

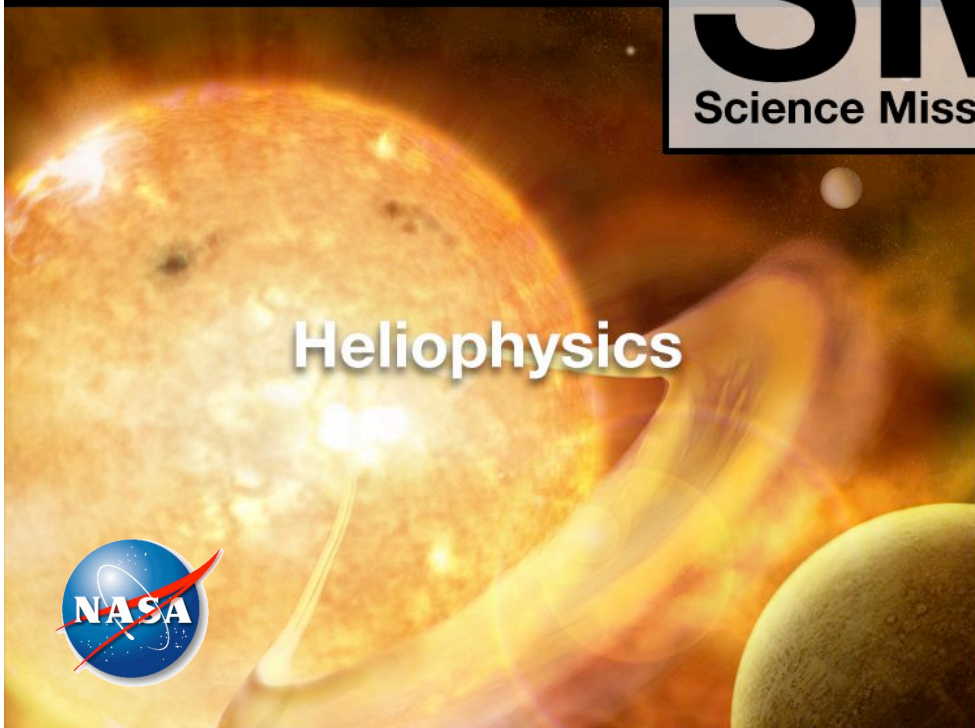


**Earth Science**

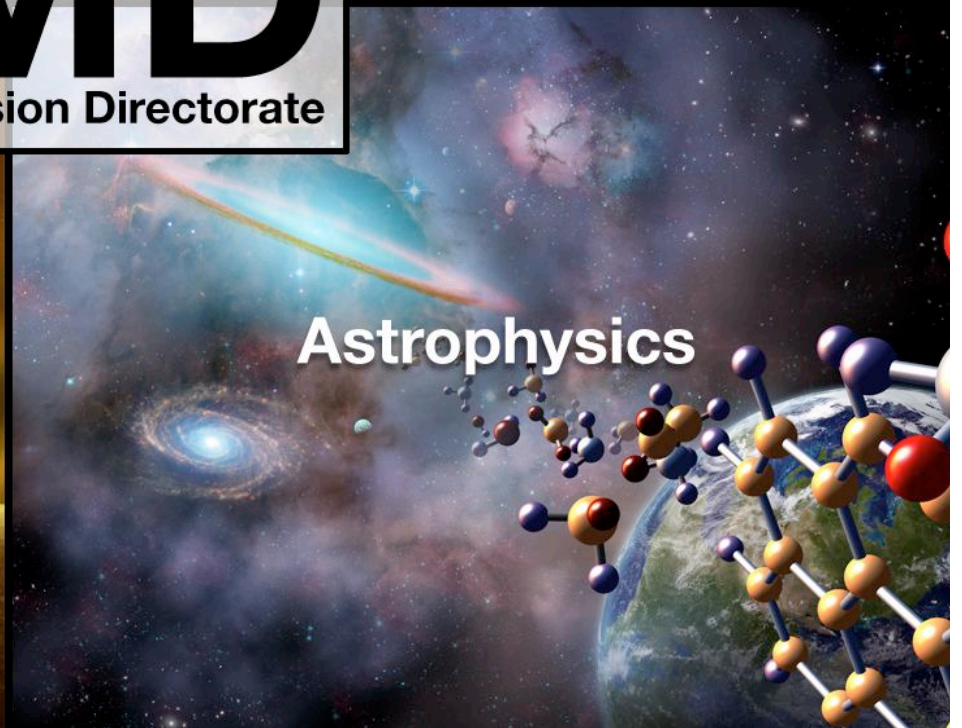


**Planetary Science**

**SMD**  
Science Mission Directorate



**Heliophysics**

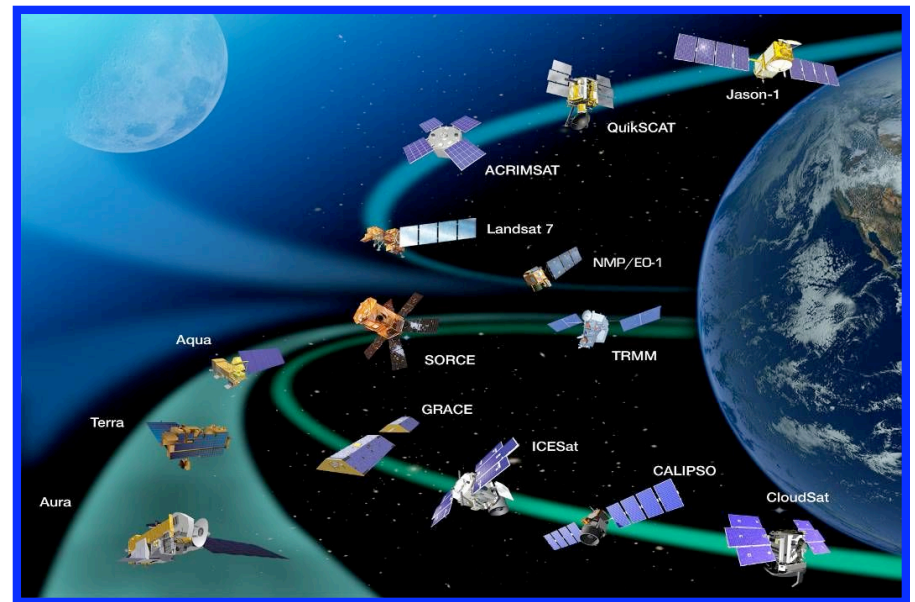


**Astrophysics**

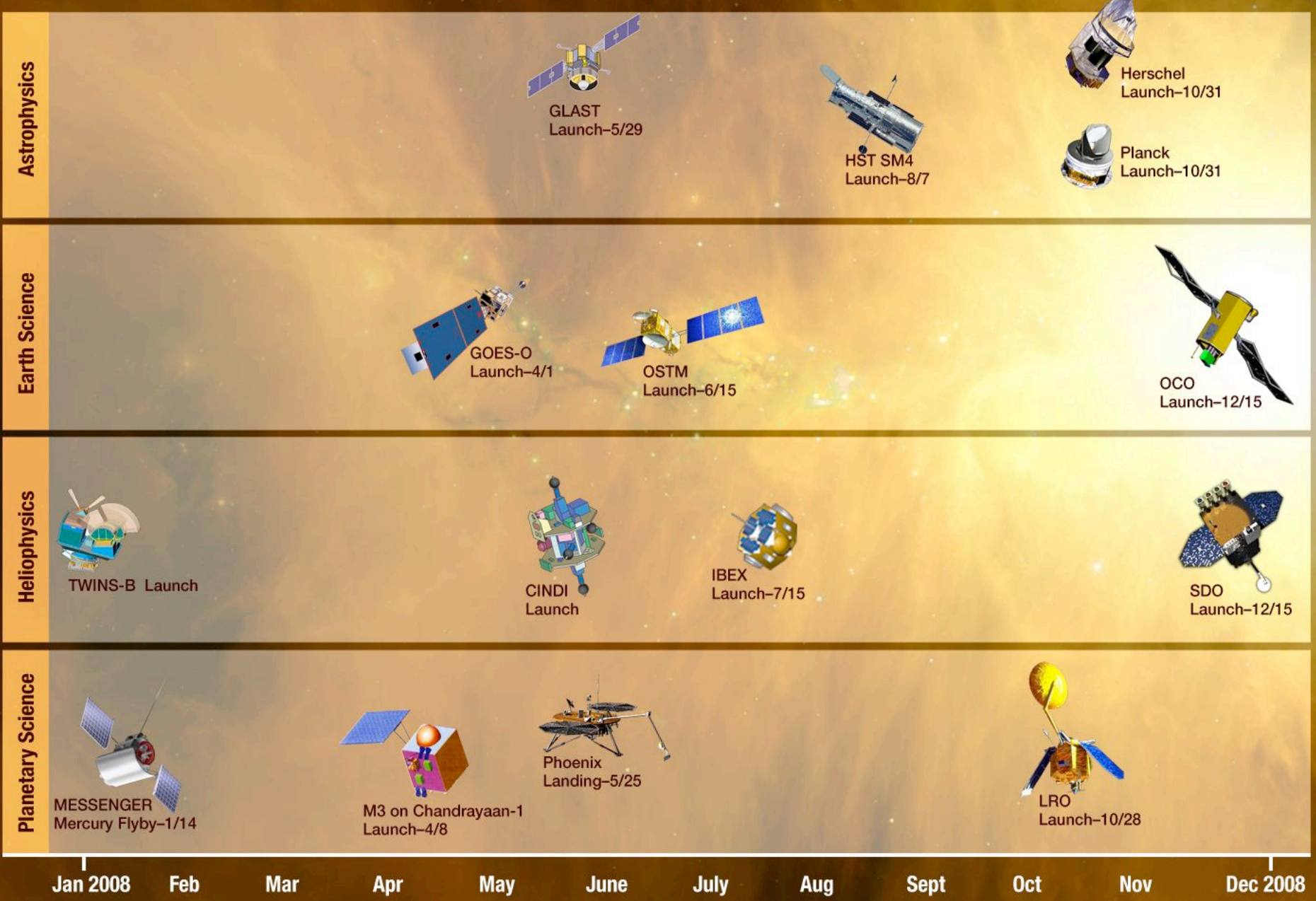
# SMD Science Program Leads The World



- ❑ \$5.5b/year budget.
