**NASA Procedural Requirements**

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**COMPLIANCE IS MANDATORY**

# Requirements for Documentation, Approval, and Dissemination of NASA Scientific and Technical Information

## Responsible Office: Office of the Chief Information Officer

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# Preface

## P.1 Purpose

In accordance with the National Aeronautics and Space Act of 1958, as amended, NASA shall "provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof." Unless a determination is made that public dissemination of information must be prohibited or restricted, NASA information is made available to the public. This NASA Procedural Requirements (NPR) identifies requirements for approving, publishing, and disseminating NASA scientific and technical information (STI) under the policy set forth in NASA Policy Directive (NPD) 2200.1, Management of NASA Scientific and Technical Information (STI).

## P.2 Applicability

This NPR is applicable to NASA Headquarters, NASA Centers and Component Facilities, and NASA contractors and grantees that elect or are required under the terms of their contracts or grants to have their STI reviewed and/or published by NASA. In this NPR, the terms "grant" and "grantee" include "cooperative agreement" and "cooperative agreement recipient," respectively, unless otherwise indicated.

## P.3 Authorities

42 U.S.C. 2473 (c)(1), Section 203(c)(1) of the National Aeronautics and Space Act of 1958, as amended

NPD 2200.1, Management of NASA Scientific and Technical Information (STI)

## P.4 References

5 U.S.C. 552, et seq., Freedom of Information Act, as implemented by 14 CFR Part 1206, Availability of Agency Records to Members of the Public

15 U.S.C. 3704b-2, the American Technology Preeminence Act, as implemented by 15 CFR 1180

22 U.S.C. 2751 et seq., Arms Export Control Act, as implemented by the International Traffic in Arms Regulations, 22 CFR Parts 120-30

35 U.S.C. 200 et seq., Patent Rights in Inventions Made With Federal Assistance, as implemented by the Federal Acquisition Regulations, Subpart 27.3

40 U.S.C. 1401, et seq., Section 808 of Public Law 104-208, the Clinger-Cohen Act of 1996 [renaming, in pertinent part, the Information Technology Management Reform Act (ITMRA), Division E of Public Law 104-106]

44 U.S.C. § § 3501 et seq., Paperwork Reduction Act of 1995 (Public Law 104-13), as amended

44 U.S.C. 3601 et seq., E-Government Act of 2002 (Public Law 107-347), as amended

50 U.S.C. 2401-2420, Export Administration Act of 1979, as amended and as implemented by the Export Administration Regulations, 15 CFR Parts 730-774

PL 105-220, Title IV of the Rehabilitation Act, Subsection 508

Digital Millennium Copyright Act of 1998, October 28, 1998

36 CFR Chapter 12, NARA Regulations, Subchapter B - Records Management, Part 1230 Micrographics

48 CFR, Chapter 18, NASA FAR Supplement (NFS)

OMB "Guidelines for Ensuring and Maximizing the Quality, Objectivity, Utility, and Integrity of Information Disseminated by Federal Agencies (February 22, 2002)"

OMB Circular A-102, "Grants and Cooperative Agreements with State and Local Governments"

OMB Circular A-110, "Uniform Administrative Requirements for Grants and Agreements With Institutions of Higher Education, Hospitals, and Other Non-Profit Organizations"

OMB Circular A-130, "Management of Federal Information Resources"

NPD 1050.1, Authority To Enter Into Space Act Agreements

NPD 1383.1, Release and Management of Audiovisual Products and Services

NPD 1440.6, NASA Records Management

NPR 1441.1, NASA Records Retention Schedules

NPR 1450.10, NASA Correspondence Management and Communications Standards and Style

NPD 1490.1, NASA Printing, Duplicating, Copying, Forms, and Mail Management

NPR 1490.5, NASA Procedural Requirements for Printing, Duplicating, and Copying Management

NPR 1600.1, NASA Security Program Procedural Requirements

NPD 2110.1, Foreign Access to NASA Technology Transfer Materials

NPD 2190.1, NASA Export Control Program

NPD 2200.1, Management of NASA Scientific and Technical Information (STI)

NPD 2210.1, External Release of NASA Software

NPR 2210.1, External Release of NASA Software

NPR 2810.1, Security of Information Technology

NPR 5100.4, Federal Acquisition Regulation Supplement (NASA/FAR Supplement) [48 CFR 1800-1899]

NPR 5800.1, Grant and Cooperative Agreement Handbook (14 CFR 1260), Parts 1260, 1273, and 1274

NPD 8010.2, Use of the SI (Metric) System of Measurement in NASA Programs

NPD 8070.6, Technical Standards

American National Standards Institute (ANSI)/National Information Standards Organization (NISO) Z39.18, "Scientific and Technical Reports--Preparation, Presentation and Preservation"

ANSI/NISO Z39.23, "Standard Technical Report Number (STRN) Format and Creation"

NASA Graphics Standards, URL: http://www.hq.nasa.gov/office/pao/insignia/

NASA Information Technology Requirement (NITR)-2810-3, "NASA Internet Publishing Content Guidelines"

# P.5 Cancellation

NPR 2200.2A, Requirements for Documentation, Approval, and Dissemination of NASA Scientific and Technical Information, dated September 3, 1997

**/S/**
**Patricia L. Dunnington**
**Chief Information Officer**

# Chapter 1. Publication and Dissemination of NASA STI

## 1.1 Purpose and Caveats

1.1.1 Application. This NPR applies to all STI published, disseminated, and presented by or on behalf of NASA that contains NASA-sponsored or -funded STI except as excluded in section 1.2.4.

1.1.2 Chapter Overview. This chapter defines scientific and technical information (STI), delineates responsibilities associated with the publication and dissemination of STI, and provides an overview of NASA's process for approving, publishing, and disseminating the results of NASA's STI activities. The associated requirements are detailed in the following chapters. See Appendix A for acronyms and definitions of terms used in this NPR.

1.1.3 Acquisition and Grant Regulations. Any restrictions or limitations placed on NASA contractors or grantees regarding the publication, dissemination, or presentation of STI produced under a contract or grant must be consistent with the Federal Acquisition Regulations (FAR) and NPR 5100.4, Federal Acquisition Regulation Supplement (NASA/FAR Supplement), for contracts and the Grant and Cooperative Agreement Handbook (NPR 5800.1) for grants.

1.1.4 Classified STI. Information protected for national security reasons under appropriate security classification must be treated in accordance with NPR 1600.1, NASA Security Program Procedural Requirements, and NPR 2810.1, Security of Information Technology. NASA Centers are responsible for handling and storing classified STI. Once STI documents have been de-classified and are marked accordingly, a copy should be sent to the NASA Center for AeroSpace Information (NASA CASI, see http://www.sti.nasa.gov).

1.1.5 Technology Commercialization Procedures. For additional procedures that relate to technology commercialization materials and computer programs, see NPD 2110.1, Foreign Access to NASA Technology Transfer Materials, NPD 2210.1, External Release of NASA Software, and NPR 2210.1, External Release of NASA Software.

1.1.6 Export Control Restrictions. For additional procedures that relate to export-controlled information and for STI that is to be disseminated to foreign persons, see NPD 2190.1, NASA Export Control Program and NPR 2190.1, NASA Export Control Program.

## 1.2 NASA STI Defined

1.2.1 STI is defined as the results (facts, analyses, and conclusions) of basic and applied scientific, technical, and related engineering research and development. STI also includes management, industrial, and economic information relevant to this research.

1.2.2 NASA STI is STI derived from NASA activities, including those generated by NASA-sponsored or -funded research and development and related efforts, where NASA has the

right to publish or otherwise disseminate the STI. NASA STI may be produced directly by NASA or under NASA contracts, grants, and agreements. For example, NASA STI includes STI authored by a NASA employee as part of the employee's official duties, STI co-authored by a NASA employee and a non-NASA employee, and STI authored by a NASA contractor or grantee employee in which NASA has the right to publish or otherwise disseminate the STI.

1.2.3 NASA STI is published or disseminated using mechanisms that include the NASA STI Report Series, NASA websites, and non-NASA scientific and technical channels such as professional society journals, conference presentations, or conference proceedings. NASA STI may include technical papers and reports, journal articles, meeting, workshop, conference papers and presentations, conference proceedings, and preliminary or non-published STI, including any of these examples that will be loaded to a public website or are in multimedia formats.

1.2.4 The following information is excluded from this NPR:

a. Information published in policy documents such as NASA directives and NASA Technical, Engineering, or Safety Standards (NPD 8070.6, Technical Standards)
b. Information published as a result of mishap investigations (NPR 8621.1, NASA Procedural Requirements for Mishap Reporting, Investigating, and Recordkeeping)
c. Proposal information marked with confidentiality notices furnished to NASA by contractors or grantees
d. New Technology Reports (NTR)/Invention Disclosures. Note: While NTRs are not defined as STI, STI may include information that discloses an invention so it must be handled appropriately

# 1.3 Responsibilities for NASA STI

1.3.1 NASA Chief Information Officer (CIO). As specified in NPD 2200.1, Management of NASA Scientific and Technical Information (STI), NASA's CIO shall plan for and manage implementation of the Agency STI program; assess the effectiveness of the Agency STI program; designate the NASA Headquarters STI program Director; designate an STI program office (STIPO); and review and approve the STIPO plan and implementation.

1.3.2 NASA Officials-in-Charge. NASA Officials-in-Charge (OICs) shall ensure that activities under their cognizance comply with NPD 2200.1 and this NPR, applicable laws and regulations, and other referenced direction related to NASA STI.

1.3.3 NASA Headquarters STI Program Director. The STI Program Director is responsible for determining the strategic direction and plan for the STI program, allocating funds for the STIPO, and coordinating and approving the Agency's STI policies with the NASA CIO and OICs.

1.3.4 STIPO. The STIPO shall coordinate with Agency officials to establish STI policy; conduct domestic and international external STI liaison, including the negotiation of all external STI agreements (in conjunction with and executed by the Office of External Relations pursuant to NPD 1050.1); operate and manage a relevant and cost-effective Agencywide STI program; consider alternative approaches to STI models by conducting appropriate technical, service, and cost-comparison studies; implement the approved STI program; coordinate the development of each NASA Center's unique STI capabilities; evaluate and approve NASA Center STI proposals; allocate resources for approved NASA Center STI proposals, if appropriate; coordinate the development, operation, and maintenance of a virtual electronic research collection of NASA STI; appoint personnel to serve on Agency level teams pertinent to STI; oversee operation and maintenance of the NASA CASI, a contractor facility, and/or any successor facilities, systems, partnerships, or

institutes; develop metrics for NASA STI functions; and develop and maintain NASA policies pertaining to STI. These responsibilities are documented in a signed Cost, Schedule, and Performance Agreement (CSPA) between the NASA CIO and the Center that manages the STIPO.

1.3.5 NASA Center Directors. NASA Center Directors and the equivalent position at NASA Headquarters shall ensure that all STI activities under their cognizance are performed in accordance with NPD 2200.1, this NPR, pertinent laws and regulations, and referenced documents. Each Center Director and Headquarters equivalent shall designate individual(s) to serve as the Center STI Manager and as the Center/Headquarters Document Availability Authorization (DAA) representative.

1.3.6 Center STI Managers. Each Center STI Manager shall ensure that the Center is aware of requirements outlined in NPD 2200.1 and this NPR. The Center's STI Manager shall ensure that the Center documents the number, type, title, author(s), and availability of NASA STI that is published, disseminated, or presented external to NASA (or presented at internal meetings or conferences at which foreign nationals may be present). The Center STI Manager shall also ensure that the Center submits STI, with a copy of the approved NASA Form (NF) 1676, NASA Scientific and Technical Information (STI) Document Availability Authorization (DAA), or the Center equivalent of this form, to NASA CASI. If STI originates under a NASA contract, the Center STI Manager shall coordinate with and ensure that the Contracting Officer (CO) and Contracting Officer's Technical Representative (COTR) are notified of the required submission of STI to NASA CASI. A Headquarters representative shall provide the above services for Headquarters personnel.

1.3.7 Center DAA Representatives. Each Center DAA representative shall coordinate with the Center's authors, STI Manager, COs, COTRs, and managers who approve STI to track, keep on file (in accordance with NPR 1441.1, NASA Records Retention Schedules), and transfer copies of the NF-1676 and its associated STI, after approval, to NASA CASI so that a permanent record is maintained. A Headquarters representative shall provide the above services for Headquarters personnel.

1.3.8 Managers Who Approve STI at the Centers. Center program and/or project managers shall ensure that STI in their areas of responsibility receives appropriate management and technical review through the NF-1676 or Center equivalent form prior to the STI being published, disseminated, or presented external to NASA (or presented at internal meetings or conferences at which foreign nationals may be present). Managers who approve STI shall coordinate their efforts with the Center's DAA representative, COs, COTRs, and STI Manager, as appropriate. This requirement also applies to Headquarters.

