

**AUDIT
REPORT**

**VALIDATION AND VERIFICATION OF
SELECTED NASA FISCAL YEAR 2001
PERFORMANCE DATA RELATED TO THE
GOVERNMENT PERFORMANCE AND
RESULTS ACT**

September 27, 2002



National Aeronautics and
Space Administration

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Acronyms

APG	Annual Performance Goal
CFO	Chief Financial Officer
DAAC	Distributed Active Archive Centers
EOCAP	Earth Observing Commercialization Applications Program
ESIP	Earth Science Information Partners
EVA	Extravehicular Activity
FY	Fiscal Year
GAO	General Accounting Office
GPRA	Government Performance and Results Act
HEDS	Human Exploration and Development of Space
ISS	International Space Station
IT	Information Technology
OIG	Office of Inspector General
OMB	Office of Management and Budget
PAPAC	Provide Aerospace Products and Capabilities

September 27, 2002

W

TO: B/Deputy Chief Financial Officer for Financial Management

FROM: W/Assistant Inspector General for Audits

SUBJECT: Final Report on Audit of Validation and Verification of Selected NASA
Fiscal Year 2001 Performance Data Related to the Government
Performance and Results Act
Assignment Number A-02-013-00
Report Number IG-02-025

Enclosed please find the subject final report for your information and use. Please refer to the Executive Summary for the overall audit results. Our evaluation of your response has been incorporated into the body of the report. NASA's comments and planned corrective actions for the recommendations were responsive. The recommendations will remain open for reporting purposes until corrective actions are completed. Please notify us when actions have been completed on the recommendations. The final report distribution is in Appendix E.

We appreciate the courtesies extended to the audit staff. If you have questions concerning the report, please contact Mr. Chester A. Sipsock, Program Director, Financial Audits, Management and Oversight, at (216) 433-8960, or Ms. Bonnie Armstrong, Auditor-in-Charge, at (321) 867-4073.

[original signed by]
Alan J. Lamoreaux

Enclosure

cc:

HQ/AI/Associate Deputy Administrator

HQ/AB/Associate Deputy Administrator for Institutions and Asset Management

HQ/AA/Chief of Staff

HQ/AE/Chief Engineer

HQ/AO/Acting Chief Information Officer

HQ/B/Deputy Chief Financial Officer for Resources (Comptroller)

HQ/BF/Director, Financial Management Division

HQ/BR/Director, Resources Analysis Division

HQ/G/General Counsel

HQ/M/Associate Administrator for Space Flight

HQ/R/Associate Administrator for Aerospace Technology

HQ/S/Associate Administrator for Space Science

HQ/U/Associate Administrator for Biological and Physical Research

HQ/Y/Associate Administrator for Earth Science

HQ/JM/Director, Management Assessment Division

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NASA Office of Inspector General

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September 27, 2002

Validation and Verification of Selected NASA Fiscal Year 2001 Performance Data Related to the Government Performance and Results Act

Executive Summary

Background. The NASA Office of Inspector General (OIG) has completed an audit of the accuracy and reliability of performance data for selected Government Performance and Results Act (GPRA) annual performance goals (APG's)¹ in the Agency's fiscal year (FY) 2001 Performance Report. The Performance Report is an important document that NASA, the Congress, and the Office of Management and Budget (OMB) will use to assess the Agency's overall performance and make decisions on programs and funding levels. The NASA Chief Financial Officer (CFO) obtains and aggregates performance results from NASA organizations and prepares the Performance Report. The CFO requests input from Agency organizations with a data call letter that specifies the requirements and format for performance results. The audit is a continuation of our oversight of NASA's implementation of GPRA.^{2,3}

Objectives. Our overall audit objective was to assess the quality of data supporting the reported results in the NASA FY 2001 Performance Report. We assessed the quality of data by examining supporting data for selected APG's for appropriateness, completeness, accuracy, consistency, and timeliness.⁴ The Performance Report contains NASA's assessment of its actual performance against 88 APG's. We reviewed the supporting data for 19 APG's related to 7 of 14 major management challenges that the General Accounting Office (GAO) and the NASA OIG identified: environmental management, fiscal management, information security, information technology, program and project management, safety and mission assurance, and human capital management. Appendix A contains further details on the audit objectives, scope, and methodology. Appendix B provides details on the 19 APG's reviewed.

¹ Performance goal means a target level of performance expressed as a tangible, measurable objective against which actual achievement can be compared. A goal expressed as a quantitative standard, value, or rate is a performance goal.

² An October 1998 letter signed by the House Majority Leader and Chairmen of the House Committee on Government Reform and Oversight; the House Subcommittee on Government Management, Information, and Technology; and the Results Caucus asked the NASA OIG to establish a GPRA review plan to assess Agency controls. In response to the request, the OIG included a plan in its Semiannual Reports for March 31, 1999, and 2000, and described the GPRA audit in its FY 2001 annual plan.

³ The NASA OIG has issued reports on previous audits of NASA's implementation of GPRA. Details on the audits are in Appendix C.

⁴ Timeliness refers to whether performance results occurred during FY 2001, that is, October 1, 2000, through September 30, 2001.

Results of Audit. For 12 (63 percent) of the 19 APG's reviewed, we considered the supporting data and information to be adequate and did not identify any significant problems with reported actual performance. However, for seven APG's, we found that either the initially reported performance⁵ was not fully reliable or the presentation of results was unclear. For example, three Enterprises⁶ initially reported accomplishment of projects that supporting data showed either were not completed or were completed outside the performance period. In addition, NASA did not always disclose limitations in the supporting data that were needed to understand the basis for reported performance results. Based on the current finding and similar results from previous GPRA audits, it is possible that the reported performance for some of the 69 APG's not reviewed may also not be fully reliable or clearly presented for the same reasons. NASA could improve the accuracy of future Performance Reports by more effectively analyzing the supporting data and by clearly and precisely presenting results. Improved accuracy would increase the Performance Report's value as a source of information to management for making important program and funding decisions.

Recommendations. The Deputy CFO for Financial Management should emphasize in the data call letter for subsequent Performance Reports that reported performance results must accurately reflect supporting data and must be achieved during the subject fiscal year. Additionally, the Deputy CFO for Financial Management should emphasize that reported results be aligned with planned performance and that data limitations be disclosed.

Management's Response. Management concurred with all the recommendations and has planned corrective actions that should improve the data call letter for the FY 2002 Performance Report. The complete text of the response is in Appendix D. We consider management's comments responsive.

⁵ For purposes of our audit and this report, the term "initially reported performance" refers to written self-assessments of actual results prepared by the responsible GPRA officials and provided to the NASA Chief Financial Officer (in response to the data call letter) for the draft Performance Report. "Reported results" refer to assessments included in the published Performance Report.

⁶ NASA's mission is accomplished through five Strategic Enterprises: Space Science, Earth Science, Biological and Physical Research, Human Exploration and Development of Space, and Aerospace Technology.

Introduction

Congress enacted the GPRA in 1993 to improve public confidence in the Federal Government by holding agencies accountable through setting program goals, measuring performance against those goals, and reporting publicly on progress. Each agency is required to prepare a Strategic Plan, an annual Performance Plan, and an annual Performance Report. NASA released its latest Strategic Plan in September 2000.⁷ NASA issued Performance Plans for FY's 1999 through 2003 and Performance Reports for FY's 1999 through 2001. During our audit, NASA prepared the Performance Report covering FY 2001.

The Associate Administrators for the Enterprises and the Crosscutting Process Stewards^{8,9} are responsible for developing and implementing the annual Performance Plan and for reporting on actual performance for the annual Performance Report. Four Crosscutting Processes that are common to each Enterprise provide key supporting functions that enable the Enterprises to perform their mission activities. The Crosscutting Process and organization responsible for developing and reporting performance results are shown below:

Crosscutting Process	Responsible Organization
Manage Strategically	Strategic Management and Planning office in the Office of the CFO
Provide Aerospace Products and Capabilities (PAPAC)	Chief Engineer
Generate Knowledge	Chief Scientist
Communicate Knowledge	Public Affairs

The CFO coordinates the performance planning and reporting processes, collecting information (submitted in response to a data call letter) from the Associate Administrators for the Enterprises and the Crosscutting Process Stewards to prepare the annual Performance Plan and Performance Report.

