MESSENGER: Observations at Venus 2 flyby (PDS available)

Presentation to the VEXAG

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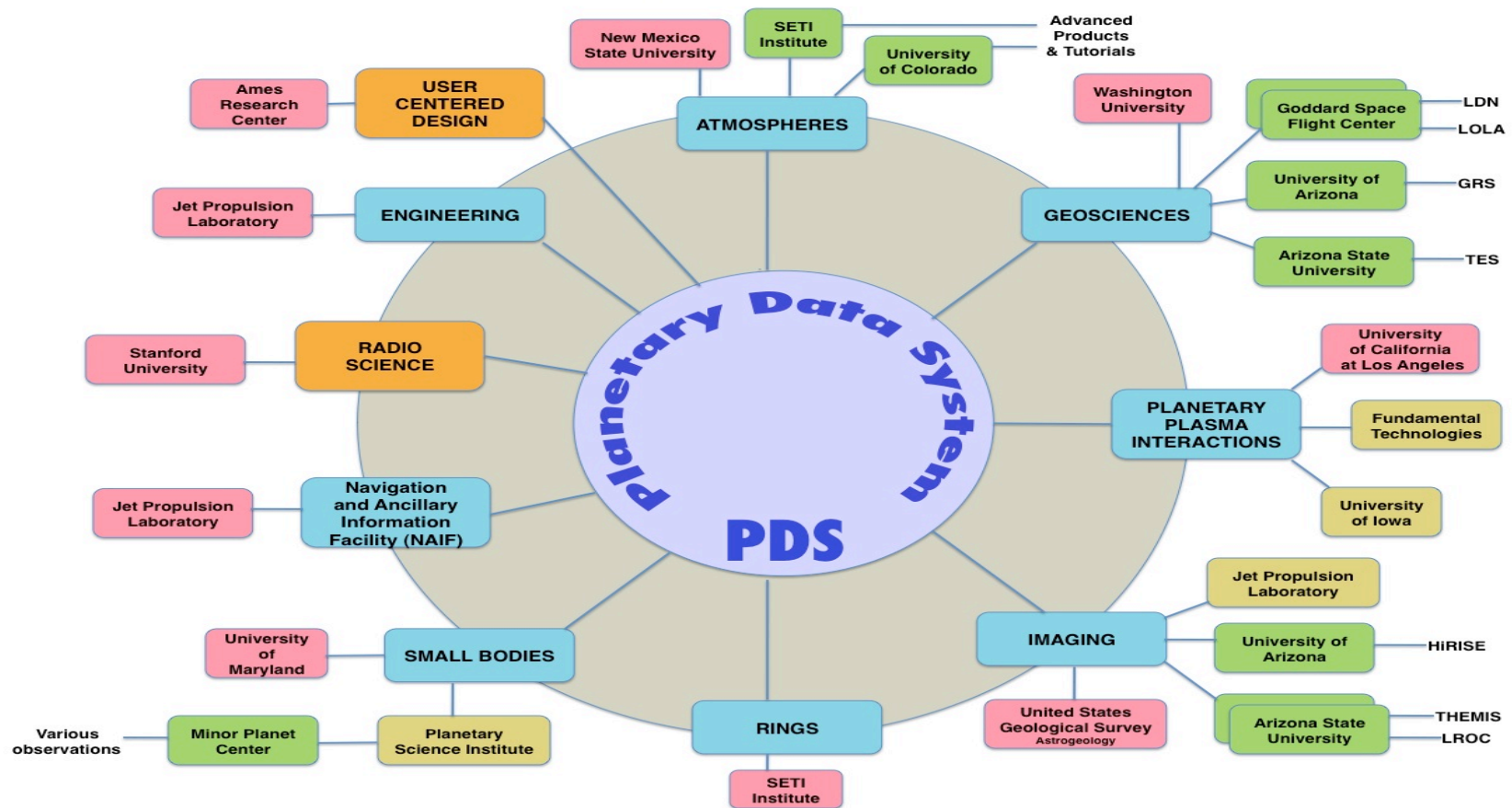Program Scientist, Planetary Data System

PDS Structure

- PDS is composed of discipline and service nodes (http://pds.nasa.gov)
Program Executive – Bill Knopf   Program Scientist – Ed Grayzeck

Background on PDS for MESSENGER

- Lead Node coordinates the data review and postings
- Lead shared between Geoscience (Washington University) and Planetary Plasma Interactions (UCLA)
- Best source of MESSENGER information at GEOSCIENCES (http://geo.pds.nasa.gov/missions/messenger/)
- Instrument data grouped according to Node expertise: EPPS and MAG at PPI; GRS, NS, XRS, MLA, Radio Science at GEO; MASCS (UVVS and VIR) at Atmospheres; MDIS at Imaging.
- SPICE products at NAIF
- Choose first release (Aug 3, 2004 through June 5, 2007)
- Next scheduled release for MESSENGER data is Sept 8

MESSENGER Instrument Suite

- Mercury Dual Imaging System – MDIS

- Gamma-Ray and Neutron Spectrometer – GRS/NS

- X-Ray Spectrometer – XRS

- Magnetometer – MAG

- Mercury Laser Altimeter – MLA

- Mercury Atmospheric and Surface Composition Spectrometer – MASCS [UVVS, VIR]

- Electronic Particle and Plasma Spectrometer – EPPS

- Radio Science – RS [Doppler tracking]

Venus flyby parameters

- Venus 1 flyby, no scientific data collected:

    Closest approach (2006) 24 Oct 08:34:30 UTC at 2995 Km

- Venus 2 flyby, several instruments on for calibration purposes; some scientific data:

    Closest approach (2007) 5 June 23:08:19 UTC at 338 km

    [sequence start at 5 June 21:38:19 at 49285 km and continues for 30 min past CA but battery charging during last 20 min]

Accessing Venus 2 Flyby Data at PDS nodes

- MAG, EPPS all posted data verified

- XRS, MLA, RS – engineering data ; GS and NS have data

- SPICE data – ftp from naif for files from launch through present

- MASCS (UVVS) – data at ATM; expected posting on Sept 8 with Venus 2 flyby data in directory v2f using separate Venus page

- MDIS both EDR and RDR data available through Imaging using two approaches (http://img.pds.nasa.gov/):

  Suggested, go to data portal and MESSENGER mission line and choose Online Data Products and decide if you want calibrated or un-calibrated products – open VOLUME and choose CDR

  Alternate is to use the Atlas and search under PRODUCT range using MESSENGER as the mission; choose MSGMDS_2001 volume and the index.tab file for data range