1.3.9 COs and COTRs. The CO shall receive the final reports and additional reports required by the contract from contractors and shall submit the reports to the COTR for review and acceptance. The COTR shall coordinate with the Center STI Manager regarding publication issues. The COTR shall ensure that the final report and other reports received from contractors undergo a DAA review if the Center elects to publish, disseminate, or present the STI external to NASA or present it at internal (i.e., on-site within NASA) meetings or conferences at which foreign nationals may be present. COTRs are also responsible for sending a copy of the DAA-approved STI to the STI Manager and/or DAA representative (who will ensure that the STI and a copy of the approved DAA are sent to NASA CASI) and for complying with Center procedures for notifying the contractor if and when the STI is approved for publication by NASA. This requirement also applies to Headquarters.

1.3.10 Authors and Originators of NASA STI. All authors and originators of STI, including NASA personnel, contractors, and grantees, shall coordinate with appropriate managers and the Center's STI Manager (or in the case of Headquarters, the Headquarters STI Manager) and Technical Publications Office to select the appropriate channel to publish their STI.

1.3.10.1 Authors and originators of NASA and NASA-funded STI, including electronically published STI, are responsible for ensuring that the NASA STI subject to review is reviewed at the appropriate organizational level for technical accuracy, quality, and integrity; conformance with laws and regulations governing its distribution, including copyright, export control, and other restrictions; and conformance with policy and publications standards before it is published, disseminated, or presented external to NASA (or presented at internal meetings or conferences at which foreign nationals may be present). NASA authors, in coordination with appropriate officials, shall also ensure that an NF-1676 or Center equivalent form is completed before NASA STI is published, disseminated, or presented external to NASA (or presented at internal meetings or conferences at which foreign nationals may be present).

1.3.10.2 All NASA personnel, contractors, and grantees, to the extent specified in their contracts or grants, are responsible for providing a copy of the results of their basic and applied research and development to NASA so that the results can be included in the NASA Aeronautics and Space Database ( http://www.sti.nasa.gov).

1.3.11 NASA Center for AeroSpace Information (NASA CASI). NASA CASI is NASA's contractor facility that acquires, organizes, and disseminates NASA STI and, through the National Archives and Records Administration (NARA), archives NASA STI. NASA CASI also submits unclassified/unlimited NASA STI to the Government Printing Office (GPO), the Superintendent of Documents, the Federal Depository Libraries, and the National Technical Information Service (NTIS). NASA CASI maintains the STI website at http://www.sti.nasa.gov and an STI Help Desk (e-mail: help@sti.nasa.gov) and provides other products and services for NASA related to STI content management of research and development information.

1.3.12 NASA Records Managers. NASA Records Managers are responsible for sending the original or a copy of all NF-1676s or the Center equivalent of this form to NASA CASI after the Center has fulfilled its records retention requirements for these forms. This enables NASA CASI to maintain a permanent record of the STI approval process and distribution requirements in the document's casefile (i.e., archive of document).

# 1.4 Review, Approval, and Dissemination of NASA STI

1.4.1 NASA publishes and disseminates NASA STI through a variety of channels. These channels include journals, presentations at meetings or workshops, and the NASA STI Report Series. NASA STI may also be electronically disseminated through these channels. All NASA STI, regardless of channel or media, that is intended for an audience external to NASA (or STI presented at internal conferences or meetings at which foreign nationals may be present) is subject to review and approval prior to its publication, dissemination, or presentation by or for NASA.

1.4.2 The technical review and management approval requirements vary depending upon the information content, publication channel, and/or audience (i.e., foreign or domestic). However, all NASA STI subject to review is required to be approved via the DAA review process (using NF-1676 or a Center equivalent form) prior to being published, disseminated, or presented external to NASA (or presented at internal meetings or conferences at which foreign nationals may be present).

1.4.3 Published NASA STI must undergo, at a minimum, a technical review and a DAA review documented by NF-1676 and, if intended for the STI Report Series, must include a standard front cover, title page, and Standard Form (SF) 298 (Report Documentation Page). (See Appendix A.)

1.4.4 Additional requirements are currently in place for STI that is published and disseminated

outside NASA via the public Internet. See NASA Information Technology Requirements (NITR)-2810-3, "NASA Internet Publishing Content Guidelines."

# 1.5 Selection of Publication Channels

1.5.1 NASA and NASA-sponsored authors shall publish, as appropriate, in the NASA STI Report Series as well as in non-NASA channels such as society journals, trade journals, oral presentations to professional societies, and proceedings of scientific and technical conferences and workshops. Initial selection of the appropriate channel (Appendix B) is made by authors in consultation with their technical management and Center Technical Publications Office and is based on the content of the document and intended readership. The selection is subject to review as part of the Center review process. See section 3.4.2 for guidance concerning duplicate publication.

1.5.2 NASA STI Report Series. The NASA STI Report Series comprises six types of publications which are described in detail in Chapter 2.

a. Technical Publication (TP)
b. Technical Memorandum (TM)
c. Contractor Report (CR)
d. Conference Publication (CP)
e. Special Publication (SP)
f. Technical Translation (TT)

1.5.3 NASA Contractor-, Grantee-, and Cooperative-Agreement-Produced Reports. If specified in the contract, grant, or cooperative agreement, NASA requires its contractors, grantees, or cooperative agreement recipients to submit a final report of their work as a deliverable; this report shall provide appropriate acknowledgement of NASA support and identify the contract(s), grants(s), or agreement(s) involved. See NASA FAR Supplement (NFS), sections 1804, 1827, 1835, 1852, and NPR 5800.1, Grant and Cooperative Agreement Handbook (14 CFR 1260), sections 1260.22, 1260.75, 1260.151, 1274.921, and 1274.933. NASA may elect to publish the final versions of these reports in the NASA CR series. NASA may also decide to select a report authored by a contractor, grantee, or cooperative agreement recipient for publication in another series. Such reports must meet all criteria for the selected series and must be reviewed and approved at the level(s) required for that series. Chapter 4 details review and approval processes for these reports.

1.5.4 Oral Presentations at Conferences and Workshops. NASA and NASA-sponsored authors who conduct oral presentations of scientific and technical findings at conferences and workshops may distribute copies of their NF-1676-reviewed and -approved presentation to attendees. Where appropriate, they shall also publish their presentations in the NASA STI Report Series to ensure their work is captured in the NASA Aeronautics and Space Database and the NASA Technical Report Server, its public interface, as appropriate. Chapter 3 includes detailed requirements pertaining to symposium presentations and external publications.

# 1.6 Storage, Retention, and Archiving of NASA STI

1.6.1 All NASA and NASA-funded personnel shall ensure that their work is documented and archived for future use. Following approval via the NF-1676 process, one electronic version (required) and one hard copy (not required, but requested) of NASA and NASA-funded STI shall be sent to NASA CASI via the Center's STI Manager or designated organization. For alternative media, as identified in section 2.6.3, two copies are required. These requirements apply to the STI Report Series, articles submitted to professional journals, papers presented at technical meetings,

visuals-only presentations, and meeting papers that have not been included in NASA CPs. In addition, NASA personnel who retire from or leave the Agency for other reasons must arrange for their documented STI and the NF-1676 to be approved and sent to NASA CASI through the Center's STI Manager.

1.6.2 If an author chooses to place NASA STI on a NASA website that is accessible to the public, it must be approved via the NF-1676 review and website content reviews specified in NITR-2810-3, "NASA Internet Publishing Content Guidelines," prior to being added to the website. The information must also be duplicated via computer back-up storage by the author or website owner and when removed from the website, submitted to NASA CASI for archiving.

1.6.3 NASA contractors and grantees must submit STI that stems from NASA-funded contracts, grants, and cooperative agreements, pursuant to the requirements of the NASA FAR Supplement or Grant and Cooperative Agreement Handbook and their contracts or grants.

1.6.4 NASA CASI automatically archives the STI that it receives in appropriate formats, as identified in sections 2.5.14 and 2.6. If alternative formats are used that NASA CASI cannot archive, authors may be asked to provide additional copies or other formats that can be archived for long-term retention. NASA CASI provides on- and off-site storage for its database and full-text versions of STI in addition to sending appropriate (unclassified/unlimited) archive information to the NARA, GPO (hence the Superintendent of Documents and the Federal Depository Libraries), the NASA libraries, and NTIS. Authors should also contact their Center's Technical Publications and Records Managers to determine if additional archiving requirements exist for their Center.

1.6.5 NASA Centers are required by NARA to keep copies of their NF-1676s or Center equivalent forms on file for a minimum of 5 years unless required for an alternative or longer period because of the nature of the information or the cognizant Center's records retention schedules. If a Center decides to destroy these forms after this time, the original or a copy of the NF-1676 or Center equivalent forms must first be sent to NASA CASI to ensure long-term retention.

# 1.7 Reproduction, Duplication, and Printing of NASA STI

1.7.1 Reproduction, duplication, or printing of NASA STI Report Series and other NASA STI is accomplished through NASA Headquarters and Center Publications Offices using NASA duplicating/copying facilities or regional GPOs in accordance with NPD 1490.1, NASA Printing, Duplicating, Copying, Forms, and Mail Management. However, the primary emphasis remains on electronic formats rather than hard copy formats. See section 5.3.1.

# 1.8 Dissemination of NASA STI

1.8.1 NASA STI Report Series; conference, meeting, and symposia presentations; and external publications receive the widest practicable and appropriate dissemination by NASA. NASA CASI has primary responsibility to distribute NASA STI. Authors should contact their Center Technical Publications Office for information on additional author-initiated distribution because some restrictions and approvals apply, especially on restricted/limited information.

1.8.2 Unless restricted for reasons explained in Chapter 4, NASA STI is distributed to NASA Center libraries; to domestic and international organizations, corporations, and universities that are registered to receive NASA STI publications; to NASA Center-identified authors, conference registrants, and interested members of organizations or groups; and, where appropriate, to the general public, NTIS, and GPO (and Superintendent of Documents and Federal Depository Libraries). NASA CASI announces the availability of NASA STI publications in a variety of

national and international channels and media. Bibliographic citations describing NASA STI publications are added to the NASA Aeronautics and Space Database and a subset are added to the NASA Technical Report Server. NASA CASI also serves as the historical repository for NASA-funded publications that it receives. For additional information, see Chapter 5.

1.8.2.1 Authorization of Foreign Dissemination of NASA STI. Authors who wish to publish STI through non-U.S. channels must follow the requirements for the NF-1676 in addition to getting approval by the Office of External Relations if the document involves a Designated Area (see NPR 1450.10, NASA Correspondence Management and Communications Standards and Style, Appendix D ("Foreign Correspondence")). The Office of External Relations will review and clear the correspondence package that is intended for a Designated Area.

# Chapter 2. NASA STI Report Series

## 2.1 Purpose

2.1.1 All significant scientific and technical findings derived from NASA activities are distributed or disseminated either in one of the NASA STI Report Series defined in this chapter or through suitable non-NASA scientific and technical channels. This chapter provides the standards for publication of NASA STI in the NASA STI Report Series. See Chapter 3 for a discussion of publication of NASA STI through professional journals and similar periodicals or via the proceedings of conferences, symposia, and workshops.

## 2.2 Assigning Publications to the NASA STI Report Series

2.2.1 NASA STI Report Series Types. The NASA STI Report Series comprises six types of publications. These are described in detail in section 2.3:

a. Technical Publication (TP)
b. Technical Memorandum (TM)
c. Contractor Report (CR)
d. Conference Publication (CP)
e. Special Publication (SP)
f. Technical Translation (TT)

2.2.2 STI Processing. NASA indexes and catalogues the STI Report Series documents into the NASA Aeronautics and Space Database and its public interface, the NASA Technical Report Server, as appropriate, and ensures (through NASA CASI) that these documents are archived at NARA. The STI Report Series also gains wide dissemination, as appropriate.

2.2.3 Electronic Copy. NASA requires that an electronic copy or URL (and requests that a hard copy) of all NASA STI Reports Series be submitted to NASA CASI through the Center STI Manager or delegated Center organization. All NASA-funded STI must be reviewed via NF-1676, or a Center equivalent form, prior to it being published, disseminated, or presented external to NASA (or presented at internal meetings or conferences at which foreign nationals may be present). NASA STI Report Series that are sent to NASA CASI without notification of a DAA review will be held until appropriate release notification is received. After several attempts to obtain a DAA, NASA CASI will limit STI to NASA personnel only until a DAA is received. See Chapter 4 for more information on the review and approval process for STI.

