Minutes of the Meeting of the Astronomy and Astrophysics Advisory Committee

6 May 2011
National Science Foundation, Arlington, VA, via teleconference

Members attending:	Kim Griest (Chair)	Gregory Laughlin
	Sarah Church	Paul Vanden Bout
	Debra Elmegreen	John Wefel
	Joshua Frieman	Brian Winer
	Martha Haynes	Charles Woodward
	David Koo	
Agency personnel:	James Ulvestad, NSF-AST	Stephen Merkowitz, NASA HQ
	Thomas Statler, NSF-AST	Richard Griffins, NASA HQ
	Elizabeth Pentecost, NSF-AST	John Mather, NASA HQ
	Philip Puxley, NSF-AST	Ilana Harrus, NASA HQ
	Dana Lehr, NSF-AST	Michael Procario, DOE
	Randy Phelps, NSF-OIA	Glen Crawford, DOE
	Vladimir Papitashvili, NSF-OPP	Kathleen Turner, DOE
	Jon Morse, NASA	Michael Salamon, DOE
	Rita Sambruna, NASA	Joann Gillis, DOE
	Thierry Lanz, NASA HQ	
Others:	Bethany Johns, AAS	Caryn Knutsen, NAS
	Miriam Quintal, Lewis-Burke	Roger Lee, JPL
	Lia LaPlana	Jonathan Gardner

MEETING CONVENED 12:00 PM EST, 6 MAY 2011

The Chair called the meeting to order.

The minutes from the 22-23 February and 4 March meetings were approved by the Committee.

Elizabeth Pentecost, the AAAC Recording Secretary, reviewed the list of identified Conflicts of Interest (COIs) for the AAAC. There were several updates to the list provided. Those updates will be recorded and distributed before the October 2011 meeting.

James Ulvestad presented an update on the FY11 NSF/AST budget. He first provided some programmatic updates on the ALMA project. There are forty-one antennas in Chile. The early science call is out and first observations are scheduled for late 2011. LSST is moving toward approval for a Preliminary Design Review (PDR). Approval is needed by June to avoid slipping from FY14 to FY15 for the earliest possible MREFC start. He also reported that the Gemini Director was stepping down and an interim director, Fred Chaffee, would be in place on May 18. A proposal was submitted by AURA for Gemini operations for the time period of mid-2012 through end of 2015 and was reviewed in March. The Gemini Board will be reviewing the transition plan, management transition, and governance issues at its May meeting.

Ulvestad informed the committee that NSF was clearly in a "full year continuing resolution." NSF received $5.56B in the FY11 appropriation which was a ~1% decrease from the FY10 budget. Since the NSF operating plan had not been approved by Congress yet, AST does not have a budget number yet. AST anticipates a decrease as well. The facilities construction (MREFC) line in the budget was significantly cut from $165M in FY11 to $117M (equal to FY10). This will stretch out projects currently in the MREFC plan, so there may be no funding wedge available for LSST until later than desired. Projects that may take 4-6 years to complete will take even longer, possibly 6-8 years.

Astro2010 made a recommendation to conduct a program review before mid-decade if there was no possibility of implementing the recommendation of the decadal survey and enacting the recommendations of the first senior review. The AST Portfolio Review will look at the balance across all programs to align them with the science questions outlined in Astro2010. It will not be a repeat of the senior review which was confined to facilities. It is supposed to enable progress on central science questions, balancing recommendations for new facilities and instrumentation with capabilities of existing facilities and programs.

Elmegreen commented that she was pleased to see that LSST was moving forward but asked how the alignment of the DOE camera was coming along. Ulvestad replied the money is being shifted around and that we needed to go through several stages toward readiness. DOE has its own review process that is different from NSF. Haynes asked if there are mechanisms in place between the agencies so that decisions can be made to sync the project. Is there anything the AAAC can do to help? Ulvestad replied that a Joint Oversight Group (JOG) has been in place since December. It is a venue where the agencies discuss the project and keep on top of issues. Procario replied that the JOG has been working well for quite a while. Issues are being discussed and the coordination is good.

Koo asked Ulvestad about the reorganization of mid-scale programs. Ulvestad replied that there was no reorganization, but the NSB was directed to study the issue and report back to Congress in January 2012. The issue is being actively discussed. Koo also asked whether the budgets for ALMA and ATST were still on track. Puxley replied that the ALMA costs are capped for construction and ALMA operations are still ramping up. Ulvestad commented that there has been some delay in breaking ground on ATST so there has been budget pressure on ATST. Most of the early money for ATST was stimulus money and there are different rules for spending that money compared to how general appropriations money is spent. The project has to keep two separate sets of books to account for items being allocated to the stimulus money and those allocated to general appropriations. If the appropriations money gets cut, the fact that there is money in the stimulus money account does not help them on some of the items. The project is re-thinking and re-planning based on new budget scenarios and NSF is waiting on a report.

