

**Minutes of the Meeting of the
Astronomy and Astrophysics Advisory Committee**

**21–22 June 2004
National Science Foundation, Arlington, VA**

Members attending:	Garth Illingworth (Chair) Neta Bahcall Alan Dressler Barry LaBonte Angela Olinto	Rene Ong Catherine Pilachowski Abhijit Saha Mark Sykes
Agency personnel:	Wayne Van Citters, NSF-AST Eileen Friel, NSF-AST Dana Lehr, NSF-AST Richard Barvainis, NSF-AST Craig Foltz, NSF-AST Elizabeth Pentecost, NSF-AST Randy Phelps, NSF-AST Nigel Sharp, NSF-AST Joseph Dehmer, NSF-PHY Scott Borg, NSF-OPP	Karl Erb, NSF-OPP Vladimir Papitashvili, NSF-OPP Robert Wharton, NSF-OPP Paul Hertz, NASA-OSS Anne Kinney, NASA-OSS Vernon Jones, NASA-OSS Michael Salamon, NASA-OSS Kathy Turner, DOE Patrick Looney, OSTP
Invited speakers:	Jay Frogel, AURA Ron Kudritzki, U. Hawaii Jeremy Mould, NOAO	
Other participants:	Michael Ledford, Lewis-Burke Assc.	

MEETING CONVENED 9:15 AM EDT, 21 JUNE 2004

The Chair opened the meeting and all participants introduced themselves. Because the meeting initially lacked a quorum of participating members, approvals of the February and March meeting minutes were postponed until later in the day.

Dr. Wayne Van Citters, Director of the NSF Division of Astronomical Sciences (AST), first reported on recent developments at NSF, beginning with an overview of facilities construction and operations. The Combined Array for Research in Millimeter-Wave Astronomy (CARMA) groundbreaking was held on 17 March 2004 at the Cedar Flat site in eastern California. CARMA will merge two university-based millimeter arrays, the Owens Valley Radio Observatory (OVRO) and the Berkeley-Illinois-Maryland Association (BIMA) millimeter array; the CARMA array is expected to be fully operational in 2005.

Both telescopes of the Gemini Observatory are now operating at >70% science time, and the report from the Aspen Workshop on Future Gemini Instrumentation is available for download at the Gemini website (www.gemini.edu/files/docman/science/aspen_report.pdf).

Dr. Van Citters reported that the Advanced Technology Solar Telescope (ATST) full construction proposal is currently under review. Dr. Illingworth questioned if ATST includes any international partnerships, to which Dr. Van Citters replied that while interest has been demonstrated from the international community, the level of participation is currently unknown. The ATST project team and the Association of Universities for Research in Astronomy (AURA), the managing organization for the National Solar Observatory (NSO), will negotiate potential international collaborations.

Following a 12 March 2004 program solicitation deadline, proposals to manage and operate the National Astronomy and Ionosphere Center (NAIC) for a five-year period beginning in October 2005 are currently under review. In addition, the renewal proposal from the management organization for the National Radio Astronomy Observatory (NRAO), Associated Universities, Inc. (AUI), is also under review.

Dr. Van Citters highlighted important FY 2004 events for the Atacama Large Millimeter Array (ALMA) project, including news that Japan has offered ~¥30B over eight years to join the Enhanced ALMA project. Under the constraint that the baseline cost and schedule remain unaltered by the contribution, an agreement on deliverables and structure for the Enhanced project is under negotiation and will likely be formalized in summer 2004.

Dr. Van Citters next presented a comparison of FY 2003 through FY 2005 funding for the NSF Directorate for Mathematical and Physical Sciences (MPS). The President's FY 2005 budget request gives AST and the Division of Physics (PHY) the largest increases (4.0% and 3.6%, respectively) over estimated FY 2004 funding levels across MPS divisions. FY 2006 budget development is currently underway at the agencies in response to Office of Management and Budget (OMB) guidance.

