

White Paper – Congressional Language Regarding NASA Will Undermine Science Research Programs and Increase Wasteful Government Spending

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Science research programs in NASA's Science Mission Directorate are almost always unsung, but they are fundamental to achieving NASA's strategic goals, as well as laying the foundation for its missions and allowing American taxpayers to benefit from their investment in those missions. These programs sustain a large fraction of the scientists engaged in our nation's space exploration program, and they provide the training for the next generation of space scientists.

Congress has directed NASA to reduce unexpended funds carrying over from one fiscal year to the next. According to NASA, approximately fifty percent of these funds are for science research programs at universities and other science institutes. What Congress sees as a problem is a well-understood and natural consequence of the normal spending profile of a multi-year research grant. Any effort to impose an arbitrary spending profile on a researcher's work would be destructive. NASA understands this and is contemplating actions to comply with the Congressional directive that would minimize the direct impact on researchers, however the only options available to the agency to reduce the accounting of uncosted carryover involves increasing the number of funding actions, which reduces funds available for research, and significantly increases the workload of program managers at a time when the National Academy of Science says they are worryingly understaffed. The Congressional directive is at least overbroad as interpreted. It must be reversed, refocused on those specific NASA programs where an actual problem can be demonstrated to exist, or reinterpreted in a way that allows the pressure Congress has (I believe unintentionally) placed on NASA science research programs to be obviated.

Conference Report language for the FY2010 NASA budget (111-366, accompanying HR3288) expresses concern about agency financial management and threatens possible future implementation of a House Commerce/Justice/Science Committee recommendation to limit most funding in NASA operating accounts to one year, allowing only ten percent to be allocated as two-year funding. This will depend upon "NASA's efforts to improve its obligation rate with commensurate improvements in accrual of costs and outlays."

This language nominally presumes that improvements in obligation rates for NASA appropriation should be reflected in a corresponding improvement in the rate at which funds are expended (reflected in accrued costs and outlays). If NASA were to fully obligate its funds by the end of the fiscal year, this would suggest that they

should be expended as well. Research programs in the Science Mission Directorate do not follow this model. Such expectations are unreasonable.

NASA science research programs typically fund three year grants to universities and other research organizations in which funding is obligated every year for the period of a year. Start dates occur throughout the fiscal year and expenditures may be uniform or episodic depending upon the work being done. In some cases spending at a university might peak in the summer months. An analysis of NASA grants to the Planetary Science Institute (PSI) is instructive.

PSI is a small, non-profit corporation dedicated to the exploration of the solar system. It has 83 staff, including full-time and part-time employees, students and appointees. Of these, 60 are PhDs distributed in 14 states and the District of Columbia, with slightly under half located at the corporate headquarters in Tucson, Arizona. PSI scientists are supported almost entirely by research grants and contracts from NASA. At the end of FY09, 86% of obligated first year funds for these grants were unexpended and carried over to FY2010. There were several reasons for this. First of all, NASA awards grants throughout the fiscal year. For all grants with FY2010 carryover at PSI, the start dates were on average 226 days past the beginning of the fiscal year. In general, scientists do not know when a start date will be or even the exact amount of the award until the institution receives an official award letter from the agency, typically on or after the official start date. There is an average delay of 76 days at PSI from a grant's start date to the date on which the first expenditures are made on that grant. Together, work on a grant does not commence for an average of 302 +/- 100 days after the beginning of the fiscal year of the award.

It is most efficient for NASA to distribute the processing of its awards over the fiscal year. Processing all awards over all programs at one time would be impractical. Start dates have in fact tended to drift towards the latter part of the fiscal year, probably in response to the frequency of Continuing Resolutions for the federal budget in recent years combined with a sense of insecurity in prospective program budgets.

Implementation of the House language would mean that a significant fraction of research funding would be lost, or that scientists would have to greatly distort the timing of their research to a fraction of the year and go without salary the rest of the year, or that all research funding would have to align with the fiscal year, which would be a huge administrative burden to NASA and would result funding interruption in the event of a Continuing Resolution. All options flowing from the House language are disruptive. A significant level of unexpended funds associated with science research programs should be expected, but Congress has not recognized this – with negative consequences.

In past years, Congress has complained about NASA having an unacceptably high rate of unobligated funds. It is noted that this has improved recently. However, the focus on the expenditure of funds is new in FY2010.

