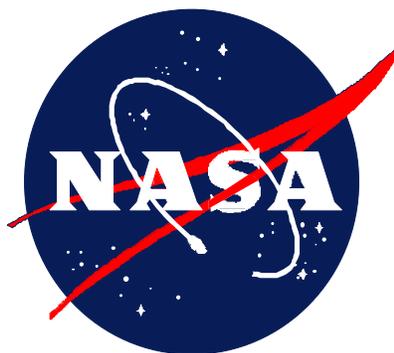


**Office Work Instruction**

HOWI 1000-Y001A  
Effective Date: April 19, 1999

Responsible Office: Y/Office of Earth Science  
**Subject: Develop Enterprise Strategy**

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**OFFICE WORK INSTRUCTION**

**DEVELOP ENTERPRISE STRATEGY**

**(Conforming to ISO 9001 Quality System Requirements)**

<b>Earth Science Enterprise Office Work Instruction</b>		
<b>Develop Enterprise Strategy</b>	<b>HOWI 1000-Y001</b>	<b>Revision: A</b>
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**DOCUMENT HISTORY LOG**

<b>Status (Baseline/ Revision/ Canceled)</b>	<b>Document Revision</b>	<b>Effective Date</b>	<b>Description</b>
Baseline		11/30/98	
Revision	A	4/19/99	<p>Section 4.0: Deleted references not called out in the procedure.</p> <p>Sections 5.0 and 6.0: Added explicit planning activity as Activity 1, and clarified responsibilities. In Activity 6, addressed use of Biennial Review results as an input to this procedure. In Activity 7, clarified ESE Strategic Plan review and approval procedure.</p> <p>Section 7.0: Added NPG 1441.1 reference.</p>

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### PREFACE

The NASA Office Work Instruction (OWI) for Develop Enterprise Strategy documents the tasks and activities in conformance with the International Organization for Standardization's (ISO) 9001 requirements for quality systems. The OWI supplements the *NASA Strategic Plan*, the *NASA Strategic Management Handbook*, and other higher level NASA directives, which form the basis for how NASA conducts business.

This OWI is not intended to duplicate or contradict any other NASA policy, procedures or guidelines, which currently exist. As such, the OWI will reference prevailing documents where a topic is addressed and existing coverage is deemed adequate. Additional information provided within is intended to supplement existing documentation regarding Headquarters (HQ) implementation of strategic and program/project management, as well as HQ conformance with the ISO 9001 Quality Management System (QMS) requirements.

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## 1.0 PURPOSE

This OWI documents the procedure for developing the Earth Science Enterprise (ESE) strategic plan.

## 2.0 SCOPE AND APPLICABILITY

2.1 Scope. This work instruction describes procedures for the NASA Earth Science Enterprise (ESE) strategic planning process. This process involves defining the Enterprise mission, goals, and objectives; developing the Enterprise roadmap; defining science, technology, applications, commercialization, and education requirements and research strategies; and publishing the *Earth Science Strategic Enterprise Plan*. The Plan is reviewed and, as required, updated annually.

ESE strategic planning processes are consistent with and parallel the Agency's strategic planning processes. NPG 1000.2, *NASA Strategic Management Handbook*, describes the Agency and Enterprise strategic planning requirements.

2.2 Applicability. This work instruction for Develop Enterprise Strategy applies to the NASA Office of Earth Science (OES, Code Y) offices and divisions. The Associate Administrator for Earth Science is responsible for maintaining this document. The controlled version of this OWI is available on the World Wide Web (WWW) via the HQ ISO 9000 Document Library at <http://hqiso9000.hq.nasa.gov>. Any printed version of this OWI is uncontrolled (reference: HCP 1400.1, *Document and Data Control*). Proposed revisions will be accomplished by following HOWI 1410-Y015, *Approve Quality Documents*.

## 3.0 DEFINITIONS

Appendix B of the *Earth Science Enterprise Management Handbook* provides ESE-specific terms and definitions.