2.2.4 Basis for Series Selection. Selection of the correct series in which a document is published is based on its content. See section 1.5 and Appendix B for guidelines on series selection. The author makes the preliminary determination in conjunction with technical management or the COTR (if applicable) and the Center Technical Publications Office. Selection is subject to approval as part of the Center review process.

2.2.5 Report Series Number Assignment

2.2.5.1 When the series is selected and approved, the publication is assigned a NASA report number. Authors contact their Center's Technical Publications Office to obtain a number from NASA CASI, which is NASA's repository for STI. The report number is prefixed by the Agency acronym and the two-letter abbreviation that indicates the series. Examples include NASA/CP--2005-123456 and NASA/TM--2005-123456.

2.2.5.2 For documents that are published in English and another language, use the same NASA number but add the language in parentheses (e.g., NASA/TP--2005-123456 (in English); NASA/TP--2005-123456 (in Russian)).

2.2.6 STI Work Undertaken for Another Government Agency, Company, or University

2.2.6.1 When a NASA employee or person performing under a NASA contract or grant works with or undertakes work for another Government agency, they should report their scientific and technical findings in the NASA STI Report Series. Appropriate indication of the joint project or sponsorship should be given on the cover, title page, and SF-298, Report Documentation Page (RDP). Such publication does not preclude the other governmental agency from publishing the work in its own series.

2.2.6.2 In situations in which a NASA employee or person performing under a NASA contract or grant works with or undertakes work with a company or university and the company or university publishes the results, authors should indicate NASA's support on the title page or first page of the work.

2.2.7 STI-Related Work Funded by One Center and Performed by Another

2.2.7.1 When NASA work is sponsored or funded by one NASA Center and performed by another NASA Center, the scientific and technical findings should be reported in the NASA STI Report Series. The Center performing the work is responsible for approval, production, and issuance of the document. Appropriate indication of sponsorship is given on the cover, title page, and the RDP (SF-298).

# 2.3 Description of the NASA STI Report Series

2.3.1 For additional information regarding the selection of a report series, see Appendix B, "Types of NASA Publications and Related STI Report Series."

2.3.2 Technical Publication (TP)

2.3.2.1 This series comprises reports of completed research or of a significant phase of research that presents the results of NASA programs. TPs usually include extensive data or theoretical analysis, but they may also be compilations of significant scientific and technical data or information deemed to be of continuing reference value. TPs are the NASA counterpart to peer-reviewed formal professional papers but have less stringent limitations on manuscript length and extent of graphic presentations. In addition to reports documenting research, the types of documents assigned to this series include the following:

a. Bibliographies of STI literature in defined subject areas with abstracts and/or extensive annotation.
b. Technical handbooks, critical tables, and extensive data compilations.
c. Design standards. Authors should also document their design standards in the NASA Technical Standards Program, in accordance with NPD 8070.6, Technical Standards.

d. Scientific and technical textbooks and manuals.
e. State-of-the-art summaries, including critical reviews or surveys of a body of scientific or technical literature.
f. Technical reports or monographs that provide complete and comprehensive treatment of significant contributions to scientific and technical knowledge or a critical evaluation of selected, previously published research.

2.3.3 Technical Memorandum (TM)

2.3.3.1 This series records scientific and technical findings that are preliminary or of specialized interest, e.g., "quick-release" reports, working papers, and bibliographies that contain minimal annotation. TMs do not contain extensive analysis. The types of documents assigned to this series include:

a. Preliminary data ("quick-release" reports).
b. Working papers for professional peers beyond the basic work unit or for external circulation.
c. Individual papers prepared for presentation at or preprints for professional meetings or symposia which may or may not be published later in proceedings or journals.
d. Preliminary proceedings of professional meetings or symposia sponsored or cosponsored by NASA. When the proceedings are not complete, the extent of the content, e.g., "abstracts only" or "primarily viewgraphs," is indicated in the Supplementary Notes block of SF-298, RDP.
e. Theses or dissertations that relate to Agency work, written by NASA employees only.
f. Bibliographies that are written by NASA employees, contractors, and grantees, and that present listings of STI literature with minimal annotations.
g. Computer program application documentation.
h. Limited-use data compilations.
i. Reports to other agencies or non-NASA sponsored research results.

2.3.4 Contractor Report (CR). This series comprises reports of scientific and technical findings by NASA-sponsored contractors, grantees, and cooperative agreement recipients and dissertations or theses by NASA contractors or grantees (if funded by NASA).

2.3.4.1 Content of CRs. CRs may contain findings of completed or significant scientific and technical work or findings of preliminary or specialized interest. All CRs are subject to the minimum review requirements listed in section 4.2.3. See Appendix B.

2.3.4.2 Publication of CRs in Other Series. A final report or non-required report authored by a contractor, grantee, or cooperative agreement recipient may be selected by the NASA COTR or technical management for publication as a NASA CP, SP, or TP in lieu of publication as a CR. A given report may be published in one series only. Such reports must meet all criteria for the selected series and must be reviewed and approved at the level(s) required for that series.

2.3.5 Conference Publication (CP). This series contains collected papers from scientific and technical conferences, symposia, seminars, or other meetings sponsored or cosponsored by NASA.

2.3.5.1 Preprints. Conference proceedings may be preprinted as a TM and distributed to attendees at conferences even though distribution as a CP is planned.

2.3.5.2 Publication of Conference Proceedings in Both Series. It is sometimes practical to publish a conference proceedings in both series. For example, if a significant amount of time will elapse between presenting the abstracts and illustrations as a TM and the full proceedings as a CP, or if handouts of the abstracts are needed for the conference and the papers have not yet been collected, publication in both series would be appropriate. When abstracts have been published as a TM and

the proceedings are subsequently published as a CP, an entry in the Supplementary Notes block of SF-298, RDP, for the CP indicates that the CP supersedes the TM.

2.3.6 Special Publication (SP). This series, which records scientific, technical, or historical information from NASA programs, projects, and missions, is most often concerned with subjects having substantial public interest. Examples of topics covered by this series and the ranges of numbers assigned to the various topics include the following:

a. General series (numbered below 3000), e.g., NASA/SP--2005-2999.
b. Handbooks and data compilations (numbered in 3000 series), e.g., NASA/SP--2005-3000.
c. History and chronology series (numbered in 4000 series), e.g., NASA/SP--2005-4000.

4000: reference works
4100: management histories
4200: project histories
4300: Center histories
4400: general histories
4500: Monographs in Aerospace History
4600: electronic media (data CDs and DVDs)
4700: historical conference proceedings.

d. Numbers in the 5000 range were originally assigned to technology utilization information, but this type of information is now published outside the STI Report Series.
e. Management publications series (numbered from 6000 to 6999), e.g., NASA/SP--2005-6000. This series documents requirements, plans, theories, or techniques for management or administration of NASA-sponsored scientific and technical work. It includes NASA projects or programs that have application to more than one Center, to other Government agencies, or to partnerships with industrial or international organizations. Although reports discussing methods of scheduling, funding, or staffing may be included, reports containing specific costs or labor figures are not appropriate. When the primary content of a report is scientific findings or technical development, another series, such as TM or TP, should be used.
f. Bibliographic series (numbered from 7000 to 7999), e.g., NASA/SP--2005-7000. Regularly published abstracts, continuing bibliographies, indexes, publication guides, and announcement journals.

2.3.7 Technical Translation (TT). This series consists of English-language translations of non-English scientific and technical material pertinent to NASA's mission. A translation of material protected by copyright is a derivative work, the distribution of which is constrained by international copyright law. However, TTs are retained at NASA CASI for U.S. Government use subsequent to the initial request for the translation. See section 2.8.7.5 for more information on translations.

# 2.4 Responsibility for the NASA STI Report Series

2.4.1 Policy

2.4.1.1 Responsibility for production and dissemination of all NASA STI publications is set forth in NPD 2200.1, Management of NASA Scientific and Technical Information (STI).

2.4.2 Responsibilities

2.4.2.1 The STIPO is responsible for the management of the Agency STI program and maintains control of the production and distribution of the six STI Report Series described in section 2.3. This

responsibility is carried out through the NASA Headquarters STI Program Director and the NASA Centers STI Managers and Technical Publications Managers.

2.4.3 Preliminary Procedures

2.4.3.1 The author, technical management, and the Center Technical Publications Manager ensure that the necessary funds are available from the originating NASA Center or Headquarters office to cover the cost of production and printing of the report, if applicable. For reports that are to be printed, contact the Agency's or Center's Printing Officer and the Technical Publications Manager.

2.4.4 Reviews and Approvals

2.4.4.1 All NASA STI published by or for NASA, regardless of publication type or media used, must meet the reviews and approval set forth in Chapter 4 before the STI is published, disseminated, or presented external to NASA or presented at internal conferences or meetings at which foreign nationals are expected to be present. The author and his/her management ensure that the required reviews are completed and approved and signatures obtained in cooperation with the COTR, if applicable (e.g., for CRs).

2.4.5 Special Procedures

2.4.5.1 NASA CRs (reports prepared by contractor, grantee, or cooperative agreement recipients) will be processed into the formal CR series only after the cognizant CO or COTR and NASA manager approve the report as an acceptable deliverable under the terms of the contract, grant, or cooperative agreement.

2.4.6 Submittal of Reports

2.4.6.1 When specified in the contract, grant, or cooperative agreement, contractors, grantees, and cooperative agreement recipients must submit final reports to the NASA CO or COTR of record. For specifics, see the "NASA FAR Supplement" (updated February 3, 2003, http://www.hq.nasa.gov/office/procurement/regs/) sections 1835.010, 1835.011, 1835.070, 1852.235-70, 1852.235-73, 1852.235-74 and their referenced sections, and the Grants and Cooperative Agreements Handbook (NPR 5800.1, sections 1260.22, 1260.75, 1260.151, 1274.921, 1274.933 and their referenced sections). See also Procurement Information Circular (PIC 03-03) entitled "Scientific and Technical Information," dated February 3, 2003.

2.4.6.2 The use of electronic formats for submission is highly recommended. Contractors, grantees, and cooperative agreement recipients must provide NASA CASI an electronic copy of the letter transmitting the final report to the NASA CO or COTR by sending it to eft_ftp@sti.nasa.gov, "attention acquisitions unit." (For help, contact e-mail: help@sti.nasa.gov.) Also submit an SF-298 for STI Report Series documents. (See Appendix C.) Covers and title pages of submitted reports must include the standard cataloging elements specified in section 2.5.3.

2.4.7 NASA Technical Translations

2.4.7.1 Translations of scientific and technical information performed by and for NASA represent a resource investment; therefore, NASA CASI collects technical translations for inclusion in the NASA Aeronautics and Space Database.

2.4.8 Submittal of NASA Technical Translations to NASA CASI

2.4.8.1 NASA activities arranging for translation services (e.g., through the award of a contract for translation services) should incorporate the requirement to submit one copy of each technical translation to NASA CASI in those arrangements (e.g., a contract clause), thereby relieving the requester of the responsibility to ensure that copies of translations are forwarded for input into the

NASA Aeronautics and Space Database. If the producer of a translation is not required to submit one copy of each technical translation to NASA CASI, the requester must ensure that a copy of the translation is forwarded to NASA CASI for inclusion in the Technical Translations series.

2.4.9 Provision of Copyright Information

2.4.9.1 To assist NASA CASI in determining distribution limitations and to expedite future dissemination of a technical translation, the requester should ensure that information concerning copyright of the original source document accompanies the translation submitted to NASA CASI. This information is also entered on NF-1676. Such information includes, but is not limited to, the title of the book or article, the name of the book or journal in which the copyrighted information was originally published, the publisher's name and address, the publication date, and any copyright notice appearing on the document, book, or journal in which the copyrighted information was originally published.

# 2.5 Standards for STI Report Series Publications

2.5.1 These standards apply to the STI Report Series regardless of the medium (e.g., electronic, video, audio, CD-ROM, website, etc.) chosen. While the data elements detailed here are required, the formatting of the STI may be adapted as necessary to fit the media. Publication of NASA STI in any media must also conform to NASA's information technology standards and guidelines as specified in NPR 2810.1, Security of Information Technology. See section 1.4.3 for minimum standards for cases in which there is limited funding for production of the documents or media. Page mechanics for the STI Report Series standard front and back covers and title pages are depicted in Appendix D of this document. Appendix D also illustrates the use of the standard elements (report number, title, etc.) described in section 2.5.3. The covers and title pages in Appendix D are available on the NASA STI program home page ( http://www.sti.nasa.gov, Publish STI). The use of the standard covers and title pages depicted in Appendix D is required for printed STI. For electronic or alternative media, layouts may be adapted as needed; however, the standard data elements must be included regardless of media.