NASA Centers are responsible for implementing many of the programs and activities that have GPRA performance goals and indicators.¹⁰ Therefore, Center systems were the source for much of the data used to measure and evaluate actual performance. The

⁷ NASA also released Strategic Plans in 1995, 1996, and 1998. In 1999, NASA issued interim adjustments to the 1998 plan.

⁸ Crosscutting Processes are critical processes underlying the activities of the Agency that NASA uses to develop and deliver products and services to its customers. These processes support systems that enable each Strategic Enterprise to develop and deliver products and services to internal and external customers.

⁹ NASA refers to the responsible GPRA official for each Crosscutting Process as the GPRA Steward.

¹⁰ Indicators are the particular values or characteristics used to measure output or outcome. At least one indicator was established for each APG.

Associate Administrators for the Enterprises and the GPRA Stewards collected the data from the Centers, developed a written assessment of the actual performance, and submitted the assessment to the CFO for use in preparing the Performance Report.

The GAO and the OIG have assessed NASA's past progress in implementing the GPRA. The GAO reported that NASA's FY 2001 Performance Plan did not include an explicit discussion of procedures for verifying and validating performance data and did not address possible data limitation issues and problems. Additionally, prior OIG audits concluded that performance results were not fully reliable because the supporting data did not adequately confirm the results described. Details of the prior GAO and OIG audits are in Appendix C.

Finding and Recommendations

Data Reliability and Presentation

For 7 (37 percent) of 19 APG's reviewed, responsible GPRA officials prepared written assessments that did not accurately reflect supporting data or did not clearly present results. For example, three Enterprises initially reported accomplishment of projects that supporting data showed either were not completed or were completed outside the performance period. Inaccurate or unclear assessments occurred, in part, because individuals responsible for performance did not consistently verify and validate that the results accurately reflected supporting data. Confusion about when accomplishments were completed, inconsistency between planned and reported performance, and nondisclosure of data limitations also contributed to the condition. Because reported performance for the seven APG's was not fully reliable or clearly presented, the usefulness of the performance data to NASA, OMB, and the Congress for decisionmaking may have been limited. Based on our audit results, NASA's reported performance for some of the 69 APG's we did not review may also not be fully reliable or clearly presented for the same reasons.

Management attention is needed to address and correct these problems before issuing future Performance Reports. Of the seven APG's that we identified as unreliable or not clearly presented, NASA confirmed achievement of one APG and revised three¹¹ APG's prior to the printing of the Performance Report.

Reporting Requirements

GPRA Requirements. The GPRA requires an agency to prepare an annual Performance Report that compares actual performance with the APG's set out in the annual Performance Plan. When an APG is not achieved, the Performance Report should include an explanation for the lack of achievement and describe steps for meeting future goals. For the annual Performance Report to be useful, the data on the actual achievements of the agency's performance goals and the comparisons of planned and actual performance must be accurate. GPRA further requires the annual Performance Plan to include a description of the means used to verify and validate measured values. Additionally, to have accurate measurements of actual performance, it is important that the APG's are described in the Plan in a manner to ensure that the planned achievements and how they are measured are clear. The CFO issued the annual data call letter to NASA organizations requesting input for the FY 2001 Performance Report and required

¹¹ We provided our conclusions to NASA for five APG's (1H7, 1H11, 1MS4, 1R8, and 1Y16) prior to the printing of the Performance Report. Management addressed our concerns related to four of those APG's by providing additional supporting data for one APG (1Y16) and by revising performance results for three APG's (1H7, 1H11, and 1R8). NASA agreed to revise performance results for APG 1MS4, but the revision was not included in the Performance Report. We completed our review of two APG's (1H18 and 1Y2) subsequent to the print date for the Performance Report and could not notify NASA of our concerns in time to suggest revisions to the Performance Report. Please refer to Appendix A for further details.

that performance results be understandable to a broad audience. The request also required Enterprises and Crosscutting Processes to discuss any data limitations that they had experienced when compiling performance results.

OMB Guidance. OMB Circular A-11, "Preparation and Submission of Budget Estimates," describes requirements of the GPRA and guides agencies in preparing and submitting strategic plans, annual performance plans, and annual performance reports. Circular A-11, Section 232.4, "Comparing actual performance to the performance goal target levels," requires that actual performance be reported as it occurred during the fiscal year covered by the Performance Report. Section 232.5, "Unavailability of actual performance information," requires that the annual performance report identify those performance goals for which actual performance information is missing, incomplete, or preliminary. Section 232.10, "Assessing the completeness and reliability of performance data," considers performance data complete if actual performance is reported for every performance goal and indicator in the annual plan and if the agency identifies in the report any performance goals and indicators for which actual performance data are not available.

NASA Policies and Procedures. NASA's FY 2001 Revised Final Annual Performance Plan¹² described the means by which the Agency verifies and validates its performance data. Performance is evaluated at the Agency, Enterprise, functional office, program and project, and Crosscutting Process levels. Each level is responsible to execute requirements and to measure, evaluate, and report results. Program managers are responsible for data collection and reporting. NASA relies on the individuals responsible for performance to verify and validate results. For purposes of assessing overall performance, NASA asks Advisory Committees¹³ to evaluate accomplishments at the levels of the Enterprise and Crosscutting Process objectives and goals. The NASA Strategic Management Handbook explains that NASA uses regular management insight and review processes as well as external reviews to assess its performance. Internally, the Program Management Council¹⁴ assesses program schedules, cost, and technical performance against established programmatic commitments, and the NASA Advisory Council¹⁵ provides advice on programs and issues. Externally, researchers

¹² An agency prepares at least two iterations of its annual plan -- an initial plan consistent with the agency's budget request to OMB and a final plan that is consistent with the President's budget. In addition, agencies may prepare a third iteration, called a revised final plan, which reflects congressional action on the agency's budget request.

¹³ Several Advisory Committees have been established under the NASA Advisory Council (see footnote 15) to advise NASA programs. Advisory Committees have been established for Space Flight, Aerospace Technology, Earth System Science and Applications, Biological and Physical Research, Minority Business Resource, and Space Science.

¹⁴ The Program Management Council, chaired by the Associate Deputy Administrator, provides advice, counsel, and recommendations for consideration by the Administrator relating to planning, implementation, and management of all major Agency programs.

¹⁵ The NASA Advisory Council advises the NASA Administrator on Agency programs, policies, plans, and other matters pertinent to the Agency's responsibilities.

and other organizations assess NASA's progress in meeting its annual performance goals. Other external groups involved with verifying and validating performance data include the OIG and GAO.

Verifying and Validating Supporting Data and Results

For 12 of the 19 APG's included in NASA's FY 2001 Performance Report, we did not find any significant problems with the actual performance reported by the Associate Administrators for the Enterprises and the GPRA Stewards. Except for minor differences, the supporting data and manner in which the actual results were reported were generally adequate. NASA could further improve the overall process for verifying and validating future GPRA performance data and reported results as evidenced by the seven APG's discussed below:

APG 1H7: "Achieve 8 or fewer in-flight anomalies¹⁶ per mission." The literal interpretation of this APG is that NASA could not meet this goal if the Agency experienced more than eight anomalies on any Space Shuttle mission performed in FY 2001. Yet, the Human Exploration and Development of Space (HEDS) Enterprise initially reported that it had met this goal on the basis that an average of 4.57 anomalies occurred over a span of 7 missions. On 1 of the 7 missions, however, NASA experienced 12 in-flight anomalies. We concluded that the HEDS Enterprise should have reported that NASA had not met this goal. We conveyed to HEDS officials our concern that reporting the average instead of the actual number of anomalies did not match planned performance. HEDS officials stated that the APG presented in the Performance Plan should have reflected average in-flight anomalies. The officials explained that due to the complexity of the multitude of systems onboard the Shuttle, missions sometimes experience more in-flight anomalies than the goal, and the intent was for the indicator to reflect the average, rather than actual, number of anomalies. NASA should have clearly specified in the Performance Plan and the Performance Report its intention to use an average as a measure of performance.