## 4.0 REFERENCES

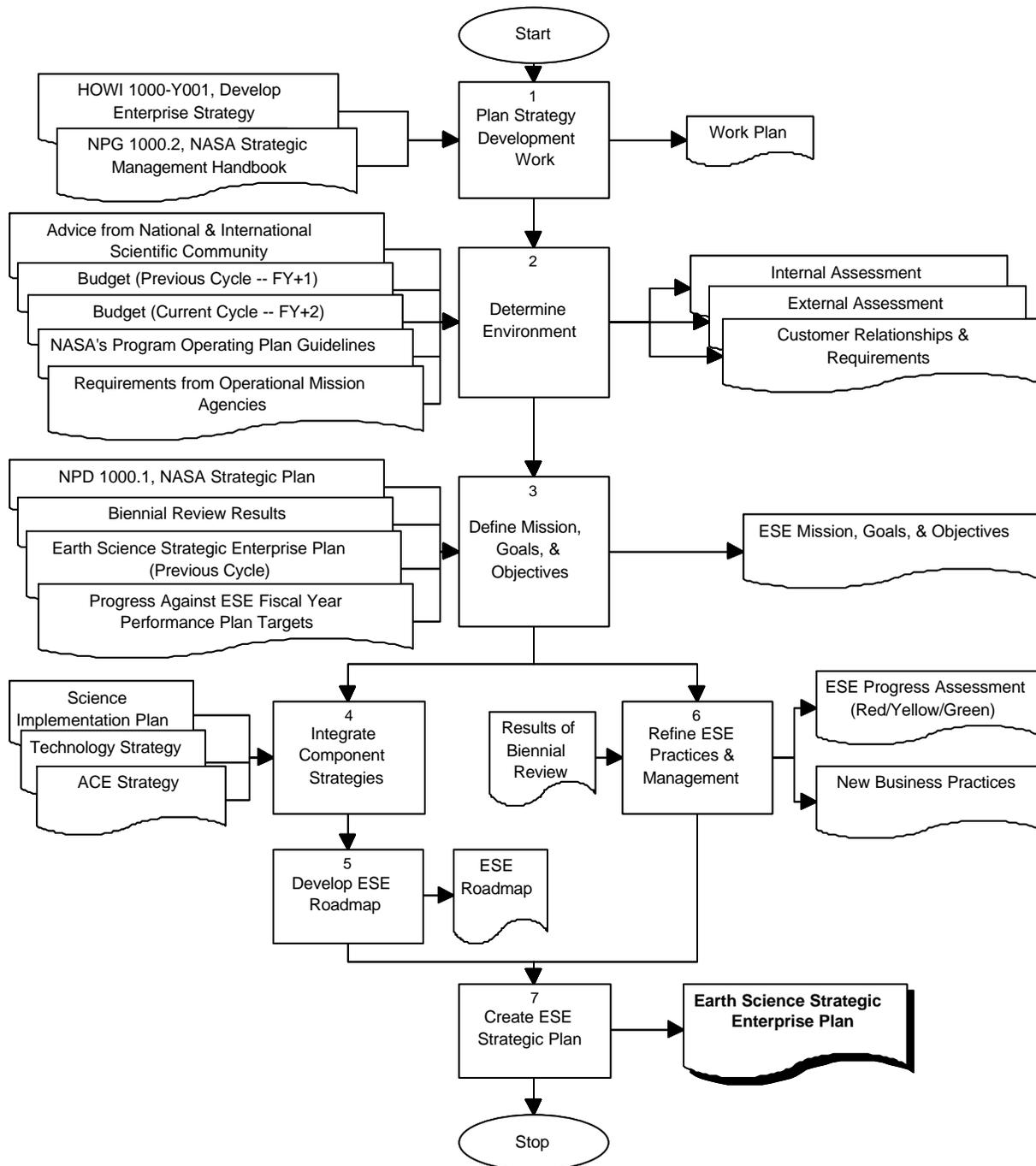
The following documents contain provisions that, through reference in this OWI or in policy or procedure documents, constitute the basis for the documented procedure:

NPD 1000.1	NASA Strategic Plan
NPG 1000.2	NASA Strategic Management Handbook

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## 5.0 FLOWCHART

The following flowchart depicts the procedure described in Section 6. The output in boldface type represents the quality record listed in Section 7.



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## 6.0 PROCEDURE

The following table summarizes the flowchart of Section 5.

