Astrophysics Named Postdoctoral Fellowship Programs:

Notional Plans

NASA Advisory Council
Astrophysics Subcommittee

21 July 2016

Funds Re-allocated from Named Fellowships

Funds re-allocated from named fellowship programs would augment the APRA (Astrophysics Research and Analysis) program, which supports technology development and suborbital-class payloads.

Suborbital payloads were identified as a priority area by the Astro2010 Decadal Survey:

> *"The balloon and sounding rocket programs provide fast access to space for substantive scientific investigations and flight testing of new technology. ... These programs also provide a training ground for the principal investigators of tomorrow's major missions."*
>
> *"...key positions in mission development across NASA are occupied by people who received their training through participation in suborbital missions. This population is aging and replacements are few"*
>
> *"A growth in the budget by $15 million per year is recommended."*

NASA has sufficient launch capability to support an increase in sounding rocket and balloon payloads: the number of payloads is limited by APRA funding.

Growing the APRA budget by $4M/year would allow 1-2 more sounding rocket proposals, or 1 additional balloon-payload or CubeSat proposal, to be selected each year.

Balance in Fellowship Science Topics

It is not NASA's intent to alter the balance or the mix of science topics among the NASA Named Postdoctoral Fellows.

Three possible options to accomplish this:

1) Expand the range of science topics for the Hubble Fellowship beyond those related to the Cosmic Origins program, to maintain the current balance of science topics while reducing the number of Einstein and Sagan Fellows.

2) Consolidate the application and review process into a single activity, and assign fellows to the Einstein, Hubble and Sagan programs after selection. This would also eliminate duplicate applications, where essentially the same application is submitted to and reviewed in multiple programs in the same year.

3) Consolidate all the named fellowships into a single program, e.g. as a Webb Fellowship, managed by the Space Telescope Science Institute.