Dr. Van Citters discussed the status of AST strategic planning in response to the National Research Council (NRC) 2001 Decadal Survey *Astronomy and Astrophysics in the New Millennium* (www.nap.edu/books/0309070317/html) and other reports. The NSF-NASA-DOE National Science and Technology Council (NSTC) Interagency Working Group (IWG) on the Physics of the Universe has released its report (www.ostp.gov/html/physicsoftheuniverse2.pdf), which responds to the NRC 2002 report *Connecting Quarks with the Cosmos: Eleven Science Questions for the New Century* (www.nap.edu/books/0309074061/html/). Dr. Van Citters noted that Dr. Patrick Looney of the Office of Science and Technology Policy (OSTP) will provide an overview of the *Physics of the Universe* report later during this meeting. Dr. Van Citters also reported that the NSF response to the 2004 NRC report *Setting Priorities for Large Research Facility Projects Supported by the NSF* (a.k.a. "the Brinkman report;" <http://books.nap.edu/catalog/10895.html>) is under development. AST is well positioned to respond to the report's recommended planning environment and regularly performs the recommended oversight and review of major astronomy facilities.

Dr. Van Citters reviewed the current status of planning and development for the Giant Segmented Mirror Telescope (GSMT) and the Large Synoptic Survey Telescope (LSST) and noted that the National Optical Astronomy Observatory (NOAO) is coordinating the development of a broad, community-driven strategy for ground-based optical and infrared astronomy (O/IR). NOAO Director Jeremy Mould will discuss the O/IR strategic plan later during this meeting. AST is currently discussing how to develop a similar plan for radio astronomy that will mesh with the O/IR plan and inform the next NRC Decadal Survey. Dr. Van Citters also noted other interagency strategic planning efforts, including the Task Force on CMB Research (TFCR) and discussions of coordinated programs for Dark Energy and Near Earth Objects (NEOs).

Dr. Van Citters emphasized that strategic planning must always respond to fiscal realities. AST is considering the implementation of a “senior review” process, recommended by the 2001 Decadal Survey, that will provide a competitive, cross-disciplinary review of NSF astronomy facilities in order to set priorities and consider possible closure or privatization in response to current budget constraints.

Dr. LaBonte, Dr. Olinto and Dr. Ong joined the meeting via teleconference; thus, a quorum was established for the remainder of the meeting.

Dr. Joseph Dehmer, NSF-PHY Division Director, next presented an overview of the NSF Division of Physics (PHY). Dr. Dehmer first provided a context for PHY’s participation in Physics of the Universe (POU) activities and for the AAAC’s potential role in the POU advisory structure. The current structure for community input to POU includes, among others, the High Energy Physics Advisory Panel (HEPAP), the Nuclear Sciences Advisory Committee (NSAC) and the Task Force for CMB Research (TFCR), a joint subcommittee of HEPAP and the AAAC. Discussion followed in which AAAC members questioned how the AAAC might fit into the context described by Dr. Dehmer. While recognizing the necessary connections among Federal advisory bodies and research programs, committee members expressed concern that the AAAC should undertake a manageable scope that does not overstep the committee’s expertise in astronomy and astrophysics.

Dr. Dehmer reviewed PHY’s strategic goals and organizational chart. Dr. Dehmer also described both current and upcoming Physics Frontier Centers and PHY facilities while noting associated collaborations with other science agencies and NSF divisions. He reported, among other recent developments, that the Laser Interferometer Gravitational Wave Observatory (LIGO) commissioning and science runs are now within a factor of two of the LIGO Science Requirement Document (SRD) 2-km strain sensitivity goal. Dr. Dehmer concluded with a review of recent budget trends relevant to PHY, including MPS funds by Division (FY 2001 through the President’s FY 2005 budget request), MPS facilities funded through the NSF Major Research Equipment and Facilities Construction (MREFC) account (FY 1999 through FY 2005 request), and a projection of operations funding for existing MPS MREFC facilities (through FY 2013). Growth of estimated annual operating costs for existing MPS MREFC facilities is expected to double and exceed \$100 million by FY 2011.

MEETING ADJOURNED AT 10:30 AM – RECONVENED AT 10:40 AM

The minutes for the February and March AAAC meetings were approved.