<u>Actionee</u>		<u>Action</u>
Lead Strategic Analyst	1	<p><u>Plan Strategy Development Work.</u> The Lead Strategic Analyst from the Office of the Associate Administrator is responsible for ESE strategic planning. The Lead Strategic Analyst plans the activities required to execute this procedure in advance. The work plan documents the required work activities, resources, milestones, and schedule. This planning activity consists of the following steps:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>Identify Required Work Activities.</i> Extract work activities from this procedure documentation and tailor them to the specific needs of the task at hand. Tailor the activities by identifying the necessary resources and milestones. Refer to the <i>NASA Strategic Management Handbook</i> (NPG 1000.2), Section 4.2 for strategic plan content requirements.</li> <li><input type="checkbox"/> <i>Obtain Resources.</i> Involve all affected groups in identifying the resources needed to execute the work, the associated costs, and the work schedule. Form the Earth Science Strategic Planning Working Group.<sup>1</sup></li> <li><input type="checkbox"/> <i>Establish the Schedule.</i> Include the required resources, milestones, and work schedule in the work plan. Refer to the <i>NASA Strategic Management Handbook</i> (NPG 1000.2), Sections 2.2 and 4.2.2 for schedule requirements.</li> </ul>
Earth Science Strategic Planning Working Group	2	<p><u>Determine Environment.</u> Enterprise strategic planning begins with a review of the external and internal environment, including an assessment of customer requirements, to reaffirm or identify issues that may affect the Enterprise and its programs. This activity consists of the following steps:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <i>Understand Customer Relationships &amp; Requirements.</i> Customers are individuals, groups, or organization that rely on ESE products and services to achieve their own goals and objectives. ESE customers include scientific and applications researchers, commercial users of ESE data sets, public and private sector decision makers, the education community, information providers such as libraries and public media, and public and private users of ESE-developed technologies.</li> </ul> <p>ESE identifies scientific and applications communities and public and private sector needs through the interaction of the U.S. Global Change Research Program and through the active involvement of advisory bodies, principally the National Academy of Sciences and the Earth System Science and Applications Advisory Committee.<sup>2</sup></p>

<sup>1</sup> The Earth Science Strategic Planning Working Group is chaired by the Lead Strategic Analyst. Members include Program Managers, Chief Scientists, Policy Analysts, and other personnel as appropriate from the Field Centers and Headquarters divisions.

<sup>2</sup> Appendix A, External Groups, lists and describes these external groups.

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ESE conducts workshops with a broad range of public and private sector users to identify their needs and discuss ways ESE can encourage the market for data and technology. ESE is actively engaged in education forums at all levels to design products and services, such as materials for in-service and pre-service teacher training and Earth System Science curriculum enhancement. These interactions enable ESE to understand its customers and their requirements, and to subsequently set priorities, derive science requirements, and plan the evolution of capabilities needed to meet the requirements.

- Assess External Environment.* This assessment includes identifying factors and issues external to the ESE, that may be beyond the Enterprise's control and may represent opportunities or threats affecting the achievement of ESE goals and objectives. ESE considers the national, international, and Agency environments, including those of the other enterprises.
- Assess Internal ESE Environment.* This assessment includes identifying factors and issues internal to the ESE -- that is, within the Enterprise's control -- that may represent opportunities or threats to achievement of ESE goals and objectives.

Earth Science  
Strategic Planning  
Working Group

- 3 Define Mission, Goals, & Objectives. The Earth Science Strategic Planning Working Group holds a series of planning sessions to assess and revalidate the Enterprise mission, goals, objectives, strategies, key assumptions, and performance indicators. Inputs to these sessions include the *NASA Strategic Plan*, the previous *Earth Science Strategic Enterprise Plan*, results from the previous Biennial Review, progress against ESE performance plan targets, and the internal and external environment description from Activity 2 above. To allow for a full exchange of views, the sessions may include representatives from the Centers, other enterprises, and any functional and staff offices that either contribute to or receive products and services from a particular enterprise.

The mission statement summarizes the Enterprise's accomplishments in fulfilling the NASA vision, its main purpose for existing, and the basic social or political needs that it is to meet. The mission statement addresses the unique products and services that ESE delivers to its customers.

Goals elaborate on the mission statement and constitute a specific set of policy, programmatic, or management outcomes for the programs and operations covered in the Strategic Plan. Goals serve the purpose of further defining ESE's direction, by addressing the critical issues identified during the external assessment.