Michael Procario presented an update on the DOE FY11 budget. The high energy strategic plan is based on the High Energy Physics Advisory Panel (HEPAP) "P5" report from 2008. Progress in achieving the goals of particle physics requires advancements in three key areas, the Energy, Intensity, and Cosmic frontiers. At lower funding levels, the DOE cannot maintain leadership at all three frontiers.

The DOE Office of Science total for FY11 is known, $4.884B. This does not account for rescissions, contractor pay freezes and unobligated prior year funds. The final distribution of FY2011 funding for the Office of Science is nearly determined. The final FY11 HEP budget will be close to the FY11 CR level of $799.5M. There will be no "new starts" in FY11. HEP is

holding minimal reserves and has very limited ability to respond to problems or supplemental requests. Several Intensity Frontier projects are considered new starts and are not receiving any equipment funding, including engineering design. HEP is pushing to get the remaining FY11 funding out as soon as possible.

There are some major changes planned for 2012. The Tevatron will run in FY2012 for six months to support the neutrino program. Funding goes from $125M in FY2010 to $103M in FY2012. The NOvA project is in the ramp down portion of its profile. First detector modules will be installed in FY2012; completion is expected in 2013. LHC support was decreased as the upgrade project is completed. There are funds to support the Homestake mine, while decisions are being made on whether DOE can use the mine for the SC program. The DOE Office of Science has an interest in three experiments that has been planned for DUSEL, long baseline neutrino experiment, dark matter, and neutrinoless double beta decay. A review process has been started to determine if any of these can be carried out in a cost effective manner at the mine; the review process will inform the FY2013 request. The Dark Energy Survey (DES) project is nearing completion and will begin operations in FY2012. DOE is building the new camera to be installed on the Blanco telescope at CTIO in Chile.

Astro2010 made recommendation to DOE as part of a ground/space-based Dark Energy program. An optimistic funding profile allows investment in LSST (partnering with NSF) and WFIRST (contributing to a NASA mission). LSST is recommended as the priority because DOE's role is critical. Other identified opportunities include contributions to NSF's mid-scale experiments such as BigBoss and HAWC as well as DOE being a minor partner to a European-led CTA ground-based gamma-ray observatory.

Chick Woodward asked Procario a question about BigBOSS and the DOE review because the NSF interaction was low priority and was not ranked (except as an example of a mid-scale project) by Astro2010. Procario replied that DOE will do a review and if it is viable, DOE will go to NSF with a plan for building the camera on a telescope. Ulvestad indicated that any decision on BigBoss would wait until after the Portfolio review.

There have been several personnel changes in HEP. Dennis Kovar retired and Michael Procario has been acting Associate Director since January. A search for a new AD is underway, headed by Dr. Patricia Dehmer, Deputy Director for Program, Office of Science. Nominations were solicited from the field and applications were submitted to DOE for consideration. A decision will be made by late July.

Jon Morse presented an update on the FY2011 budget. NASA SMD did well in the FY11 budget, about $4.9B. The astrophysics budget was flat and the Division is proceeding with the plan at about $631.5M. There are no planned off sets. The FY12 request is relatively flat, and the numbers in 2013 and beyond are notional and subject to change. The budget was driven by a plan that addresses all of the decadal survey recommendations. The schedule for the current round of NASA Explorers is on target. A Future Astrophysics Explorer Missions budget was created to increase the flight rate to achieve the recommended four missions and four missions of opportunity by the end of the decade. The Division hopes to release the Mission of Opportunity portion annually and the selections will depend on the selections from the previous call.

The next mission launch is NuSTAR. The instrument has been shipped to Orbital Sciences Corporation (OSC) to begin integration and testing with a launch in 2012 from Kwajalein Island. The Division is supporting the Lisa Pathfinder mission. The Antarctic suborbital rocket program campaign has been completed and the Australia campaign has been recertified. The suborbital

budget is increasing in the outyears, a little in 2012 and in 2013 and beyond. The SOFIA instrument announcement of opportunity will be released soon.

The WFIRST science definition team has been selected and is meeting frequently. The team is developing its interim report for the summer. There is no formal role for DOE on WFIRST. NASA will figure out what the mission is and how to move forward and will come back to DOE with a plan for collaboration on WFIRST.