Dr. Anne Kinney, NASA Astronomy and Physics Division Director, next provided an update on NASA activities beginning with a review of significant events. The Gravity Probe B (GP-B) satellite launched successfully on 20 April 2004, and the control team is currently spinning up the gyros in the Initialization and Orbit Checkout (IOC) phase of the mission. Slow guide-star acquisition and revisions to the spacecraft’s control software, required after 2 out of the spacecraft’s 16 micro-thrusters malfunctioned, will extend the IOC phase for an additional 30 days to an expected total of 90 days.

Dr. Kinney presented recent results from the Chandra X-Ray Observatory, the Hubble Space Telescope (HST) and the Spitzer Space Telescope and reviewed the latest Space Science Updates schedule and coverage. Dr. Kinney reported that international user participation in Great Observatory science is at 22% for Chandra and Spitzer and at 15% for HST while emphasizing

that the broader question remains of how to manage complex partnerships and international collaborations. She noted that 50/50 partnerships are very challenging; experience has demonstrated the necessity of a management lead.

Dr. Kinney reported that NASA Science Centers are likely to be competed in the future. Code SZ currently supports four Science Centers: STScI with 530 FTEs, the Chandra X-ray Center with 163 FTEs, the Spitzer Science Center with 135 FTEs, and (under development) the Michelson Science Center with 19 FTEs.

Dr. Kinney reviewed the status of developmental and operating missions in the Astronomy and Physics Division. The Swift Gamma-Ray Burst Mission will be the next major launch; the launch is scheduled for September but will likely slip to October/November due to launch pad availability (unrelated to the instrument).

Dr. Kinney concluded with a list of key issues for the Division. NASA must plan and implement a safe HST de-orbit mission while working to optimize the science program and to extend the observatory's operating life without servicing. The future of the Structure and Evolution of the Universe science theme is undetermined since the Beyond Einstein budget has been reduced for FY05 and out. The Astronomy and Physics Division roadmapping process will begin again in the context of NASA's new Exploration Vision.

Dr. Bahcall arrived and joined the meeting.

Dr. Paul Hertz, NASA Office of Space Science (OSS) Senior Scientist, next discussed the impact on OSS of the new Vision for Space Exploration. He first reviewed the timeline from the President's initiation of the Exploration Vision in January 2004 through NASA's anticipated transformation to align the agency with the new exploration agenda. Dr. Hertz outlined the major points of Administrator O'Keefe's June 1 speech to the American Astronomical Society (AAS) meeting in Denver, in which Mr. O'Keefe reaffirmed NASA's commitment to space astronomy activities and labeled those activities as "integral to the President's vision."

Dr. Hertz then reviewed the charter, membership and findings of the President's Commission on Implementation of United States Space Exploration Policy, which released its report on June 16 (www.nasa.gov/pdf/60736main_M2M_report_small.pdf). Among the report's findings, the Commission recommended that the President establish a permanent Space Exploration Steering Committee of appropriate Federal agency representatives who will develop policies and coordinate work in support of the Exploration Vision. The Commission also recommended that NASA recognize and implement a larger presence of private industry in space operations and that NASA Centers should be reconfigured as Federally Funded Research and Development Centers (FFDRCs). The Committee also recommended that NASA transform its organizational structure, business culture and management processes.

Dr. Hertz anticipated that the administrative restructuring would create a single science Enterprise that will integrate and prioritize NASA science activities across all disciplines. He also noted that the notional science research agenda offered by the Commission looks very similar to the current OSS strategic plan. The Commission recommended that NASA ask the NRC to re-evaluate priorities to exploit opportunities created by the Space Exploration Vision. AAAC members questioned whether this recommendation would require a repeat of the Decadal Survey, to which Dr. Kinney replied that the NRC Committee on Astronomy and Astrophysics (CAA) may be able to provide a "higher order" review rather than fully reconsider all prioritizations in the Decadal

Survey. Discussion followed in which members questioned the impact of the Exploration Vision on science priorities and the budget outlook for science.

