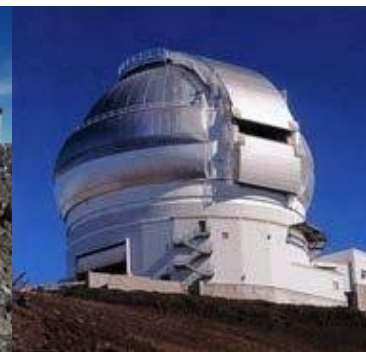


AAAC – NSF/AST Update

Richard Green
Division Director,
MPS/AST



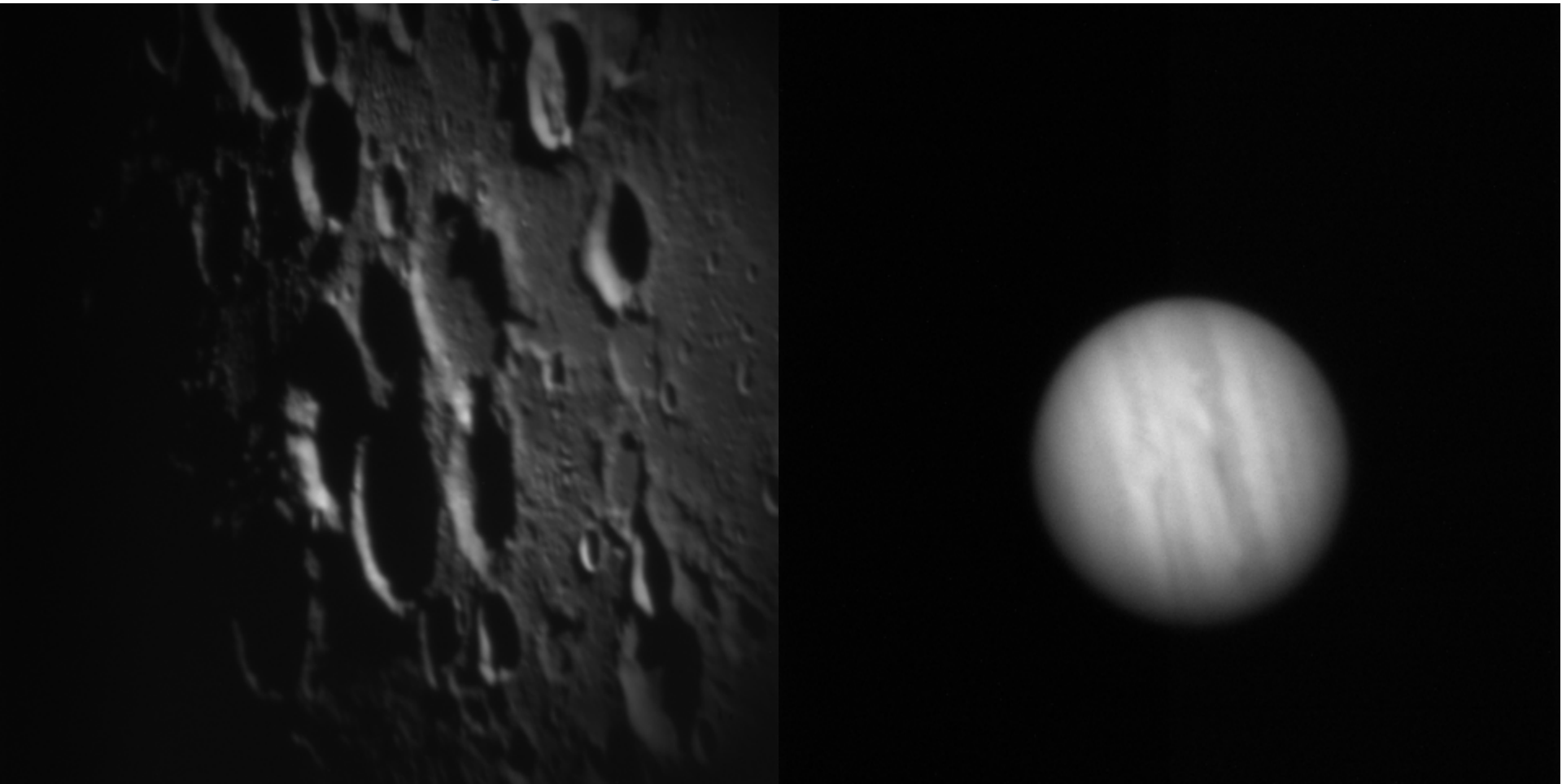
DKIST Telescope Mount, Sept. 2018



- Telescope optics in place.
- Current challenges largely with instrument completion and delivery, as well as data policy.
- Commissioning of thermal control loops also a significant task.
- Still on schedule and within budget contingency.