2.5.2 Use of Color

2.5.2.1 Use of Color in Printed Versions of the NASA STI Report Series

The use of color in printed publications increases printing costs; therefore, color printing is used in printed versions of the NASA STI Report Series only when necessary to convey scientific and technical material in a clear and unambiguous fashion rather than the desire to use decorative elements. The added design and production costs for the portrayal of information in color are justified and authorized by the NASA Headquarters or Center Printing Officer. The duplicating or printing requirements must be in accordance with NPD 1490.1, NASA Printing, Duplicating, Copying, Forms, and Mail Management and must be approved by the Agency or Center Printing Officer for legality and necessity. Contact your Center Technical Publications Office or Graphics Coordinator to determine alternative methods to portray content (such as in charts and graphs) so that they do not require the use of color. See sections 2.5.2.2 and 2.5.2.3.

2.5.2.2 Use of Color in Electronic Versions of the NASA STI Report Series

If color enhances the content of NASA STI Report Series documents in electronic format, its use is appropriate. However, authors should not use color alone to indicate scientific data in charts and graphs; in situations in which color is used, additional symbols (such as dots, crosshatch, etc.) should also be used to indicate the meaning of the color or the actual color name should be indicated on the key and data for cases to accommodate web presentation and Section 508 (PL105-220) compliance

requirements. See section 2.5.14.2 for additional considerations of Section 508 compliance for documents to be posted on websites.

2.5.2.3 The use of color increases the file size of electronic documents, which may slow dissemination in a website environment. Because some users have black-and-white monitors and printers, the benefits of color may also be lost in those cases.

2.5.2.4 Publications using multimedia components are acceptable; however, contact the Center Technical Publications Office and/or NASA CASI to find out if the specific multimedia format can be reproduced and archived by NASA CASI. If NASA CASI cannot reproduce or archive the multimedia format, authors may be required to send additional copies.

2.5.3 Standard Front and Back Covers and Title Pages

2.5.3.1 The design and content of the front and back covers and title pages of NASA STI Report Series, except for SPs, are standardized in accordance with industry standards, such as American National Standards Institute/National Information Standards Organization (ANSI/NISO) Z39.18, "Scientific and Technical Reports - Preparation, Presentation and Preservation," and Agency standards, such as those detailed in NPD 1490.1, NASA Printing, Duplicating, Copying, Forms, and Mail Management and NPR 1490.5, NASA Procedural Requirements for Printing, Duplicating, and Copying Management. This standardization provides a recognizable NASA image, speed, and economy of production and reproduction, consistency of cataloging information, and lowest recycling cost. Therefore, the front and back covers and title pages of NASA STI reports, except for SPs, must contain the standard elements listed below.

2.5.3.2 Standard Elements for Front Covers

a. Report number(s). (If another agency's, Center's, or contractor's report or document number is added to the NASA report number, it should be positioned to the right or below the NASA report number).
b. NASA insignia (the "meatball"); other logos as appropriate (see section 2.5.5).
c. Title of report.
d. Author name(s), affiliation, and location.
e. Optional one-color line art or black-and-white photo or image.
f. Distribution notices, if applicable. Distribution notices, including limitations and restrictions such as ITAR, EAR, Small Business Innovation Research (SBIR), proprietary information, or copyright notices must be placed on the cover, title page, and RDP (SF-298).
g. Conference information. Authors may choose to add conference information, such as conference name, location, dates, and sponsor.
h. Joint project or sponsorship information, if appropriate.
i. Rule (graphic straight line).
j. Month/year.

2.5.3.3 Standard Elements for the Back of Front Covers

a. NASA STI program profile.

2.5.3.4 Standard Elements for Title Pages. Cover elements (except artwork) plus those below:

a. Author name(s), affiliation(s), and locations.
b. Editor name and affiliation, if applicable (for edited CPs, TPs, or TMs when the editor has contributed scientific and technical expertise and judgment).
c. Agency name and address (corporate source).

d. Contract statement and number, if applicable.
e. Joint project or sponsorship information, if appropriate.
f. Conference information (name of conference, location, dates, sponsors, etc.), if applicable.
g. Distribution notices, if applicable. See Chapter 4.

2.5.3.5 Standard Elements for the Back of Title Pages

a. Acknowledgment, if applicable.
b. Disclaimers, if applicable.
c. Statement announcing that the document is available from NASA CASI. In some cases, the document may also be available from the NTIS. Documents that are marked to be available from NTIS must be unlimited, unclassified (no restricted-access data). See the sample back of the title page in Appendix D of this document.
d. International Standard Serial Number (ISSN), International Standard Book Number (ISBN), and/or Library of Congress Control Number (LCCN), if applicable. See Appendix E.
e. Level of technical or professional review.

2.5.3.6 Standard Elements for Back Cover. The back cover is blank except for a rule (e.g., graphic straight line) at the bottom of the cover. If documents are printed, a mailing label that includes the addressee, the return address, and appropriate postage may be affixed to the center of the back cover. No text or images other than the rule may be placed below the last line of the address on the mailing label.

2.5.3.7 Standard Elements for Spines

a. Report Number.
b. Title.
c. See Appendix D for a sample.

2.5.4 Artwork and Photography. NASA recommends the use of one-color line art and black-and-white photography on the front cover of the NASA STI Report Series only in the image area, as illustrated in Appendix D. Such one-color line art and black-and-white photographs must meet the graphics standards of the originating Center and must be approved by the Center Graphics Coordinator.

2.5.5 Cosponsor Logos. When NASA partners with or jointly funds work with another agency, noncommercial organization, or a university, the logo or seal of the cosponsor may appear on the cover to the right or below the NASA insignia and must be in accordance with the NASA guidelines for the use of logos and insignia at http://www.hq.nasa.gov/office/pao/insignia

2.5.5.1 The NASA insignia cannot appear with the logos of private companies on publications. In rare exceptions, such as certain partnership situations, the Office of Public Affairs, Public Service Division at Headquarters, may approve a proposed use.

2.5.5.2 NASA program organizational logos are not acceptable for use on covers.

2.5.6 Nonstandard Front Cover and Title Page

2.5.6.1 Sometimes a nonstandard design is needed for the front cover and title page of a NASA STI Report Series of particular note. Such designs must contain the standard elements indicated in section 2.5.3. The use of a nonstandard design and the associated additional design labor cost are justified and authorized on a case-by-case basis using Center-specific procedures. The nonstandard design must be in accordance with NASA graphics standards and must be approved by the Center

Graphics Coordinator. For duplicated or printed publications, the requirements are set forth in NPD 1490.1, NASA Printing, Duplicating, Copying, Forms, and Mail Management and must be approved by the Center Printing Officer for legality and necessity.

2.5.7 Report Documentation Page (RDP) - SF-298

2.5.7.1 Requirements

2.5.7.2 An RDP (SF-298) is required for all documents published in the NASA STI Report Series. It provides the information necessary to index and correctly categorize the report. Directions for preparation of the RDP are given on the back of the form. A sample RDP (SF-298) is included in Appendix C. Except for NASA SPs, the completed RDP is positioned as the last page of the report. For documents that are to be printed, the RDP is printed so that it faces the back cover. For SPs, the RDP (SF-298) is forwarded to NASA CASI with, but not printed and bound in, the SP. For SPs in electronic formats, the RDP is a separate file. See also http://www.sti.nasa.gov/nasaonly/publish/SF298instr.pdf for "NASA Supplementary Instructions To Complete SF-298 (Rev. 8/98 version)."

2.5.7.3 Prior to dissemination, the information that is entered on SF-298 must be verified against the information that is on the approved NF-1676 or Center implementation of this form.

2.5.7.4 For a classified report, the title and the abstract are followed by the classification of each in parentheses. Unclassified titles and abstracts are followed by a "(U)." Whenever possible, the title and abstract of a classified report are unclassified. Classified reports are handled by the NASA Centers and are not sent to NASA CASI.

2.5.7.5 For information regarding how to indicate that a previously export-controlled or restricted-access document has subsequently been downgraded and has a new distribution requirement, see section 2.5.16.

2.5.8 Funding Numbers

2.5.8.1 For information retrieval purposes, include the Work Unit (WU) number, Work Breakdown Structure (WBS) number, or the Unique Project Number (UPN) on the RDP (SF-298) in block 5(f).

2.5.9 Supplementary Notes

2.5.9.1 For a symposium presentation preprinted as a TM or published as a CP, identify the meeting or symposium in the block designated for Supplementary Notes.

2.5.10 Abstract

2.5.10.1 The abstract included on the RDP (SF-298) should be informative rather than descriptive and should state the objectives of the investigation, the methods employed (e.g., simulation, experiment, or remote sensing), the results obtained, and the conclusions reached. Limit the abstract to a maximum of 200 words.

2.5.11 Handwritten NASA STI Reports

2.5.11.1 Handwritten elements of any kind are not acceptable. Publications included in the NASA STI Report Series must be professional in appearance (i.e., typeset or completed using word-processing equipment), and must be capable of electronic transmission.

2.5.12 Revised Reports, Errata, and Corrected Copies

2.5.12.1 A revised report must be issued in situations in which the technical data have been substantially changed or updated. The standard report number format is the year and number of the

original report followed by the REV extension, e.g., NASA/TM--2005-123456/REV1. The current month and year should be included on the report cover and title page. The Supplemental Notes section of the RDP (SF-298) should indicate whether or not the revised report supersedes the original report.

2.5.12.2 An errata should be issued if the errors are minimal but of sufficient importance to warrant correction. Minor typographical errors usually do not require correction. A typical setup for an errata is shown in Appendix F. The distribution of an errata is made in accordance with the original distribution. A corrected copy should be issued if there are numerous errors that cannot be made clear in an errata. The standard report number format for a corrected copy is the year and number of the original report followed by "Corrected Copy" in parentheses. The report date is the same as the original report. Distribution is made in accordance with the original distribution.

2.5.12.3 The standards that apply to paper copy revisions also apply to electronic media. For example, a file on a website (such as on the NASA Technical Reports Server (NTRS)) should not be replaced with a revised file without indicating the appropriate revision elements and date of revision. This clarification should be indicated on the cover that an errata, a corrected copy, or a revision has been added along with the date of this action in addition to inserting on page iii a listing of the information that is being corrected. Distribution of revised electronic media should be in accordance with the original distribution.

2.5.12.4 Other requests for correction are made to the Center's STI Manager or to NASA CASI at e-mail help@sti.nasa.gov.

2.5.13 Special Factors for Document Legibility

2.5.13.1 It is important to produce publications that are legible in a variety of media.

2.5.13.2 For documents that may be printed, oversized image areas and foldouts to present oversized charts cannot be adequately reproduced in subsequent electronic formats.

2.5.13.3 Typefaces smaller than 10 points (or hard-to-read fonts online) on the original copy affect the quality and usefulness.

2.5.14 Standards for Electronic and Alternative Media (Including Multimedia)

2.5.14.1 In considering electronic and alternative media forms of disseminating of STI, authors must meet the content requirements of section 2.3, the data elements of section 2.5, and the required reviews in Chapter 4, as well as the requirements of submittal to NASA CASI. Although content and data elements are required, actual formatting and presentation of the STI may be adapted, as necessary, to fit the specific media.

2.5.14.2 Information that is presented on the Web must also comply with Section 508 requirements (PL105-220, Subsection 508(a), as amended). Authors should be cognizant that documents that extensively use a 2-column format, that contain complex tables with table headers that span the column tables, or that use color (without supporting graphic symbols or indications in the text of what the color indicates) are difficult for visually impaired or other disabled persons to view or access with current assistive technology. In these situations, use of either an HTML or XML version in addition to the PDF may be useful.

2.5.15 Sources for Standards

2.5.15.1 Style and format standards for NASA scientific and technical publications are provided in several sources. If conflicting guidance is encountered, the sequence of the following list governs selection of the appropriate standard.

a. NPR 2200.2B, Requirements for Documentation, Approval, and Dissemination of NASA Scientific and Technical Information (STI).
b. NASA/SP--2005-7602, NASA Publications Guide for Authors and updated versions.
c. Public Law 105-220, Title IV, Subsection 408(b) amended Section 508 of the Rehabilitation Act (29 U.S.C. 794d).
d. "NASA Internet Publishing Content Guidelines," NITR-2810-3.
e. Instructions issued by NASA Centers that implement the requirements of this NPR.
f. Government Printing Office Style Manual, latest edition.
g. Industry-standard style manuals or specifications.

2.5.16 Re-Marking and Handling Documents That Were Previously Export-Controlled and/or Contain Restricted-Access Information That Has Been Downgraded

2.5.16.1 When STI is no longer subject to restriction, NASA Centers' program officials, Export Control Administrators, and/or Patent or Intellectual Property Counsel, as appropriate, are responsible for re-marking (downgrading the restriction/limitation) the STI and notifying NASA CASI of the subsequent availability by sending the re-marked document and a copy of the new or modified DAA through the Center Technical Publications Office or STI Manager. Because NASA CASI is a contractor facility, it is not approved to change or alter dissemination information. See also section 4.5 and NPR 1600.1, NASA Security Program Procedural Requirements.

