Accomplishments YTD vs. FY04 Plan

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The Atmospheres Discipline Node continues to

Focus on assisting in early mission planning

Archiving and distributing data

Checking to determine that data reduction algorithms are sufficiently well defined to assure current and future use of the data

Working with planetary mission personnel

Providing expert advice to the planetary community

Responding to direct public requests for information

Atmospheres node personnel have

Taken an active role in development and maintenance of standards and ingestion procedures.

Developed smoothly functioning interactions with the Cassini instrument teams

Established solid interactions with the Huygens team to assure that the Huygens data are readily available for NASA scientists and to assist Joe Zender to assure that the main ESA data archive will be parallel to the PDS and readily accessible by NASA planetary scientists.

Planned Accomplishments (YTD) during FY04

The following sections describe the tasks that were planned for FY04.

Initial plans were described in NASA Planetary Data System Atmospheres Node Task Plans and Budgets for Fiscal Year 2004-2007, a document that was prepared as part of the Project Operations Planning (POP) cycle.

Additional plans spanning FY05-FY09 are defined in The Planetary Data System Atmospheric Sciences Node, a proposal submitted by New Mexico State University in response to a NASA NRA 03-OSS-04.

Project Planning (including System Planning)

Task	Status
Work with Code S to assure AO and initial reviews emphasize development of PDS compliant data sets.	ON TRACK
Work with Code S Planetary R&A Program managers to develop access to results from currently funded laboratory experiments.	ON TRACK
Develop efficient access to other Code S archives that obtain Planetary data.	ONGOING

System Integration and Test

Task	Status
Maintain and update online repositories for access by the PDS-D system.	ONGOING
Participate in further developments of the PDS-D system, especially production of guides and standards interpretation.	ONGOING
Interact with Geo node to assure spectral library is optimized for atmospheric use	ONGOING

Web Site Development

Task	Status
Develop and deploy a new PDS web site, which is compatible with the Central Node development	DONE

Operations and User Support

Task	Status
Continue to serve the community by providing advice, including seeking evaluation from a broad section of the community by soliciting input on specific questions	ONGOING

Mission Data Engineering

Cassini Mission	
The first data release will be July 2005. This data will include all data acquired before Saturn Orbit Insertion (July 2004). None of these tasks will be complete until the first data are checked and ingested into the PDS in July 2005.	
Task	Status
Taking an aggressive role in SAWG monthly telecon. This involves direct interaction with archivists who are lagging at a time early enough, relative to the telecon, to encourage increased production.	ONGOING
Assisting in updating of SISs and assuring that labels contain optimal key words for effective searches.	ONGOING
Encouraging teams to establish and test a data pipeline by Saturn Orbit Insertion (SOI) in July '04. (Beebe's efforts have been partially funded by the mission during FY 2002-4.)	ONGOING
Interfacing directly with the CIRS and UVIS teams to assure that the data sets are defined, that reduction algorithms, calibration files and examples of reduced data sets will be incorporated in the data set and that the pipeline for delivering the data	ONGOING

Mission Data Engineering

Cassini Mission (cont.)	
Task	Status
Working with Mark Sykes for CDA to assure optimal indexing and search of the data.	ONGOING
Working with Dick Simpson to assure that 0 level is archived and with Dick French of the Cassini team who has agreed to submit higher order products for RSS for which the mission is not committed.	ONGOING
Working with Patty Garcia and the USGS RADAR mapping group to fully understand the coordinate system, etc. to assure compatibility with Huygens data sets.	ONGOING
Working with the imaging node to assure optimal indexing and search of the data for ISS and VIMS and that data is available to rings, atmospheres, fields and particles and geology communities through optimal search capabilities (Note: there are no funds i	ONGOING
Working with the NAIF node (Chuck Acton), Diane Conner and the teams to assure that C-smithing is trapped and directed to the PDS.	ONGOING
Assure that the Data Tracking system allows data suppliers to determine the status of each data unit they have submitted. This will be needed to assure accurate monitoring and rapid ingestion to allow community access.	ONGOING

Mission Data Engineering

Huygens Mission	
The goal is to provide support to Jean-Pierre Lebreton and Joe Zender to generate a well-documented PDS compatible data set. ESA scientists have an 18-month proprietary period. Our role will involve:	
Task	Status
Lyle Huber chairing the Huygens DAWG and conducting monthly telecon.	ONGOING
Motivating the teams for probe instruments ACP, DISR, DWE, GCMS, HASI and SSP to produce PDS compatible data sets and helping Joe Zender and Jean Pierre Lebreton solve data sharing problems.	ONGOING

Mission Data Engineering

Mars Exploration Program - Related Activities

During the 2004-2008 time period, the Mars Exploration Program will consist of the two Mars Exploration Rovers (MER) and the Mars Reconnaissance Orbiter (MRO). These missions possess strong surface/geology components, with some atmospheric science.

An effort needs to be made to evaluate the reliability of existing climatic data and to organize it into a consistent database that is readily accessible to provide constraints for global modeling.

More easily accessed data needs to be extracted from the MGS TES and MOLA and the 15-micron channel of Themis/Odyssey data sets. All entry profiles need to be organized and critically compared. Data from Pathfinder and Viking need to be integrated and an effort needs to be made to provide quick and easy access to all the data for climatic modeling and future planning of entry and landed phases of future. Tasks addressed in FY04 follow.

