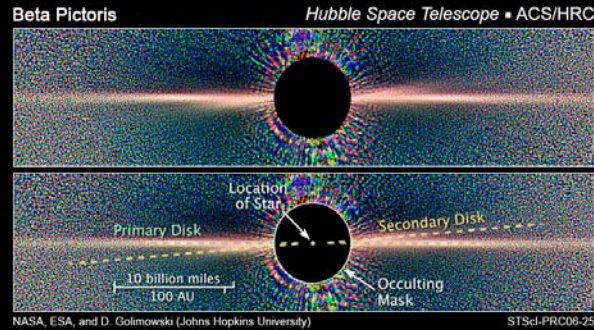




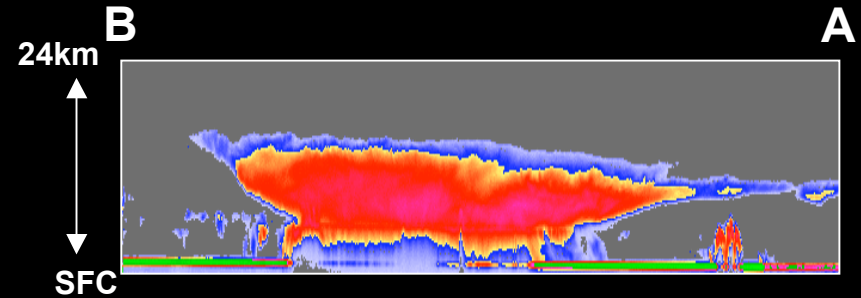
# **NAC Science Subcommittees Meeting Science Mission Directorate Overview**

**Dr. Mary Cleave  
July 6, 2006**

# Science Highlights

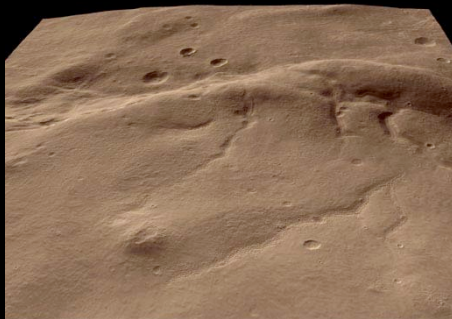


Hubble sees two dust disks around Beta Pictoris

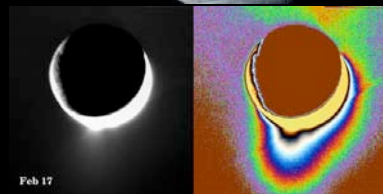


CloudSat sees Alberto

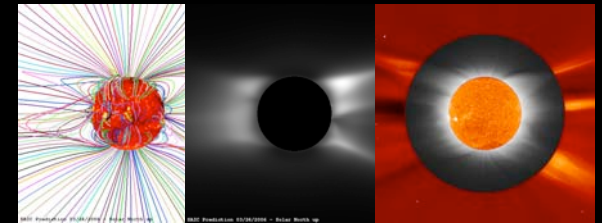
CloudSat Radar (12 June, 2006 07:35:56 – 07:37:33 UTC)



First color images from MRO's HIRISE camera



Cassini discovers potential liquid water on Enceladus via icy geysers



NASA and NSF computers simulate Sun's corona



# Current Topics

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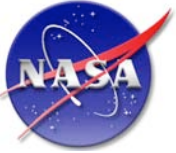
- **Nearing a decision on SOFIA**
  - Agency Program Management Council concluded that there were no insurmountable technical or programmatic challenges to the continued development of SOFIA.
  - The agency has developed a technically viable plan to proceed with development of the SOFIA aircraft, subject to the identification of appropriate funding offsets.
- **Magnetospheric Multiscale and Geospace**
  - NASA decided that Magnetosphere Multiscale (MMS) and Geospace spacecraft will be built by GSFC and APL, respectively
- **Planetary Science AOs**
  - Discovery proposals received April 5; Step 1 selection target is Sept/Oct
  - Mars Scout proposals due August 1; Step 1 selection target is December
- **Access to Space**
  - Delta II customer issues
  - Delta II-H problems that may affect Dawn and GLAST
- **NPOESS Nunn-McCurdy Certification**
  - Four NPOESS satellite configuration that leaves NPP intact for a 2009 launch into a PM orbit
  - Deletes several sensors important to climate science but retains platform capacity and retains integration costs
  - Creates a decision point in FY2010 on integration
  - Federal climate agencies and NRC-ESAS are independently weighing impacts



## SMD Serves Program Science Role for Exploration

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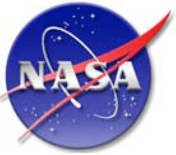
- **Using established, community-based processes to establish science priorities**
  - NRC study on Lunar science priorities
  - Workshops and Roadmaps
  - Competitive, peer-reviewed science and mission opportunities
- **Sponsoring precursor science (research, analysis, and missions):**
  - Planetary Science: Moon, Mars, and other destinations
    - M3 on Chandrayaan-1 selected through the Discovery Program
    - Mars Exploration Program
  - Heliophysics: Space weather and space radiation
    - ACE, SOHO, Solar Dynamics Observer
- **Sponsoring science that leverages Exploration opportunities**
  - Analysis of LRO data for scientific objectives
  - Solicitation in work: Concept Studies for Lunar Surface Science Opportunities



# Roles of the Exploration and Science Mission Directorates

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- **SMD will undertake appropriate Lunar science activities enabled by exploration**
  - Science of the Moon (research with the Moon as the subject)
  - Science on the Moon (use of the Moon as a laboratory)
  - Science from the Moon (use of the Moon as a platform)
  - Science near the Moon (trans- and cis-lunar space environment)
- **ESMD will undertake the research required to enable exploration**
  - Including human health and safety
  - ESMD RAD instrument on the SMD MSL
- **ESMD will develop exploration architectures**
  - SMD participates in both strategy and architecture development to ensure compatibility and opportunity for science
    - Past examples include ESAS and LRAS
    - Current examples include the Synthesis Team and the Lunar Architecture Team
- **Near Earth Object (NEO) work is being transferred from SMD to ESMD**
  - National interests in this area are more operational than scientific
  - SMD retains responsibility for NEO science



## Status of Response to Recommendations

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- The formal pathway for recommendations is from the Subcommittees to the Science Committee to the NAC plenary & chair to the NASA Administrator and then to SMD
- The NAC has not yet formally transmitted the recommendations from its May 17-18 meeting to NASA.
- Nevertheless, SMD has been working on key areas of concern discussed by the Science Committee and the Subcommittees.



# Status of Response to Recommendations

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- **FY07 Budget Mix**
  - Awaiting action by Congress
    - House mark-up added \$50M for R&A, along with earmarks for \$15M for Europa and \$10M for TPF
    - Senate has not yet marked up
    - Will reconsider R&A and small mission budgets if funds are added
    - Will make appropriate adjustments in initial FY07 budget based on final appropriation
  - Preparing FY08 budget with Subcommittee letters in mind
  - Assumption for future years is 1% per year growth through 2011 (per FY07 Budget request run out), and perhaps inflationary growth in 2012 and beyond
- **Rising Cost of Science Missions**
  - Identify drivers of cost increases for large missions
    - Working to establish a study
  - Assess the stability of the program in terms of an optimal portfolio of flagship, medium, and small missions
    - Implicit part of budget formulation and Science Plan development
  - Implement different management requirements for different classes of flight projects
    - Special presentation today
- **Science Plan**
  - Subject of presentation tomorrow