- ❑ Large Earth science, heliophysics, planetary science, & astrophysics programs.
- ❑ 53 flight missions in operation.
- ❑ 41 flight missions in development.
- ❑ 3000+ operating R&A grants.
- ❑ These numbers exceed the combined efforts of all other Earth & space science programs of the World.



# SMD Missions Next 12 Months



Jan 2008   Feb   Mar   Apr   May   June   July   Aug   Sept   Oct   Nov   Dec 2008

# But Strong Community Concerns Have Been Stated

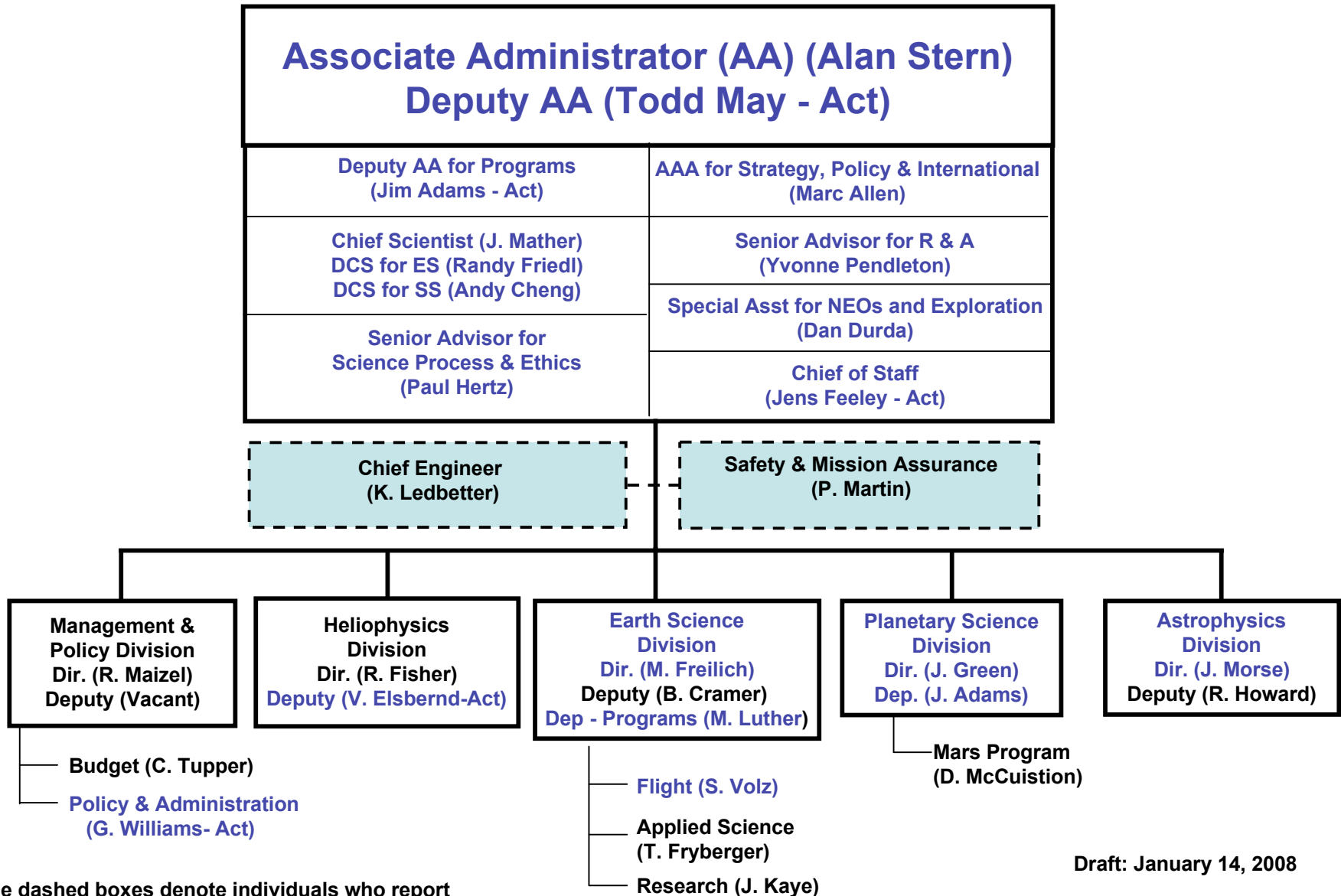
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- ❑ NASA and SMD's budgets are not growing.
- ❑ SMD future flight rates have been declining.
- ❑ Research funds have been cut.
- ❑ Progress on decadal survey objectives has been slow.
- ❑ SMD has been slow or simply unresponsive to these issues and others.