As a consequence of the Congressional directive to NASA that it reduce, not just its funds that are unobligated by the end of the fiscal year, but the funds that have been obligated and unexpended, NASA is compelled to take measures that preferentially impact science research programs. Grants and contracts associated with these programs comprise 5% of the NASA budget, but 50% of the apparently uncosted funds (J. Green, presentation to LPSC, 3/1/10, <http://www.lpi.usra.edu/meetings/lpsc2010/>). NASA managers have been working to devise a means that both reduces the uncosted carryover from one fiscal year to another that is expected for a normal research grant while minimizing the direct impact on the grantee. One way being contemplated at present is to phase awards so that no more than half of the first year of a grant is obligated at one time in a fiscal year. So, a grant spanning an entire year would be divided into two awards. This way, theoretically no more than 6 months of funds could remain unexpended by the end of the year. This would require twice as many funding actions by NASA program officers, which translates to twice as many charges from the NASA shared services center (NSSC), which sends out the funds. Given that the Science Mission Directorate has approximately 3000 awards at any given time and the charge is approximately \$1,000 per funding action, science research programs would face an immediate loss of several million dollars a year, which would directly reduce the funds available for research.

In addition to the loss of funding to science, NASA's effort to comply with the Congressional directive would undermine management of its science research programs by significantly and unreasonably increasing the workload of NASA program officers. Funding actions by program officers requires paperwork on each and every grant. Doubling funding actions would nearly double program officer workloads. A Congressionally mandated review of NASA science research programs, which are considered mission-enabling, by the National Academy of Science (*An Enabling Foundation for NASA's Earth and Space Science Missions*, NRC 2010) finds that "the NASA SMD headquarters scientific and technical staff is not adequately sized to manage mission-enabling activities effectively." Having served on that review panel, I would say that almost doubling the workload of program officers without significantly increasing their number invites serious degradation of the management of these programs.

NASA's efforts to satisfy a Congressional mandate to reduce uncosted carryover between fiscal years will have the immediate and unintended consequence of increasing government waste and harming research programs that are essential to our nation's space science goals.

This is unnecessary.

One solution might be to look at the Conference language from a certain accounting perspective and include unexpended funds being carried over from one fiscal year to the next as part of the “accrual of costs and outlays” when their amounts are predictable. While unexpended carryover of research funds can be significant, their future costing is well-known, detailed in the budgets provided to NASA by proposer institutions, and are predictable over the timeframe of each research grant. Therefore, if Congress were to recognize that all reasonable “improvements” have been realized with regards to NASA research programs, and exclude those programs from any future implementation of the House language, the negative impact of the Conference Report language would be eliminated.

Time is of the essence, however.

Institutions receiving NASA research funds should communicate with their Congressional representatives and tell them that these science research programs should be excluded from the report language or be found in compliance with the intended goals of that language. US scientists should encourage their institutions to do this.

RESOURCE MATERIALS

Quotes from Commerce/Justice/Science House Report 111-149.

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=111_cong_reports&docid=f:hr149.111.pdf

Italics added.

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Financial management. — The Committee remains concerned about NASA’s management of its budget, as well as its financial recordkeeping and reporting. Fiscal year 2002 was the last year NASA was able to produce an annual financial statement that could be audited by its independent accountants. *For fiscal years 2003 through 2008, the accountants were unable to find sufficient evidentiary support for amounts presented in NASA’s financial statements, including the combined statements of budgetary resources—which are supposed to present accurate budget execution data.* Recent reports by Committee staff have found additional disquieting evidence concerning NASA’s financial management. As discussed in the explanatory statement accompanying the 2009 Omnibus Appropriations Act, a review of NASA’s leasing and collections authority found that NASA’s implementation of the authority lacked transparency and that NASA was not effectively managing and accounting for leasing receipts. An April 2009 report by the staff found that NASA was improperly administering its authority to convert funds for construction projects to no-year

availability by apportioning these funds as no-year dollars before initial obligations on construction projects, ignoring provisions in law that the conversion be preceded by an initial obligation. The report also found that the amount allocated to construction in NASA's annual operating plans often substantially exceeds the amount justified in NASA's budget estimates. Many of the construction projects included in the operating plans, but not the budget estimates, are of such scale that NASA clearly must have been aware of the projects at the time it formulated its estimates. *A second April 2009 report found that, although NASA has improved its obligation rate in response to the Committee's concerns, many NASA programs did not match this obligation rate with a commensurate improvement in accrual of costs and outlays. The report also found that NASA's obligation rate may be overstated because of non-transparent reserve practices and because it deobligates and recovers significant amounts of prior year obligated balances.*