To ensure clear presentation of results, we requested that the HEDS Enterprise explain in the Performance Report why it was appropriate to use the average number of anomalies. Prior to issuing the Agency's final Performance Report, the Enterprise revised the initially reported results to explain that the Shuttle program has been managed to the average number of in-flight anomalies for years and to point out that reporting both individual and average mission results is consistent with past and future performance. Our review of supporting data and discussions with HEDS officials concluded that the goal was achieved and that the results presented in the published Performance Report had been adequately clarified.

¹⁶ In-flight anomalies are deviations from expectations that occur during Space Shuttle missions.

APG 1H11: "[S]uccessfully complete the majority of the ISS [International Space Station] planned on-orbit activities such as delivery of mass to orbit and enhanced functionality." To measure achievement of APG 1H11, the HEDS Enterprise established two indicators. The first indicator required launch and delivery of 180,000 pounds of hardware and logistics to the ISS. The Enterprise exceeded the requirement by delivering 240,000 pounds of hardware and logistics.

The second indicator required initiation and demonstration of ISS Extravehicular Activity (EVA) capability to support up to 30 EVA's annually. The second indicator was to be measured by completion of five EVA's from the ISS Airlock. The HEDS Enterprise initially intended to report that NASA had achieved this APG. HEDS officials explained that when the FY 2001 Performance Plan was developed, five EVA's were planned for the fiscal year. However, after development of the indicator, the ISS mission planning organization had scheduled only two EVA's from the ISS during FY 2001. Our review determined that initially reported results did not accurately reflect supporting data, because only two EVA's were completed in FY 2001, while three were completed in FY 2002, within 6 weeks of the end of FY 2001. NASA's intention of reporting this goal as being met is contrary to OMB Circular A-11, which requires that agencies report actual performance as it occurred during the fiscal year covered by the Performance Report. In response to our concerns, the HEDS Enterprise changed its assessment and reported that, although the goal was not achieved, progress was significant, and the goal would be achieved the following year.

APG 1H18: "Demonstrate, in ground test, at least one technology that could reduce up to 25% of life support logistics over ISS baseline and release progress report for review on the Internet." To measure achievement of APG 1H18, the Biological and Physical Research Enterprise established two indicators. The first indicator just repeated the APG. The second indicator required performing a detailed calculation of life-support equivalent system mass¹⁷ index and placing the calculation on the Internet for review and comment. The second indicator explained that the equivalent system mass index is a measure of the performance of a life-support system that incorporates demonstrated technologies. The Enterprise reported that the goal was achieved. However, NASA did not place the progress report containing the calculation on the Internet until January 31, 2002, 4 months after the end of FY 2001.

We concluded that reported performance results did not accurately reflect supporting data because the progress report was not completed during FY 2001. Although the APG did not specify when the progress report would be released, OMB guidance requires that actual performance be reported as it occurred during the fiscal year covered by the Performance Report. Therefore, to report the APG as achieved, the progress report would have to be released during FY 2001. The progress report was not released until FY 2002, and the FY 2001 Performance Report incorrectly states that APG 1H18 was achieved. We completed our review of this APG after the Performance Report was

¹⁷ Equivalent system mass is the sum of the masses of life-support equipment and supplied commodities.

submitted for printing. Therefore, the Biological and Physical Research Enterprise was not aware of our conclusion and did not have the opportunity to clarify reported performance results before NASA issued the Performance Report.

APG 1MS4: "Improve Information Technology (IT) infrastructure service delivery to provide increased capability and efficiency while maintaining a customer rating of satisfactory, and enhance IT security through reduction of system vulnerabilities across all NASA Centers, emphasizing IT security awareness training for all NASA personnel by meeting 2 out of 2 performance indicators in this area." The NASA Chief Information Officer established two indicators to measure accomplishment of the APG. The first indicator required NASA to improve IT infrastructure service delivery to provide increased capability and efficiency while maintaining a customer rating of "satisfactory" and holding costs per resource unit to the FY 1998 baseline. We reviewed the supporting data and agreed that NASA met the first indicator.

The second indicator required NASA to enhance IT security through a reduction of system vulnerabilities across all NASA Centers and through emphasis on IT security awareness training for all Agency personnel. The NASA Chief Information Officer reported the indicator as achieved but did not disclose data limitations in the Performance Report.

NASA used part of the supporting data for the second indicator in a report that the Agency submitted to OMB under the Government Information Security Reform Act (Security Act).¹⁸ NASA identified several limitations of the supporting data in the report. However, in its initially reported performance results, NASA had not planned to report any limitations with the supporting data. NASA intended to report that it had met the second indicator by identifying and reducing IT system vulnerabilities¹⁹ and by providing IT security awareness training to NASA civil service employees, civil service managers, and civil service system administrators. In a previous audit, we found that the supporting data was limited in scope.²⁰ Specifically, we found the following:

- The Centers did not perform consistent scans of Center IT systems for vulnerabilities, and NASA did not make complete use of all available scanning capability. As a result, the data from the vulnerability scans was limited in scope and did not accurately estimate the vulnerability of NASA's IT systems.
- The supporting data for providing IT security awareness training to civil service system administrators did not include contractor system administrators, who

¹⁸ The Security Act, Public Law 106-398, requires an agency to report to OMB the measures of performance used to ensure that agency officials are fulfilling their security responsibilities and a description of the actual level of agency performance in implementing its security requirements.

¹⁹ A vulnerability is a weakness in an IT system that can be exploited to compromise or violate security processes or controls. If a system is vulnerable to a threat, that vulnerability represents a risk to the system.

²⁰ The OIG issued Report Number IG-02-003, "Performance Management Related to Agencywide Information Technology Security Goals," November 19, 2001. We performed the audit at the same time that NASA submitted one report required by the Security Act to OMB.

comprise 79 percent of NASA's system administrator workforce. As a result, NASA was not ensuring that contractor system administrators received the same training as their civil service counterparts. Untrained system administrators become an unnecessary weak link in NASA's IT security program.

We discussed the discrepancy between the initially reported performance results and the Security Act report with NASA Chief Information Officer officials. They agreed that data limitations described in the Security Act report should also be described in the Performance Report and told us that they would revise the document. However, the revisions were not included in the published Performance Report.²¹ As a result, the Performance Report is inconsistent with the report that NASA submitted to OMB under the Security Act.

APG 1R8: "Develop at least three new design tools, accomplish at least four demonstrations of advances in computation and communications, and complete the intelligent synthesis environment proof-of-concept systems capability build to technology readiness level 3: indicators include computer testbed demonstrations, real-time remote access of data, new design methods and an intelligent synthesis environment proof-of-concept system." To measure achievement of the goal, the Aerospace Technology Enterprise established 21 indicators.²² The Enterprise reported the goal as achieved. However, our audit concluded that supporting data did not confirm initially reported performance, and results were not clearly presented. Specifically, supporting data suggested that initial performance results were not achieved during FY 2001, and performance results were not provided for each indicator. The problems occurred because individuals did not agree on the dates of accomplishment for projects and because of the complexity of the APG and its indicators.²³ In response to our conclusions and notification to the Enterprise, it eliminated projects not completed during FY 2001 from the Performance Report and replaced them with other projects completed. Although the Enterprise achieved the APG, the presentation for APG 1R8 in the Performance Report may not be easily understood by a broad audience.

We asked the Enterprise for supporting data to determine whether initially reported performance accurately reflected the data. Supporting data included quarterly status reports, publications, and presentations. The Enterprise provided us a list of publications and presentations indicating that three projects initially reported as achieved during FY 2001 may have been achieved in FY 2000. When we notified the Enterprise of our concern about the projects' completion dates, the Enterprise eliminated the projects from its initially reported performance. Enterprise officials should verify and validate actual

²¹ The Office of the Chief Information Officer revised its submission to the CFO in February 2002. However, the revision was not incorporated into a draft of the Performance Report due to an oversight. When that office realized that the revision had not been incorporated, the Performance Report had already been submitted to the printer and could not be changed.