# New Team At The Helm



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

Draft: January 14, 2008



# We Intend To Fully Meet These Issues Head On



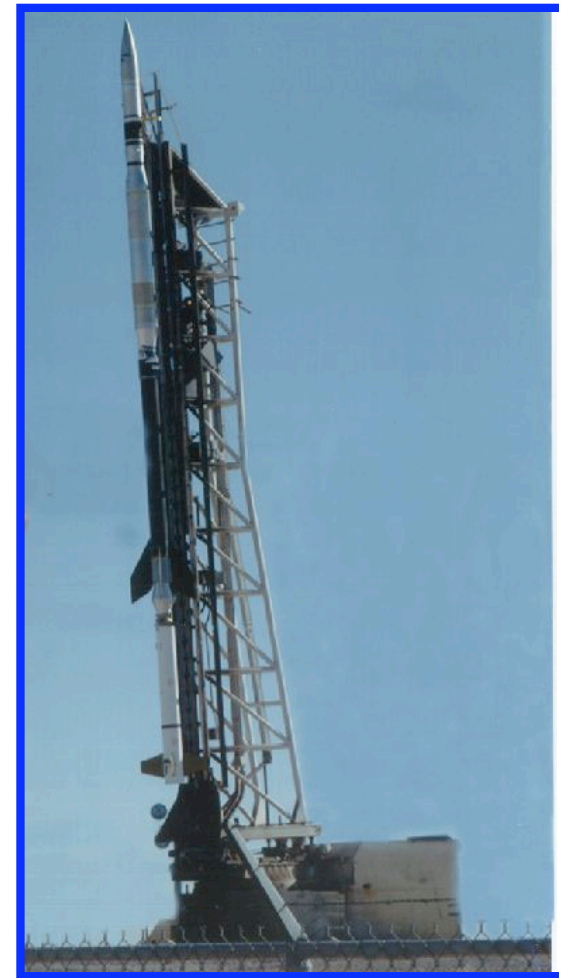
- By controlling costs to increase flight rates.
- By rebalancing queues to increase flight rates.
- By expanding foreign collaborations.
- By repairing R&A processes & budgets.
- By ensuring missions fully fund their science.
- By valuing responsiveness to community concerns.



# Some Actions We Have Taken Since Arriving In April



- ❑ Avoided >\$150m in overruns.
- ❑ Funded four new SMEX explorer missions, replacing one MDEX.
- ❑ Increased Suborbital Rocket and Balloon flight rates.
- ❑ Entered into partnerships for both an Outer Planet flagship and solar orbiter.
- ❑ Taken R&A off the table for cuts.
- ❑ And initiated an effort to simplify AOs .



# And We've Had Five SMD New Mission Starts Since April

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- ❑ Astrophysics: NuStar Small Explorer.
- ❑ Heliophysics: BARREL MoO.
- ❑ Planetary: GRAIL Discovery mission and the NeXT and EPOXI comet flyby MoOs.





# More Flight Program Changes Are Afoot

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- ❑ We're making \$70M available in Explorer Mission of Opportunity (MoO) funding.
- ❑ We've initiated an annual MoO AO beginning in 2008, to foster more international collaboration opportunities.
- ❑ We've worked to find an affordable, non-nuclear Solar Probe mission capable of being funded.
- ❑ And we desire an Exoplanets program that keeps NASA's Astrophysics portfolio healthy.



