



MODIS Program Science

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MODIS Program Scientist
National Aeronautics and Space Administration HQ
MODIS/VIIRS Science Team Meeting
13-16 May 2008



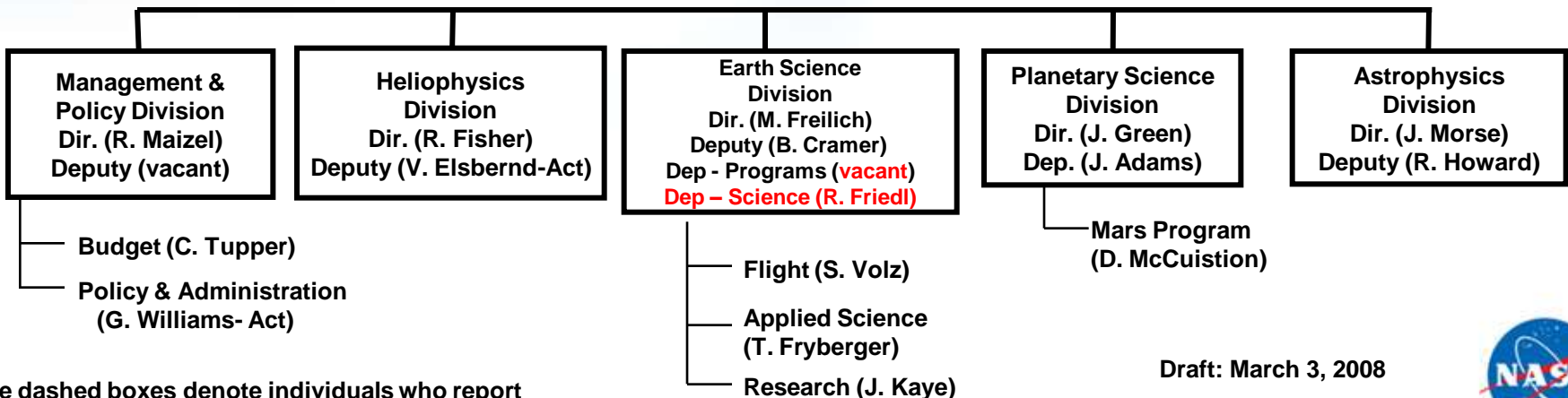


SMD Organization

Associate Administrator (AA) (Ed Weiler) Deputy AA (Chuck Gay)	
Deputy AA for Programs (Mike Luther)	AAA for Strategy, Policy & International (Marc Allen)
Chief Scientist (Paul Hertz) DCS for ES (vacant) DCS for SS (vacant)	Senior Advisor for R & A (Yvonne Pendleton, ?)
Senior Advisor for Science Process & Ethics (?)	Special Asst for NEOs and Exploration (Dan Durda)
Senior Advisor (vacant)	Executive Officer (Jens Feeley)

Chief Engineer
(K. Ledbetter)

Safety & Mission Assurance
(P. Martin)



Blue dashed boxes denote individuals who report to other organizations, but support SMD

Draft: March 3, 2008





What's New/FY08 Budget

- FY08 – CR through January 2008
- NASA FY08 Operating Plan may undergo revisions
 - No information at this point for Mission Science Teams
- FY07 – exercising 4th year option on Team Lead budget based on FY07 Senior Review





EOS Re compete

- 322 proposals received (7.18.2006)
- Three categories
 - 3.1 - EOS Instrument-specific Algorithm Refinement and Cal/Val Activities - 60
 - 3.2 - Algorithm Refinement and Cal/Val for Earth System Data Records - 93
 - 3.3 - Integrated Science Data Analysis -211
- March 2006 amendment reduced funding amount from \$30M/yr to \$25M/yr
- 14 Panels January-June 2007
 - Selection: 3 August 2007 – 122 proposals
 - Funding level of approx. \$26M/yr (FY07/FY08)





Future Research....

Prior MODIS Team Challenge - reap the full scientific benefits of MODIS, Terra, Aqua, & EOS

- Maintain/refine existing data products the best they can be (3.1 on EOS Rec.) focusing on core production, plus ESDRs (3.2 on EOS Rec.) for existing or new data product
- Develop new data products to enable important, new scientific and applied uses (3.3 SDA)
 - Land ATBD for Vegetation Moisture Content
- Utilize MODIS (and EOS) data products to create new scientific understanding of planet Earth and how it is changing – and new applications of this knowledge for decision support





Future Research....