²² The 21 indicators are shown in Appendix B.

²³ The Enterprise has simplified the APG in the FY 2003 Performance Plan by reducing the number of indicators from 21 to 4.

performance to ensure that reported results accurately reflect supporting data and that only projects accomplished during the reporting period are reported as achieved. We had difficulty comparing initially reported performance to planned performance because the initially reported performance did not align with the APG or individual indicators described in the Performance Plan. For example, instead of results presented as three new design tools, four demonstrations of advances, and completion of the intelligent synthesis environment to match the APG stated in the Performance Plan, results were stated as four achievements, tools, and demonstrations; four presentations, development of tools and services, and establishment of methodology; and development of the intelligent synthesis environment. Additionally, reported results did not address the 21 indicators or specify whether individual indicators were achieved. We were able to correlate results with indicators only after several discussions with the Enterprise representative and after reviewing documentation that explained relationships between planned performance and results. Because reported results were not aligned with the APG and did not provide assessments for indicators, readers could not compare actual achievements to planned accomplishments.

APG 1Y2: "Successfully disseminate Earth Science data to enable our science research and applications goals and objectives by meeting all performance indicators in this research area." The Earth Science Enterprise established six indicators to measure performance of the goal. The indicators require prompt data availability, decreased number of order errors, increased volume of data archived, increased number of customers, increased number of products, and increased customer satisfaction. The Enterprise reported that all six indicators were achieved, but did not disclose a data limitation in the Performance Report.

The dissemination of Earth Science data is accomplished through the Earth Observing System Data and Information System. NASA-funded researchers provide the data to be disseminated. Two research organizations, the Earth Science Information Partners (ESIP) and Distributed Active Archive Centers (DAAC), provided statistics validating initially reported performance. Statistics from the DAAC appropriately included data for the period October 1, 2000, through September 30, 2001 (FY 2001). However, statistics from ESIP for the fourth quarter of FY 2001 (July 1 through September 30) were not available at the time NASA prepared the Performance Report. To provide 12 months of statistics for assessment, the Enterprise changed the period of performance for ESIP to include statistics from the third quarter of FY 2000. The Enterprise used FY 2000 statistics to assess performance for four indicators requiring prompt data availability, increased volume of data archived, increased number of customers, and increased products. Earth Science representatives explained that similar results are experienced each quarter and that using data from the third quarter of FY 2000 instead of the fourth quarter of FY 2001 would have little effect on overall achievement.

We concluded that statistical differences between quarters were insignificant and that the Earth Science Enterprise correctly reported the goal as achieved. Nonetheless, the Performance Report should have disclosed the data limitation, explaining that only preliminary statistical data was available for FY 2001 and that statistics from the third

quarter of FY 2000 were substituted. We completed our review of this APG after NASA submitted the Performance Report to a contractor for printing. Consequently, the Earth Science Enterprise was not aware of our conclusion and did not have the opportunity to correct reported results before NASA issued the Performance Report.

APG 1Y16: "Stimulate the development of a robust commercial remote sensing industry by meeting at least 4 of 5 performance indicators in this area." The Earth Science Enterprise established five indicators to measure achievement of the goal. The Enterprise reported that the goal was met because four of the five indicators had been achieved. In reviewing original supporting data, we could not confirm that one of the four indicators had been achieved. If one of the four indicators was not achieved, the goal should have been reported as not achieved, because only three of five indicators were met. We expressed our concerns to the Enterprise official, who provided additional supporting data showing that the indicator had been achieved and exceeded.

The Earth Science Enterprise initially reported results for one indicator that did not accurately reflect supporting data. The indicator required development of 10 new market commercial products in joint commercial applications research projects. As evidence of achieving the indicator, the Enterprise provided a list of 10 products developed during FY 2001 and the names of company contacts who could confirm development of the products. Our confirmation request to one company contact showed that two products that the Enterprise initially reported as developed during FY 2001 were never completed.

When we notified the Enterprise that we could not confirm two products, the Enterprise official provided a list of five additional products that, according to the Enterprise, were developed during FY 2001. We confirmed that, in fact, two of the products had been developed and could be used to replace the two products included in NASA's initial submission that were inaccurately reported as developed. We did not attempt to confirm development of the other three products. In this particular case, if 15 products had been developed, the indicator requiring 10 products may have been exceeded. However, because the Enterprise reported that only 10 products had been developed, the Performance Report may not accurately reflect actual performance for this APG. To ensure accurate reporting of performance results in future Performance Reports, Enterprise officials should carefully review supporting data to verify and validate actual performance prior to submitting assessments for inclusion in the Performance Report.

Conclusion

NASA continues to improve its performance planning and reporting process. The Agency could improve the accuracy and reliability of future Performance Reports by more effectively verifying and validating performance to ensure that reported results accurately reflect supporting data. Enterprises and Crosscutting Processes initially reported performance results that were not fully reliable or were not clearly presented for

7 of the 19 APG's that we reviewed. Ensuring the reliability and clear presentation of performance results would increase the Performance Reports' value as a decisionmaking tool.

Recommendations, Management's Response, and Evaluation of Response

The Deputy Chief Financial Officer for Financial Management should emphasize in the data call letter for the FY 2002 Performance Report and subsequent Performance Reports that responsible Enterprise and Crosscutting Process officials must:

- 1. Verify and validate actual performance to ensure that reported results accurately reflect supporting data.**
- 2. Report fully successful accomplishment of APG's only when all required elements and indicators are accomplished within the subject fiscal year.**
- 3. Align reported results appropriately with the planned performance stated in APG's.**
- 4. Disclose data limitations in Performance Reports, and compare disclosures included in all Agency reports to ensure that data limitations are consistently disclosed.**

Management's Response. Concur. Management stated that all of the report's recommendations would be addressed in the FY 2002 and subsequent Performance Report data call letters. Management will provide us a copy of the FY 2002 data call letter when it is issued.

Evaluation of Response. Management's planned actions are responsive to the recommendations. The recommendations are resolved but will remain undispositioned and open until agreed-to corrective actions are completed.

Appendix A. Objectives, Scope, and Methodology

Objectives

The overall objective was to assess the quality of data supporting the reported results in the NASA Fiscal Year (FY) 2001 Performance Report. The specific objectives were to review and test selected annual performance goals (APG's) to assess whether the data were appropriate for the APG and whether they were complete, accurate, consistent, and timely.

Scope and Methodology

The audit covered APG's in NASA's FY 2001 Revised Final Annual Performance Plan. NASA's Plan included 88 APG's consisting of 334 indicators. To perform this audit, we concentrated on APG's within seven areas considered critical to the Agency: environmental management, fiscal management, information security, information technology, program and project management, safety and mission assurance, and human capital management.

During FY 2001, NASA conducted its programs and activities through five Strategic Enterprises that accomplish NASA's mission: Space Science, Earth Science, Human Exploration and Development of Space (HEDS), Aerospace Technology, and Biological and Physical Research. Supporting the Strategic Enterprises are four Crosscutting Processes: Manage Strategically, Provide Aerospace Products and Capabilities (PAPAC), Generate Knowledge, and Communicate Knowledge. We covered the five Enterprises and four Crosscutting Processes by reviewing one or more APG's for each management organization. Further, we included only APG's that NASA intended, at the time of our audit, to report as being achieved or exceeded. We also included APG's that were similar to those we identified in our audits of FY's 1999 and 2000 APG's for which no reliable supporting data existed. We reviewed 19 APG's that fit within one of seven critical areas, were initially reported as achieved or exceeded, or were similar to those identified in prior audits. Of the 80 indicators comprising the 19 APG's, 66 indicators were reported as achieved. We reviewed 59 of those 66 indicators. Appendix B provides details on the APG's and respective indicators that we reviewed. Although we did not use statistical sampling procedures, we considered the selected APG's reasonably representative of all the APG's included in NASA's FY 2001 Revised Final Annual Performance Plan.

To accomplish our objectives we did the following:

- Reviewed Government Performance and Results Act (GPRA) legislation, Office of Management and Budget (OMB) guidance, NASA policy, and related documentation relative to measuring and reporting performance results.