DKIST Images, March 2019



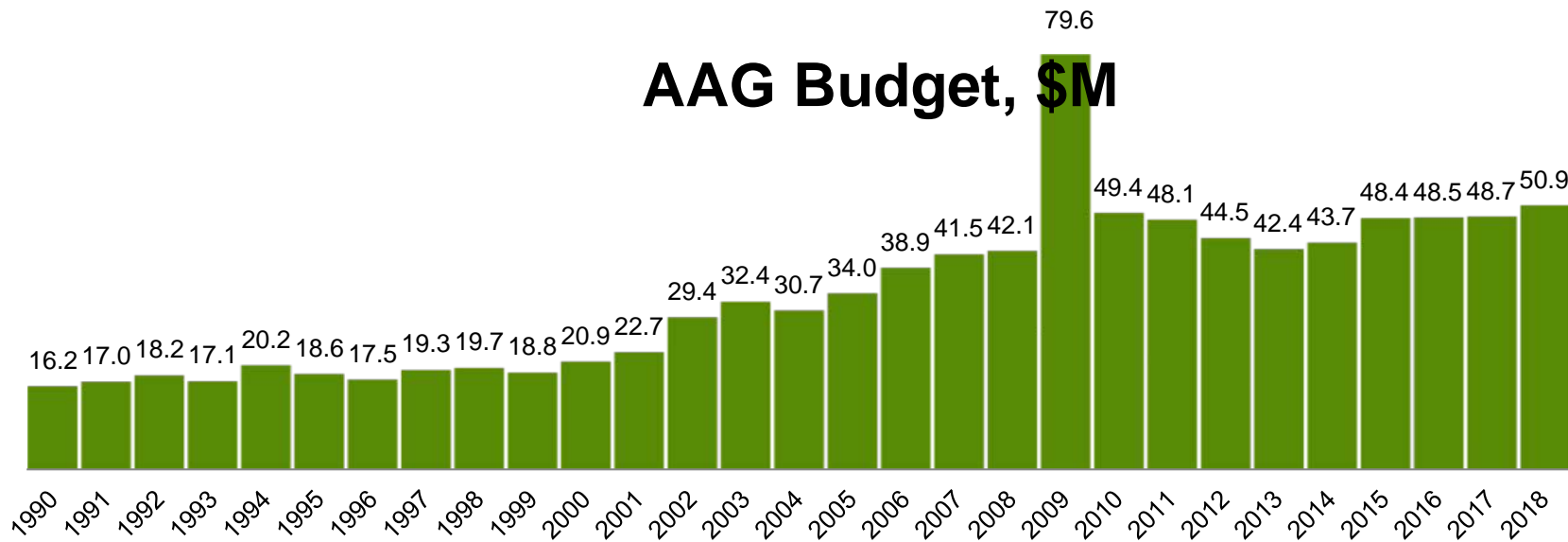
- Images using M1 and M2 final optics, taken as part of nighttime optics commissioning.

