



Mars Program Update

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Planetary Budget Overview for FY14

- Congress passed a budget for Planetary Science of \$1.345B
- Budget elements include:
 - Research and Analysis: \$130M
 - Near Earth Object Observation: up to \$40.5M
 - Discovery: \$285M
 - New Frontiers: \$258M
 - Mars Exploration: \$288M (\$65M for Mars Rover 2020)
 - Outer Planets: \$159M (\$80M Europa)
 - Technology: \$146M (including Pu-238 production)
- Instructions included:
 - Pre-formulation and/or formulation activities on the Europa mission including an AO for instrument development supporting the scientific goals of the mission outlined in the Decadal
 - Release the next Discovery AO – **next AO Sept 2014**

Planetary Science Budget FY15

	Op Plan Enacted		Notional				
	FY13	FY14	FY15	FY16	FY17	FY18	FY19
Planetary Science	1274.6	1345.0	1280.3	1304.9	1337.1	1355.7	1374.1
Planetary Science Research	195.8		255.8	280.5	284.4	283.3	278.4
Lunar Quest Program	63.8		0.0	0.0	0.0	0.0	0.0
Discovery	215.5	285.0	230.8	163.0	174.2	280.2	377.8
New Frontiers	158.8	258.0	281.5	254.7	110.0	51.1	45.9
Mars Exploration	369.5	288.0	279.3	381.7	547.8	573.1	518.8
Outer Planets	147.8	159.0	95.7	82.2	84.5	27.8	9.1
Technology	123.4	146.0	137.2	142.9	136.3	140.1	144.1

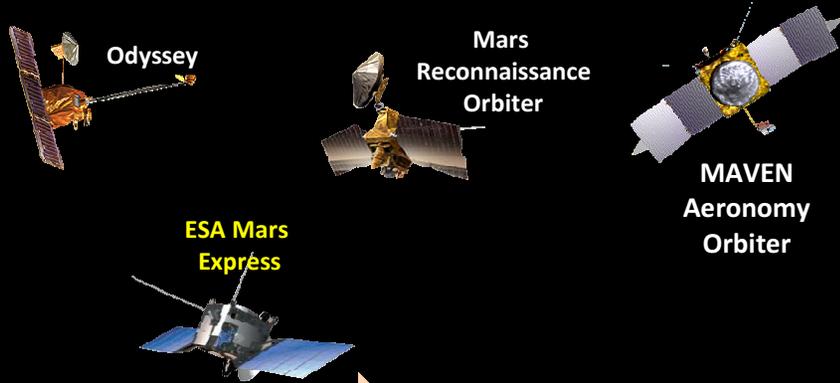
- President's proposed FY15 budget includes an *additional* SMD funding:
 - \$15M for competed EPO activities
 - \$50M in the Opportunity, Growth, and Security Initiative
- House Appropriations Committee approved the FY2015 Commerce-Justice-Science (CJS) appropriations bill
 - Planetary \$1.45B (\$302M for MEP; 24 month Discovery cadence)

Extended Missions Senior Review

- Guidelines issued Jan 31, 2014 with comment period
- Final guidelines & budget targets issued Feb 21, 2014
- Proposals due: April 11, 2014
- Review Panel date: ~May 2014
- Results announced: ~June 2014
- 2014 Senior Review missions:
 - Cassini, LRO, Opportunity, Mars Express, Mars Odyssey, MRO and Curiosity

Mars Missions this Decade

**Operational
2001-2013**



2016



2018

2020

2022

Follow the Water

Habitable Environments

Seeking Signs of Life

Future

Opportunity

Curiosity –
Mars Science
Laboratory

InSight

ESA
ExoMars
Rover (MOMA)