- Obtained and reviewed, for the selected APG's, the measured data and information supporting the results that were included in NASA's FY 2001 Performance Report.
- Interviewed NASA personnel and others who had a role either in collecting and providing the statistics and information used to measure results or in summarizing and reporting the results.
- Determined, through interviews and reviews of readily available studies or analyses, whether there were known major problems with the systems or sources of the performance data.

We did not test any systems to determine whether they accurately accumulated and reported their respective data. In addition, we could not assess whether supporting data was complete because the level of documentation we received allowed testing for validity only. That is, we could test backwards from data obtained to assess whether results were valid, but we could not test from original documentation forward to assess completeness. OMB Circular A-11, Section 232.10, "Assessing the completeness and reliability of performance data," considers performance data complete if actual performance is reported for every performance goal and indicator in the annual plan and the agency identifies in the report any performance goals and indicators for which actual performance data are not available and notes that the data will be included in a subsequent annual report. Except as noted in the finding section, we determined that NASA reported actual performance for each APG sampled. As discussed in the finding section, the Aerospace Technology Enterprise did not provide results for each of the 21 indicators established for APG 1R8.

Our intention was to issue this audit report before NASA released its FY 2001 Performance Report (about March 29, 2002) as we had done for audits of selected supporting data for the FY's 1999 and 2000 Performance Reports. On December 19, 2001, management informed us that the printing schedule for the FY 2001 Performance Report had been advanced to the first week of February 2002. NASA management explained that the date was changed to ensure that the finished product would be issued by the required date of March 29, 2002. We were unable to allocate additional resources to the audit to ensure that NASA had the full benefit of our findings prior to publication of the FY 2001 Performance Report. Nevertheless, to the extent possible, we kept management informed of our audit results. As a result, NASA was able to make certain changes to the FY 2001 Performance Report prior to its official release. Because the FY 2001 Performance Report was issued before our audit report, our recommendations address future events, not the FY 2001 Performance Report.

Appendix A

Management Controls Reviewed

We reviewed the following controls with respect to measuring and reporting performance:

- NASA FY 2001 Performance Plan, including revisions
- NASA Strategic Plan (2000)
- NASA Strategic Management Handbook (February 2000)
- Office of the Chief Financial Officer, Office Work Instruction, “Performance Plan Update & Reporting,” HOWI7410-B003
- OMB Circular A-11, “Preparing and Submitting Budget Estimates” (July 17, 2001, revised November 8, 2001)
- FY 2001 Performance Report Data Call Letter from the Chief Financial Officer to the Officials-in-Charge of Headquarters and Functional Offices (August 30, 2001)

Management controls for verifying and validating the reliability of GPRA-related performance data and the reported results were not adequate as evidenced by the conditions discussed in the finding.

Audit Field Work

We conducted field work from December 2001 through May 2002 at NASA Headquarters and obtained supporting documentation from the NASA Centers.

Appendix B. Annual Performance Goals Reviewed in Detail

APG *	Description as Stated in the FY 2001 Revised Final Annual Performance Plan <i>(Text in italics designates indicators that we did not review.)</i>
1CK3	<p>Ensure consistent, high-quality, external communication by meeting 2 of the 3 indicators for this annual performance goal.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • Increase new opportunities to transfer technology developed at NASA to private industry to 20,100. Opportunities will be made available to the public through the NASA Technology Tracking System (TechTracS) database and will be accessible through the Internet. • Produce two industry-specific editions "Aerospace Technology Innovations" publication in FY 2001. • Provide publications that will communicate technologies available for commercial use or that have already been commercialized. Print subscriber/distribution metrics are: "Aerospace Technology Innovations" (12,500), "Spinoff " (51,000), and "Tech Briefs" (210,000).
1G3	<p>The Space Science Enterprise, the Earth Science Enterprise, and the OLMSA/HEDS [Office of Life and Microgravity Sciences and Applications] will use competitive merit review wherever possible to select performers for science and basis technology research. NASA will meet at least 2 out of 3 of the indicators for this annual performance goal.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • NASA will use Announcements of Opportunity (AOs), NASA Research Announcements (NRAs), and Cooperative Agreement Notice solicitations to award 80 percent or more of science and basic research funds via merit competition in the Enterprises and Functional offices that fund scientific research. • NASA will meet the level of funding requested by the investigators in their proposals 80% of the time. • NASA will increase the number of investigators funded over the 1999 baseline.
1G5	<p>The Space Science Enterprise, the Earth Science Enterprise, and OLMSA/ HEDS will make science data obtained widely accessible as soon as possible after receipt and will maintain these data in open archives. NASA will meet the two indicators for this target.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • The Space Science Enterprise, and the Earth Science Enterprise, will achieve their specific individual indicators for ensuring mission data maintenance and access. • OLMSA will continue the archival of their life sciences research publications.
1H2	<p>Complete initial next decade planning mission architecture studies and technology plans. Architecture studies support near-term technology investment decisions to create building blocks that may enable a range of long-term planning options for future missions of exploration.</p> <p><u>Indicator:</u></p> <ul style="list-style-type: none"> • Complete initial next decade planning mission architecture studies.

* See the Legend at the end of the table.

Appendix B

APG *	Description as Stated in the FY 2001 Revised Final Annual Performance Plan <i>(Text in italics designates indicators that we did not review.)</i>
1H5	<p>Continue initial research on the International Space Station (ISS) by conducting 6 to 10 investigations.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • Increase fundamental knowledge in biological and biomedical sciences and address critical questions in crew health and safety by conducting 6 to 10 ISS investigations. • Acquire unique data on colloidal self assembly as an essential first step in the synthesis of new materials from colloidal particles. • Measure the ISS acceleration environment, develop models to characterize the effects of that environment on ISS research, and disseminate those results to the ISS investigator community.
1H7	<p>The Office of Space Flight continues to invest in Space Shuttle operations. Investments include hardware production, ground processing, launch and landing operations, flight crew operations, training, logistics, and sustaining engineering. The annual performance goal is to achieve 8 or fewer flight anomalies per mission.</p> <p><u>Indicator:</u></p> <ul style="list-style-type: none"> • Achieve 8 or fewer in-flight anomalies per mission.
1H11	<p>Deployment of the ISS occurs with on-orbit assembly over several years. Successful and timely deployment is dependent on the Shuttle and other international launch vehicles, and the provision of some elements and services from international partners and participants. The performance target is to successfully complete the majority of the ISS planned on-orbit activities such as delivery of mass to orbit and enhanced functionality.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • Expansion of the capabilities of the ISS through launch and delivery of 180,000 lbs. of hardware and logistics to the ISS; and initiation and demonstration of ISS Extravehicular Activity (EVA) capability to support up to 30 EVAs annually from the U.S. Airlock. This will be measured by completion of a minimum of 5 EVAs from the ISS Airlock.
1H18	<p>Demonstrate, in ground test, at least one technology that could reduce up to 25% of life support logistics over ISS baseline and release report of progress for review on the Internet.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • Demonstrate, in ground test, technologies that could reduce up to 25% of life support logistics over ISS baseline and release report of progress for review on the Internet. • Perform detailed calculation of life support equivalent system mass index and place online for review and comment. Equivalent system mass index is a measure of the performance of a life support system incorporating demonstrated technologies.
1H20	<p>Increase the percentage of the space operations budget allocated to acquisition of communications and data services from the commercial sector to 15% in FY 2001. The space communications program will conduct tasks that enable commercialization and will minimize investment in government infrastructure for which commercial alternatives are being developed.</p> <p><u>Indicator:</u></p> <ul style="list-style-type: none"> • Increase to 15% the space operations budget allocated to acquisition of communications and data services from the 10% FY 2000 annual performance goal.

* See the Legend at the end of the table.