Objectives are specific milestones and target levels of near-term outputs that are to be achieved during strategic implementation. Each objective relates to a particular goal.

Section 4.2 of NPG 1000.2, *NASA Strategic Management Handbook*, defines the criteria that the Enterprise's goals and objectives should meet.

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- |  |   |  |
|--|---|--|
| Earth Science Strategic Planning Working Group   | 4 | <p><u>Integrate Component Strategies.</u> The Earth Science Strategic Planning Working Group builds ESE strategy from the individual component strategies. The following documents describe these component strategies: the <i>Science Implementation Plan for the Earth Science Enterprise</i>, the <i>Technology Strategy</i>, and from the Applications, Commercialization, and Education (ACE) Division, the <i>Applications Strategy</i> and the <i>Education Strategy</i>. From these documents, the Earth Science Strategic Planning Working Group integrates science questions, themes, and priorities with technology and ACE priorities to formulate overall ESE research strategies. The results of this activity are working-level documents and briefings that feed Activity 5, Develop ESE Roadmap and Activity 7, Create ESE Strategic Plan.</p>  |
| Earth Science Strategic Planning Working Group   | 5 | <p><u>Develop ESE Roadmap.</u> The Earth Science Strategic Planning Working Group develops a one-page strategic roadmap. The purpose of the roadmap is to extend the planning horizon from the five (5) year budget cycle to 25 years. It is based on NASA's mission statement and delineates the near-, mid-, and long-term goals for the Agency and the Enterprise. It defines where the Enterprise wants to be in 25 years, and what it needs to be doing to get there. It is a time-phased mapping of the Enterprise's goals, objectives, and relevant programs.</p> <p>The preliminary ESE Roadmap provides a long-term planning horizon to the planning aspects of Activity 7, Create ESE Strategic Plan.</p>  |
| Research Division Theme Leaders<br><br>Applications, Commercial, and Education (ACE) Division Director | 6 | <p><u>Refine ESE Practices and Management.</u> Through this activity, the ESE continually refines its business and management practices. The activity includes the following steps:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <u>Assess ESE's Progress.</u> The ESE divisions perform a qualitative assessment of the Enterprise's progress in meeting near-term science requirements associated with the themes outlined in the ESE Strategic Roadmap. The assessment considers each theme individually and provides a summary evaluation (Green/Yellow/Red) of overall progress and coverage of requirements by related programs. "Green" indicates that the coverage by related programs is adequate to meet the <i>Science Implementation Plan</i> requirements. "Yellow" indicates that planned program coverage will meet some requirements and enable important research, but may highlight concern that an objective cannot be fully accomplished as planned. "Red" signifies that the planned program coverage will meet few, if any requirements; that it is unfunded; that important research is undone; or that events have occurred (such as the failure of a mission critical to an objective) that would prevent or severely hinder the accomplishment of the objective as planned.</li> <li><input type="checkbox"/> <u>Identify New Ways of Doing Business.</u> The Associate Administrator occasionally promulgates new policy governing Enterprise practices. The Strategic Planning Working Group summarizes any new policies for incorporation into the Enterprise Strategic Plan.</li> </ul> |
| Earth Science Strategic Planning Working Group   |   |  |

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Program Planning & Development Division Director

Based on the opportunities identified during environmental assessments or in the Biennial Review<sup>3</sup>, the Program Planning & Development Division Director may select new, or identify modifications to, Enterprise practices and procedures. The Director summarizes these new ways of doing business for inclusion in the ESE Strategic Plan and for future implementation.

Earth Science Strategic Planning Working Group  
Associate Administrator  
Business Management Division

7 Create ESE Strategic Plan. In this activity, the Earth Science Strategic Planning Working Group uses the results of the other activities to assemble, review, and distribute the ESE Strategic Plan. The *Earth Science Strategic Enterprise Plan* is finalized after completion of the *NASA Strategic Plan* and forms the foundation for the development of the Enterprise Associate Administrator's *Performance Plan* and the Enterprise's annual budget. It becomes a key input to the Plan Science Research and Formulate the ESE Budget processes.