Dr. Kathy Turner, DOE Office of High Energy Physics (OHEP) Program Manager, next provided an update on DOE-OHEP programs and activities. Released in April, the HEPAP subpanel report *The Quantum Universe* (www.interactions.org/cms/?pid=1012346) outlines how existing and planned experiments at accelerators and underground laboratories, together with space probes and ground-based telescopes, will address nine defining scientific questions in contemporary particle physics. Dr. Turner reviewed the recommendations from the *Physics of the Universe* report that pertain to DOE-OHEP and outlined the upcoming activities of other interagency advisory bodies that provide input to OHEP, including the Scientific Assessment Group on Experiments in Non-Accelerator Physics (SAGENAP), TFCR and the JDEM Science Definition Team (SDT). Dr. Turner also reported that the American Physical Society (APS) is sponsoring a multi-divisional study on neutrino physics that will provide a broad outline of future measurements and that will inform efforts to create a scientific roadmap for neutrino physics.

Dr. Turner reviewed OHEP program tools and major program thrusts and provided a budget comparison between FY 2004 and FY 2005 (President's request). Members inquired about a 13% reduction in FY 2005 for non-accelerator physics, which Dr. Turner identified as largely consequent to a FY 2004 upturn in non-accelerator research funding at the DOE laboratories that was not sustained in the FY 2005 request.

Dr. Turner then provided updates on ongoing and approved OHEP experiments, including the Sloan Digital Sky Survey (SDSS), the Gamma Ray Large Area Space Telescope (GLAST), the Pierre Auger Cosmic Ray Observatory (Auger), and the Very Energetic Radiation Imaging Telescope Array System (VERITAS). In November of 2003, DOE and NASA released a straw-man plan for JDEM, and currently the JDEM SDT is under development with its first meeting expected in the fall. JDEM has been identified as a high priority facility (tied for third place) in the DOE Office of Science report *Facilities for the Future of Science: A Twenty-Year Outlook* (www.sc.doe.gov/Sub/Facilities_for_future/20-Year-Outlook-screen.pdf).

MEETING ADJOURNED AT 12:55 PM – RECONVENED AT 1:50 PM

Dr. Eileen Friel, NSF-AST Executive Officer, reported on current and planned NSF-NASA activities on the National Virtual Observatory (NVO). NSF currently supports a collaboration led by Johns Hopkins University of universities, national observatories, NASA data centers and DOE labs to develop the framework of the NVO. NSF and NASA plan to issue a joint Announcement of Opportunity (AO) for concept studies on how to manage a long-term Virtual Observatory; funding is planned for FY 2005 and will be split equally between the agencies. The agencies also expect to share equally the long-term funding of a Virtual Observatory at a funding level roughly equal to the current NVO level. Discussion followed regarding the current status of the NVO. NSF staff reported that establishments of international protocols and standards had progressed very quickly, that many large datasets are already NVO-compliant, and that some software tools are already available for accessing data from multiple large archives.

The Chair introduced the next session and noted that the Committee should seek to strengthen synergies between GSMT and the James Webb Space Telescope (JWST) by identifying examples of how a potential overlap of the observatories' operating periods would benefit specific science goals.

Dr. Rolf Kudritzki, Chair of the GSMT Science Working Group (SWG), reviewed GSMT SWG activities. The SWG was charged two years ago to develop the science case and justification for any federal investment by NSF or other agencies in GSMT. The SWG identifies technology design needs, establishes working relationships with international collaborators, and explores private-public relationships. In June 2003 the group delivered its first science report to NSF, which is available online along with meeting information and presentations (www.auranio.noao.edu/gsmt_swg/index.html). The GSMT SWG would like to work with the JWST SWG to develop two documents: a high-level description of potential JWST-GSMT synergy followed by a more detailed white paper.

Dr. Jay Frogel, AURA Vice President for Science, followed with a discussion of potential JWST-GSMT synergy. The first report of the GSMT SWG presents a strong qualitative case for complementary science goals. Dr. Frogel reviewed the projected GSMT first-light capabilities and described the unique capabilities of JWST and GSMT. He noted that adaptive optics (AO) systems will be critical to the success of GSMT and that AO systems are starting to compete with HST at infrared wavelengths (with <1' field of view). Dr. Frogel reviewed the complementary science of GSMT and JWST and provided examples of science programs that would require contemporaneous operation of the two observatories. He proposed holding an AURA-sponsored workshop with representatives from both SWGs to develop common science themes; the workshop would ideally deliver a final report before the January 2005 AAS meeting. Dr. Frogel reported that he was very encouraged by a recent teleconference in which the JWST SWG supported an exploration of potential GSMT complementarity.

