

NASA ADVISORY COUNCIL  
National Aeronautics and Space Administration  
Washington, DC 20546  
Hon. Harrison H. Schmitt, Chairman

May 14, 2008

The Honorable Michael D. Griffin  
Administrator  
National Aeronautics and Space Administration  
Washington, DC 20546

Dear Dr. Griffin:

Enclosed are the NASA Advisory Council recommendations and observations as agreed to in a public meeting on April 17, 2008 held at the Le Pavillon Hotel in New Orleans. Prior to the meeting, members received a tour of the Stennis Space Center and also used Center facilities to hold Committee fact-finding meetings. Mr. Robert Cabana and his staff should be commended for their hospitality and hard work. The Council had a very productive day of deliberations with several observations and recommendations we believe will be of assistance as NASA continues its implementation efforts of the Vision for Space Exploration.

The Council is forwarding for your consideration four recommendations and two observations. We are not expecting a formal response to the observations, but wished to merely emphasize our concerns in these areas. The Council will continue to monitor and consider future recommendations that may be of assistance to you in those subject areas.

Aeronautics Committee Recommendation

- 1) **Development of Candidate System-Level Research Projects for Possible Aeronautics Augmentation Request:** Aeronautics Research Mission Directorate should plan and develop candidate system-level research projects of highest priority that should be evaluated and considered by NASA for augmentation in the FY 2010 (and out years) budget request. These projects should be consistent with the objectives and themes of the National Aeronautical R&D Policy and Implementation Plan, leverage NASA's unique expertise and competencies, and reflect the priorities of the National Research Council's Decadal Survey for aeronautics.

Exploration Committee Recommendation

- 2) **Assume U.S. Responsibility for Lunar Crew Mobility:** NASA should amend its list of U.S.-provided lunar architecture elements to include initial surface mobility beyond that provided by space suit systems. Such surface mobility is an extension of the transportation and suit elements that the U.S. has already indicated its intent to provide. This is consistent with the extant policy of providing basic U.S. Space Transportation capabilities for exploration of the Moon.

Human Capital Committee Recommendation

- 3) **Independent Evaluation of NASA-TV:** An outside organization should be contracted to do an evaluation of the current effectiveness and viewership of NASA TV and to recommend a clear rationale and set of themes for its continuance.

Science Committee Recommendation

- 4) **Develop Long-Lived Power Sources for Planetary Missions:** NASA should take steps to develop or ensure the availability of long-lived power supplies for landed networks and other planetary missions.

Human Capital Committee Observation

- 1) There should be a much closer relationship between Office of Education and Office of Strategic Communication (OSC) regarding the way information is communicated to achieve joint goals of outreach and employment pipeline support for Science, Technology, Engineering and Math (STEM). Inspiring students to study Science, Technology, Engineering, and Math is one of the unique mandates given to NASA in the Space Act. Strategic Communication could greatly benefit by tapping into some related outreach strategies to build greater awareness of NASA's overall mission. In light of OSC's budget reductions, the Human Capital Committee recognizes that the OSC will continue to lose capability if they don't look for new and innovative ways to get their message across.

Science Committee Observation

- 2) NASA should continue to make every effort toward Mars Science Laboratory (MSL) mission success and limiting overall cost with a launch in 2009. NASA should continue to recognize MSL as an Agency-wide priority, and the agency should assist the project in finding the resources necessary for mission success.

If there are any questions on the proceedings of our meeting, please contact me.

Best Regards,



Harrison H. Schmitt  
Chairman  
Enclosures

NASA Advisory Council  
Council Recommendation  
Tracking Number A-08-01

Committee Name: Aeronautics Committee

Chair: General Lester Lyles

Date of Public Deliberation: April 17, 2008

Date of Transmission: May 14, 2008

Short title of the recommendation

Development of candidate system-level research projects for a 2010 and out-years budget augmentation request for aeronautics.

Short description of the recommendation

Aeronautics Research Mission Directorate (ARMD) should plan and develop candidate system-level research projects of highest priority that should be evaluated and considered by NASA for augmentation in the FY 2010 (and out years) budget request. These projects should be consistent with the objectives and themes of the National Aeronautical R&D Policy and Implementation Plan, leverage NASA's unique expertise and competencies, and reflect the priorities of the National Research Council's Decadal Survey for aeronautics.

Major reasons for proposing the recommendation

The National Aeronautics R&D Policy and the follow-on Implementation Plan lay out the roles and responsibilities of participating federal agencies, including NASA, in a collaborative effort to advance U.S. technological leadership in aeronautics. In the Committee's view, the NASA Aeronautics program, while currently conducting high quality research, is insufficient in scope to achieve the U.S. leadership objectives implicit in the President's Aeronautics R&D Policy. Needed systems-level research building on progress of the last several years cannot be accommodated in the run-out budget level.

Consequences of no action on the recommendation

Natural maturation of promising aeronautics research and technology at the foundational and disciplinary levels will be stagnate and thus will not enable advancement of U.S. technological leadership in aeronautics.