This activity includes the following review and distribution tasks:

- Review Draft Strategic Plan.* The Field Centers may review and provide comments, as appropriate. The Office of Policy and Plans reviews the Plan for consistency with the *NASA Strategic Plan* and other enterprise plans. The working group may develop and present summaries of the Plan to various advisory committees, NASA Advisory Council's Earth System Science and Applications Advisory Committee, selected National Research Council boards and committees, and/or other representatives of the NASA earth science community. The working group factors in constructive comments.
- Submit Plan for Associate Administrator Approval.* The working group submits the Plan to the Enterprise Associate Administrator for approval. The ESE Associate Administrator's approval process includes review of the Plan by the ESE Associate Administrator's Control Board to ensure full enterprise concurrence and commitment. Also, while the Administrator's signature is not required, the ESE Associate Administrator reviews the Plan with the NASA Administrator prior to the Associate Administrator's approval of the Plan.
- Publish & Distribute Strategic Plan.* The ESE Business Management Division distributes the final Earth Science Strategic Enterprise Plan in hardcopy and electronic formats.

<sup>3</sup> The Biennial Review provides regular assessments of scientific and technological advances for incorporation into ESE missions. It also provides an explicit opportunity to canvas the commercial, interagency, and international communities to identify new partnership opportunities. The review includes ESE program performance assessment activities as well as strategic planning aspects.

NASA personnel conduct the Biennial Review with the assistance of panels of experts on selected topics such as atmospheric chemistry and information systems. In any given area, the team evaluates the degree to which the Enterprise is meeting its objectives, looks ahead to identify risks, and makes recommendations for improvement. An independent, external review panel assesses the Biennial Review Team's preliminary recommendations. The team presents the results to the Earth System Science and Applications Advisory Committee and the NASA Advisory Council. Decisions made in the course of the Review influence the majority of ESE process areas. In particular, the decisions are included in the preparation of ESE's budget submittal.

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## 7.0 QUALITY RECORDS

RECORD IDENTIFICATION	OWNER	LOCATION	MEDIA Electronic or Hardcopy	SCHEDULE AND ITEM NUMBERS*	RETENTION / DISPOSITION
Earth Science Strategic Enterprise Plan	Senior Policy Analyst	Business Management Division Files	Hardcopy	Schedule 7, Item 4, "R&D Long Range Planning Files," paragraph A.	Permanent.  Retire to Federal Records Center 5 years after supersession or completion. Transfer to National Archives and Records Administration when 10 years old.

\* Quality Records are retained in accordance with the referenced schedule and item numbers from NPG 1441.1, *NASA Records Retention Schedules*.

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## APPENDIX A. EXTERNAL GROUPS

ESE obtains information, advice, and guidance via conferences, workshops, information exchange meetings, and reports from the following organizations:

- ❑ *Committee on the Environment and Natural Resources (CENR), Subcommittee on Global Change Research (SGCR)*. This subcommittee coordinates the U.S. Global Change Research Program (USGCRP). The U.S. Global Change Research Program is an interagency effort to understand the processes and patterns of global change. ESE is NASA's contribution to this program. The major inputs to the ESE Strategic Planning process from this subcommittee are the annual science priorities and science plan reports.
- ❑ *National Academy of Sciences/National Research Council (NAS/NRC)*. The Academy conducts a wide range of reviews through, for example, the Board on Atmospheric Sciences and Climate (BASC), and provides advice on research priorities to ESE. ESE also works closely with the Academy's Board on Sustainable Development<sup>4</sup>, which governs its environment and natural resources work, and the Space Studies Board which deals with issues of space programs. The major inputs to the ESE Strategic Planning process from the Academy are reports as requested by ESE.
- ❑ *NASA Advisory Council's Earth System Science and Applications Advisory Committee (ESSAAC)*. The ESSAAC works closely with ESE managers to ensure that ESE program planning and direction are consistent with the Enterprise's mission, national priorities, and interests of ESE commercial and international partners. Various ESSAAC Subcommittees address ESE-related topics. For example, the ESSAAC Technology Subcommittee provides advice and recommendations to the NASA Advisory Council, through the ESSAAC, on the relationships between ESE science goals and potential solutions. This Subcommittee consists of individuals from universities, other federal agencies and laboratories, and private industry. The major inputs to the ESE Strategic Planning process from the ESSAAC are the recommendations provided in letters from the ESSAAC Chair to the NASA Advisory Council.

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<sup>4</sup> Sustainable Development -- economic development that meets the needs of the present without compromising the ability of future generations to meet their own needs.