Dr. Kinney expressed concern that a focus on JWST-GSMT complementarity obscures the drive for GSMT funding. Dr. Dressler disagreed and offered that one role of the AAAC is to avoid duplication: one can demonstrate that each project stands alone, yet contemporary observatories would enhance science. Dr. Kinney noted that the stand-alone science case for GSMT has not yet been fully demonstrated. Dr. Kudritzki also disagreed and reiterated the intention to demonstrate that contemporaneous, yet uniquely capable, observatories enable enhanced science. Dr. Illingworth added that the science community must provide a framework to justify the necessity of both GSMT and JWST because the science cases for each may be perceived as very similar. Dr. Dressler asked if ALMA would be included, to which Dr. Frogel responded that, while current discussions do include ALMA, the focus would be on future facilities.

MEETING ADJOURNED AT 3:00 PM – RECONVENED AT 3:20 PM

Dr. Karl Erb, Director of the NSF Office of Polar Programs (OPP), addressed the Committee and introduced other OPP members who were present. Dr. Erb noted that astronomy and astrophysics activities in Antarctica began seriously with the advent of a 1991 Science and Technology Center (STC) award to University of Chicago to support the Center for Astrophysical Research in Antarctica (CARA). Antarctic science is now at a stage where U.S. Antarctic Program (USAP) facilities can host projects with substantive infrastructure. Dr. Erb also noted that NASA is very important in supporting connectivity for polar research (since the communications infrastructure borrows time on NASA satellites).

Dr. Scott Borg, OPP Antarctic Sciences Section Head, reviewed Antarctic Sciences programs as well as the USAP logistics and support infrastructure. Dr. Borg outlined the funding pathways by which Antarctic research is supported at NSF and noted that astronomy and astrophysics activities in Antarctica are principally sited at South Pole Station and McMurdo Station. Dr. Borg reviewed the history of the Antarctic Long-Duration Ballooning (LDB) program, which through a

NASA-NSF Memorandum of Agreement (MOA) will host two flights per year through FY 2009. OPP will host an August workshop with NASA to roadmap the future of LDB in Antarctica.

Dr. Borg also presented a historical perspective of astronomy in Antarctica and described recent and current activities, including the Degree Angular Scale Interferometer (DASI), the Arcminute Cosmology Bolometer Array Receiver (ACBAR), and the Antarctica Submillimeter Telescope/Remote Observatory (AST/RO). Large future projects include the South Pole Telescope (SPT), a 10-meter submillimeter telescope that was recommended by the Decadal Survey in part to study distortions of the cosmic microwave background (CMB) caused by the Sunyaev-Zel'dovich effect. IceCube, a kilometer-scale high-energy neutrino detector that will build upon the existing Antarctic Muon And Neutrino Detector Array (AMANDA), has been approved for full construction phase with the hope to complete construction by FY 2010. Dr. Borg noted that OPP is looking for strong education and outreach programs to complement the IceCube and SPT projects. Questions from the Committee addressed future science capabilities at South Pole Station and funding levels for OPP.

Dr. Vernon Jones, NASA Program Scientist, next reviewed NASA-NSF planning for a Scientific Ballooning Strategic Roadmap. Dr. Jones first described the mission of the NASA Balloon Program and reviewed program aspects such as balloon vehicles, payloads, technology development, research areas and workforce and training. Dr. Jones reviewed the major recent and near-term balloon flights and noted that particle astrophysics and cosmic ray researchers use balloons as the exclusive vehicle for large or heavy payloads. Dr. Jones reported that the program would soon reach saturation; thus, the need exists to develop a strategic roadmap. Roadmapping activities will include: identifying science requirements for payloads and operations; identifying the scientific objectives for which ballooning has the greatest potential to contribute significantly and connecting those objectives to NAS reports (such as the Decadal Survey), NASA strategic objectives and other planning documents; identifying the requirements and impacts of both minimal and optimal ballooning programs; and recommending a program that fits into the current funding scenario. Dr. Jones concluded by listing the members of the NASA Balloon Roadmap Team.