2.5.16.2 The original marking should be electronically "lined through" and the new marking should be indicated next to or above the original marking by stating "restriction changed to ...[insert new dissemination access], on date...[insert month, day, and year], by authority of ...[insert originating office that is responsible for and has authority to change the distribution notice]." Indicate this new information on the cover, the title page, and block 12 of SF-298. Do not simply change the access limitation and insert a new cover, title page, and SF 298 so that there is no record of the subsequent change.

# 2.6 Submittal of Publications to NASA CASI

2.6.1 NASA requires that an electronic copy (and recommends that a hard copy) of STI be sent to NASA CASI or that NASA CASI be notified of the location of the STI if it resides on a website or in an existing document repository to which NASA CASI may gain access. This is accomplished through submitting the document and a copy of the approved NF-1676 or Center implementation of this form through the Center's STI Manager or Technical Publications Office to NASA CASI. The hard copy may be used to reference that math and symbols have not been altered during electronic transmission. Electronic, alternative media, and hard copy reports and supplements to reports submitted to NASA CASI must conform to the following standards, depending on the medium. See sections 4.5 and Appendix C, C.2. For information regarding submitting electronic copies of export-controlled or limited access information, see section 2.6.9.

2.6.2 Electronic File Formats

2.6.2.1 Contact your Center's Technical Publications Manager or NASA CASI Help Desk (301-621-0390) to electronically submit reports to NASA CASI. The Help Desk will provide the Center's Technical Publications Offices with procedures.

2.6.2.2 NASA Centers can transfer unlimited/unclassified electronic files to CASI after the DAA review is completed via the NF-1676 or Center implementation of this form. Transfer of files to NASA CASI may occur via:

a. FTP.
b. Your Center's Technical Report Server (TRS).
c. Electronic Media:

1. 3.5-in. MS-DOS diskettes
2. CD-ROMs formatted to ISO 9660 standards (for more information see URL http://www.y-adagio.com/public/standards/iso_cdromr/tocont.htm)
3. E-mail attachment (up to 5 megabytes in size)

2.6.2.3 NOTE: Documents that are export-controlled, restricted, or limited must be encrypted prior to sending to NASA CASI. NASA CASI does not accept classified STI, which is handled by the cognizant Center's security office.

2.6.2.4 NASA CASI will accept the following electronic file formats, which are listed in order of preference:

a. Adobe Portable Document Format (PDF).
b. Postscript (PS) Levels 1 and 2.
c. ASCII.
d. Word or WordPerfect.
e. HyperText Markup Language (HTML) - self-contained files only; files with links to external sources cannot be processed.

2.6.2.5 The submission requirements for electronic formats are as follows:

a. Store a single document in one file.
b. Store conference proceedings or other compilations of chapters, works, or papers in multiple files: one containing the complete document cover to cover and one file for each of the individual papers.
c. Include the completed RDP (SF-298) as the last page of the document file. (For SPs, include the RDP as a separate file.) Note: If the RDP is not the last page of the document file but is stored in a separate file, it will not become part of the document when printed or part of the full-text files available through the NASA Aeronautics and Space Database.
d. Send a copy of the DAA (NF-1676 or Center implementation of this form) but do not include it in the document. The DAA provides NASA CASI evidence of the DAA approval process and enables NASA CASI to appropriately add the document to the NASA Aeronautics and Space Database and subsequently disseminate it.
e. In order for NASA CASI to further distribute your document, provide the file in "publication format." This means that the file should include all pages required to output as a print product, i.e., covers, front matter, RDP, and blank pages. This will ensure proper page positioning throughout the document if it is printed.

2.6.2.6 Notify NASA CASI via e-mail whenever files are transferred or loaded to your Center's Technical Report Server. Identify the file names of the reports and the full path or URL. NASA CASI requires the full path in order to locate the correct file. Address the e-mail to: eft_ftp@sti.nasa.gov

2.6.2.7 NASA CASI has established aliases for this e-mail address to ensure that it alerts appropriate staff that files are waiting to be processed.

2.6.3 Alternative Media

2.6.3.1 NASA CASI requires two copies of alternative media containing STI, e.g., CD-ROM,

videotape, and audiotape.

2.6.4 Computer Diskettes and CD-ROM's

2.6.4.1 NASA CASI will accept the following:

a. 3.5-in. MS-DOS diskettes.
b. CD-ROM's formatted to ISO 9660 standards (URL http://www.y-adagio.com/public/standards/iso_cdromr/tocont.htm).

2.6.4.2 Submission requirements: Two copies of the diskette or CD-ROM accompanied by a copy of the DAA (NF-1676) in either electronic format (a separate file from the alternative media) or a print copy.

2.6.5 Microfiche

2.6.5.1 NASA CASI can accept the following formats:

a. 98 frames per 105mm x 148mm fiche.
b. 24-to-1 reduction ratio.

2.6.5.2 Submission requirements: Silver master(s) accompanied by a copy of the DAA (NF-1676) or Center-equivalent form in either electronic format (a separate file from the alternative medium) or a print copy.

2.6.6 Videotape and Audio Files

2.6.6.1 NASA CASI can accept the following videotape formats: (R) Betacam SP.

2.6.6.2 Submission requirements: Two copies of the videotape accompanied by a copy of the DAA (NF-1676) or Center equivalent form in either electronic format (a separate file from the alternative medium) or a print copy.

2.6.7 Compression Formats

2.6.7.1 NASA CASI can accept the following compression formats: >Zip.

2.6.8 File-Naming Conventions

2.6.8.1 Name the file to clearly identify the contents using the report number or other identifying text, followed by a three-character extension that represents the application:

a. NASA/TM--2005-123456.pdf.
b. Rocketsandpeople.pdf.
c. Worddocument.doc.
d. NASA/CP submitted as one pdf, and each paper submitted as a separate file

a. NASA/CP--209555.pdf - the cover-to-cover CP
b. NASA/CP--209555.pdf-01 represents the first paper in the CP; 02 represents the second paper in the CP, etc.

2.6.9 Electronic Transfer via Internet and E-mail of Restricted-Access Information

2.6.9.1 The following procedures for restricted-access information (information whose publication or distribution is restricted by law, regulation, or policy as defined in section 4.2.2) are in addition to procedures cited for unclassified/unlimited STI and procedures cited in Chapter 4.

2.6.9.2 STI containing restricted-access information that is submitted via the Internet or e-mail must be encrypted. The minimum level of required encryption is secure socket layer (SSL). See NPR 2810.1, Security of Information Technology, and NASA Technical Standard NASA-STD-2820, Encryption and Digital Signature Standards. Until such mechanisms and infrastructure are available, a paper copy or electronic file loaded to a CD-ROM will be accepted. Paper copies and CD-ROMs (including their internal electronic files) must be marked with the applicable restriction and mailed in an envelope that does not indicate the restricted nature of the content. For additional information, see also NPR 1600.1, NASA Security Program Procedural Requirements.

2.6.9.3 Export-controlled information is defined as ITAR (International Traffic in Arms Regulations, 22 CFR 120-130) and EAR (Export Administration Regulations - 15 CFR 730-744) information.

2.6.9.4 For information regarding the handling of documents that were previously export-controlled or restricted-access but have subsequently been downgraded, see section 2.5.16.

# 2.7 Availability of Electronic and Alternative Media Publications from NASA CASI

2.7.1 NASA STI publications are available from NASA CASI in the formats cited in the following sections:

2.7.2 Electronic Formats. (PDF for NASA Aeronautics and Space Database registered users.)

2.7.3 Computer Diskette. (Computer diskette output is available in like-to-like MS-DOS, Windows, and Macintosh formats.) When STI is provided to NASA CASI on computer diskette, NASA CASI can copy and distribute this medium on demand.

2.7.4 Videotape. (Videotape output is available in Betacam SP, High-8, VHS, and Super VHS formats.)

2.7.5 CD-ROM. (When STI is provided to NASA CASI on CD-ROM, NASA CASI can copy and distribute this medium on demand.)

# 2.8 Standards for Protection of Intellectual Property

2.8.1 Authorship

2.8.1.1 Author. With the exception of NASA histories, the authorship of NASA publications is generally reserved for persons who participate in the performance of the work from which the STI results and who can effectively defend the main technical content of the publication to a peer group. Because of the complexity of scientific and technical work, many publications have multiple authors. The authors' names should appear in a sequence that indicates their respective responsibility for the reported results; that is, the first author is the chief contributor and writer, and other authors follow in the order of their responsibility for the work.

2.8.1.2 NASA Coauthors. NASA employees may not be listed as coauthors of Contractor Reports. When NASA employees contribute to rather than monitor contract or grant work, such work should be published in another series.

2.8.1.3 Editor. Recognition of editorship is justified when the editor has contributed scientific and technical expertise and judgment.

2.8.2 Acknowledgment of Significant Input and Routine Support

2.8.2.1 It is appropriate to acknowledge significant contributions directly related to the substantive content or preparation of a NASA STI Report Series by individuals other than the authors. When an acknowledgment of contribution is warranted, it is included in a paragraph on the back of the title page.

2.8.3 References

2.8.3.1 Reference to Work by Others. Reference to work by others must be acknowledged in all NASA STI Report Series. Proper citation of references is the author's responsibility. The style and format of the reference list may follow accepted practice in the discipline of the report. When there is no preferred style, the name/date style of citation in text (e.g., Anders, 1971, 1972; Smith, 1974) with a corresponding reference list, alphabetized by name, is preferred.

2.8.3.2 Reference to Unpublished Work. Reference to unpublished work or information acquired through personal communication must be clearly identified as such and must not be represented as published information, even if publication is pending. Internal reports that have not been approved for publication outside the originating Center are considered unpublished. This identification should be included in a parenthetical note in the text and in the reference list with an appropriate notation such as "unpublished," "to be published," "personal communication," or "internal report." Under no circumstances should an author represent another's work as his or her own.

2.8.4 Inclusion of Copyrighted Material

2.8.4.1 Credit should be given for material taken from non-NASA publications and included in a NASA Report Series. In the case of copyrighted source material, authors are responsible for securing permission from the copyright holder to use, reproduce, and distribute the copyrighted material as part of the NASA Report Series. Additionally, authors are responsible for ensuring that an appropriate copyright notice or acknowledgment (as directed by the copyright holder) is included within the text of the NASA Report Series. The author or initiator of the DAA review must enter copyright status on the NF-1676 or Center equivalent form and should also provide information regarding NASA's permission to use copyrighted material (on NF-1676, check "Copyrighted" in section 3.c and include a distribution limitation, if appropriate, in section 3.d and attach a copy of the permission obtained). Copyright status should also be entered on SF-298 (block 12a). Any questions regarding obtaining such permissions or for acknowledging a copyright should be referred to the NASA Headquarters or Center Patent or Intellectual Property Counsel. (See section 4.5.8.6.)

2.8.4.2 When NASA is granted permission by the copyright holder to use copyrighted material in connection with a NASA-sponsored meeting or conference, the following copyright notice should be used:

"Copyright (c) (year of first publication) (Name of copyright owner). NASA has been granted permission to publish and disseminate this work as part of (name of conference publication). All other rights retained by the copyright owner."

2.8.4.3 For copyright notices applicable to other situations or other rights granted (e.g., assignment or license for Government purposes only), contact the Center Patent or Intellectual Property Counsel.

2.8.5 Trade Names and Trademarks

2.8.5.1 The use of trademarks and trade names is discouraged because NASA considers it improper to advertise, endorse, or criticize commercial products or services in its publications. Use generic names whenever possible. Trademarks may be included if their use is the only way to specify

material or equipment that is necessary to reproduce the results. However, in such cases, a trademark should be used as a proper adjective (i.e., capitalized and modifying the generic term) and on its first appearance in the text must be accompanied by the name of its registered owner. When trade names and trademarks are used in a publication, a disclaimer such as the following should be added in the publication on the back of the title page:

"Trade names and trademarks are used in this report for identification only. Their usage does not constitute an official endorsement, either expressed or implied, by the National Aeronautics and Space Administration."