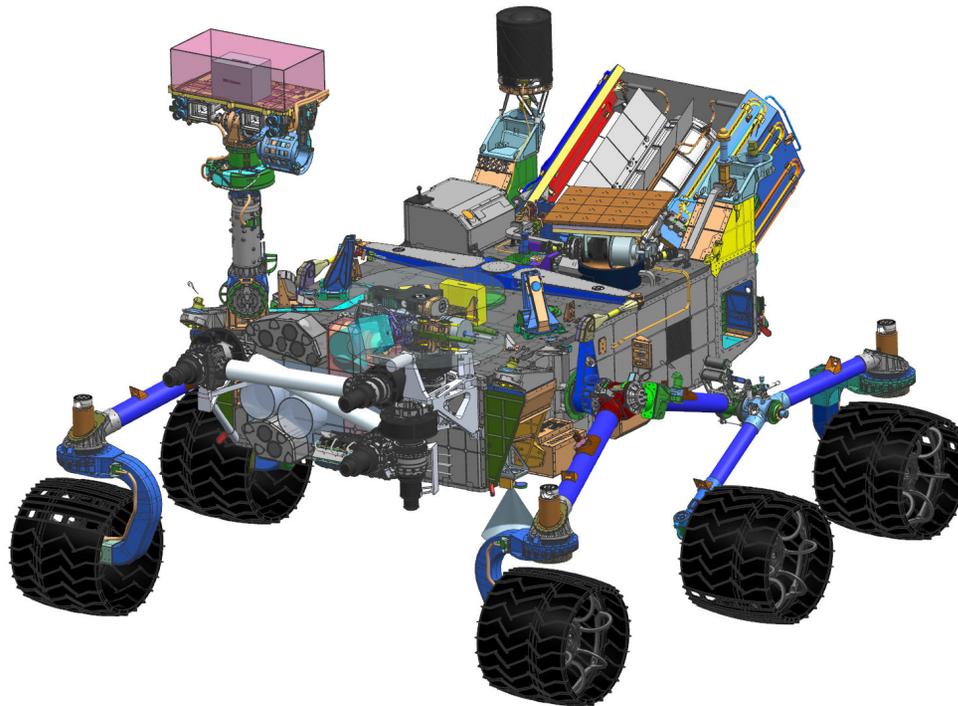
2020
Science Rover

Seeking signs of life: Mars 2020 Rover

Conduct rigorous *in situ* science

Geologically
diverse site of
ancient
habitability

Coordinated,
nested context
and fine-scale
measurements



Enable the future

Critical ISRU and
technology
demonstrations
required for
future Mars
exploration

Returnable cache
of samples

*MSL heritage rover and moderate instrument
suite stays within the resource constraints*

Planetary Decadal

- “The analysis of carefully selected and well-documented samples from a well-characterized site will provide the highest science return on investment for understanding Mars in the context of solar system evolution and for addressing the question of whether Mars has ever been an abode of life.”
- Mars 2020 clearly addresses the Decadal science at a reduced cost

Mars Calendar of Events

2013

May – November – *Mars As Art* Exhibit at Dulles Airport Gallery

July 31 – Curiosity Day on the Hill

August 6 – One Year Anniversary of Curiosity Landing on Mars

September 6 – LADEE launch from Wallops Flight Facility, VA

October 1 – Close approach of Comet ISON to Mars

October 30 – Mars2020 enters Phase-A

November 18 - Launch of MAVEN from Cape Canaveral, FL

December 6 – InSight enter Phase-C

* Completed

2014

April 30 – MOMA/NASA enters Phase-C

June/July – Mars2020 instrument selection announcement

August 6 – 2nd Year Anniversary of Curiosity Landing on Mars

Late Summer - Curiosity arrives at Mt. Sharp

September 21 - MAVEN inserted in Mars orbit

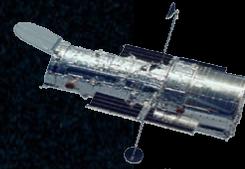
October 19 – Comet Siding Spring encounters Mars

Fall – Discussion with Indian Space Research Organization (ISRO) on next steps in their Mars program after successful MOM insertion/operations at Mars

How NASA Space Assets Will Observe Comet Siding Spring



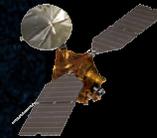
Hubble observed Siding Spring in October 2013, and Jan/Mar 2014



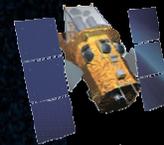
NeoWISE observed the comet in January and will again in July 2014



Mars Reconnaissance Orbiter will attempt observations beginning in October 2014



Swift observed the comet three times between Nov 2013 and February 2014



ESA's Mars Express may attempt observations in October 2014



Spitzer observed the comet March 2014



Mars Odyssey will attempt observations beginning in October 2014



Closest Approach to Mars on October 19, 2014

(Items in yellow successfully observed the comet so far)

For more information, visit:

<http://mars.nasa.gov/comets/sidingspring>

Opportunity will attempt observations in October 2014



Curiosity will attempt observations in October 2014

