

TESTIMONY
TO THE
COMMITTEE ON SCIENCE, SPACE, AND TECHNOLOGY
SUBCOMMITTEE ON SPACE
JUNE 19, 2013

A. THOMAS YOUNG

Chairman Palazzo, Ms. Edwards and Committee members, I am pleased to have the opportunity to present my views on issues I believe to be important as you prepare the NASA Authorization Act of 2013.

The United States civil space program has been the source of enormous pride, prestige, knowledge and awe inspiring technology. This has been the product of the exceptional men and women in NASA, other government agencies, industry and the scientific community working with highly competent leadership. This integrated effort is the foundation of the U. S. civil space program. As we move forward there are "storm clouds" over this great human endeavor that require attention.

Nothing is more important than maintaining NASA as the premier civil space organization including maintaining the special capabilities of other government agencies, industry and the scientific community. This can only be achieved by having challenging, inspiring and worthy things to do. Studies, technology pursuits and overseeing others are important but will not maintain the civil space program as world class. We

must endeavor to populate the Authorization Act with worthwhile opportunities that maintain these critical capabilities.

To maximize the return from the investment in the civil space program requires that program content be in balance with the budget. This is a much discussed but seldom achieved goal. We continually operate with a budget that is inadequate to implement the established program. Our inability to delete worthy but lower priority endeavors results in this imbalance. Too much program for the available budget results in inefficiencies, excessive risk and program cancellations. The result is that "less is accomplished for more." "Go as you pay" is a much discussed concept that I believe has merit. "Go as you pay" is a useful concept when deciding the point at which the budget will support starting a project. "Go as you pay" is a most wasteful concept for the implementation of a project.

The dominant strategic issue facing the civil space program is human spaceflight. Today, there is a human spaceflight program but no credible human space exploration strategy. There is much discussion about going to the moon, an asteroid, Phobos, Deimos and Mars; however, there is no credible plan or budget. There are human exploration elements such as SLS and Orion.

The NASA budget contains about 8B\$ for human spaceflight, not including infrastructure costs. This funds the International Space Station (ISS), SLS, Orion, some technology, commercial cargo and commercial crew. If the budget remains approximately the same, my judgment is that there are two basic choices, a space station focused human spaceflight program or an exploration focused program. I do not believe the budget is adequate to accomplish both and a choice needs to be made to have a credible path forward. I believe as a part of making this choice, an independent assessment of the value of the ISS return for the significant portion of the NASA budget that is dedicated to ISS is necessary. A Senior Review is an appropriate mechanism for conducting this assessment. If this human spaceflight strategic issue is not resolved, the grave yard of cancelled , abandoned and unachievable endeavors will continue to be populated. The responsibility for leading the resolution of this strategic issue should reside with NASA.

Another significant strategic issue resides in the science area of the NASA program. There are a small number of profound questions for which the U. S. is in a leadership position and is on the cusp of greatly increasing our knowledge. These include:

Are we alone?

What is dark energy and dark matter?

What is the future of our climate?

Is the U. S. going to be a leader in these profound areas or are we going to voluntarily move to the sidelines? Decadal Surveys have identified the top priority programs in pursuing these special opportunities. Sample return from Mars, a wide-field IR telescope (WFIRST) and missions identified in the Earth Science Decadal deserve priority consideration in the new Authorization Act.

Technology is important "seed corn" for the civil space program. A debate in any organization involving high technology pursuits is

Should the technology be managed in a Mission organization to maximize the relevance of the technology?

or

Should the technology be managed in an independent organization to maximize the probability that the technology program will be implemented?

The risk of the former is that the demands of implementing challenging projects will consume all the resources thus sacrificing technology endeavors. The risk of the independent organization is the technology will be less relevant to NASA's missions and become an end-in-itself with scope beyond what is affordable. I believe the independent organization concept

with a strong oversight process to assure maintaining relevance and responsibly containing scope of the endeavor is the best balance of merit and risk.

The final topic I want to discuss in my prepared comments is leadership. I "place my toe" in these troubled waters with great reservation. However I believe leadership of the civil space program is a topic that must be openly discussed. I strongly believe the leadership of the U. S. civil space program must be vested in NASA. This includes both formulation and implementation. Politics and ideology are a part of the fabric of a democracy; however, they should be relegated to lower level issues in the civil space program. I recognize that there are times when national issues are important factors as was the case for Apollo; however, NASA has been and will be sensitive to such issues.

NASA is about engineering, science, exploration and discovery. NASA really is about "rocket science" in its broadest definition. Leadership of the civil space program must have the capabilities and experience consistent with this demanding charter. Today, leadership of the civil space program is diffuse and authority is vested in organizations , while important, that do not have the expertise to be in a controlling role. This is a prescription for mediocrity whether it be an organization of great national importance, an industrial corporation or a local community

organization. I have great worry about what I believe to be a declining trajectory for NASA and the civil space program. I believe the most significant factor in this negative outlook is the adverse leadership concept I observe.

An example of what results from diffuse leadership with too much authority in the wrong places is the proposed asteroid retrieval mission. This is a mission that is not worthy of a world class space program that is focused upon maximizing the return that can be realized from a constrained budget. NASA must be returned as the leader of the civil space program. If this correction occurs many of the issues confronting the program will be very positively addressed. If not, the outlook is discouraging.

The Authorization Act of 2013 will be important in achieving a positive trajectory correction for NASA and the civil space program. It is hard to overstate the need for a program that is focused upon the highest priority opportunities, a program that is consistent with available funding and a program with leadership vested in NASA.

Great nations do great things. The United States is a great nation and I continue to believe the civil space program is a great thing.

Thank you.