NASA Advisory Council  
Council Recommendation  
[Tracking Number E-08-01](#)

Committee Name: Exploration Committee  
Chair: General James (Abe) Abrahamson  
Date of public deliberation: April 17, 2008  
Date of transmission: May 14, 2008

Short title of the recommendation

Assume U.S. Responsibility for Lunar Crew mobility.

Short description of the recommendation

NASA should amend its list of U.S.-provided lunar architecture elements to include initial surface mobility beyond that provided by space suit systems. Such surface mobility is an extension of the transportation and suit elements that the U.S. has already indicated its intent to provide. This is consistent with the extant policy of providing basic U.S. Space Transportation capabilities for exploration of the Moon.

Major reasons for proposing the recommendation

The United States has communicated to potential international partners that it will develop the transportation system to bring crew and cargo to the surface of the Moon as well as provide space suits for initial surface mobility. It would seem incomplete to transport crews to the lunar surface without also providing the mobility necessary to identify suitable locations for outpost build-up and otherwise conduct initial exploratory activities. Without this initial mobility element, probably a flexible rover system, the space transportation capabilities are truncated. In addition, the surface mobility systems will be a focus of intense public attention and global visibility. It is in the U.S. interest that they be clearly identified as U.S.-provided elements of the lunar architecture to be delivered on a schedule compatible with the first U.S. missions to the lunar surface. This ensures that fully successful round-trip missions can be successfully accomplished but does not necessarily imply that the U.S. would object to parallel development by international partners of complementary capabilities.

This recommendation augments Council Recommendations S-07-PSS-1, S-07-PSS-3, S-07-C-16, and S-07-ESS-2 that resulted from the Tempe Lunar Science Workshop deliberations and is consistent with Council.

Consequences of no action on the recommendation

If lunar surface mobility is not U.S.-provided, the complexity of integrating internationally-provided capabilities into transportation architecture as well as the uncertainty of overall availability will significantly constrain primary lunar exploration objectives: lunar scientific studies and preparation for Mars exploration. Moreover, the opportunities to develop new technologies for crewed rovers will be lost with impacts not only on the Agency, but on the science, technology, and commercial communities as well. The negative messages about loss of U.S. preeminence in space, the reduced return-on-investment of the lunar exploration program, and the subsequent deficiencies in our ability to prepare for Mars exploration would be significant, damaging, and lasting.

NASA Advisory Council  
Council Recommendation  
[Tracking Number HC-08-01](#)

Committee Name: Human Capital Committee

Chair: Dr. Gerald Kulcinski

Date of public deliberation: April 17, 2008

Date of transmission: May 14, 2008

Short title of the recommendation

Independent Evaluation of NASA TV.

Short description of the recommendation

An outside organization should be contracted to do an evaluation of the current effectiveness and viewership of NASA TV and to recommend a clear rationale and set of themes for its continuance.

Major reasons for proposing the recommendation

NASA TV was initiated, in part, to support the Shuttle Program, now that Shuttle retirement is now planned for 2010, it is reasonable to reassess. In addition, the emergence of the potential for internet-based delivery further supports the need to examine the program.

Consequences of no action on the recommendation

At this point in time a number of decisions are being made that impact NASA-TV, the information from an third party evaluation would increase the overall probability of success as the current program undergoes updates. By understanding the effectiveness of the current program and viewership demographics Strategic Communication could better target their current effort to develop an online infrastructure to enable the increasing effectiveness of NASA Education TV in the future.

NASA Advisory Council  
Council Recommendation  
[Tracking Number S-08-02](#)

Committee Name: Science Committee

Chair: Dr. Edward David

Date of public deliberation: April 17, 2008

Date of transmission: May 14, 2008

Short title of the recommendation

Develop long-lived power sources for the planetary missions.

Short description of the proposed recommendation

Take steps to develop or ensure the availability of long-lived power supplies for landed networks and other planetary missions.

Major reasons for proposing the recommendation

For many planetary mission concepts, solar and/or battery power is insufficient for long-term power supply or sustainability through operation at extremely low temperatures. Development of the Advanced Stirling Radioisotope Generator increases greatly the efficiency of usage of radioisotope fuel and is a positive step, but an adequate supply of Pu-238 is also important. An immediate beneficiary of such development would be the International Lunar Network landers, but such power supplies would benefit other missions including a Mars surface network and missions to the outer planets.

This Recommendation is consistent with Recommendations S-07-PSS-2, S-07-PSS-4, S-07-C-6, S-07-C-16, and S-07-ESS- 1 that resulted from the Tempe Lunar Science Workshop deliberations and is consistent with Council.

Consequences of no action on the recommendation

One of the primary beneficiaries of radioisotope power will be long-lived geophysical network stations, especially seismic stations, which are needed soon for the exploration of the Moon and Mars. Without the capability to operate during extremely cold temperatures, such as during the lunar night, a global network such as the International Lunar Network cannot achieve its full potential. The ability to locate seismic sources would be degraded from that possible with a continuously operating network and the ability in the case of the Moon to detect its core would be compromised.