



# Planetary Science Division Update

*Presentation at the  
Outer Planets Assessment Group Meeting*

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Marc 9, 2009



# Outline



- Academy Studies
- Planetary missions status and plans
- New Frontiers/Discovery status
- Research and Analysis update

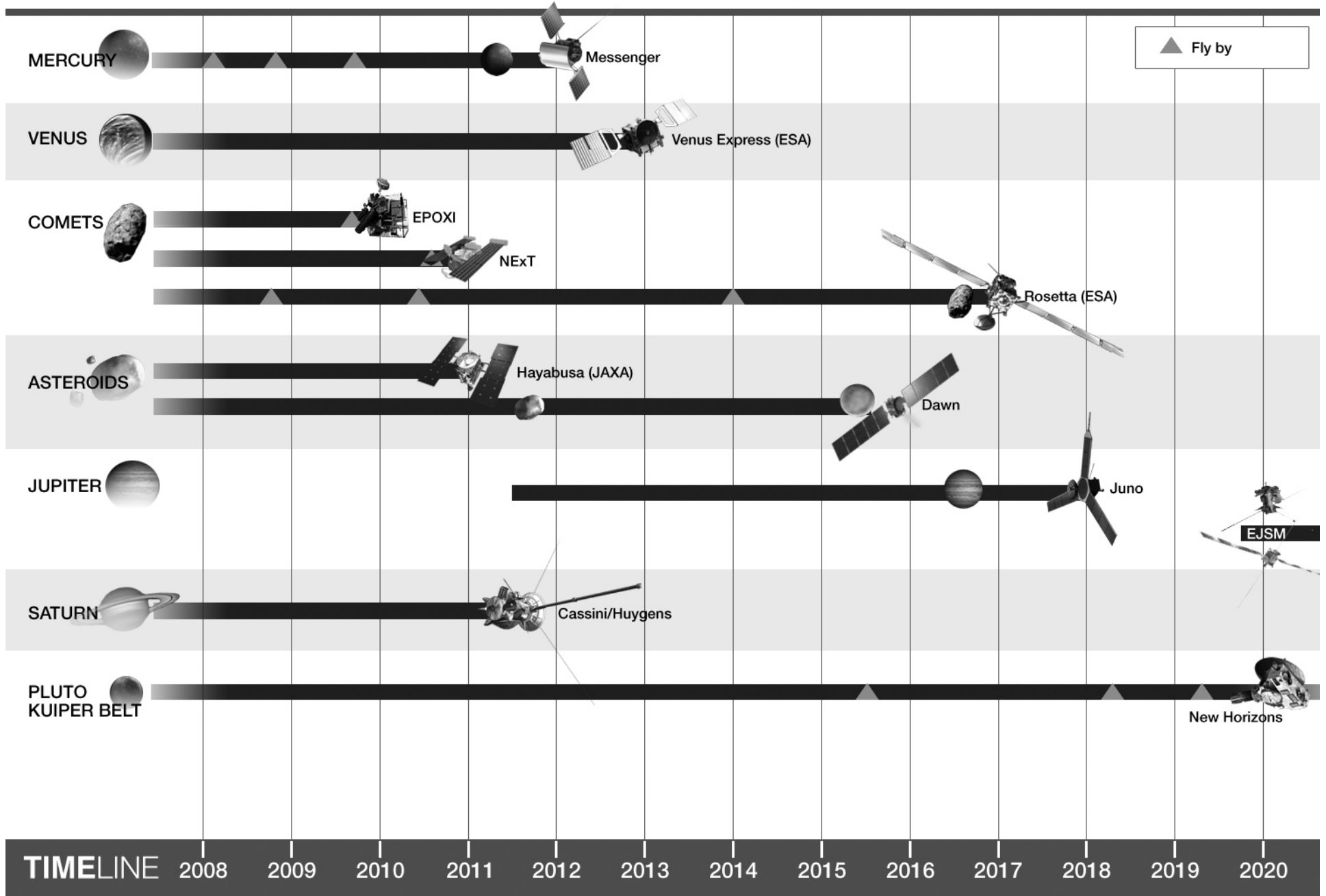


# National Academy Studies

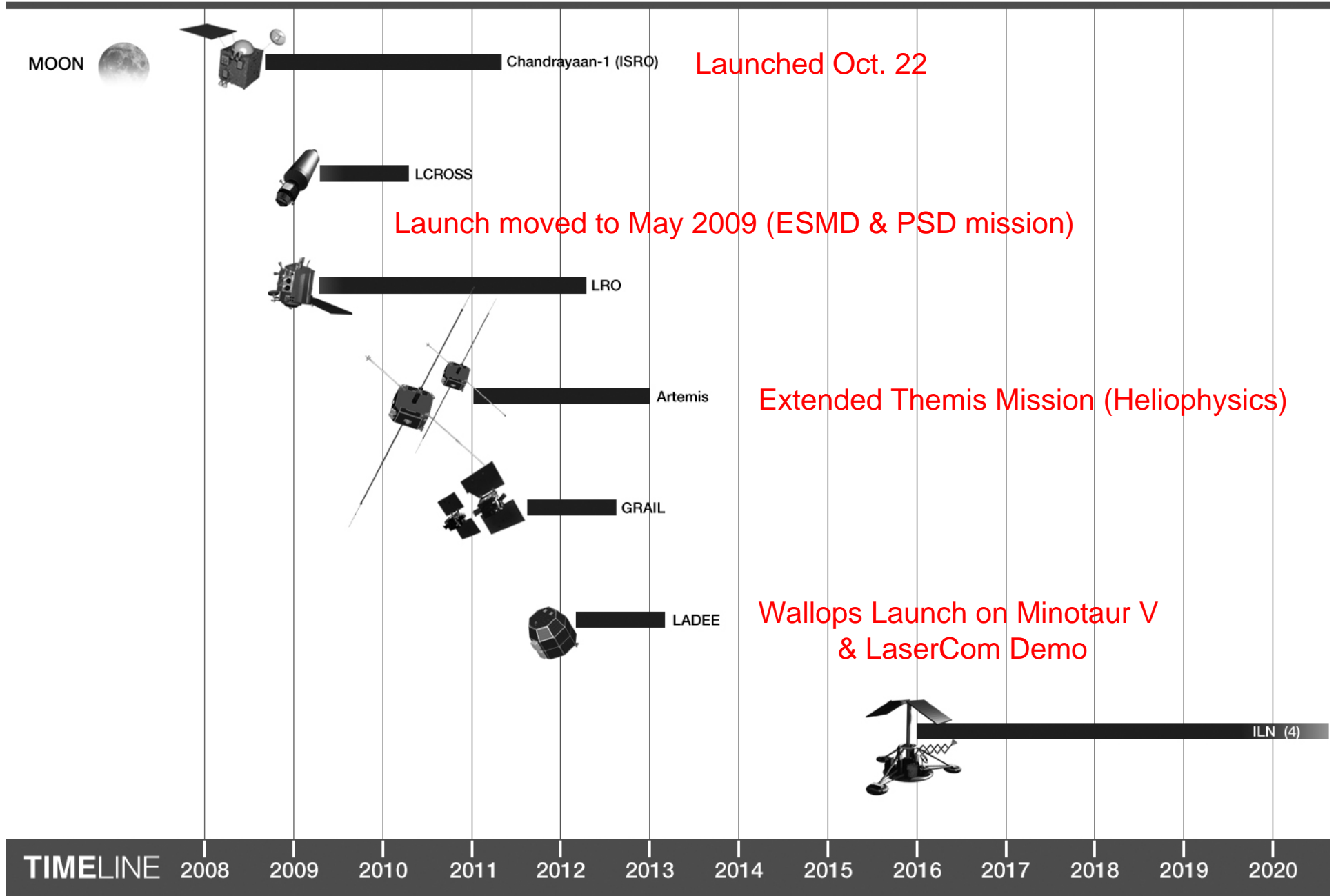


