

NASA Advisory Council
National Aeronautics and Space Administration
Washington, DC 20546

July 21, 2000

Chair: Bradford W. Parkinson
Professor of Aeronautics and Astronautics
Stanford University

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Department of Physiology & Biophysics
University of California

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Executive Director, Technical Operations
Hughes Space and Communications Co.

Rafael L. Bras
Professor of Civil and Environmental Engineering
Massachusetts Institute of Technology

Claude R. Canzales
Director, Center for Space Research
Massachusetts Institute of Technology

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Massachusetts Institute of Technology

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Applications International Corporation

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Vice President, Technology
The Boeing Company

Steven W. Squyres
Professor of Astronomy
Cornell University

A. Thomas Young
Executive Vice President (Ret.)
Lockheed Martin Corporation

Mr. Daniel S. Goldin
Administrator
National Aeronautics and
Space Administration
Washington, DC 20546

Dear Mr. Goldin:

We had a very substantive meeting at Williamsburg, Virginia and Langley Research Center on June 6-7, 2000. The Council was pleased with the quality of presentations and would like to thank Langley Research Center and its Director, Dr. Jerry Creedon, for hosting the Council. Dr. Creedon explained several of the new innovative technologies being developed and provided insightful comments regarding workforce issues facing his Center and the agency. During our tour of Langley, we were able to see the results of a stress test on a forty foot stitch-composite wing, which again, emphasizes the value of continued research in aeronautics.

Mr. Tom Young presented the Mars Program Independent Assessment Team (MPIAT) report. The Council felt that the MPIAT did an exceptional job and recommended that Mr. Young brief Jet Propulsion Lab (JPL) managers and senior managers from throughout the agency on their findings. With respect to Mr. Young's specific report, the Council believes it is important to highlight a few important findings: First, all agree that Mars exploration is an important national goal and should be continued; Second, the Council concurs with the MPIAT that Faster, Better, Cheaper (FBC) is a good approach if properly applied; Third, in the case of the two ill-fated Mars spacecraft, there appears to have been a willingness to cut corners and a failure to follow a disciplined engineering/project management approach. This increased overall mission risk; Fourth, one of the major problems with both missions was a lack of resources both human and budgetary; Fifth, there was a breakdown in communication up and down the management chain in both projects.

The Council also heard from Mr. Brian Keegan, NASA's Chief Engineer. He reported on the progress of the NASA Integrated Assessment Team (NIAT) which will respond to the various review reports. He explained the process for addressing each report's recommendations. Mr. Keegan indicated he would return at our

September meeting with an update on the agency's response. The Council would like to see a list of action items and who is responsible for each of the actions. Additionally, the Council developed a list of items that Mr. Keegan's presentation should address in September. (See attachment A)

The Council also received a presentation by Dr. John Malone on NASA's Intelligent Synthesis Environment (ISE) program. The ISE is a very ambitious program. NASA should consider controlling expectations and breaking its effort into manageable pieces. Many ISE tools already exist in industry. NASA needs to build on top of where industry is today. R

A presentation was also given on the status of NASA's FY 2000 Strategic Plan. The Council acknowledges the agency's efforts in pursuing a good strategic plan, however, it should more clearly explain the agency's top five or six programmatic priorities. At the next level down, the performance plans may need to be shifted to the Centers. Although technology is mentioned in the plan, the Council thinks it needs greater emphasis. Additionally, it appears that university partnerships need greater recognition in the plan. Z

Two informative presentations from Langley researchers on Aerospace System Concepts and Analysis and the Aviation Safety program were presented. Both efforts are very important and need continued support and funding from the agency.

The Council also heard from a number of committees. The Council received a report from Dr. Stephen Squyres and NASA's Planetary Protection Officer, Mr. John Rummel, on the establishment of a Planetary Protection Advisory Committee of the NAC. The Council voted unanimously in favor of establishing this committee. The Council also heard from the Earth System Science and Applications Advisory Committee about a standing concern on long-term scientific measurements. Their recommendation is in Attachment B. S

Finally, the Aero-Space Technology Advisory Committee and the Technology and Commercialization Advisory Committee (TCAC) each reported to the Council. We continue to be very pleased with the progress NASA and the Federal Aviation Administration are making in improving communications and interaction between the organizations. This relationship appears to be better than it has ever been. We remain concerned about the status and future of the TCAC in light of Mr. Sam Venneri's move to lead the Aero-Space Technology Enterprise. The Council believes that the mission of the Committee remain valid and encourages Mr. Venneri and the TCAC to resolve its status. R

The Council's next meeting will be on September 12-13, 2000, at Ames Research Center. We look forward to seeing you at Mountain View.

Sincerely,

Bradford W. Parkinson

Bradford W. Parkinson
Chair
Enclosures

**Issues to be addressed at September meeting in NIAT presentation to
NASA Advisory Council**

- Need for training, maintaining of corporate memory, and standards at NASA
- Creation of a formal mentoring process/program
- Need for increased institutional capability to support problem areas within projects (i.e. in-house system engineering support)
- Adequate cost reserves in programs/projects
- Linking projects to programs
- Agency's plan for ensuring a return to rigorous independent and external reviews
- Improvement in interfacing between operations-side and development-side of projects/missions
- Improving project documentation
- How agency will draw on expertise to effect cultural change
- Prioritization of action items with the method of closure
- Review team actions being auditable
- Having closure of each action item with review teams

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NASA ADVISORY COUNCIL (NAC)
Williamsburg, Virginia
June 6-7, 2000

RECOMMENDATION

ESSAC recommends that NASA take the initiative to ensure the availability of long-term data sets for the study of global change. Specifically, we recommend that NASA identify and implement processes to:

1. Identify and rank, carefully and rigorously, the most important long-term data sets needed for global change science, together with their required measurement properties, including accuracy, sampling, and spatial and temporal scales.
2. Allocate sufficient resources to providing these data sets, through a sustained effort including:
 - Design and fly some dedicated missions to obtain these long-term data.
 - Develop programs to improve operational missions to meet the long-term data needs. These include improved calibration and the effort needed to reprocess and revalidate old data.
 - Utilize NASA's advanced technology capabilities to develop cheaper and lighter instruments and platforms to measure the needed variables at resolutions and accuracies that are currently feasible, but with expensive technologies.

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