The decadal survey released its recommendation for LISA and IXO and they were not recommended as top priorities. The decadal rankings combined with the constrained out-year resources in the FY12 President's budget request led ESA to conclude that a 2020 schedule was not feasible for any of the three candidates, LISA, IXO, and EJSM/Laplace. NASA plans to continue the base funding for the US LISA and IXO teams through FY11 and still support ESA's activities. NASA will consult with the community about strategic investments in gravity wave and x-ray astrophysics in future years.

Astro2010 recommended a small scale addition to the core research program to enable large coordinated theory and computational efforts (TCN). Both NASA and NSF recognize that there is value and high visibility for a joint program. Church asked if DOE would be involved with a TCN. Morse said they had had discussions, and it would depend on the science area. Turner said DOE has already invested some money in a similar program. There is a need for one to two community workshops to help define the scope and size of the program. The AAAC could play a significant role in shepherding this community process and produce a report to help guide the implementation of a joint program taking the specific missions of each Agency into consideration. The call would go out in 2012 with a start in 2013.

NASA is looking at options for instrument concept studies for contributions to international missions. How to plan coordination and cooperation is a tough problem. NASA is not working with ESA on Euclid, LISA, or IXO but needs to figure out how to integrate the planning in a coordinated way. Projects weighted toward one agency as the lead may be the way to go. The scientists need to be involved in a deep level because it is the science that is the driver. Considering science conferences as a way to involve scientists is a possibility. NASA is working with the NRC to reinstate a Committee on Astronomy and Astrophysics (CAA) to provide long-term portfolio planning on the large scale projects. GALEX and Suzaku as well as other small projects needed to be terminated.

Tom Statler presented an update on the NSF Portfolio Review activities. There was an internal group of program officers who drafted a management plan for the portfolio review and discussed it with the advisory committee. A group of three program officers was tasked with finalizing the charge and management plan and shepherding the process through the Division; Statler is the chair of the group. The Portfolio Review is not a repeat of the senior review, which was confined to the facilities. The committee will be asked to define the astronomical landscape for the coming decade and will be asked to determine the critical capabilities needed in 2015, 2020, 2025 to address key science questions from the decadal survey and determine how to achieve these capabilities through a combination of new facilities and instrumentation and an evolution of existing facilities and programs. The review is explicitly forward-looking. Multiple budget scenarios through 2025 will be provided to the committee by AST. There will be no revisiting/rehashing of the Astro2010 process or recommendations and the committee will be asked to consider the consequences for domestic, international partnerships and on the state of the profession. The portfolio should support and develop requite workforce to exploit recommended

research and education investment. AST is asking for a report by 31 March 2012 in order to inform the 2014 budget.

It is extremely important that the community understand why the portfolio review is being done because the results will have consequences for everyone. AST intends to assemble a diverse committee. AST will invite nominations from the community and there will be progress briefings to the various committees, OSTP, and OMB. The committee will meet 4-5 times with a report by 31 March 2012.

Woodward asked how AST would handle conflicts of interest and how would they would handle the ramping in 2025 when the realization of the next decadal survey won't be felt until 2021. Statler replied that AST had been thinking about the issue of conflicts. Some committee members will be conflicted in some way. Ulvestad indicated that there will be an effort to have a committee that is balanced with people who can take a broader perspective; make sure there are users of national or international facilities but not employees of the national facilities. Ulvestad indicated that evolving or closing facilities takes time especially if there is environmental remediation, and a realization of funds savings won't be until a few years later. AST will need to plan actions between 2020 and 2023 so that they are ready for 2025.

Haynes asked if AST was considering committee members who might be associated with other facilities, not necessarily astronomy facilities. Statler replied that AST considered this but felt that committee members needed to know astronomy very well (because astronomy is the field that will be affected), and bringing people onboard who were not familiar with astronomy would need take more time to get them up to speed on the issues.

Elmegreen asked about NSF's role in re-establishing a CAA, which was supposed to be the new Decadal Survey Implementation Advisory Committee as recommended by Atro2010. Ulvestad said NSF is not currently involved in those discussions, which are currently just between NASA and NRC. Ulvestad noted that a CAA is not fast enough to give advice on matters such as the portfolio review.

The Committee discussed nominations for a new Chair and Vice Chair. By acclamation, Sarah Church was elected Chair and Martha Haynes, Vice Chair.

Statler informed the committee about the process for appointing new members. Four new members need to be appointed. The agencies will go through their own internal processes to vet suggestions, and provide a letter to the NSF Director nominating their choice because NSF is the lead institution for the AAAC. The new members would be in place by the time of the October meeting.

The Committee thanked all of the members who were rotating off the AAAC, Kim Griest, Jackie Hewitt, Doug Richstone, and David Koo.

MEETING ADJOURNED AT 4:30 PM EDT, 6 MAY 2011