2.8.6 Copyright Status

2.8.6.1 Works Produced by Government Employees. No U.S. copyright protection is available for a work of the U.S. Government, i.e., a work produced by an employee of the U.S. Government as part of his or her official duties. (See 17 U.S.C. Section 105.) For works produced by a NASA employee that are published outside the U.S., NASA, as the employer, is the owner of any foreign copyright that can be asserted on the work. A publisher of a professional journal can republish a U.S. Government work, but the publisher cannot legally assert copyright in the U.S. Government work as published unless the publisher has added original, copyright-protected material. In such a case, the publisher's copyright protection extends only to the original material that has been added by the publisher. If a publisher publishes a U.S. Government work and does not add original, copyright-protected content, NASA may reproduce and disseminate an exact copy of the published work either in paper copies or on a NASA public website. If the publisher adds original materials such as a publisher-prepared abstract or peer review comments, the NASA author and/or Center must get permission to reuse or republish the article as published in the journal. However, NASA may use the U.S. Government work as originally submitted to the publisher for any purpose.

2.8.6.2 Works Copyrighted by NASA Contractors and Grantees. Unlike works of the U.S. Government, works produced under a Government contract or grant are protected under U.S. Copyright Law. The author or initiator of the DAA review must enter a contractor or grantee's ownership of copyright on the NF-1676 or Center equivalent form (on NF-1676, check "Copyrighted" in section 3.c and include a distribution limitation, if appropriate, in section 3.d). Also, the appropriate "Notice for Copyrighted Information" must be placed on the cover, title page, and RDP with any additional information shown on the back of the title page. See Chapter 4 and Exhibit 4-5.

2.8.6.3 Unless provided otherwise in the contract, a contractor may assert, without prior approval of the CO, copyright in scientific and technical articles based on or containing data first produced in the performance of the contract and published in academic, technical or professional journals, symposia proceedings, or similar works. The contractor may not assert copyright in any other data produced under a Government contract, e.g., final reports or other deliverables, unless permission is granted in writing by the CO or by the terms of the contract. When copyright is asserted, the contractor must include a copyright notice and acknowledgment of Government sponsorship (including contract number) on any published reports; and the Government, and others acting on its behalf, must receive a license to reproduce, publish, or otherwise use the copyrighted work for governmental purposes. If copyright has not been asserted, the Government has unlimited rights in data first produced under the contract. Consult the NASA Headquarters or Center Patent or Intellectual Property Counsel with questions regarding permissible use of works copyrighted by NASA contractors and grantees.

2.8.6.4 In addition, whether or not a contractor has asserted copyright, the contractor may publish data produced or specifically used by the contractor in the performance of Government contract in compliance with the data rights clause in the contract. Under the standard data rights clause (See FAR 52.227-14), contractors may use, release to others, reproduce, distribute, or publish such data

unless the data is subject to the export-control or national security laws or regulations or includes restrictive markings as described in section 4.2.3.3. Contact the Center Patent or Intellectual Property Counsel for additional information.

2.8.6.5 Terms in grants are flexible but generally allow the grantee to assert copyright. All Federal agencies adhere to OMB Circular A-110 for works created under grants with colleges, universities, hospitals, and non-profit organizations, and to OMB Circular A-102 when the grantee is a state or local agency such as a state university. Circular A-110 provides that a grantee may assert copyright in any work that was developed under the grant. The Government obtains a license to reproduce, publish, or otherwise use the work for federal purposes and to authorize others to do so. For cooperative agreements with commercial firms, see the Grants and Cooperative Handbook (NPR 5800.1) sections 1274.208 and 1274.905. The terms of the particular cooperative agreement will specify respective rights of the parties. Contact the Center Patent or Intellectual Property Counsel to determine copyright terms in the cooperative agreement.

2.8.6.6 When an article produced under a NASA-funded contract or grant is published in a professional journal, the non-Government author often assigns copyright to the publisher. Under the contract or grant, NASA has a license to use and distribute such articles as submitted to the publisher; however, permission from the publisher should be obtained to reuse or republish the article as published in the journal. Additionally, other non-Government works in a journal may be copyrighted by their authors or assigned to the publisher, and the publisher may copyright the layout of the entire journal, i.e., the selection, coordination, or arrangement of articles in the journal. Thus, NASA should not reuse or republish entire publications such as conference proceedings or technical journals unless permission is obtained from all copyright owners involved.

2.8.7 Publishers' Agreements

2.8.7.1 General. If a NASA-authored work is to be published by a commercial publisher, authors must consult the NASA Headquarters or Center Patent or Intellectual Property Counsel concerning any agreements with publishers. (Questions regarding whether a work was prepared as part of an employee's official duties should also be referred to the NASA Headquarters or Center Patent or Intellectual Property Counsel.)

2.8.7.2 Standard Agreement. Generally, commercial publishers seek an assignment of copyright in works they publish. If requested to sign a publisher's agreement, NASA employees should inform the publisher of their employment status and should not sign any document purporting to transfer a U.S. copyright as a prerequisite to publication. For papers authored only by Government employees, NASA authors should inform publishers that the paper is a U.S. Government work and is not protected in the United States under the U.S. Copyright laws and, therefore, there is no U.S. Copyright to be transferred. Additionally, a U.S. Government work may be protected under foreign copyright laws. If NASA approves transfer of a foreign copyright, an agreement to transfer the foreign copyright is executed by the NASA General Counsel and reserves a Government license in the work. Some publisher agreements, such as for academic and scientific journals, include a signature block for the U.S. Government author. The Government author must certify in that block that the manuscript was prepared as part of that author's official duties. NASA authors may sign such signature blocks. If this signature block is missing, the following statement should be included either on the agreement or in a cover letter:

"The work entitled _____ was prepared as part of my official duties as an employee of the U.S. Government and, in accordance with 17 U.S.C. 105, is not available for copyright protection in the United States."

2.8.7.3 Contact your NASA Headquarters or Center's Patent or Intellectual Property Counsel for

additional information on signing any copyright transfer form.

2.8.7.4 Coauthors Not Employed by the U.S. Government. If the work is a joint effort with a person whose contribution was not made as part of official duties as a U.S. Government employee, the statement should inform the publisher that the employee prepared the work as part of official duties as a U.S. Government employee in co-authorship with another person; identify the coauthor(s); and request the publisher to note that the U.S. Government contributed to the published work.

2.8.7.5 Translations. For works protected by copyright, i.e., not in the public domain, permission of the copyright holder is required before a work may be translated from one language to another. Such a translation is considered to be a derivative work under copyright law. Permission to translate a work and to make and distribute copies of the translation should be obtained from the copyright holder. Any questions regarding obtaining such permission should be referred to the NASA Headquarters or Center Patent or Intellectual Property Counsel.

# 2.9 Disclaimers

2.9.1 The use of disclaimers is acceptable; however, avoid the use of disclaimers that call attention to unedited material or deny technical responsibility of the issuing Center. Disclaimers should be placed on the back of the title page.

2.9.2 Acceptable Disclaimers. A disclaimer may be employed to alert the reader that a particular publication:

a. Is a presentation of preliminary findings, subject to revision as analysis proceeds.
b. Is a formal draft or working paper, intended to solicit comments and ideas from a technical peer group.
c. Is a preprint of a paper to be presented at a professional meeting.
d. Uses a trade name or trademark for accurate reporting and does not intend endorsement.
e. Gives acknowledgements.
f. Gives availability of the document (from NASA CASI or NTIS).
g. Indicates the ISSN.
h. Indicates the level of technical or professional review (see section 2.11).

2.9.3 Sample Disclaimer for Preprints

2.9.3.1 Include the following disclaimer, or a similar disclaimer, if applicable, on the cover and back of the title page:

"This is a preprint of a paper intended for presentation at a conference. Because changes may be made before formal publication, this preprint is made available with the understanding that it will not be cited or reproduced without the permission of the author."

# 2.10 Distribution Notices

2.10.1 Distribution notices include limitations and restrictions, such as ITAR, EAR, SBIR, proprietary information, and copyrighted information, as discussed in Chapter 4. These designations are determined for STI via the NF-1676 or Center equivalent form.

# 2.11 Level of Review

2.11.1 Indicate on the back of the title page (or, in nontraditional media, in the introductory information that would equate to the back of a title page) the level of technical or professional review the STI has received. See sections 4.4.1 and 4.4.3 for specifics. Examples include:

"This material has been technically reviewed by (insert as appropriate: a committee of peers, expert single reviewer, technical management)."

2.11.2 For SPs, an example is:

"This material has been professionally reviewed by (insert as appropriate: the HQ program office or NASA Center)."

# 2.12 Use of Metric Measurements

2.12.1 NPD 8010.2, Use of the SI (Metric) System of Measurement in NASA Programs, states, in part, that it is NASA policy to adopt the metric system of measurement, defined by ANSI/IEEE Standard 268, as the preferred system of weights and measures for NASA. Therefore, the use of metric measures is required in all NASA scientific and technical publications when the activities being documented or reported are performed using metric measurements. Scientific and technical activities performed using inch-pound measurements should be documented or reported using inch-pound measures. The report must clearly state which form of measurements was used. Appendix G contains references that provide guidelines for the use of metric measurements and for the conversion of metric measures to inch-pound measures or inch-pound measures to metric measures.

# Chapter 3. Symposium Presentations and External Publications

## 3.1 Purpose

3.1.1 This chapter presents the standards and responsibilities that apply when NASA employees prepare papers for or participate in scientific and technical symposia and when they prepare and submit information, e.g., monographs or journal articles, for external (non-NASA) publication. Also presented here are the criteria for the payment of page charges for Government-sponsored research results published in professional journals. Policies and standards presented in this chapter apply to contractors and grantees only if these policies and standards are provided under the terms of their contracts or grants.

## 3.2 General Standards

3.2.1 Format. Papers and articles will be prepared according to formats and standards set by individual societies and journals.

3.2.2 Approvals. Dissemination of information in symposium presentations or in external publications is approved in accordance with procedures included in Chapter 4.

3.2.3 Indication of NASA Support

3.2.3.1 Contractor and grantee authors must ensure that all symposium presentations and external publications that are derived from NASA research and development and related efforts clearly display an indication of NASA's support, preferably as a first-page footnote.

3.2.3.2 Works authored by NASA employees as part of their official duties and submitted for external (non-NASA) publication in scientific and technical journals, symposia proceedings, or similar works must include the copyright statement provided in Example 4-5, as appropriate. (See sections 2.8.7.2 and 3.4.2.4.)

3.2.4 Copies for the NASA Aeronautics and Space Database

3.2.4.1 NASA authors presenting papers not prepared as preprints in the TM series and authors of articles submitted to journals must provide an electronic copy (and preferably a paper copy) of each paper or article or the electronic file to NASA CASI for inclusion in the NASA Aeronautics and Space Database, along with a copy of the approved NF-1676 or Center equivalent form. Authors should also coordinate this activity through their Center's STI Manager or Technical Publications Office.

3.2.4.2 Citations and a copy of the work as submitted of these papers will be added to the NASA Aeronautics and Space Database with information concerning the expected publication.

# 3.3 Standards for Symposium Presentations

3.3.1 Standards and Review

3.3.1.1 Papers presented by NASA employees at symposia should contain substantive content in the discipline concerned, make a positive contribution to the state of knowledge, and reflect the high professional standards under which NASA operates.

3.3.1.2 Papers proposed for presentation at symposia are reviewed in accordance with the cognizant NASA Headquarters or Center review requirements and the procedures included in Chapter 4. Technical accuracy, appropriateness to the subject matter of the meeting, compatibility with NASA's interest and responsibilities, avoidance of classified or restricted-access information, and quality of the data and information must be considered in the review. Since many presentations of papers are followed by their incorporation in proceedings or other professional publications, the technical quality and value of such presentations must be of paramount consideration in the review. NASA Headquarters or Center reviewers should ensure in their reviews that papers that describe NASA program activities are properly presented at symposia by personnel well acquainted with the activities.

3.3.2 Presentation of Unclassified Information

3.3.2.1 To promote NASA's ability to meet its statutory requirement of ensuring the widest practicable and appropriate dissemination of STI, all NASA unclassified presentations or papers should be delivered in unclassified sessions (those that are not labeled classified and/or have attendance restricted to persons having prescribed security clearances). Similarly, NASA unclassified presentations or papers should be included in unclassified documents whenever feasible.

3.3.3 Presentation of Protected Information

3.3.3.1 Appropriate Presentation of Restricted-Access Information Restricted-access information is information whose publication or distribution is restricted by law, regulation, or policy such as described in section 4.2.2. Restricted- access information may not be presented at unrestricted meetings. Authors may either (a) omit such information from symposium presentations so that meetings can be open when possible and so that publications resulting from these meetings can be made available to the public or (b) restrict this information to special sessions at which attendees have been appropriately cleared.

3.3.3.2 Presentation of Restricted-Access Information at NASA-Sponsored Meetings or Workshops

3.3.3.3 When NASA sponsors an unclassified meeting or workshop in which restricted- access information may be presented, e.g., information covering technology that needs to be protected from public disclosure, the NASA organizers should produce the following:

a. A limited-distribution document containing the entire meeting results.
b. Or preferably, an unclassified/unlimited distribution document containing as much information as possible, and an appropriately marked companion document containing only the information that needs to be restricted. The distribution of the companion document would be appropriately limited.