- **RPS study**: report release expected in late June; special request for interim report rescinded; prepub expected in late April/early May
- **R&A study**: mtg #1 held 1/21-23; mtg #2 will be 3/11-13 in Washington
- **NEO survey and deflection study**: Survey/Detection Panel held mtg on 1/28-30, will meet again 4/20-22 in Tucson; Mitigation Panel being formed, 1<sup>st</sup> mtg in late March/early April
- **Planetary Protection for Mars**: final stages of review; will skip prepublication delivery and deliver final in May
- **Planetary Science Decadal Survey**: appointments in progress
  - Town Hall discussions at the DPS and the Fall AGU
  - Panels being pulled together now  
Underlined = previously directed by Congress

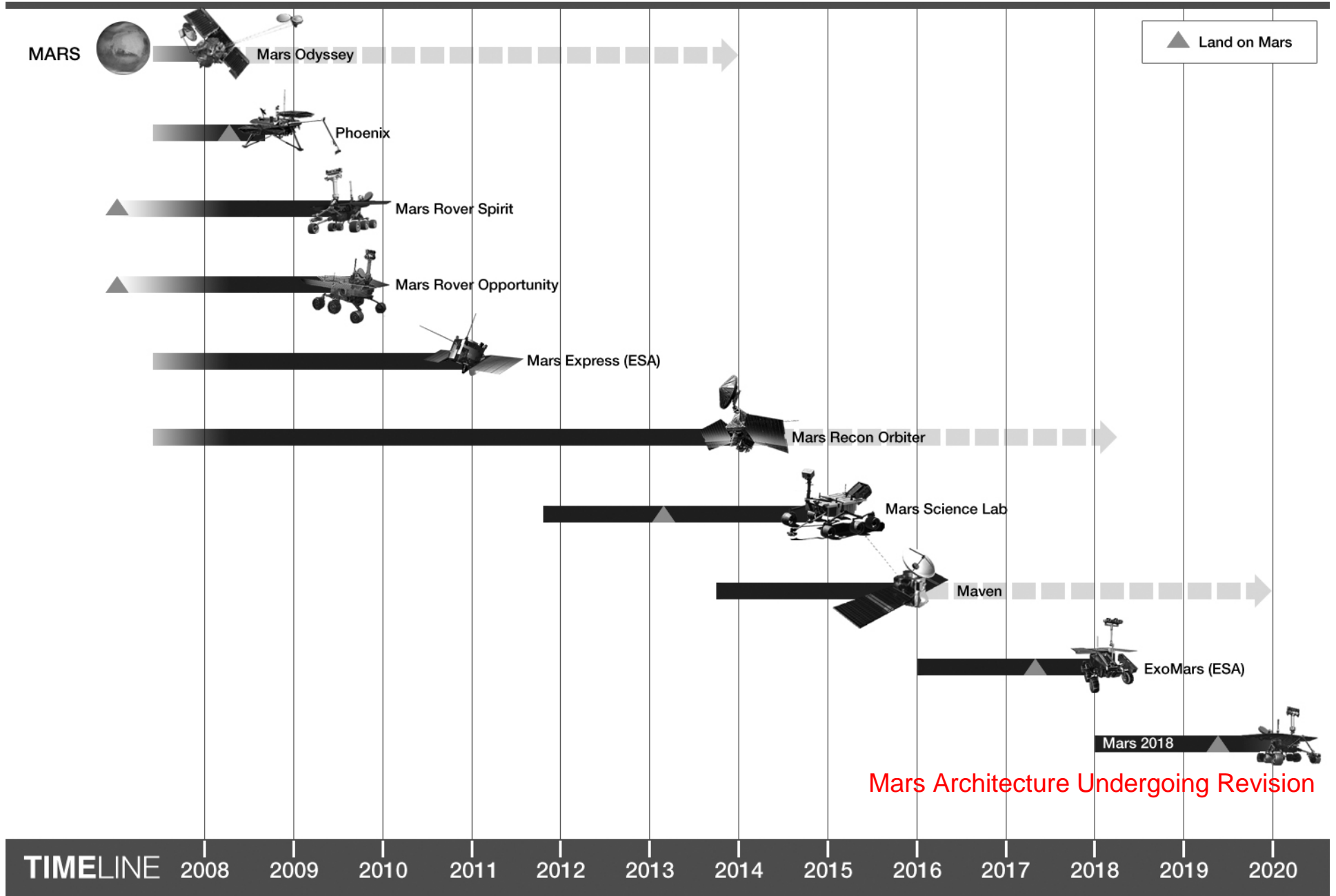
# Planetary Missions (Non-Mars, Non-Lunar) timeline