Mission Data Engineering

Mars Global Atmospheric Properties

Task	Status
MGS TES-extract temperatures at 38 pressure levels, develop a table of temperature, pressure, column optical depth, latitude, longitude, local time, and season from the 2x3 fields-of-view summation data (better S/N than single point data). This is not a '	ONGOING
MRO -Dan McCleese / Tim Schofield Mars Climate Surveyor (MCS) IR instrument which will provide global coverage of atmospheric temperature, water vapor, and dust data; MRO will aerobrake for ~6 months (March '06 - August '06) down to altitudes of ~100 km	ONGOING
MRO -Onboard accelerometer measurements will provide a data set of upper atmosphere density, temperature, scale height (similar to that available from MGS and Odyssey)	ONGOING
MRO -CRISM is a high spatial and spectral resolution vis/near-IR spectrometer which will apparently obtain emission phase function (EPF) observations nominally for surface measurements, but these observations will provide observations enabling determination o	ONGOING

Mission Data Engineering

Mars Landed Meteorological Data Product

Task	Status
Viking Lander hourly-binned meteorological data is in PDS. This spans VL1 through 350 sols and VL2 through 1050 sols with 25 samples/Martian day. The corresponding point-by-point data is still in use within the Martian community but is not yet archived and placed into the PDS. We have this point-by-point data, for VL1 at least through sol 779 (out of 2245 sol lifetime), and for VL2 through at least 9999 (out of 1050 sol lifetime), and will incorporate this into the PDS Atmospheres node	ONGOING
Best-effort Pathfinder wind data set can be created with an MDAP grant. All other MPF Meteorology data is in the archive	ONGOING

Mission Data Engineering

Mars Entry Profile

Task	Status
Pathfinder data is mostly complete, though some questions have recently been raised	DONE
Viking 1 & 2 entry profiles exist within the Mars community- need to be evaluated and ingested into the PDS Atmospheres node. These profiles are in residence at NMSU	REPLANNED
MER does not have pressure sensors on board; thus this mission will add little data. These landers do possess onboard accelerometers from which entry profiles might be derived, but to date there is no science team in place to conduct such an effort	ON TRACK

Mission Data Engineering

Mars Aerobraking

Task	Status
MGS data is in the archive	DONE
Odyssey reduced accelerometer data (density, scale height, temperature) at 110 and 120 km and periapsis height (similar to the 'altitude' data set for MGS) are available and archive is nearly complete	ONGOING

Mission Data Engineering

ESA Mars Express

Task	Status
We will serve in an advisory role for the PFS (IR Fourier spectrometer) and SPICAM (UV camera) relative to archiving atmospheric data. Our connection with ESA (Joe Zender) via Huygens will assure that the data is consistent with ESA and PDS standards	ONGOING

ESA Venus Express

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Mission Data Engineering

Messenger

Messenger is scheduled for launch during the week of Aug 2. The project delivered preliminary SISs during the week of July 18 and requested reviews by Aug 9.

Task	Status
We will interact with the MASCS archivers to assure that the MASCS - SIS is complete.	ON TRACK

Mission Data Engineering

Galileo

Task	Status
Ingestion of PPR data into the archive.	DONE
Ingestion of EUV/UVS data into the archive.	ONGOING
IRTF Galileo Support Imaging data set will be ingested. IRTF time has been obtained by N. Chanover et al to provide improved calibrations for this supporting data set. This data will be conditionally on line by the end of FY04.	ONGOING

Unplanned Accomplishments (YTD)

Task	Status
PDS-MRO peer review and delta review, initiated by the Mars Program Office	DONE
Cooperate in defining and editing Archive Life Cycle Document	DONE
Cooperate in defining and editing Archive Preparation Guide	ONGOING
Support PDSWG workshop on PDS requirements and roadmap	DONE
Support Mars Program Office PDS assessment	DONE
Support NASA HQ review of the PDS focusing on Central Node	ON TRACK
Define and support POP related activities	ON TRACK

Summary Assessment

Many of the Atmospheres Node activities are multi-year efforts.

Thus, with respect to the year-to-date (YTD) accomplishments verses the stated FY04 plans of the PDS Atmospheres Node (ATMOS) many of the tasks are ONGOING.

In addition to planned activities ATMOS has responded to needs of the central node to assist in production of guides and to resolve standards issues.

The following key "planned" milestones were achieved:

Cassini and Huygens Mission

Established and maintained exchange with instrument archivists

Assisted Cassini Data Engineer to develop SISs, data plans and a data tracking system (CATS).

Assisted to established a structure to assure an optimal integrated Cassini/Huygens data set. .

PDS Online System

Worked closely with Central node encourage early mission planning and to optimize search /retrieval capabilities of on-line system

Developed "One NASA" ATMOS interface and integrated node into the PDS online system

Developed and carried out a preliminary survey to critique the PDS online system using graduate students and post-doctoral fellows to obtain criticism from expert users

In Summary

The PDS Atmospheres Node is continuing to work with the Central Node and other nodes to understand the demands of the transition to operating as a formal project -- with all of the additional obligations required of being a project.

The Atmospheres node is continuing to assist in mission data ingestion and in the development and operation of the PDS Online System for the purposes of archiving and distributing planetary science data, and responding to the needs of the Planetary Science community.