FY 2018 Budget

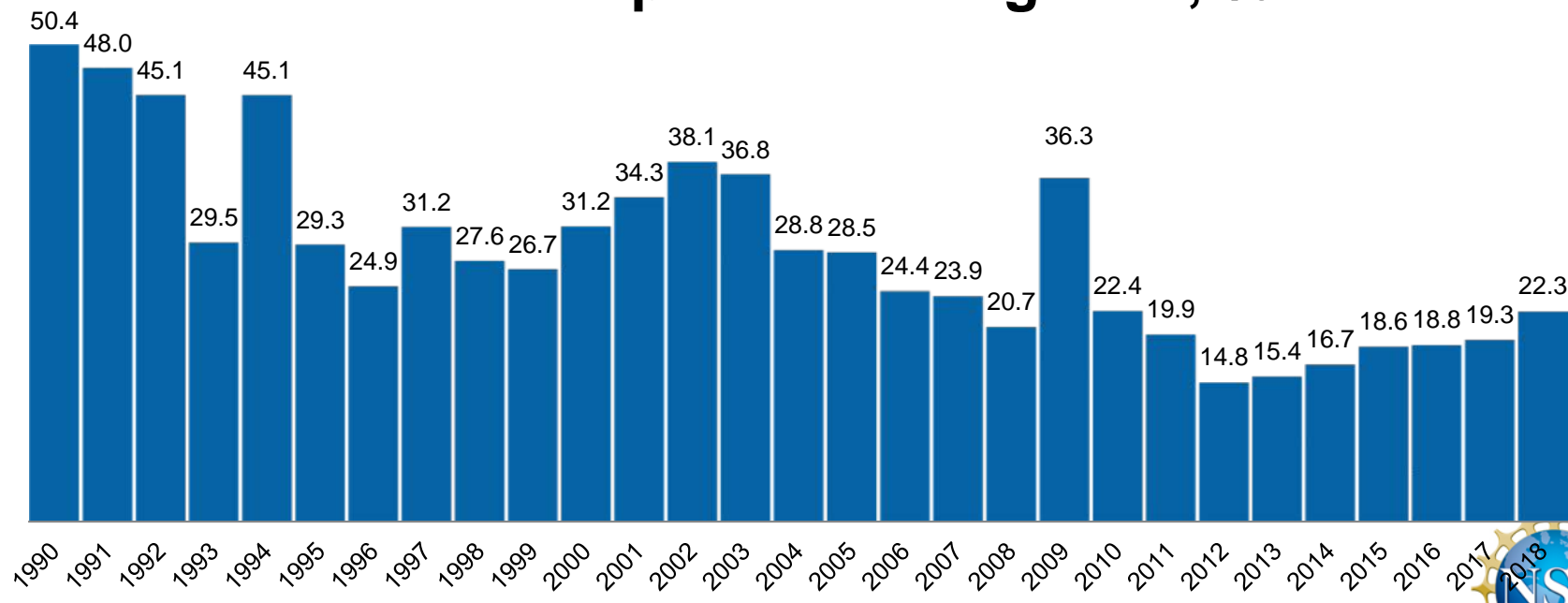
- Very good outcome in the end for AST – total \$307M, compared to FY17 actual of \$252M.
- Much of the increase went to one-time specific projects (some dependent on FY19 availability of funds to complete):
 - MSIP, for total funding close to aspirations in NWNH
 - Multi-messenger astrophysics grants
 - Major upgrade to Gemini N Adaptive Optics system in service of time domain follow-up, stellar populations studies
 - Forward funding DKIST operations for timely completion of data center, supplement for Level 2 data products.
 - Forward funding LSST operations pending NCOA initiation



AAG Budget, \$M



Proposal Funding Rate, %



FY 2019 Budget

- Enacted appropriation increases R&RA by 3%.
- MREFC line re-incorporates Antarctic infrastructure; DKIST and LSST at requested levels.
- Directorate and Divisional allocations completed internally. Iteration with OMB, and Congress has 30 days to comment after submission. Will be made public with approved Execution Plan.
- FY 20 President's Budget Request has just been released.

DIVISION OF ASTRONOMICAL SCIENCES (AST)