Dr. Illingworth asked Dr. Jones to identify concerns and issues for the future. Dr. Jones identified over-flight clearances and international agreements, steering technologies and trajectory control, the development of the ultra-long duration balloon, and the level of funding required to develop scientific payloads as they become more sophisticated and complex. Dr. Bahcall asked how well ground-, balloon- and space-based CMB experiments are coordinated. Dr. Jones responded that current coordination does not exist; Dr. Nigel Sharp added that the TFCR would address this issue in its roadmapping activities.

The Committee concluded the day's meeting with a general discussion that returned to the issue of JWST-GSMT complementarity. Dr. Sykes noted that the Committee should focus on identifying the marginal cost of moving up the development of the GSMT to overlap with JWST rather than using JWST as an advocacy mechanism for GSMT. The Committee also discussed the role of the AAAC in responding to the *Physics of the Universe* report and the potential addition of DOE as a recipient of formal advice from the AAAC.

MEETING ADJOURNED AT 5:40 PM, 21 JUNE 2004

MEETING RECONVENED AT 8:30 AM EDT, 22 JUNE 2004

The Chair asked attendees to introduce themselves.

Dr. Patrick Looney, OSTP Assistant Director for Physical Sciences and Engineering, reviewed the findings of the *Physics of the Universe* report, which was developed by the NSTC IWG on the Physics of the Universe (POU) in response to the NRC report *Connecting Quarks with the Cosmos*. Dr. Looney first identified the IWG co-chairs and participating agencies and described their approach to developing the POU report. He then described the report's findings and recommendations, which are thematically prioritized for future investment.

Dr. Looney reported that OSTP is strongly supportive of formalizing the inclusion of DOE as an agency advised by the AAAC. Noting that Dr. Marburger has stated the need to emphasize strategic planning in high energy physics, Dr. Looney distributed copies of the recent HEPAP report, *Quantum Universe: The Revolution in 21st Century Particle Physics* (www.science.doe.gov/hep/HEPAP/Quantum_Universe_GR.pdf). The report contains considerable overlap with the *Physics of the Universe* report, and thus should be of interest to the AAAC.

Subsequent discussion among AAAC members considered interagency advisory structures that could respond to the *Quantum Universe* and *Physics of the Universe* reports (e.g., by developing implementation plans). Dr. Looney stated that OSTP has taken its role in the planning process [for POU and *Quantum Universe*] "as far as it can go" since OSTP does not make budget decisions. Dr. Looney stated that the "broadest coordination of science" is needed and that budget decisions ultimately require "interlacing priorities across the government." Several participants stressed that the role of the AAAC should remain as an astronomy-based body that oversees optimal interagency implementation of pre-established, high-priority science goals. The group expressed general consensus that formalizing DOE participation in the AAAC is desirable but that the AAAC charter should not otherwise be substantively altered or broadened. Dr. Hertz noted that the congruence of science goals across agencies should not influence prioritization; that is, science at disciplinary and agency boundaries should not generally be given higher priority than science that is not necessarily at the boundary. Participants agreed that interagency task forces could be an appropriate mechanism to address specific issues, techniques or science areas. The TFCR was identified as a useful test case for this approach.

Dr. Nigel Sharp, NSF Program Director, followed with an update on the activities of the TFCR. The TFCR has now been established as a joint subcommittee of the AAAC and the HEPAP, through which careful coordination will be necessary to produce a single report that advises NSF, NASA and DOE on the future of CMB research. Dr. Sharp identified the 14 TFCR members, for which Rai Weiss of MIT will serve as Chair. Dr. Sharp then reviewed the TFCR meeting and reporting schedule, which predicts a final report available to the AAAC and HEPAP at their February 2005 meetings. Dr. Sharp reported the first TFCR meeting as very successful; products of the meeting included a draft report outline and the identification of report reviewers.

Because the AAAC has not met since the Chair received the TFCR charge letter, the Chair asked for a motion to authorize the charge to the TFCR. The motion was made and seconded, and the committee voted in support of the charter as written.

