Minutes of the Meeting of the Astronomy and Astrophysics Advisory Committee

4 March 2012
National Science Foundation, Arlington, VA, via teleconference

Members attending:	Andreas Albrecht	Gregory Laughlin
	Stefi Baum	Mordacai-Mark Mac Low
	Sarah Church (Chair)	Paul Vanden Bout
	Debra Elmegreen	John Wefel
	Joshua Frieman	Brian Winer
	Martha Haynes (Vice-Chair)	Charles "Chick" Woodward
Agency personnel:	James Ulvestad, NSF-AST	Randy Phelps, NSF-OIA
	Thomas Statler, NSF-AST	Vladimir Papatashvili, NSF-OPP
	Elizabeth Pentecost, NSF-AST	Jean Cottam, MPS-PHY
	Ed Ajhar, NSF-AST	Paul Hertz, NASA
	Philip Puxley, NSF-AST	Rita Sambruna, NASA
	Richard Barvainis, NSF-AST	Kathleen Turner, DOE
	Christer Watson, AAAC Fellow-AST	Michael Salamon, DOE
Others:	Naomi Webber – Lewis-Burke	

MEETING CONVENED 12:00 PM EST, 2MARCH 2012

The Chair called the meeting to order.

There was an update on the FY2013 budget request from the respective Agencies, NASA, DOE, and NSF.

Paul Hertz provided an update on NASA's FY2013 budget request. The Science Mission Directorate (SMD) will continue to provide the most productive Earth and space science program for the available resources, guided by national priorities, and informed by the NRC decadal survey recommendations. SMD will continue to responsibly manage the national investment in robotic space missionsand closely manage JWST to the new cost and schedule baseline. NASA is grateful to the President for fully funding JWST in the FY2013 budget with a plan toward its successful completion and launch in 2018. There are plans to conduct a new Mars program with other NASA organizations. The balloon program and research and analysis activities have been held flat to address other priorities. The launch of the next Explorer mission and mission of opportunity has been delayed by one year. SOFIA continues development and early science flights. Hubble, Chandra, Spitzer, Fermi, and Kepler continue their operations subject to the 2012 Senior Review. The Keck interferometer operations will cease in 2012.

The FY2013 President's budget request for SMD is $4.91B, with $659.4M for the Astrophysics Division. Astro-H and GEMS have been rephased to accommodate programmatic changes. A

partnership is being pursued with ESA for its Euclid mission. Future mission funding within the three strategic programs is sufficient for only mission concept studies; mission specific technology development will cease.

The FY2013 budget request does not support an announcement of opportunity for both missions and Explorer missions of opportunity in late 2012. The first priority is to complete the missions that are already in development. A second priority is to downselect and fund the development of one mission and one mission of opportunity from the projects currently in Phase A studies.

The Science Definition Team (SDT) for WFIRST delivered its interim report in July 2011. Updated guidance was given to the SDT in December 2011 and a second design reference mission is being studied. This DRM mission will not duplicate the capabilities of Euclid, LSST, and JWST. The final report is due in June 2012. Even though Astro2010 recommended WFIRST as the highest priority space mission, the President's FY2013 NASA budget does not include any new large missions not does it fund a start on WFIRST; Astrophysics expects none before JWST is launched. WFIRST will not launch until the next decade not will technology development for WFIRST be supported in the budget request, except through the competed technology program. In the meantime, NASA is proceeding with planning through the SDT and the design reference missions. NASA is planning to partner with ESA on Euclid; NASA's contribution to Euclid does not slow WFIRST development.

In response to Astro2010 recommendations, the budget for research awards in the Astrophysics Division increased by 10% in FY2012. But, there will be no additional growth beyond FY2012. The decadal survey prioritized a funding wedge of ~$3.7B over the decade and also prioritized a more conservative budget projection based on the FY2011 President's budget request was $3.0B. But removing JWST from the calculation, and considering the runout of the President's FY2013 budget over FY12-FY21, there is only a funding wedge of about $800M over the decade. This has been used to augment the Explorer program, increase the SR&T budget, augment the R&A and suborbital programs, and set aside money for the Senior Review activities and programs starting in FY15.

The Division plans to work with program offices to develop a rebalanced plan including technology development, postdoc fellows, and mission concept planning. Priorities include technology development that may have both near term value and lead to advancing decadal priorities with strategic missions including WFIRST. An NRC mid-decade review will comment on NASA's balance between working toward large missions for the next decadal survey and realizing the science of WFIRST and Astro2010 within the current budget.

Baum asked about the funding for Education and Public Outreach. Hertz replied that the budget for EPO decreased by 30% in the Office of Education and SMD non-mission EPO programs. The EPO funds for SMD reside in the Astrophysics Division. SMD has had to take one year off in EPO grants program in ROSES because the decrease means they can fund the already approved programs; the next one will be in ROSES 13. There will be no support work such as evaluations and catalogs. The supplements program for EPO has been terminated.