# R&A Changes Have Also Been Made

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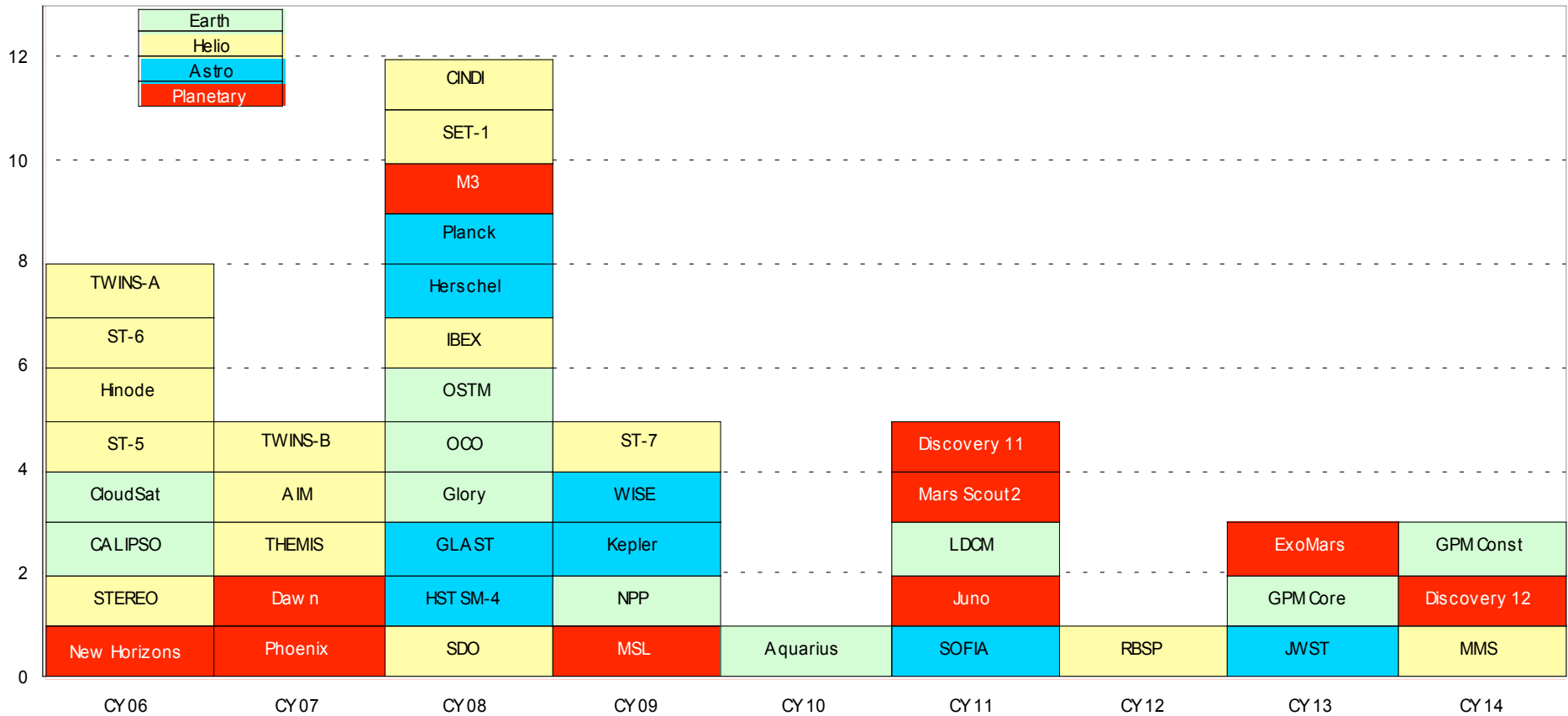
- ❑ We established the SARA position within SMD.
- ❑ We provided a mailbox for complaints and feedback about R&A programs ([sara@nasa.gov](mailto:sara@nasa.gov)).
- ❑ We eliminated a backlog of hundreds of no-cost extension requests.
- ❑ We adopted widespread funding of 4-year grants.
- ❑ We no longer redact budgets from review panels in ROSES-08.
- ❑ We accelerated grant win notifications after panel reviews, from months to weeks.