# Lunar Mission timeline



# Mars Mission timeline





# MSL Status



- MSL has slipped to the 2011 opportunity and will incur increased costs
  - FY09 MSL costs will be maintained as planned (\$223M)
- Launch slip will be funded by MEP but a rephasing of funding using other planetary programs will be part of the solution
  - NASA's approach is to create a stronger partnership with ESA for ExoMars (2016)
- Current issue of the launch manifest conflicts between Juno & MSL 2011 - promising solution
- More analysis continues on total cost estimates and launch conflicts
  - Standing Review Board at JPL March 24-25
  - Directorate Program Management Council; Apr 14th
  - Agency Program Management Council; Apr 22nd



# Outer Planets Flagship - Curt New Frontiers & Discovery





# New Frontier Program Status



- Open competition for PI class missions of strategic importance to Planetary Science in the < \$1B class
- Draft AO released November 17th
  - First use of the new standard AO for PI-led missions
- December Workshop on Draft AO held with a comment period that closed on January 5th
  - Answers to questions posted
- AO is in the signature cycle
- NSPIRES and PEN announcements to come out very soon

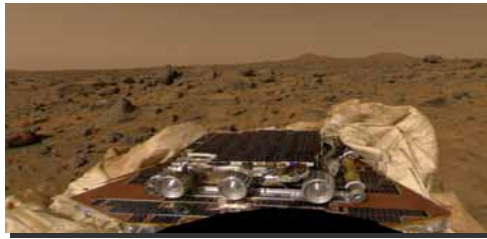


# Discovery Program

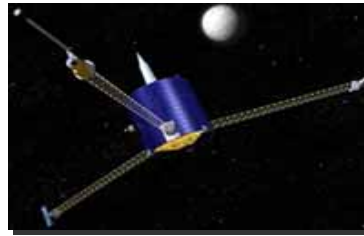


Completed

Mars evolution:  
Mars Pathfinder (1996-1997)



Lunar formation:  
Lunar Prospector (1998-1999)

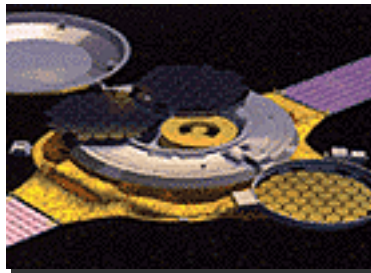


NEO characteristics:  
NEAR (1996-1999)

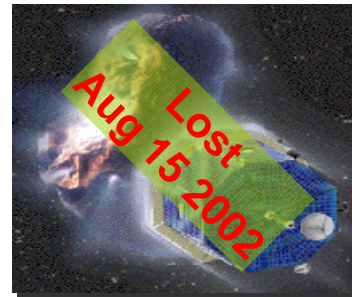


Completed / In Flight

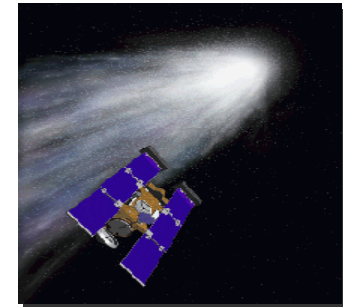
Solar wind sampling:  
Genesis (2001-2004)