Appendix B

APG *	Description as Stated in the FY 2001 Revised Final Annual Performance Plan <i>(Text in italics designates indicators that we did not review.)</i>
1MS3	<p>Renew Agency's management systems, facilities, and human resources through updated use of automated systems, facilities revitalization, and personnel training by meeting 4 out of 7 performance indicators in this area.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • Cost at least 75% of the resources authority available to cost during the fiscal year. • Completing installation of the Budget and Core Accounting Integrated Financial Management System at NASA's remaining field locations. • Maintain a diverse NASA workforce where women, minorities, and persons with disabilities are represented at levels equal to or greater than their FY 1999 levels, with a target of increasing representation of minorities by at least one percent per year, women by at least one percent per year, and persons with disabilities by at least .5 percent per year. • Increasing training opportunities in technology-based learning by 10%. • Increasing by 20% employee use of technology-based learning opportunities. • Using FY 01 budgeted funds for awarding construction contracts toward reducing the Agency's estimated \$1.4B facilities revitalization needs. • Implement 60% of the identified Environmental Compliance and Restoration (ECR) projects to reduce and manage the Agency's \$1.1B future unfunded environmental liability.
1MS4	<p>Improve information technology (IT) infrastructure service delivery to provide increased capability and efficiency while maintaining a customer rating of satisfactory, and enhance IT security through a reduction of system vulnerabilities across all NASA Centers, emphasizing IT security awareness training for all NASA personnel by meeting 2 out of 2 performance indicators in this area.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • Improve IT infrastructure service delivery to provide increased capability and efficiency while maintaining a customer rating of "satisfactory" and holding costs per resource unit to the FY 98 baseline. • Enhance IT security through reduction of system vulnerabilities across all NASA Centers and through emphasis on IT security awareness training for all NASA personnel.
1P3	<p>Ensure the availability of NASA's spacecraft and major ground facilities by keeping the operating time lost due to unscheduled downtime to less than 10% of scheduled operating time.</p> <p><u>Indicator:</u></p> <ul style="list-style-type: none"> • Each field center is reporting the operational downtime of the facilities identified for inclusion in the measure.
1P5	<p>Dedicate 10 to 20 percent of the Agency's Research & Development budget to commercial partnerships.</p> <p><u>Indicator:</u></p> <ul style="list-style-type: none"> • Each of the Enterprises are reporting the value of their contribution to commercial partnerships.

* See the Legend at the end of the table.

Appendix B

APG *	Description as Stated in the FY 2001 Revised Final Annual Performance Plan <i>(Text in italics designates indicators that we did not review.)</i>
1R8	<p>Develop at least three new design tools, accomplish at least four demonstrations of advances in computation and communications, and complete the intelligent synthesis environment proof-of-concept systems capability build to technology readiness level 3: indicators include computer testbed demonstrations, real-time remote access of data, new design methods and an intelligent synthesis environment proof-of-concept system.</p> <p><u>Indicators:</u></p> <p>Aerospace Focused — High Performance Computing and Communications [HPCC]</p> <ul style="list-style-type: none"> • Develop software tools to reduce parallelization time from months to one week while maintaining 50% application performance compared with manual parallelization. • Develop tools to benchmark testbed performance in computing capability, database manipulation, and scheduling to evaluate alternate scheduling strategies and choose optimal approaches to reduce variability and improve predictability of turnaround time. • Develop automated quality of service data collection tool capable of measuring 2 service classes and scalable to at least 5 nodes. • 3 relevant application codes parallelized; 3 data analysis codes parallelized; documented evaluation of parallelization tools. • 3X performance in an aerospace application through the integration of networking enhancements into application codes. • 3 applications interoperating on multiple Quality of Service (QoS) enabled networks; 50Mbps (aggregate internal) multicast; gigabit performance between 2 NASA sites; 2 applications utilizing enhanced hybrid networking. • Improvement in aerospace applications: Complete combustor and compressor simulation in 3 hours each; high-fidelity space transportation vehicle analysis in 1 week and optimization enabled; S&C [stability and controls] database generation for aerospace vehicles within 1 week; demonstration of improvements in 4 NASA-sponsored design events. • Assess initial HPCC technology capabilities and customer impacts. • Demonstrate a near-term, state-of-the-art intelligent synthesis environment (ISE), user interface and infrastructure. • Demonstrate life-cycle simulation and ISE capabilities as specified by the prototype test applications (i.e., legacy engineering and analysis tools.) • Validate three prototype test applications. • Demonstrate ISE prototype measurement and assessment techniques. <p>Aerospace Base Research and Technology (R&T)</p> <ul style="list-style-type: none"> • Develop software tools for design of advanced computing systems. • Acquire and incorporate new large-scale computing systems and demonstrate seamless operations with heterogeneous distributed computing environment. • Demonstrate remote connectivity to high data-rate instruments and distributed real-time access to instrument data.

* See the Legend at the end of the table.

APG *	Description as Stated in the FY 2001 Revised Final Annual Performance Plan <i>(Text in italics designates indicators that we did not review.)</i>
1R8 continued	<ul style="list-style-type: none"> • Demonstrate an environment for aerospace hardware design that includes: remote connectivity and access to flight simulation data, computational simulation data and archival databases. • Demonstrate prototype cross-fidelity aerospace design system. • Establish experimental and analytical methodology for composite stringer pull-off failure prediction. • Figures of merit from static wind tunnel or CFD [computational fluid dynamics] results developed and assessed for use in predictions of uncommanded transonic lateral motions due to Abrupt Wing Stall. • Conduct turbulence modeling workshop to provide direction for turbulence modeling research to increase design confidence in flight regimes dominated by flow separation. • Conduct assessment of OAT [Office of Aerospace Technology] program element impacts on goals of three pillars.
1S4	<p>Successfully develop and launch no less than one of two missions within 10% of budget and schedule. Missions are: Mars Odyssey ('01 Orbiter) and Genesis.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • <u>Mars Odyssey Development:</u> Deliver for launch; successful launch and check-out. • <u>Genesis Development:</u> Deliver for launch; successful launch and check-out. • <u>Rosetta Development:</u> <i>Deliver the flight units for the four U.S.-provided instruments or instrument subsystems to ESA [European Space Agency].</i> • <u>Two Wide-angle Imaging Neutral-atom Spectrometer (TWINS) Development:</u> <i>Continue instrument development and deliver Flight Unit #1 for Integration and Test.</i> • <u>Comet Nucleus Tour (CONTOUR) Development:</u> Successful Critical Design Review (CDR), meeting all program level requirements. • <u>Discovery Program Future Missions:</u> <i>New mission selection.</i>
1S6	<p>Perform innovative scientific research and technology development by meeting technology development objectives for major projects, by achieving mission success in space physics rocket and balloon flights, and by making satisfactory research progress in related R & A [Research and Analysis] and DA [Data Analysis] programs. Meet no fewer than 66% of the performance objectives for the following technology and research programs: Solar-B, STEREO [Solar Terrestrial Relations Observatory], Solar Probe, Future Solar Terrestrial Probes, Future Deep Space Technology, CISM [Center for Integrated Space Micro-electronics], X-2000, Sounding Rockets, and Balloons. Achieve a "fully effective" (green) overall science achievement rating from the Space Science external advisory committee.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • <u>Solar-B Technology Development:</u> Deliver engineering model of the optical telescope and X-ray telescope. • <u>STEREO Technology Development:</u> Successfully complete Phase B effort, including Confirmation Review. • <u>Solar Probe Technology Development:</u> Begin Solar Probe prototype thermal shield fabrication. • <u>Future Solar Terrestrial Probes Technology Development:</u> Complete preliminary concept definitions for spacecraft systems and instruments for Magnetospheric Multiscale.

* See the Legend at the end of the table.