# SMD Flight Program: January 2007



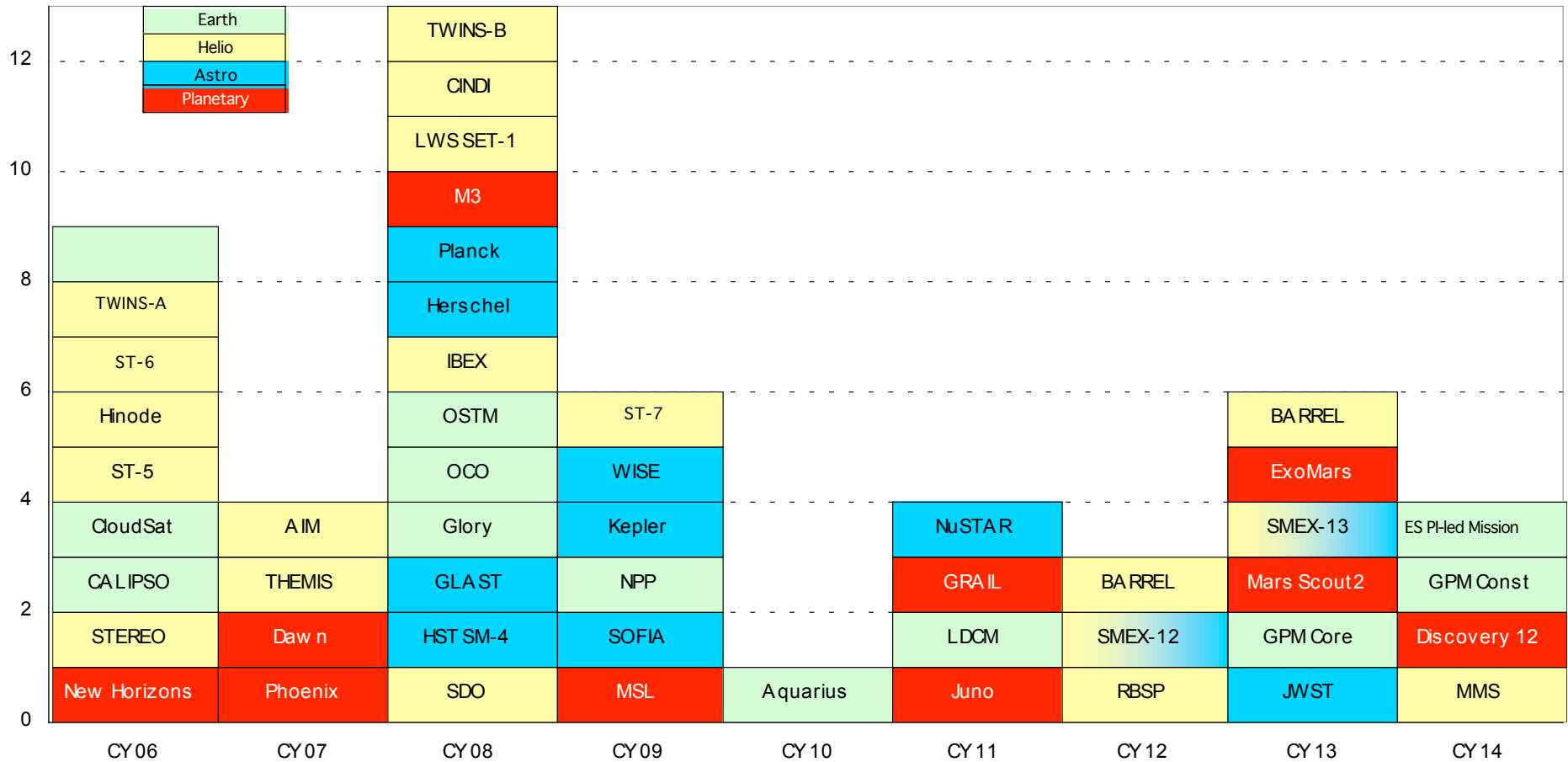
SMD Launches by Calendar Year



# SMD Flight Program: January 2008



SMD Launches by Calendar Year



# SMD: The Road Ahead

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- We Will Get More Science Done With Our Budget.
- We Will Help Ensure “The Vision” Succeeds.
- We Will Promote U.S. Leadership Across All of SMD Science Disciplines.
- We Will Improve SMD Actual and Perceived Impact on and Relevance to the Public.
- We Will Create a Great Workplace.





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**GOING FORWARD:  
WE WILL NEED YOUR HELP**