3.3.4 Presentation of Classified Information

3.3.4.1 Classified information must be identified, marked, and handled in accordance with NPR 1600.1, NASA Security Program Procedural Requirements. Classified information is included in

symposium presentations, presented at classified sessions, and/or included in classified proceedings or other publications only when it is essential to the presentation.

3.3.5 Presentation Preprints

3.3.5.1 A paper presented by a NASA employee may be prepared and published in the NASA TM series as a preprint for distribution if needed for a conference. The Supplementary Notes block of the RDP (SF-298) for the preprint must state the name and date of the meeting.

3.3.6 NASA as a Principal Resource

3.3.6.1 No commitments, such as producing and distributing a NASA CP, can be made that will result in NASA becoming the principal resource for a symposium unless NASA sponsorship is approved as an official function.

# 3.4 Standards for External Publications

3.4.1 Payment of Page and/or Other Publisher Charges

3.4.1.1 Payment of charges imposed by publishers for including articles or papers in their publications is the responsibility of the originating Center. Guidelines for the use of private publishers are given in section 5.7.

3.4.2 Duplicate Publication of NASA STI Papers in non-NASA Publications

3.4.2.1 The publication of STI through non-NASA channels does not preclude the publication of equivalent information by NASA. For example, significant findings may be reported initially in a prominent journal (in which space limitations might constrain complete presentation of text and figures) and a more detailed documentation of these findings may then be published in an appropriate NASA STI Report Series. To avoid duplication, authors should not publish identical NASA material through different channels with the following exception. Preprints of journal articles (e.g., journal articles "as submitted" to the journal) or presentations made at professional meetings that may or may not appear in subsequently published proceedings may be published as a TM. Authors must note on the SF-298 and NF-1676 that the journal article is a preprint.

3.4.2.2 Publications authored by U.S. Government employees as part of their official duties are not protected by copyright in the U.S. Because there is no copyright to assign to a publisher (see section 2.8.7.2), if NASA-authored STI is published through a non-NASA publication, NASA may use and distribute the preprint, i.e., the work "as submitted" to the publisher (original manuscripts, charts, photographs, etc.). Moreover, if the publisher does not add original, copyright-protected content (e.g., publisher prepared abstracts or peer review comments), NASA may reproduce and disseminate an exact copy of the published work either in NASA reports or on a NASA public website. On the other hand, if the publisher adds original content, the publisher may assert copyright in the paper "as published" (but the copyright applies only to the original material added by the publisher). If the publisher has added original material, NASA cannot distribute the published version of the article unless permission is obtained from the publisher.

3.4.2.3 When an article produced under a NASA-funded contract or grant is published in a professional journal, the non-Government author often assigns copyright to the publisher. Under the contract or grant NASA has a license to use and distribute information resulting from the contract or grant. Thus, NASA may use and distribute the preprint, i.e., the work "as submitted" to the publisher. However, permission from the publisher should be obtained to reuse or republish the article as published in the journal.

3.4.2.4 An acknowledgement of Government rights should be included on all NASA STI published through a non-NASA publication. NASA civil-servant-authored papers must include one of the copyright statements provided in Example 4-5, as appropriate. (See sections 2.8.7.2 and 3.2.3.2.)

3.4.2.5 Contractors and grantees are required to include a statement acknowledging NASA sponsorship (including the contract or grant number) when articles containing data produced under a NASA contract or grant are published. Exhibit 4-5(a), Notice for Copyright Information (Contractor-Prepared Work), found at the end of Chapter 4, provides a statement for use with STI developed under a NASA funding agreement.

# Chapter 4. Reviews and Approvals

## 4.1 Purpose

4.1.1 This chapter gives the review and approval policies through which NASA ensures the quality and integrity of its STI to the greatest degree practicable, provides for the widest practicable and appropriate dissemination of its STI, and protects information that, based on statute, regulation, or policy, cannot be disseminated to various audiences.

## 4.2 Policy and Legal Requirements

4.2.1 Distribution of NASA STI

4.2.1.1 The NASA STI program is responsible for providing the distribution of information produced by and for NASA to the public. This function fulfills the mandate of Section 203(a) of the National Aeronautics and Space Act of 1958, which requires NASA to "provide for the widest practicable and appropriate dissemination of information concerning its activities and the results thereof." Reinforcing this Space Act requirement, the Office of Management and Budget (OMB), in Circular A-130, establishes the clear policy that the Agency is responsible and expected to disclose information to the public consistent with the Agency's mission.

4.2.2 Protection of Certain STI Information

4.2.2.1 Pursuant to law, certain types of information are required to be protected from public disclosure. The Freedom of Information Act (FOIA) provides guidance regarding categories of information that are exempt from mandatory release under the FOIA. Dissemination of information may also be restricted under other laws, regulations, or policy.

4.2.2.2 As used in this NPR, restricted-access information means information whose publication or distribution is restricted by law, regulation, or policy. Restricted-access information includes national-security-classified information, export-controlled information, personal information subject to the Privacy Act, and proprietary information of the Government or others, such as "Limited Rights Data" and "SBIR Data" received under a contract, trade secret/confidential commercial information other than "Limited Rights Data" or "SBIR Data," information developed under agreements and subject to Section 303(b) of the National Aeronautics and Space Act of 1958, as amended, copyrighted information, and documents disclosing inventions. Public access to restricted-access information may be prohibited or restricted. Unless a determination is made that public release of information must be prohibited or restricted, NASA STI is made available to the public.

4.2.2.3 In addition, certain types of information are further restricted from dissemination via NASA public websites (NPR 2810.1 and NITR-2810-3, "NASA Internet Publishing Content Guidelines"). Any questions regarding whether or not certain types of information must be protected from public disclosure should be referred to the NASA Headquarters or Center Patent or Intellectual Property

Counsel and the Export Control Administrator. For information on handling documents that contain export-controlled or restricted-access information but which have subsequently been downgraded, see section 2.5.16.

4.2.3 Review of NASA STI

4.2.3.1 Before NASA STI may be published or otherwise disseminated external to NASA (or presented at internal meetings or conferences where foreign nationals may be present), it must be reviewed to determine whether public access to the information must be prohibited or restricted. The NASA review, referred to as the DAA review, is implemented via NF-1676 (or a Center implementation of this form). The DAA review process is intended to ensure that NASA does not inappropriately release information to which public access may be prohibited or limited.

4.2.3.2 Although NASA STI may be produced either directly by NASA or under NASA contracts, grants, and agreements, the NASA DAA review process applies only to the publication and dissemination of NASA STI by NASA or for NASA. The DAA review process is mandatory for all NASA STI disseminated by or for NASA, including on websites or presented at internal meetings or conferences at which foreign nationals may be present.

4.2.3.3 The NASA DAA review is required in situations in which NASA publishes, disseminates, or presents STI external to NASA or presents it at internal meetings or conferences at which foreign nationals may be present, including STI that has been received from NASA-funded contractors or grantees. Unless otherwise specified in the contracts or grants, NASA does not restrict its contractors and grantees from publishing NASA-funded information themselves. In situations in which the contractor or grantee independently publishes STI, NASA is not considered to have published, disseminated, or presented the information so the DAA review by NASA is not required. However, contractors or grantees are still required by U.S. laws and regulations to review their information and ensure that it (a) conforms with laws and regulations governing its distribution, including intellectual property rights, export control, national security, and other requirements and (b) to the extent the contractor or grantee is given access to data necessary for the performance of the contract or grant which contains restrictive markings, complies with such restrictive markings. NASA may, on a voluntary basis if requested by the contractor or grantee, perform a DAA review of STI published or disseminated by contractors or grantees.

4.2.3.4 NASA STI subject to review is reviewed through the DAA review process to: (a) verify its adherence to NASA STI publications policy, if appropriate; (b) ensure its conformance to standards for professional reports and technical accuracy, if appropriate; and (c) determine whether public access to the information must be prohibited or restricted.

4.2.3.5 The DAA review is applicable whether publication is accomplished through printing, submission to external channels for publication through any media, or published electronically on systems accessible by persons or institutions outside NASA. This review is also applicable to presentations that are to be made before professional audiences, whether or not the presentation is accompanied by written material.

# 4.3 Review for Adherence to Publications Policy

4.3.1 The review for adherence to publications policy is required to ensure that NASA technical reports meet the requirements of NPD 2200.1, Management of NASA Scientific and Technical Information (STI), and this NPR.

# 4.4 Professional and Technical Reviews

4.4.1 Definitions

4.4.1.1 Professional reviews (also called editorial and content reviews) are performed by individuals or groups with technical knowledge or background tempered by interdisciplinary expertise in history, education, and program management. Such reviews assess the quality of the document content in terms of its readability, communication of information, and suitability for a particular audience without particular focus on content.

4.4.1.2 Technical reviews are performed by peers having expertise within the technical discipline of the activity or research being documented. Such reviews assess the technical integrity and merit of the activity or research being performed and the results being documented without regard to the effectiveness of the document at communicating the information.

4.4.2 Responsibilities

4.4.2.1 Professional and technical reviews are required to ensure that NASA STI reports conform to NASA Headquarters and Center standards for professional reports and technical accuracy and meet data quality standards. The OICs of Headquarters Offices and Directors of Centers are responsible for ensuring the appropriate review and approval of the content of NASA-sponsored STI resulting from work conducted under their authority for presentation or publication through any channels and in any media, including electronic dissemination. Implicit in this approval is the approval for the preparation, printing, and appropriate dissemination of the STI as a work of NASA.

4.4.3 Review Requirements

4.4.3.1 The officials mentioned in section 4.4.2 will ensure that the appropriate minimum review of the NASA STI Report Series is completed, as indicated by the following levels of NASA STI Report Series professional and technical review requirements:

| NASA STI Report Series | Professional and Technical Review Requirement |
|---|---|
| TP | Technical review by committee of peers or expert single reviewer |
| TM | Review by technical management |
| CR | Review by NASA technical management or expert reviewer(s) |
| CP | Review by technical management |
| SP | Professional review controlled by originating Headquarters Office or NASA Center |
| TT | No technical review; some printing authorization; permission to use copyrighted information must be obtained |

4.4.4 Peer Review

4.4.4.1 NASA accepts and encourages technical review by qualified external reviewers or committees of external reviewers. The Agency also accepts technical review by qualified internal reviewers or committees of internal reviewers who are selected on the basis of technical expertise

and who do not have (or have disclosed) prior situations or personal or funding issues that would affect their technical review.

4.4.4.2 Peer reviews must be conducted in an open and rigorous manner. Peer reviews must also ensure that the data are reliable, unbiased, accurate, complete, and have full documentation, and they must ensure that circumstances that could affect data quality are identified and disclosed.

# 4.5 DAA Reviews

4.5.1 The DAA review is NASA's compliance review for the publication, dissemination, and presentation of NASA STI by or for NASA through any channel or media. The DAA review is implemented via NF-1676 (or a Center specific implementation of this form). The DAA review not only determines technical approval but also specifies reviews for restricted-access STI, such as national- security-classified information, export-controlled information, proprietary STI, and documents disclosing an invention. The author, working in collaboration with his or her technical supervisor or the COTR, if applicable (for NASA STI originating from a NASA contract), initially recommends the subject division and category for the NASA Aeronautics and Space Database for a NASA document or contractor report. NASA STI may be subject to one or more of the restrictions described below. Documents containing restricted-access STI must include Notices applicable to all valid restrictions (see Exhibits at the end of this chapter) as well as one of the document distribution limitations listed in section 4.5.15, along with any appropriate expiration date. Copying and disseminating of such documents must be done in conformance with applicable notices.

4.5.2 Administratively Controlled Information (ACI)

4.5.2.1 Guidelines for determining and marking administratively controlled information (formerly referred to as "For Official Use Only (FOUO)" information) are given in NPR 1600.1, "NASA Security Program Procedural Requirements" and via NF-1686. For more information about this category of information, contact the NASA Headquarters Office of Security and Program Protection.

4.5.3 National Security Review

4.5.3.1 NASA Headquarters and Center originating offices are responsible for the review of STI to determine whether the information is subject to security classification. Final security classification rests with NASA Headquarters Office of Security and Program Protection, and documents containing information subject to security classification are addressed in NPR 1600.1, NASA Security Program Procedural Requirements, and NPR 2810.1, Security of Information Technology. NASA Headquarters and Center originating offices, in conjunction with Headquarters and Center Export Administrators, are also specifically responsible for the review and approval of policy and plans for the intended release of NASA technical and programmatic information to a foreign government. The NASA Headquarters and Center originating offices are also responsible for the review and approval of all material intended for publication, dissemination, and presentation when such material contains information pertaining to the Department of Defense, e.g., aeronautics programs, space launches, or space operations, regardless of the source of the materials.