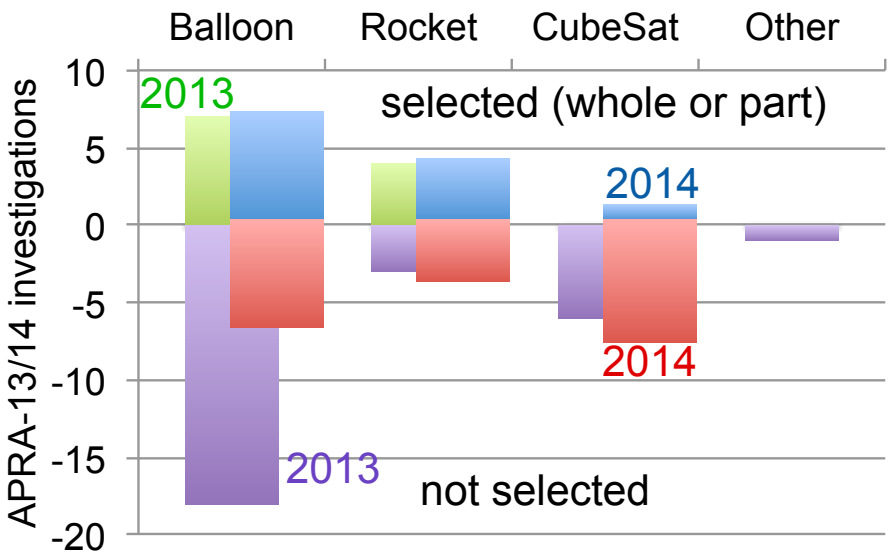
backups

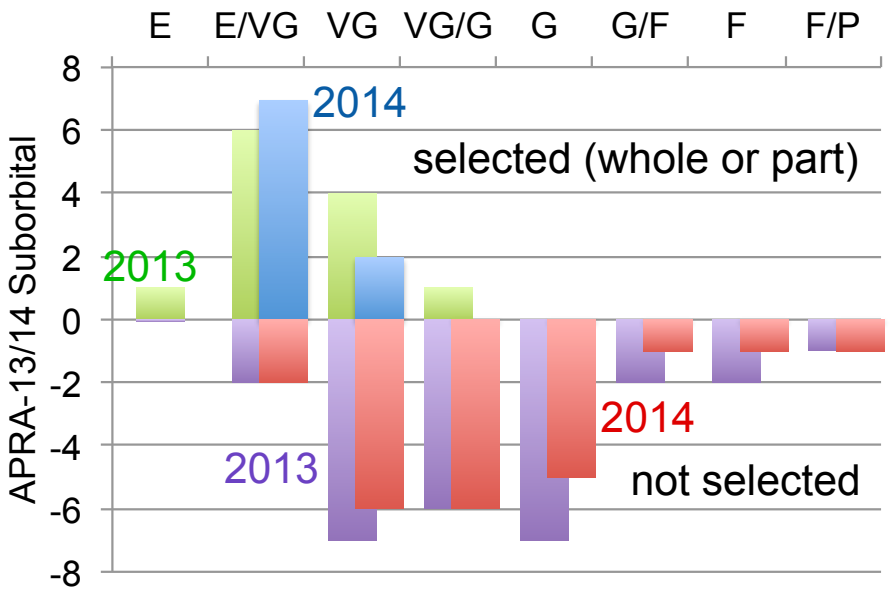
Astrophysics R&A Budget is up from FY14

Amounts in $k	FY09 Final	FY10 Final	FY11 Final	FY12 Final	FY13 Final	FY14 Final	FY15 Jul-16	FY16 Op Plan	FY17 request
Particle Astro	$ 8,201	$ 8,260	$ 8,305	$ 9,375	$10,545	$11,125	$ 9,806	$ 9,065	
High Energy	$13,878	$14,110	$13,846	$14,950	$14,270	$13,391	$14,935	$14,595	
UV/Opt/IR/ Sub-mm	$22,389	$21,537	$21,292	$23,385	$21,859	$21,379	$22,731	$25,023	
Fundamental Physics		$ 968	$ 588	$ 860	$ 741	$ 784	$ 618	$ 800	
APRA Total	$44,468	$44,875	$44,030	$48,570	$47,415	$46,680	$48,089	$49,483	
Exoplanet Research	$ 3,000	$ 2,807	$ 2,944	$ 3,244	$ 3,500	$ 3,701	$ 4,350	$ 4,230	
Astro Theory Program	$11,488	$12,262	$12,173	$11,811	$11,560	$12,009	$13,003	$10,373	
TCAN with NSF						$ 1,435	$ 1,563	$1,501	
Tech Fellows				$ 538	$ 975	$ 694	$ 1,555	$1,124	
Other	$ 1,045	$ 670	$ 647	$ 2,008	$ 1,588	$ 1,256	$ 2,512	$2,970	
R&A (399131)	$60,000	$59,646	$59,611	$66,172	$65,038	$63,275	$71,073	$69,681	$72,717
ADAP	$14,384	$13,258	$14,132	$16,365	$16,929	$17,008	$16,983	$17,550	$17,573
399131+ADAP	$74,384	$72,904	$73,743	$82,537	$81,967	$80,283	$88,056	$87,231	$90,290
Other funding				WFIRST support		$ 2,500	$ 522	$ 195	CREAM
					CubeSat (964105)	$ 863	$1,287	$1,180	
TOTAL ($M)	**$74.38**	**$73.87**	**$73.74**	**$82.54**	**$81.97**	**$82.78**	**$89.44**	**$88.71**	**$91.47**
	partial recovery	flat	flat	growth!			growth to cover CREAM costs	flat	some growth

Funding for R&A, including Astrophysics Data Analysis (ADAP) is up 25% since the Astro2010 Decadal Survey.

Suborbital-Class Payloads in APRA





In APRA-14 (most recent), 31 investigations were proposed for suborbital-class payloads; 17 were rated VG or better.

5/14 balloon investigations and 3/8 sounding rocket investigations were selected for full or part funding (36% success). One of the 9 CubeSat proposals was selected. Average award: rocket $2.5M; balloon and CubeSat ~$4M.

In APRA-13, 38 investigations were proposed for suborbital-class payloads; 20 were rated VG or better. 7/25 balloon investigations and 4/7 sounding rocket investigations were selected for full or part funding (~30% success). The highest ranked of the 6 CubeSat proposals rated VG.