The Continuity and Evolution of Earth System Science

- How does MODIS/EOS fit into a changing world?
- NASA Mission:
- **Strategic Goal 3 (6 total):** Develop a balanced overall program of science, exploration, and aeronautics consistent with the redirection of the human spaceflight program to focus on exploration.
 - Sub-goal 3A (7 total): Use Earth-orbiting satellites to study global change and enable better predictions of climate, weather, and natural hazards





Progress on the Challenge – Future Research

The Continuity and Evolution of Earth System Science

- NASA - advance planning at Agency (2009), Directorate (Congressional science plan delivered Jan 2007), Earth Science Division, Focus Area levels (MOWGs: CC&E; Atm. Composition) + new Administration
- Earth Science is continuing evolution from mission science teams to measurement-oriented science teams (ESDRs)
- Development of and Linkage to Global Earth Observing System of Systems (GEOSS) – land, ocean, atm; CEOS Virtual Constellations
- U.S. Commission on Ocean Policy Ocean Research Priorities Plan; Climate Change Science Program Strategic Planning
- R2O
- NRC NASA/NOAA/USGS Decadal Survey – January 2007, implementing mission concept studies now
- International Partnerships
- Merged products (NPP); new products (land)
- Linkages from MODIS to NPP VIIRS FU-1



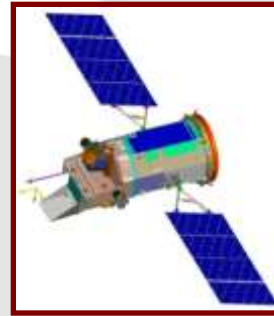
Missions in Formulation and Implementation