# Why Have Launch Rates Declined?



## COST OVERRUNS AND UNEXPECTED MISSION EXPENDITURES

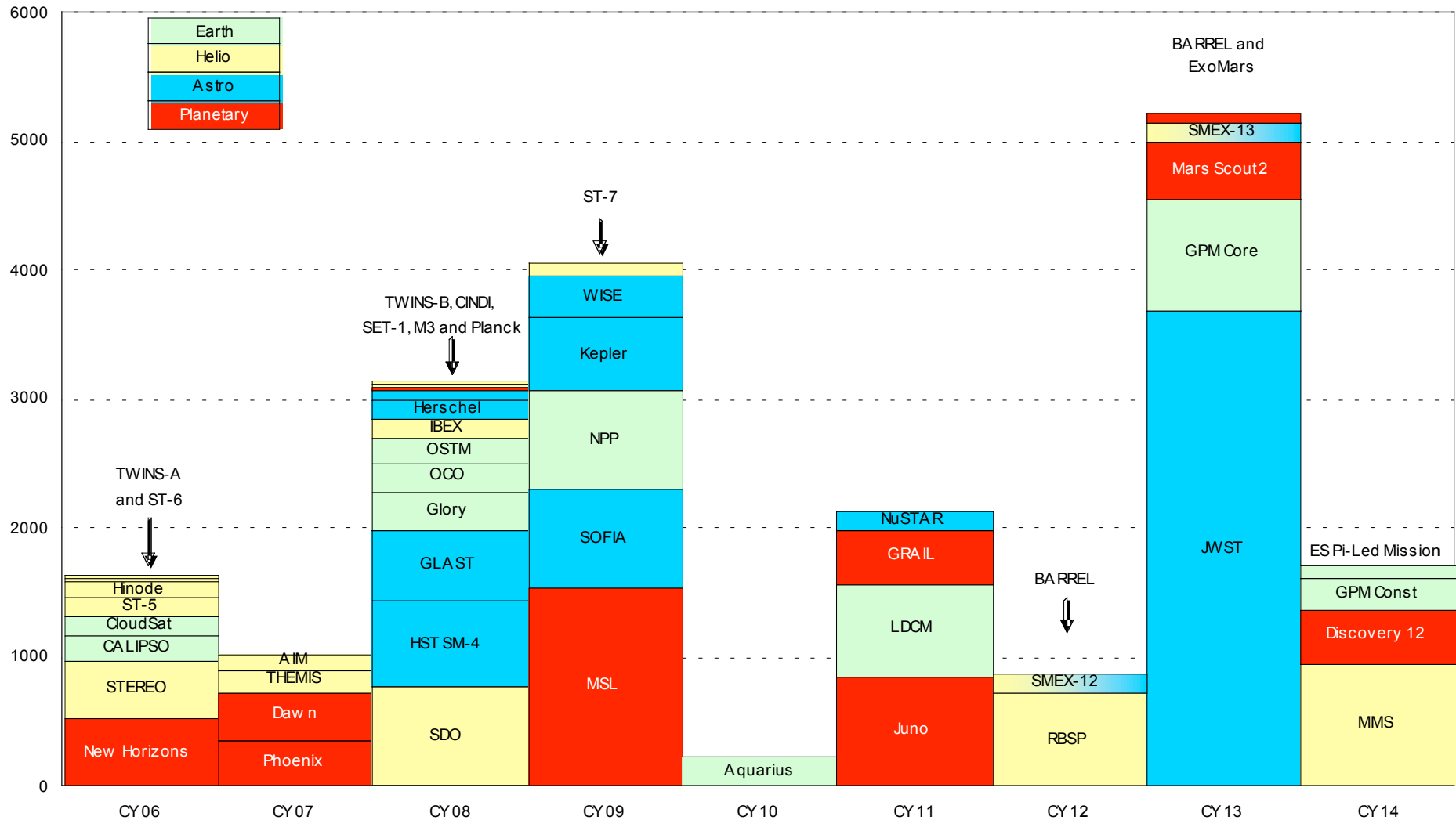
	Pror	FY03	FY04	FY05	FY06	FY07	FY08	FY09	BTC	Tota
<b>Changes</b>										
AM			-21.6	10.5	21.1	10.3	0.5	0.2		21.0
Aquarius			5.3	-0.6	0.9	11.6	15.6	19.3	54.2	106.3
Aura	16.5	37.1	3.0	0.5						57.1
CALPSO		20.8	10.3	10.0	0.9	3.4	1.9			47.3
CNDI		0.5	0.5	1.3	0.8	2.8	0.6			6.5
Cloudsat		18.7	8.1	9.2	2.0	1.0				39.0
Dawn	1.4	1.5	3.1	15.8	63.4	1.5	1.0	7.9		95.6
Deep Impact		31.0	7.6	-2.6						36.0
GLAST		-12.3	-8.2	12.6	43.7	-2.4	4.0	48.9		86.3
Gbrv	1.6	2.5	-0.8	51.5	86.3	58.5	31.7	23.1		254.4
GP-B		30.5	3.2	-0.6	6.0	1.6				40.7
GPM	-0.5	1.2	-0.3	-2.1	-17.9	-15.1	-8.4	744.7		701.6
Hayabusa		-0.2	0.5	0.5				0.7	2.3	3.8
Herschel		6.6	4.3	-0.6	-2.4	-9.8	1.1	18.1		17.3
BEX					3.2	6.0	3.6	1.6		14.4
Juno				-8.5	-24.5	-7.2	55.9	181.7		197.4
JWST		-9.9	-43.0	-29.7	108.3	241.7	207.3	868.1		1342.8
Kepler	1.4		-32.6	25.5	72.0	81.2	22.0	9.8		179.3
MB				1.2	-0.2	1.1		1.9		4.0
Mars Express		0.4	1.0	1.2	3.7	4.6				10.9
MESSENGER		18.4	1.6	7.8	4.1	12.5	7.9	19.2		71.5
MRO		12.8	33.8	3.1	-9.1	3.8	3.8	1.1		49.3
MSL					3.1	44.8	3.3	0.2		51.4
New Horizons		23.3	86.8	-19.1	-9.7	6.1	7.3	0.7		95.4
NPP	2.0	-1.5	-9.0	-40.4	50.2	75.1	115.2	107.2		298.8
OCO	0.2	1.3	4.1	-14.0	32.7	45.3	24.6	11.1		105.3
OSTIM	0.4	-16.0	0.2	1.4	37.0	25.4	4.4	33.0		85.8
Phoenix	-4.1	-3.4	13.5	39.3	14.2	-15.8	-5.1			38.6
Planck		1.0	2.0	0.2	0.3		1.7	11.7		16.9
Rosetta		-1.7	1.1	-0.4	0.4	1.3	0.3	23.9		24.9
SDO		22.3	-21.5	54.5	61.1	87.5	10.6	25.9		240.4
SOFA		20.6	42.5	-10.1	17.7	28.7	106.5			1105.9
Sdr-B		3.4	3.2	-0.7	3.7	2.4	3.5	1.9		17.4
Spitzer		-5.7	-9.8	-9.4	-3.8	3.2	3.8	65.8		44.1
STEREO		24.5	16.5	32.0	9.1	10.4	11.5	3.0		107.0
Swift	-0.3	26.0	-0.5	1.9	3.8					30.9
THEMS	0.5	-4.6	-1.2	-1.0	10.8	-0.5	-3.7	24.4		24.7
TRACE		-2.3	-0.4	0.3	1.0	1.7	2.4	6.0		8.7
WSE			-26.4	-17.4	6.5	44.3	74.6	21.4		103.0
<b>Total Growth:</b>		<b>19.1</b>	<b>20.9</b>	<b>81.2</b>	<b>187.8</b>	<b>572.5</b>	<b>750.2</b>	<b>635.7</b>	<b>3325.3</b>	<b>5781.7</b>