Appendix B

APG *	Description as Stated in the FY 2001 Revised Final Annual Performance Plan <i>(Text in italics designates indicators that we did not review.)</i>
1S6 continued	<ul style="list-style-type: none"> • <u>Future Deep Space Technology Development</u>: Deliver X-2000 Level 1-3 requirements documents; define subsystem interfaces; demonstrate intermediate-level multi-functional structures (MFS); complete definition of system architecture; evaluate key risk areas and pass decision gates. • <u>CISM Technology Development</u>: Demonstrate and deliver prototype advanced power transistor (0.35 micron Silicon Insulator [SOI] Complementary Metallic Oxide Semiconductor [CMOS] [sic]: demonstrate Active Pixel Sensor with advanced processing capabilities on a single chip. • <u>X-2000 Technology Development</u>: Deliver engineering model and flight set of avionics. • <u>Sounding Rocket Flights</u>: <i>Achieve launch success rate of 80% for sounding rocket flights.</i> • <u>Balloon Flights</u>: <i>Achieve launch success rate of 80% for balloon flights.</i>
1S10	<p>Investigate the composition, evolution, and resources of Mars, the Moon, and small bodies by successfully launching a Mars mission, by obtaining data from operational spacecraft, and by making satisfactory progress in related Research and Analysis (R&A) and Data Analysis (DA) programs. Meet no fewer than 75% of the performance objectives for Mars Odyssey ('01 Orbiter), Comet Nucleus Tour (CONTOUR), Mars Global Surveyor, and R&A. Achieve a "fully effective" (green) overall science achievement rating from the Space Science external advisory committee.</p> <p><u>Indicators</u>:</p> <ul style="list-style-type: none"> • <u>Mars Odyssey</u>: Deliver for launch, within 10% of planned development budget and schedule; successful launch and check-out. • <u>CONTOUR Development</u>: Successful Critical Design Review (CDR), to document that the design meets all program level requirements. • <u>Mars Global Surveyor Operations</u>: <i>Complete primary mapping mission.</i> • <u>Research and Analysis</u>: <i>Issue NASA Research Announcement (NRA) for Research Opportunities in Space Science (ROSS).</i>
1Y2	<p>Successfully disseminate Earth Science data to enable our science research and applications goals and objectives by meeting all performance indicators in this research area.</p> <p><u>Indicators</u>:</p> <ul style="list-style-type: none"> • Make available data on prediction, land surface, and climate to users within 5 days. • Increase by 20% the volume of data archived compared to FY00 (annual performance goal = 442 terabytes). • Increase the number of distinct Earth Observing System Data and Information System (EOSDIS) customers by 20% compared to FY00 (annual performance goal = 1.5 million). • Increase products delivered from the Distributed Active Archive Centers (DAAC's) by 10% compared to FY00 (annual performance goal = 5.4 million). • User satisfaction: Increase the number of favorable comments from DAAC and Earth Science Information Partner (ESIP) users as recorded in the customer contact logs over FY00. Implement user satisfaction survey. • Decrease total percentage of order errors by 5% over FY00.

* See the Legend at the end of the table.

Appendix B

APG *	Description as Stated in the FY 2001 Revised Final Annual Performance Plan <i>(Text in italics designates indicators that we did not review.)</i>
1Y16	<p>Stimulate the development of a robust commercial remote sensing industry by meeting at least 4 of 5 performance indicators in this area.</p> <p><u>Indicators:</u></p> <ul style="list-style-type: none"> • Develop ten new market commercial products (e.g., oil spill containment software by EarthSat and map sheet products by Earth Resources Data Analysis System Inc.), in joint commercial applications research projects. • Identify at least one new commercial source of science data as a result of the Scientific Data Purchase activities for Earth Science research and applications. • Develop four new validated commercial information products as a result of verification and validation partnerships with the private sector and other users through the Mississippi State Commerce Initiative and the Space Act Agreement. • Conduct Earth Observation Commercial Applications Program (EOCAP) Technology projects that result in ten prototype products that quantify the utility of Hyperspectral and Synthetic Aperture Radar technologies and define future market requirements. • Increase the cost share leveraging with companies, academia and other government agencies within the EOCAP and Affiliated Research Center (ARC) programs by 10%.

Legend:

* 1 -- FY 2001.

CK -- Communicate Knowledge Crosscutting Process.

G -- Generate Knowledge Crosscutting Process.

H -- Human Exploration and Development of Space Enterprise.

MS -- Manage Strategically Crosscutting Process.

P -- Provide Aerospace Products and Capabilities Crosscutting Process.

R -- Aerospace Technology Enterprise.

S -- Space Science Enterprise.

Y -- Earth Science Enterprise.

Appendix C. Summary of Prior Audit Coverage

NASA Office of Inspector General (OIG)

Report to the Chairman, Committee on Government Reform, United States House of Representatives, Report Number IG-01-028, May 18, 2001. In response to a congressional request, the OIG determined the 10 most significant performance measures in NASA's fiscal year (FY) 2000 Performance Report; assessed whether each was a useful indicator of performance; and determined the validity and accuracy of performance results reported by NASA for each measure. The OIG concluded that all 10 measures had some usefulness as indicators of performance in support of NASA's mission but that the Agency could more precisely word many of the measures to better demonstrate NASA's actual performance in meeting stated goals.

“Validation and Verification of Selected NASA FY 2000 Performance Data Related to the Government Performance and Results Act (GPRA),” Report Number IG-01-020, March 30, 2001. The OIG reviewed the accuracy and reliability of performance data for 23 performance targets to be reported in NASA's FY 2000 Performance Report. We concluded that the supporting data and information on 19 of 23 performance targets reviewed were adequate, and we did not identify any significant problems with reported actual performance for those targets. However, the reported performance on four targets reviewed was not fully reliable because the supporting data did not adequately support the results described. The report contains three recommendations to improve the reliability of reported performance. Management concurred with all the recommendations and implemented corrective actions.

Report to the Chairman, Committee on Governmental Affairs, United States Senate, November 15, 2000. In response to a congressional request, the OIG conducted a review of NASA's FY 1999 Performance Report to determine whether the report effectively addressed the key management challenges faced by the Agency. The specific objectives were to determine whether the FY 1999 Performance Report contained goals and measures that directly relate to key management challenges, evaluate NASA's performance under the relevant goals and objectives, evaluate the validity and reliability of the data on which NASA based its performance, and evaluate NASA's strategies to meet performance goals not attained during FY 1999. The OIG reported that NASA's FY 1999 Performance Report and FY 2001 Performance Plan described goals and measures for 8 of the 10 management challenges identified by the General Accounting Office (GAO) and the OIG, but did not provide enough specific information for 4 of the 10 management challenges. The OIG considered information technology security to be a material control weakness and expressed concerns regarding future reusable launch vehicles; commercialization of launch services; environmental management; and balancing risk, performance, and cost in its programs and projects.

“Validating FY 1999 Performance Data To Be Reported Under the Government Performance and Results Act (GPRA),” Report Number IG-00-020, March 28, 2000. The OIG reviewed the accuracy and reliability of performance data for 23 performance targets to be reported in NASA’s FY 1999 Performance Report. We concluded that the supporting data and information on 18 of 23 performance targets reviewed were adequate, and we did not identify any significant problems with reported actual performance for those targets. However, the reported performance on five targets reviewed was not fully reliable because the supporting data did not adequately support the results described. The report contains three recommendations to improve the reliability of reported performance. Management concurred with all the recommendations and implemented corrective actions.

“NASA Implementation of the Government Performance and Results Act,” Report Number IG-99-055, September 28, 1999. The report states that NASA (1) had not made a timely assessment of progress in achieving FY 1999 performance goals and (2) had not established formal procedures to ensure that all the data and information used to evaluate progress and report final results are accurate and reliable. The report contains three recommendations to track progress, take timely corrective actions, and verify and validate supporting data. Management concurred with all the recommendations and implemented corrective actions.

General Accounting Office (GAO)

“NASA - Status of Plans for Achieving Key Outcomes and Addressing Major Management Challenges,” GAO-02-184, November 27, 2001. In response to a congressional request, GAO reviewed NASA's FY 2002 Performance Plan to assess planned performance for three key outcomes: (1) expand scientific knowledge of the Earth system, (2) deploy and operate the International Space Station safely and cost-effectively, and (3) expand the commercial development of space. GAO found that NASA had improved its FY 2002 performance plan and responded to recommendations or suggestions by GAO and others to make its plan more useful. GAO reported that NASA's annual performance goals for its outcomes generally appeared to be objective and help to measure progress toward the outcomes. Yet the plan still did not explain the reasons for changes in performance goals. GAO concluded that not having these explanations could hinder the ability to assess NASA's performance over time.