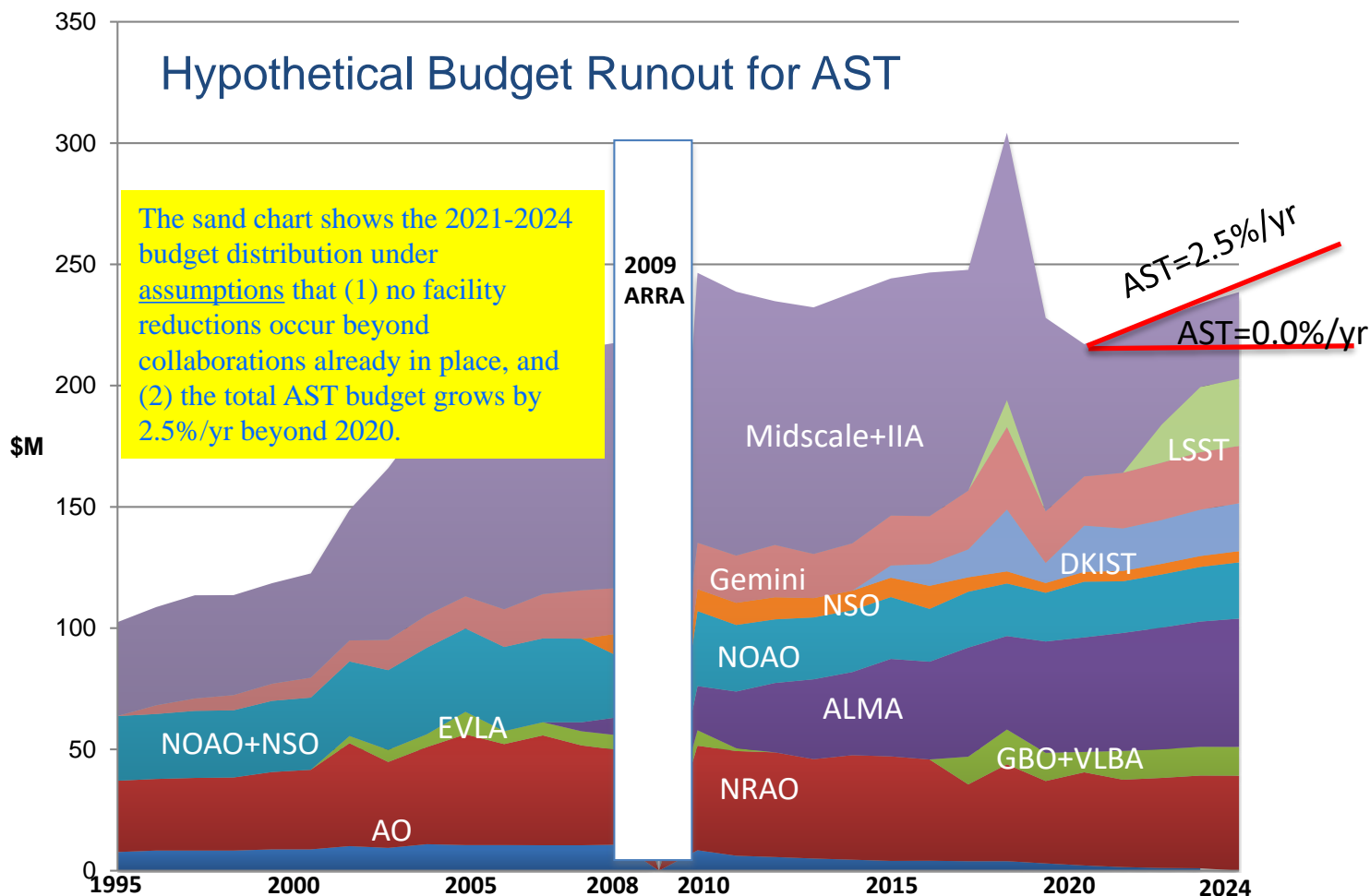
\$217,080,000
-\$94,080,000 / -30.2%

AST Funding (Dollars in Millions)

	FY 2018 Actual	FY 2019 (TBD)	FY 2020 Request	Change over FY 2018 Actual Amount	Percent
Total	\$311.16	-	\$217.08	-\$94.08	-30.2%
Research	65.35	-	43.44	-21.91	-33.5%
CAREER	4.17	-	5.00	0.83	19.9%
Education	4.73	-	4.70	-0.03	-0.6%
Infrastructure	241.08	-	168.94	-72.14	-29.9%
Arecibo Observatory ¹	8.10	-	2.13	-5.97	-73.7%
ALMA	38.55	-	47.26	8.71	22.6%
AST Portfolio Review Implementation	0.24	-	-	-0.24	-100.0%
DKIST ²	24.00	-	19.01	-4.99	-20.8%
Gemini Observatory ³	34.02	-	20.28	-13.74	-40.4%
LSST ⁴	11.10	-	-	-11.10	-100.0%
Midscale Research Infrastructure	32.98	-	5.00	-27.98	-84.8%
NOAO ³	25.09	-	22.91	-2.18	-8.7%
NRAO ^{3,5,6}	44.46	-	38.40	-6.06	-13.6%
NSO ³	8.82	-	4.13	-4.69	-53.2%
Other AST Facilities	11.91	-	8.42	-3.49	-29.3%
<i>LBO</i> ⁶	<i>3.49</i>	<i>-</i>	<i>-</i>	<i>-3.49</i>	<i>-100.0%</i>
<i>GBO</i>	<i>8.42</i>	<i>-</i>	<i>8.42</i>	<i>-</i>	<i>-</i>
Research Resources	1.81	-	1.40	-0.41	-22.5%



Hypothetical Budget Runout for AST



Comments on Sand Chart Model

- The outcome of the appropriations process for the last two years has been an increase in NSF R&RA relative to the President's Budget Request.
- Therefore, a projection pivoting off the FY20 PBR with no inflation is conservative.
- Should no change be made to projected facilities support and LSST operations added in full, the remaining grants program would be only 6% of the Division budget in 2024 in the flat funding projection.
- The consistent advice of AAAC is balance between facilities and grants, not satisfied (at all) in that model.
- Plan A is a more favorable top line; Plan B would be based on community input to priorities in the context of the next Decadal Survey.