Woodward asked whether the CAA or whatever entity is defined, can carefully scrutinize the rationale for WFIRST. Hertz replied that the CAA has not yet been constituted, a charge for such a committee has not been formalized, and it will not operate until 2014. How are they doing in implementing the decadal survey? Mid-decade review will answer the question, how are the agencies doing in executing the recommendations of the decadal survey.

Elmegreen asked about the planetary program and how she can tell the community that Mars still matters, etc. Hertz replied that the Mars program currently has a flagship mission on its way to Mars. The planned 2016-2018 mission has as its prime goal the caching of sample returns but there was no affordable program to return those samples to Earth. The Administration did not approve the entire Mars sample return commitment that going forward with these missions implied. NASA was asked to take advantage of the operations of MSL in the near term and relook at a Mars program that not only addresses the science priorities but makes substantial progress toward technology and human spaceflight needs because the Administration recognizes that the ultimate goal is to send humans to Mars.

James Ulvestad provided an update on the NSF/AST FY2013 budget request. NSF Astronomy is the steward and funder of ground based astronomy in the US, in partnership in some cases, with NASA and DOE. AST Facilities have long term notional run outs but AST Division does not. NSF has been getting appropriations that are between 7-10% below the requests; Even at a full request level, the AST budget will still be less than the FY2010 budget, and must accommodate EARS and a $15M increase in ALMA operations. However, if one looks at the numbers, the AST FY 2011/2012 appropriations were $15M below the request. The FY2013 request for NSF is $5.98B, and increase of 5.2% over the FY2012 appropriation; the budget request for AST is $244.5M, a 4% increase from the FY2012 appropriation. The $10M increase for AST includes an increase of $9M for EARS, connected to the President's Broadband Initiative.

ALMA construction spending ends in FY2013. ATST is requested to return to a higher profile because of the reduction of MREFC monies in FY 2011 and FY 2012. ATST is doing a re-baselining exercise to take into account the reduction in funding. This will not impact the not to exceed number for ATST. There is little room for new starts in FY 2014. AST is looking to have LSST in the FY 2014 request.

The decadal survey recommended an increase in the grants programs. The only way to do that is to reduce facilities funding. There were significant cuts in Gemini (instrumentation), NRAO, and NSO funding in FY 2013. NOAO was cut substantially in FY 2012 and will remain flat in the FY 2013 budget. These cuts enable grant funding to stay relatively flat compared to FY 2012. The Gemini instrumentation in the FY 2012 minibus is compensated by a reduction in the FY 2013 request. A facility balance beyond FY2013 depends on the outcome of the Portfolio Review and the AST implementation plan. There is a LSST request for $7.5M to continue design and development leading to a possible MREFC start. There is an expectation of a very late budget appropriation this year because of the presidential and congressional elections.

Woodward asked whether given the magnitude of cuts in FY 2012 and again in FY 2013, have the facilities actually reached their level of sustainability regardless of the outcome of the portfolio review? Ulvestad replied that the facilities have gone beyond the sustainable level many years ago. The Gemini cuts do not affect operations and maintenance; the much larger issue is the UK pull out. For NRAO and NOAO it will be difficult. They both have substantial amounts of money in community programs and in instrument development; it is possible to cut programs without having significant cuts in facilities operations.

Kathleen Turner provided an update on DOE's FY 2013 budget request. The FY2013 President's budget request for High Energy Physics is $776.5M, a decrease of about 14%. The non-accelerator physics subprogram includes all of the Cosmic Frontier and the non-accelerator part of the Intensity Frontier experimental research, operations, R&D, small experiment fabrication and MIE fabrication projects. The Theoretical Physics subprogram includes Cosmic Frontier theoretical research. The FY2012 and FY2013 budgets include a SBIR of ~$20M, therefore, the

real FY2012 and FY2013 amounts are a reduction of ~$5M and $19M relative to FY2011. The FY 2013 budget reflects the FY2013 impact of the contractor pay freezes. There is a decrease in project funding in the Cosmic Frontier as DES and SuperCDMS-Soudan are completed. LSST and HAWC become MIEs in FY2012, HAWC starts fabrication and LSST is still in R&D. A fabrication-start approval for LSST and funding starts to ramp up in FY2013. Funds are being provided for Generation-2 dark matter experiments.

Support for the International Linear Collider R&D efforts ends in FY2013. The 5 year R&D plan was successfully completed but there is no project on the near horizon. DOE plans to continue involvement with international planning at a low level. Long Baseline Neutrino Experiment (LBNE) construction was not included in the FY2013 budget request. The Homestake mine dewatering efforts are being maintained at a low level. DOE plans to finish developing a LBNE case with the Administration. A lack of new facilities for science threatens the future of the program. In order to exert leadership new facilities and infrastructure need to be developed as well as exploitation of current research infrastructure. There may be opportunities with LSST and the dark matter Generation-2 experiments.

The remainder of the meeting was dedicated to discussion of the Committee's draft annual report due 15 March 2012. The Committee spent time reviewing and editing the draft report. The report will contain a set of findings and recommendations.

Ms. Pentecost provided the Chair with the names and addresses of report recipients. She will also provide an acronym list for the report.

MEETING ADJOURNED AT 3:45 PM EST, 2 MARCH 2012