MEETING ADJOURNED AT 10:30 AM – RECONVENED AT 10:40 AM

Dr. Van Citters described the motivation to establish a Dark Energy Task Force (DETF) to roadmap dark energy activities prior to the operation of JDEM and/or a ground-based large survey telescope (such as LSST). Dr. Hertz agreed that a DETF could provide valuable input, particularly to leverage any large investment such as JDEM. Dr. Turner noted the need to

establish the justification for a large space-based dark energy mission, particularly because of some claims that ground-based telescopes can provide comparable constraints on dark energy parameters.

The committee discussed how particular project capabilities would be incorporated into the roadmap. The committee agreed that a DETF must evaluate the various techniques for measuring dark energy parameters without constraining the assessment with specific project proposals. Dr. Looney and Dr. Van Citters noted that theory must be incorporated into the planning and prioritization process.

The Chair asked for a motion to establish the DETF; a motion and second followed. The committee voted unanimously to construct the DETF and asked the agencies to draft a committee charge and list of potential members.

Dr. Van Citters next presented an overview of the interchanges between executive agencies and OMB that precede the submission of the President's budget request to Congress each February (preceding the October 1 start of each fiscal year). Dr. Van Citters explained that the upcoming AAAC annual report (due to Congress by 15 March 2005) could thus influence the agency-OMB process (and thus the President's budget request) for FY 2007 or the Congressional authorization/appropriation process for FY 2006. Dr. Van Citters, Dr. Hertz and Dr. Turner also each described the respective internal processes that shape the NSF, NASA and DOE budget requests to OMB.

MEETING ADJOURNED AT 12:15 PM – RECONVENED AT 1:15 PM

Dr. Jeremy Mould, NOAO Director, reported that NOAO plans, in response to a recent NSF request, to lead a community-based effort to consider long-baseline strategic planning in ground-based optical/infrared (O/IR) astronomy. The effort would deliver a 10–20 year roadmap for the system of major ground-based O/IR facilities. The roadmap would highlight logical decision points for public investment and would coordinate with associated planning for space-based, radio and solar physics facilities.

Dr. Mould reviewed the issues that an O/IR Long Range Planning Committee (LRPC) would address, particularly regarding large projects such as LSST and GSMT. Dr. Mould also identified stakeholders and areas that O/IR LRPC members must represent and offered suggestions for individual committee members. Dr. Mould noted that the O/IR LRPC would not make planning decisions; rather, the committee would articulate the process by identifying decision points and decision-making strategies. The report target date would be 31 May 2005. Dr. Mould also noted the desire to accelerate the GSMT planning process in order to allow operational overlap with JWST.

AAAC members expressed consensus that the outlined planning process would be beneficial and is particularly timely and appropriate in response to the NRC Brinkman report.

The Committee enthusiastically endorsed further work between the GSMT SWG and the JWST SWG to identify complementary science goals and capabilities. Dr. Frogel read the following statement from the JWST SWG, as communicated to Dr. Frogel from Dr. Jonathan Gardner, Deputy Senior Project Scientist, JWST:

“The James Webb Space Telescope (JWST) Science Working Group recognizes that a large ground-based telescope, such as the 30-m Giant Segmented Mirror Telescope

discussed in the decadal survey, would provide significant complementary capabilities to JWST. Just as the combination of Hubble Space Telescope imaging and Keck telescope spectroscopy has been used to answer many astronomical questions, we expect that a large ground-based telescope's optical sensitivity, high spectral resolution, and potential for high spatial resolution will prove a powerful combination with JWST's extreme sensitivity and wavelength coverage in the near- and mid-infrared. An example of a scientific problem needing the combined capabilities of the two facilities is the study of stellar populations in nearby galaxies to determine their ages, metallicities and their history of assembly. We note that other 20 to 30+ meter telescope concepts currently under study would provide similar ground-based complementarity to JWST."

The Chair concluded the meeting with general discussion and the identification of issues for future consideration. Topics for potential follow up include GSMT/JWST complementarity, formation of the Dark Energy Task Force, TFCR progress, and coordination of NASA and NSF activities in extrasolar planet searches and Near Earth Objects.

MEETING ADJOURNED AT 3:05 PM, 22 JUNE 2004