

NASA Advisory Council
National Aeronautics and Space Administration
Washington, DC 20546
Dr. Kenneth M. Ford, Chairman

March 3, 2009

Mr. Christopher J. Scolese
Acting Administrator
National Aeronautics and Space Administration
Washington, DC 20546

Dear Mr. Scolese:

Enclosed are the NASA Advisory Council (NAC) recommendations as agreed to in a public meeting on February 5, 2009, held at the Hilton Cocoa Beach, FL. Due to the timing of the Shuttle Flight Readiness Review taking place in the OSBII facility, the NAC held its Committee fact-finding meetings in the O&C Building. Mr. Robert Cabana and his staff should be commended for their hospitality, resourcefulness and hard work.

The Council had a very productive day of deliberations with three recommendations that we believe will be of assistance as NASA continues its implementation efforts of the Vision for Space Exploration. The Council will continue to monitor and consider future recommendations that may be of assistance to you.

Aeronautics Committee Recommendation

1. **Convene workshop to provide external community input to NASA's formulation of the system-level program on Environmentally-Responsible Aviation (ERA):** NASA should convene a small, 2-step workshop under the NAC Aeronautics Committee to provide external community input to NASA's formulation of the system-level program on Environmentally-Responsible Aviation (ERA). NASA should plan to cover the preliminary plans for both the operations and vehicle themes of the program at the workshop, including the plans for integration of the two themes. Both workshops should be completed by June 30, 2009 to precede the FY2011 agency budget submit.

Science Committee Recommendations

2. **Communicate lessons learned on large mission cost drivers to the Science Committee and to decadal survey committees:** Compile lessons learned on pre-phase B cost estimation for large missions, including influence of interactions among the science community, the NRC, NASA Headquarters, and Centers. Provide initial product to the Science Committee in its July meeting prior provision to the NRC committees undertaking the new round of decadal surveys in the space sciences. Provide a progress report on this task to the Science Committee in April.

3. **International collaboration in space and Earth science:** NASA should continue planning the implementation of decadal survey recommendations by considering the plans of other nation's space agencies. Where strategic interests align, NASA should work with foreign partners to collaborate in program architecture development, including coordinated mission commitments with shared data as well as joint missions.

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

Best Regards,

A handwritten signature in black ink that reads "Ken Ford". The signature is written in a cursive, slightly slanted style.

Kenneth M. Ford
Chairman

Enclosures

NASA Advisory Council
Council Recommendation
[Tracking Number A-09-01](#)

Committee Name: Aeronautics Committee
Chair: General Lester Lyles

Date of public deliberation: February 5, 2009

Date of transmission: February 24, 2009

Short title of the Recommendation

Convene a small, 2 step workshop under the NAC Aeronautics Committee to provide external community input to NASA's formulation of the system-level program on Environmentally-Responsible Aviation (ERA).

Short description of the Recommendation

NASA should convene a small, 2-step workshop under the NAC Aeronautics Committee to provide external community input to NASA's formulation of the system-level program on Environmentally-Responsible Aviation (ERA). NASA should plan to cover the preliminary plans for both the operations and vehicle themes of the program at the workshop, including the plans for integration of the two themes. Both workshops should be completed by June 30, 2009 to precede the FY2011 agency budget submit.

Major reasons for proposing the Recommendation

With the expected three-fold increase in global air travel over the next 30 years, the reliability and environmental impact of aviation are becoming critical issues for the future of flight, including safety, efficiency, noise, emissions and fuel consumption (NO_x, CO₂, and H₂O). NASA is currently in the preliminary planning stage of a program to develop tools and technologies that will address these major issues. It is therefore critical to get independent feedback from the broader aeronautics community before NASA embarks on such a large effort.

Consequences of no action on the Recommendation

The external community will have no input into a major NASA initiative and thus will be unable to ensure that the tools and technology to be developed will address the most critical issues in aviation and the environment.

NASA Advisory Council
Council Recommendation
[Tracking Number S-09-01](#)

Chair: Dr. Jack Burns

Date of Public Deliberation: February 5, 2009

Short title of the proposed Recommendation:

Communicate lessons learned on large mission cost drivers to the Science Committee and to decadal survey committees.

Short description of proposed Recommendation:

Compile lessons learned on pre-phase B cost estimation for large missions, including influence of interactions among the science community, the NRC, NASA Headquarters, and Centers. Provide initial product to the Science Committee in its July meeting prior provision to the NRC committees undertaking the new round of decadal surveys in the space sciences. Provide a progress report on this task to the Science Committee in April.

Major reasons for proposing the Recommendation:

NRC decadal surveys establish community and stakeholder expectations for missions to be developed and launched in the coming decade or beyond. Mission concepts are generally ranked in priority order by cost class. In the last round of NRC decadal surveys, some high priority mission(s) ranked on the basis of an initial cost estimate turned out to be two to four times as expensive to develop. This leads to questions of whether those same rankings would have been assigned had more realistic cost estimates been available, and whether some different mix of missions might have been recommended to achieve the optimal science return within available funding constraints. NRC decadal survey committees need to understand how early choices in mission concept design lead to cost growth so they can structure their recommendations to be more robust over time.

Consequences of no action on the proposed Recommendation:

The recommendations to NASA from the next round of decadal surveys may not convey realistic mission priorities or decision rules due to lack of proper consideration of how early concept choices can drive future cost growth.

NASA Advisory Council
Council Recommendation
Tracking Number S-09-02

Chair: Dr. Jack Burns

Date of Public Deliberation: February 5, 2009

Short title of the proposed Recommendation:

International collaboration in space and Earth science.

Short description of proposed Recommendation:

NASA should continue planning the implementation of decadal survey recommendations by considering the plans of other nation's space agencies. Where strategic interests align, NASA should work with foreign partners to collaborate in program architecture development, including coordinated mission commitments with shared data as well as joint missions.

Major reasons for proposing the Recommendation:

Science objectives are often shared amongst nations. International science and space agencies often have similar objectives to the U.S., as evidenced by comparing the NRC decadal surveys with the science plans of Europe or Japan. NASA and its partner space agencies in other nations often collaborate on specific missions through provision of science instruments, spacecraft or launch services. Collaboration in future mission planning could result in coordinated decisions to pursue complementary mission objectives and shared resultant science data.

Consequences of no action on the proposed Recommendation:

U.S. and foreign space agencies may miss opportunities to meet shared science goals at lower cost to each partner.