“NASA - Status of Achieving Key Outcomes and Addressing Major Management Challenges,” GAO-01-868, July 31, 2001. In response to a congressional request, GAO reviewed NASA's FY 2000 Performance Report to assess progress in achieving three key outcomes: (1) expand scientific knowledge of the Earth system, (2) deploy and operate the International Space Station safely and cost effectively, and (3) expand the commercial

Appendix C

development of space. GAO found that NASA reported mixed progress in achieving the key outcomes and that NASA's strategies for achieving unmet performance targets for these outcomes were generally clear and reasonable.

“Observations on the National Aeronautics and Space Administration's Fiscal Year 1999 Performance Report and FY 2001 Performance Plan,” GAO-NSIAD-00-192R, June 30, 2000. In response to a congressional request, GAO reviewed NASA's report and plan with a focus on three key outcomes: (1) expand scientific knowledge of the Earth system, (2) deploy and operate the International Space Station safely and cost effectively, and (3) expand the commercial development of space. GAO determined that NASA's FY 1999 performance objectives and targets were generally objective and measurable, but NASA continued quantifying output measures instead of outcomes. Additionally, the GAO reported that NASA did not provide assurance that performance information was credible and expressed concern about how NASA planned to use indicators in assessing whether goals were met. The GAO's review of NASA's FY 2001 Performance Plan concluded that the plan did not include an explicit discussion of procedures for verifying and validating performance data and does not address possible data limitation issues and problems.

“Observations on the National Aeronautics and Space Administration's Fiscal Year 2000 Performance Plan,” GAO-NSIAD-99-186R, July 20, 1999. In response to a congressional request, the GAO reviewed NASA's plan with a focus on (1) assessing the usefulness of the Agency's plan for decisionmaking and (2) identifying the degree of improvement the Agency's FY 2000 Performance Plan represented over the FY 1999 Plan. GAO determined that the Agency's plan should be useful to decision makers. It provides a limited picture of intended performance across the Agency, a general discussion of strategies and resources the Agency will use to achieve its goal, and limited confidence that performance information will be credible. NASA's FY 2000 Plan represented a moderate improvement over the FY 1999 Plan in that it indicates some degree of progress in addressing the weaknesses identified in GAO's assessment of the FY 1999 Plan.

Appendix D. Management's Response

National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001



September 13, 2002

Reply to Airm of: **B**

TO: W/Assistant Inspector General for Audits
FROM: B/Acting Deputy Chief Financial Officer
SUBJECT: Final Response to Draft Audit Report on Validation and Verification of Selected NASA FY 2001 Performance Data Related to the GPRA (A-02-013-00)

Thank you for providing the Office of the Chief Financial Officer the subject draft report for comment. We find all of the report's recommendations to be constructive and we concur with them fully. All of the report's recommended points will appear in the FY 2002 and subsequent Performance Report data call letters. The FY 2002 letter will be issued shortly. We will forward you a copy of the letter at that time.


Kenneth J. Winter

cc:
B/Mr. Comstock
Mr. Isakowitz
Ms. Ohnsorg
Mr. Winter
W/Ms. Armstrong
Mr. Lamoreaux

Appendix E. Report Distribution

National Aeronautics and Space Administration (NASA) Headquarters

HQ/A/Administrator
HQ/AI/Associate Deputy Administrator
HQ/AB/Associate Deputy Administrator for Institutions and Asset Management
HQ/AA/Chief of Staff
HQ/AE/Chief Engineer
HQ/AO/Acting Chief Information Officer
HQ/B/Deputy Chief Financial Officer for Financial Management
HQ/B/Deputy Chief Financial Officer for Resources (Comptroller)
HQ/BF/Director, Financial Management Division
HQ/BR/Director, Resources Analysis Division
HQ/C/Acting Director for Headquarters Operations
HQ/G/General Counsel
HQ/H/Assistant Administrator for Procurement
HQ/HK/Director, Contract Management Division
HQ/HS/Director, Program Operations Division
HQ/J/Assistant Administrator for Management Systems
HQ/JM/Director, Management Assessment Division
HQ/L/Assistant Administrator for Legislative Affairs
HQ/M/Associate Administrator for Space Flight
HQ/P/Assistant Administrator for Public Affairs
HQ/Q/Associate Administrator for Safety and Mission Assurance
HQ/R/Associate Administrator for Aerospace Technology
HQ/S/Associate Administrator for Space Science
HQ/U/Associate Administrator for Biological and Physical Research
HQ/X/Assistant Administrator for Security Management and Safeguards
HQ/Y/Associate Administrator for Earth Science

NASA Advisory Officials

Chair, NASA Advisory Council

NASA Centers

ARC/D/Director, Ames Research Center
DFRC/X/Director, Dryden Flight Research Center
GRC/0100/Director, John H. Glenn Research Center at Lewis Field
GSFC/100/Director, Goddard Space Flight Center
JPL/1000/Director, Jet Propulsion Laboratory
JSC/AA/Director, Lyndon B. Johnson Space Center
KSC/AA/Director, John F. Kennedy Space Center
KSC/CC/Chief Counsel, John F. Kennedy Space Center
LaRC/106/Acting Director, Langley Research Center
MSFC/DA01/Director, George C. Marshall Space Flight Center
SSC/AA00/Director, John C. Stennis Space Center

Non-NASA Federal Organizations and Individuals

Assistant to the President for Science and Technology Policy
Deputy Associate Director, Energy and Science Division, Office of Management and Budget
Branch Chief, Science and Space Programs Branch, Energy and Science Division, Office of Management and Budget
Managing Director, Acquisition and Sourcing Management Team, General Accounting Office
Senior Professional Staff Member, Senate Subcommittee on Science, Technology, and Space

Chairman and Ranking Minority Member – Congressional Committees and Subcommittees

Senate Committee on Appropriations
Senate Subcommittee on VA, HUD, and Independent Agencies
Senate Committee on Commerce, Science, and Transportation
Senate Subcommittee on Science, Technology, and Space
Senate Committee on Governmental Affairs
House Committee on Appropriations
House Subcommittee on VA, HUD, and Independent Agencies
House Committee on Government Reform
House Subcommittee on Government Efficiency, Financial Management, and Intergovernmental Relations
House Subcommittee on Technology and Procurement Policy
House Committee on Science
House Subcommittee on Space and Aeronautics

Congressional Member

Honorable Pete Sessions, U.S. House of Representatives

NASA Assistant Inspector General for Audits Reader Survey

The NASA Office of Inspector General has a continuing interest in improving the usefulness of our reports. We wish to make our reports responsive to our customers' interests, consistent with our statutory responsibility. Could you help us by completing our reader survey? For your convenience, the questionnaire can be completed electronically through our homepage at <http://www.hq.nasa.gov/office/oig/hq/audits.html> or can be mailed to the Assistant Inspector General for Audits; NASA Headquarters, Code W, Washington, DC 20546-0001.

Report Title: Validation and Verification of Selected NASA Fiscal Year 2002 Performance Data Related to the Government Performance and Results Act

Report Number: _____ **Report Date:** _____

Circle the appropriate rating for the following statements.

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A
1. The report was clear, readable, and logically organized.	5	4	3	2	1	N/A
2. The report was concise and to the point.	5	4	3	2	1	N/A
3. We effectively communicated the audit objectives, scope, and methodology.	5	4	3	2	1	N/A
4. The report contained sufficient information to support the finding(s) in a balanced and objective manner.	5	4	3	2	1	N/A

Overall, how would you rate the report?

- Excellent Fair
 Very Good Poor
 Good

If you have any additional comments or wish to elaborate on any of the above responses, please write them here. Use additional paper if necessary. _____

How did you use the report?

How could we improve our report?

How would you identify yourself? (Select one)

- | | |
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May we contact you about your comments?

Yes: _____ No: _____

Name: _____

Telephone: _____

Thank you for your cooperation in completing this survey.

Major Contributors to the Report

Chester A. Sipsock, Program Director, Financial Audits, Management and Oversight

Carol St. Armand, Program Manager

Bonnie Armstrong, Auditor-in-Charge

William R. Lester, Auditor

Nancy Cipolla, Report Process Manager

Annette Huffman, Program Assistant