Comet diversity:  
CONTOUR

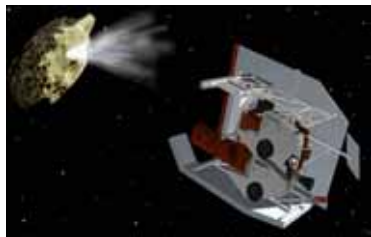


Nature of dust/coma:  
Stardust(1999-2006 )

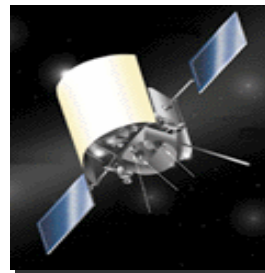


In Flight / In Development

Comet internal structure:  
Deep Impact (2005-2006)



Mercury environment:  
MESSENGER (2004-2012)



Main-belt asteroids:  
Dawn (2007-2015)



Lunar Internal Structure  
GRAIL (2011-2012 )



No RPS were used on any of these



# DSMCE Selections

Baines, Kevin	JPL	Venus	Aerial Vehicle	Polar VALOR: The Feasibility of A Nuclear-Powered Long-Duration Balloon Mission to Explore the Poles of Venus
Elphic, Richard	Los Alamos National Laboratory	Moon	Lander	Locating and Characterizing Lunar Polar Volatiles: Feasibility of a Discovery-Class Mission
Jolliff, Bradley	Washington University	Moon	Rover	Journey to the land of Eternal Darkness and Ice (JEDI): A Lunar Polar Volatile Explorer
Rivkin, Andrew	Applied Physics Lab	Asteroid	Lander	Ilion: An ASRG-Enabled Trojan Asteroid Mission Concept
Hecht, Michael	JPL	Mars	Lander	A tour through Martian history: An ASRG-powered polar ice borehole.
Stofan, Ellen	Proxemy Research	Outer Planets	Lander	Titan Mare Explorer (TIME)
McEwen, Alfred	University of Arizona	Outer Planets	Orbiter	Mission Concept: Io Volcano Observer (IVO)
Sandford, Scott	NASA/AMES	Comet	Sample Return	Concept Study for a Comet Coma Rendezvous Sample Return Mission
Sunshine, Jessica	Univeristy of Maryland	Comet	Lander	Comet Hopper

- Next Discovery AO will follow the New Frontiers release
  - Time of release is ~6 months after NF
  - Will use AO simplification modeled after NF
- Final Report presentations completed
  - GFE Stirling as part of the next Discovery AO is TBD



# R&A Update



# R&A Update

- Cassini Data Analysis Program
  - Max Bernstein has replaced Denis Bogan as Discipline Scientist
  - 2006: 72 submitted, 27 selected (38%)
  - 2007: 77 submitted, 41 selected (53%)
  - 2008: 61 submitted, expect ~33% selection rate
- Jupiter Data Analysis Program
  - First time program in ROSES 2008; ~42 proposals submitted
  - ~\$2M budget in FY09
  - Next year (ROSES 2009) we are merging JDAP into OPR
- Outer Planets Research Program
  - 2004: 142 submitted, 53 selected (37%)
  - 2005: 80 submitted, 26 selected (33%)
  - 2006: 53 submitted, 12 selected (23%)
  - 2007: 117 submitted, 44 selected (38%)
  - 2008: 114 submitted, under review ~\$2.5M available





# **NASA's Planetary Science**

**Advance scientific knowledge of the origin and history of the solar system, the potential for life elsewhere, and the hazards and resources present as humans explore space**

**“Flyby, Orbit, Land, Rove, and Return Samples”**