# Why Else Have Launch Rates Declined?



SMD Launches by Year and Development Cost (Phase A-D, \$M)

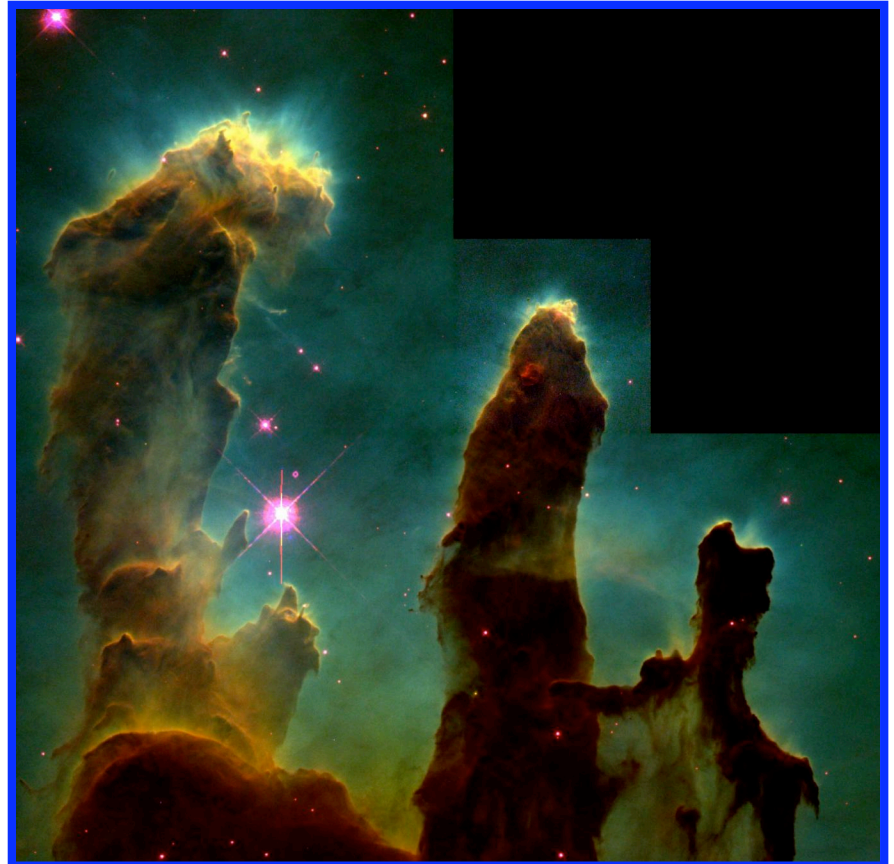




# Higher Flight Rates Depend On You Too



- ❑ We need your help to achieve better cost control and a more balanced program, leading to faster progress in the accomplishing decadal surveys.
- ❑ The community has to be part of the solution.



# Decadal Survey 2010: One Part Of The Solution

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- A baseline plan that fits in a baseline budget.
- Independent cost estimates that feed into mission prioritization.
- Trip wire costs above which a mission should be cancelled.