To address these issues, the Committee recommends several changes to NASA's appropriation. The Committee recommendation:

- consolidates all programmatic and institutional construction and environmental compliance and remediation activities into a new account, for which the period of availability would extend for five years;
- subjects expenditures planned from the collection of enhanced use lease receipts to an annual appropriations limitation first enacted in fiscal year 2009;
- limits funding for the Cross Agency Support and Inspector General accounts to be available for one year, reflecting the administrative nature of these accounts;
- *limits most funding in NASA's operating accounts (Aeronautics Exploration, Science, and Space Operations) to one-year, while providing an allowance of ten percent in each account as two-year funding, recognizing historical obligation data and that cutting edge aeronautics and space research and development involves an element of uncertainty; and*
- fully funds Center administrative activities in the consolidated Cross Agency Support account, realigning the remaining FTE currently being charged to programmatic accounts.

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Limited two-year availability for NASA's operating accounts. — *The Committee proposes that most funding in NASA's operating accounts (Aeronautics, Exploration, Science and Space Operations) be available for one year, with an allowance of 10 percent in each account as two-year funding.* The Committee recognizes that cutting edge aeronautics and space research and development involves an element of uncertainty. Even with the best planning and management, unexpected technical and operational setbacks may force obligation delays. However, in 2008 NASA demonstrated an ability to obligate 95 percent or more of the new budget authority in the missions that are now included in the four operating accounts. Similarly, for the period 1998 through 2002, NASA's carryover was consistently below six percent. From 2003 through 2007 NASA appears to have lost focus on financial management. In fiscal year 2007, the obligation rate for some missions was as low

as 81 to 82 percent. Funding the operating accounts with primarily one-year funding will encourage NASA to maintain financial discipline. It will also encourage NASA to carefully examine its reserve and recovery practices, to ensure that obligated funds are in fact applied to accomplish the work for which they were appropriated. *At the same time, the allowance of a reasonable amount for two-year funding, together with the continued availability of transfer and reprogramming authority, will allow NASA to address unexpected developments.*

Administrative activities.—The realignment of NASA’s budget structure required by the fiscal year 2008 Omnibus Appropriations Act was intended to improve the transparency of NASA’s budget by separately funding programmatic and administrative activities. It was the Committee’s intent that the Cross Agency Support account fully fund Center administrative activities, including human resources, financial management, procurement, facilities operations, information technology services, and public affairs. As the 2009 budget is being executed by NASA, it appears that significant numbers of Center FTE in these administrative areas are being charged to programmatic accounts.

NASA’s Office of Program and Institutional Integration (OPPI) has developed Center Management and Operations “Content Definitions.” These definitions specify the core functions that all of NASA’s nine field Centers should provide to programs. The Committee directs that, for fiscal 2011, NASA realign the CAS budget to fully fund the Center administrative functions specified in OPPI’s content definitions, including all human resources, financial management, procurement, facilities operations, information technology services, and public affairs personnel. To the extent that NASA believes that this realignment requires transfer of funding from programmatic accounts, NASA’s budget estimate shall specify by mission, theme and program the amounts proposed to be transferred and the number and job series of FTE associated with these amounts. For fiscal year 2010, the Committee proposes to transfer these administrative FTE from the program accounts to Center management and operations within the CAS account, as follows:

Reporting of cost, schedule and content for NASA research and development projects.—To better understand the underlying issues common to NASA’s performance on major projects and to develop a process for identifying corrective action, the Fiscal Year 2008 Consolidated Appropriations Act mandated the Government Accountability Office to report on the status of large-scale NASA programs, projects and activities. The Committee expects this report to be delivered to the Congress semiannually, the first of which was delivered in March 2009. The Committee anticipates this annual report in advance of the annual budget submission of the President. To that end, the Committee directs NASA to cooperate fully and to provide timely program analysis, evaluation data and relevant information to the GAO so that it can conduct this review and meet the annual Congressional mandate. Such information includes, but is not limited to, copies of preliminary cost estimates, access to relevant online agency applications, databases, and web portals, and access to information from contractor and agency personnel.

Quote from Conference Report 111-366, Accompanying HR 3288

“While the conference report does not adopt the position proposed by the House to limit appropriations available to NASA to one-year while providing an allowance of ten-percent for two years to reflect the research and development nature of the work performed, the conferees will continue to monitor NASA’s efforts to improve its obligation rate with commensurate improvements in accrual of costs and outlays to determine if the House’s proposal warrants further consideration.”