OSTM
6/2008



OCO
12/2008



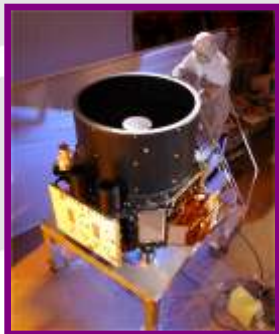
GLORY
6/2009



AQUARIUS
5/2010



NPP
6/2010



ICESat-II
2015



GPM
6/2013, 11/2014



SMAP
2012

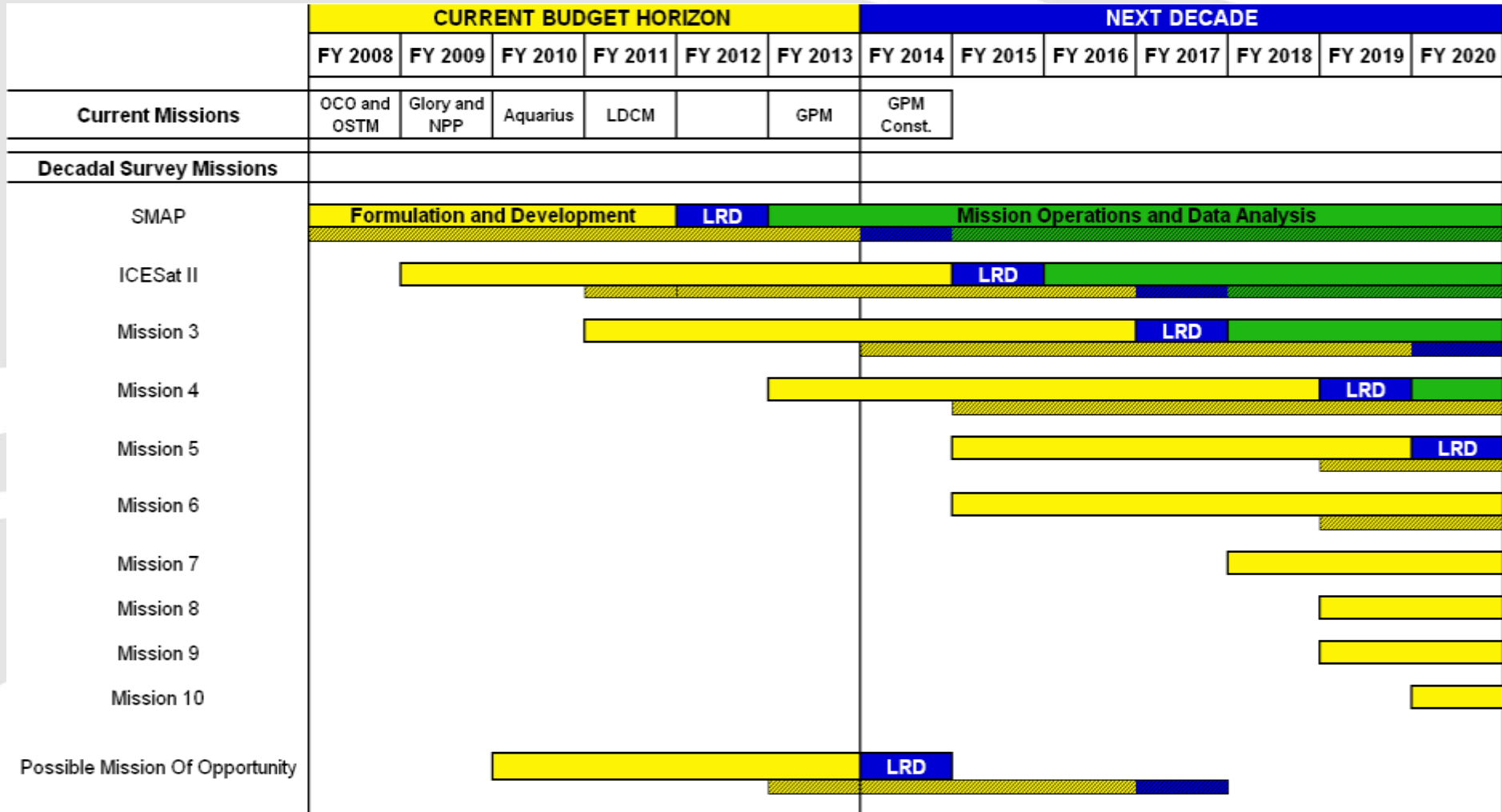


LDCM
7/2011

Earth Science New Initiative



NEW vs. PREVIOUS (hatched) MISSION PROFILE





Mission Extension/Senior Review Process

- Effort coordinated by Steve Volz at NASA HQ
- Process for extending missions beyond the prime life
- 2-year cycle
- Up for renewal in April 2009:
 - Terra (CERES, MOPITT, MISR, ASTER, MODIS)
 - Aqua (AIRS, MODIS, AMSR-E, CERES)Plus rest of ES portfolio except for OSTM, OCO, pending successful launches.





Issues for MODIS Team

- More interdisciplinary algorithm development approaches, Terra/Aqua intersensor science; share expertise
- Certain algorithm developers and validation investigators should address important deficiencies in key data products (e.g., cloud mask, atmospheric correction)
- Algorithm developers need to represent broader community needs by working with them
- Algorithm refinement PIs need to provide compelling justification for the importance/utility of the algorithm improvements and/or new data products + plan for transition to core production (recognizing infusion of new knowledge)
- Establish process for regular data product and algorithm reviews – maintain, evolve, refine, review as needed
- Role of MCST, evolution in and for VIIRS support for NASA?
- Need for monthly disciplinary telecons – raised at MCST meeting yesterday and the previous MODIS Team Meeting
- MODIS Land, Ocean, & Atmosphere Groups work interactions across the team





New EOS Data Review Needed

We need:

- A plan for review of algorithms for the new and alternative EOS algorithms
 - Assess quality and importance of data product suites (and their components)
 - Prioritize EOS data products relative to each other and relative to other needs of the community they serve
 - Recommend changes, improvements, level of service by data systems and archives
 - Must involve community (peer review)
 - Must take into account NASA (or other) resources / program components required to support the products; involve data system and archive management, NASA HQ Focus Area Leads (program/project managers)
 - **Suggestions Welcome**





Measurement Teams

Continuing/evolving measurement streams, there will be one science team, competed periodically, that provides scientific guidance to present and future missions and for the utilization of past data sets

- Support and focus on Earth System Data Records
 - Terrestrial community white papers
- One data system to ensure a “seamless” time series
- Scientific guidance and priorities must represent broad user community
- Future MODIS Team Meetings
- NPP and NPOESS VIIRS – role for NASA?





MODIS Team Meeting – May 2008

- Update on “new” team (PI) progress, integration
 - Algorithm Refinement and Validation
 - ESDRs
 - Science Data Analysis Results
- Friday Summary: Issues encountered
 - **MCST: instrument issues for Aqua and Terra MODIS**
 - Oceans
 - Land
 - Atmosphere

