all the columns in the table.



DATA/: all the data files, ordered by time or spacecraft clock count.

DATAINFO.TXT: more information about the contents and organization of this directory.

Data files are named by the spacecraft clock count.

.IMG is an image file

.LBL is the corresponding label file.

PDS Cassini Web Sites

Node	URL (http://...)
Engineering ("Central")	starbrite.jpl.nasa.gov/pds/
Imaging	pdsimg.jpl.nasa.gov/forms/
Atmospheres	pds-atmospheres.nmsu.edu/data_and_services/atmospheres_data/Cassini/Cassini.html
Plasma/Particle Interactions	www.igpp.ucla.edu/pdsppi/Cassini.htm; pds-ppi.igpp.ucla.edu/ditdos?search
Rings	pds-rings.seti.org/cassini/
Small Bodies	sbn.psi.edu/archive/cocda/
Navigation & Ancillary Info	ftp://naif.jpl.nasa.gov/pub/naif/CASSINI/kernels/ ftp://naif.jpl.nasa.gov/pub/naif/toolkit/