4.5.4 Publicly Available Documents

4.5.4.1 All NASA STI not meeting any of the criteria for distribution limitations described herein will be considered approved for public release. Information approved for public release will be made available by NASA CASI to any and all pertinent distribution channels, in keeping with the policy set forth in OMB Circular A-130.

4.5.5 Export Control Reviews

4.5.5.1 General. Export control limitations are applied to information subject to:

a. Arms Export Control Act, 22 U.S.C. 2778 et seq.
b. Export Administration Act of 1979, Pub. L. 96-72 Stat. 503, 50 U.S.C. app. 2401 et seq.
c. International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120-130.
d. Export Administration Regulations (EAR), 15 CFR Parts 730-774.

4.5.5.2 These regulations establish lists or categories of technical data subject to export control that may not be exported or disclosed to foreign nationals without proper authority. The term exported includes providing information or making information available, to a foreign national (including a U.S. citizen representing a foreign national if that individual intends to provide the information to a foreign national) either within the United States or abroad. Information placed on the Internet in an unrestricted manner is deemed an export.

4.5.5.3 Review Requirements. The export control review is required to ensure that NASA STI Report Series; conference, meeting, and symposia presentations; abstracts; and external publications containing information subject to control under pertinent U.S. export laws or regulations are suitably protected. Each such report, presentation, abstract, or publication must be reviewed and approved by or in conjunction with the Headquarters or Center Export Administrator prior to the dissemination, in any media, to audiences that may include foreign nationals. Examples are:

a. Presentations at internal meetings at which foreign nationals are likely to attend.
b. Presentation at "open" meetings in the U.S. which may include foreign nationals.
c. Presentations at meetings held in foreign countries.
d. Publications intended for public dissemination and/or distribution.
e. Unrestricted electronic releases over the Internet.

The abstract, complete report, and presentation must be approved prior to release.

4.5.5.4 Under certain conditions, officials overseeing specific contracts or projects may, on a case-by-case basis, be granted limited delegations of authority to approve publications when the contracts or projects are restricted to topics exempt from export controls. These limited delegations are coordinated through the NASA Office of External Relations and the cognizant NASA Headquarters Mission Directorate.

4.5.6 International Traffic in Arms Regulations (ITAR - 22 CFR 120-130)

4.5.6.1 Definitions. The ITAR implements the Arms Export Control Act and contains the United States Munitions List (USML). The USML identifies articles, services, and related technical data that are designated as "Defense Articles" and "Defense Services," pursuant to Sections 38 and 47(7) of the Arms Export Control Act. The ITAR is administered by the U.S. Department of State. "Technical Data," as defined in the ITAR, do not include information concerning general scientific, mathematical, or engineering principles commonly taught in schools, colleges, and universities or information in the public domain (as that term is defined in 22 CFR 120.11). It also does not include basic marketing information on function and purpose or general system descriptions. For purposes of the ITAR, the following definitions apply:

a. "Defense Article" (22 CFR 120.6). A "Defense Article" is any item or "Technical Data" on the USML (22 CFR 121.1). The term includes "Technical Data" recorded or stored in any physical form, models, mockups, or other items that reveal "Technical Data" directly relating to items designated in the USML. Examples of "Defense Articles" included on the USML are: (1) launch vehicles, including their specifically designed or modified components, parts, accessories, attachments, and associated equipment and (2) remote-sensing satellite systems,

including ground control stations for telemetry, tracking, and control of such satellites, as well as passive ground stations if such stations employ any cryptographic items controlled on the USML or if they employ any uplink command capability, all components, parts, accessories, attachments, and associated equipment (including ground support equipment) that is specifically designed, modified, or configured for such systems. (See 22 CFR 121.1 for the complete listing.)

b. "Technical Data" (22 CFR 120.10). Information that is required for the design, development, production, manufacture, assembly, operation, repair, testing, maintenance, or modification of "Defense Articles." This includes information in the form of blueprints, drawings, photographs, plans, instructions, and documentation.
c. Classified information relating to "Defense Articles" and "Defense Services."
d. Information covered by an invention secrecy order (35 U.S.C. 181 et seq.; 35 CFR Part 5).
e. Software directly related to "Defense Articles," including, but not limited to, system functional design, logic flow algorithms, application programs, operating systems, and support software for design, implementation, test, operations, diagnosis, and repair.

4.5.6.2 Notice of Availability Limitation

4.5.6.3 If NASA STI contains "Technical Data" or "Defense Articles" as defined above, it is restricted by ITAR, and all copies must bear the "ITAR Notice" shown in Exhibit 4-1 at the end of this chapter. Release or distribution of the same information by NASA contractors is subject to the same notice. The restriction marking must appear on the cover, title page, and SF-298 (RDP).

4.5.7 Export Administration Regulations (EAR - 15 CFR 730-774)

4.5.7.1 Definitions. The EAR implements the Export Administration Act and contains the Commerce Control List (CCL). The CCL lists commodities, technology, and software subject to the export control authority of the U.S. Department of Commerce. The items on this list are export controlled for reasons of national security, foreign policy, proliferation, and/or short supply. These regulations are administered by the U.S. Department of Commerce. Information subject to EAR export restrictions includes that specific "Technology" identified in the CCL (15 CFR 774).

a. "Technology" (Supplement 2 to 15 CFR 774). Specific information necessary for the development, production, or use of a product on the CCL. The information may be in the form of technical data or technical assistance.
b. "Technical Data." Information that may take forms such as blueprints, plans, diagrams, models, formulae, tables, engineering designs and specifications, manuals, and instructions written or recorded on other media or devices such as disk, tape, or read-only memories.
c. "Software." A collection of one or more computer or microcomputer programs fixed in any tangible medium of expression.
d. "Development Information." Specific information necessary for any stages prior to serial production such as design, design research, design analyses, design concepts, assembly and testing of prototypes, pilot production schemes, design data, process of transforming design data into a product, configuration design, integration design, and integration design layouts.
e. "Production Information." Specific information necessary on any production stages such as product engineering, manufacture, integration, assembly (mounting), inspection, testing, and quality assurance.
f. "Use Information." Specific information necessary for operation, installation (including onsite installation), maintenance (checking), repair, overhaul, and refurbishment.
g. Examples of information not subject to export control under the EAR. Such examples include:

1. information that is publicly available via literature, library, patent, or seminar.

2. fundamental, basic and applied research in which the resulting information is ordinarily published and shared broadly within the scientific community, as well as university-based, corporate, or FFRDC (Federally Funded Research and Development Center-based) research that has no restrictions on publication of the resulting information.
3. educational information taught in a college catalog course.
4. information contained in patent applications that are not subject to 37 CFR Part 5 secrecy orders.
5. basic marketing information on function or purpose or general system descriptions that the producer would make available to its closest competitors at no more than the cost of reproduction.

4.5.7.2 Notice of Availability Limitation. If NASA STI contains "Technology" controlled by EAR, the cover, title page, and RDP of all copies must bear the "EAR Notice" shown in Exhibit 4-2 at the end of this chapter. Release or distribution of the same information by NASA contractors is subject to the same notice.

4.5.8 Proprietary/Sensitive STI

4.5.8.1 Proprietary information refers to information that is owned by someone. The owner has proprietary rights, i.e., a legal property right, in the information that allows the owner to exclude others from using, selling, reproducing, displaying, or distributing the information. As defined in NPR 1600.1, NASA Security Program Procedural Requirements, sensitive information is information determined to have special protection requirements to preclude unauthorized disclosure, to avoid compromises, risks to facilities, projects or programs, threat to the security and/or safety of the source of information, or to meet access restrictions established by laws, directives, or regulations.

For the purposes of the DAA review and this NPR, proprietary STI is STI that contains "Limited Rights Data" received under a contract, "SBIR Data" received under a SBIR contract, trade secret/confidential commercial information other than "Limited Rights Data" or "SBIR Data," data subject to Section 303(b) of the National Aeronautics and Space Act of 1958, as amended, copyrighted information, and information disclosing inventions. Additionally, STI may include sensitive information that is unclassified but must be restricted from the web based on NITR-2810-3, "NASA Internet Publishing Content Guidelines."

4.5.9 "Limited Rights Data"

4.5.9.1 Definition. "Limited Rights Data" is data developed at private expense that is delivered to the Government under a government contract and that embodies trade secrets or are commercial or financial and confidential or privileged or that pertain to items, components, or processes developed at private expense. Information that constitutes "Limited Rights Data" must be marked with a "Limited Rights Notice" in accordance with FAR clause 52.227-14 when delivered to the Government. If such data is not marked with the "Limited Rights Notice," the Government has no obligation to withhold the data from public release. Any questions regarding what constitutes "Limited Rights Data," or regarding its marking, use, or dissemination, should be referred to the NASA Headquarters or Center Patent or Intellectual Property Counsel.

4.5.9.2 Notice of Availability Limitation. Documents containing "Limited Rights Data" must bear the "Limited Rights Notice" shown in Exhibit 4-3 and one of the document distribution limitations listed in section 4.5.15. Copying and disseminating of such documents must be done in conformance with this notice. Any questions regarding appropriate markings or legends and applicable document distribution limitations should be referred to the NASA Headquarters or Center's Patent or Intellectual Property Counsel.

4.5.10 "SBIR Data"

4.5.10.1 Definition. "SBIR Data" is defined as data first produced by an SBIR contractor which are not generally known, have not, without obligation as to its confidentiality, been made available to others by the contractor, or are not already available to the Government. Data developed under an SBIR contract, if marked with the "SBIR Rights Notice" specified in the contract, must be withheld from public release in accordance with the SBIR contract, usually for 4 years. If such data are not marked with the "SBIR Rights Notice," the Government has no obligation to withhold the data from public release. Any questions regarding what constitutes "SBIR Rights Data," or regarding its marking, use, or dissemination, should be referred to the NASA Headquarters or Center Patent or Intellectual Property Counsel.

4.5.10.2 To provide a commercialization incentive to SBIR contractors, it is NASA policy to restrict all SBIR program reports from public disclosure for the period specified in the contract for "SBIR Data" unless the contractor has granted permission to publicly release the report sooner. If a letter of permission from the contractor is on file, SBIR program reports may be made publicly available immediately.

4.5.10.3 Notice of Availability Limitation. Restricted SBIR program documents must bear the "SBIR Rights Notice" shown in Exhibit 4-4 and one of the document distribution limitations listed in section 4.5.15, along with the appropriate expiration date. Copying and disseminating of such documents must be done in conformance with this notice. Any questions regarding appropriate markings or legends and applicable document distribution limitations should be referred to NASA Headquarters or the Center's Patent or Intellectual Property Counsel.

4.5.11 Trade Secret/Confidential Commercial Information

4.5.11.1 Under certain limited circumstances, NASA employees may be provided access to third party trade secret or confidential commercial information other than "Limited Rights Data" or "SBIR Data" for inclusion in NASA STI. A "trade secret" is information that: (1) is used in a business, (2) is secret, and (3) gives a competitive advantage to the person with knowledge of it. The party delivering such information must include a proprietary notice that indicates the restricted nature of the information when delivered to the Government. If such information is properly marked by the originator, NASA agrees to handle the information in accordance with the markings. When NASA STI containing trade secret or confidential commercial information is published or otherwise disseminated by or for NASA, the cognizant program or project office is responsible for ensuring that such data are properly identified and marked to indicate restricted dissemination. Any questions regarding what constitutes trade secret or confidential commercial information, or regarding its marking, use, or dissemination, should be referred to NASA Headquarters or the Center Patent or Intellectual Property Counsel.

4.5.11.2 Notice of Availability Limitation. If NASA STI is restricted due to trade secret or confidential commercial information other than "Limited Rights Data" or "SBIR Data," all distributed copies must contain the marking or legend supplied by the originator of the information and, if applicable, one of the document distribution limitations listed in section 4.5.15. In accordance with the NPR 5800.1E, Grants and Cooperative Agreements Handbook, Section D (see Rights in data clause at 14 CFR 1274.905), in limited circumstances information first produced by a recipient under a cooperative agreement with a commercial firm may be marked as trade secret/commercial confidential information and its use limited for a period of up to 5 years. In such cases, an appropriate expiration date of the limitation must be included. Copying and dissemination of marked information must be consistent with its markings or legends and any applicable document distribution limitations. Any questions regarding appropriate markings or legends and applicable

document distribution limitations should be referred to NASA Headquarters or the Center's Patent or Intellectual Property Counsel.

4.5.12 Information Subject to Space Act Section 303(b)

4.5.12.1 Under certain limited circumstances, NASA employees may produce technical information that may be treated as trade secret information. Section 303(b) of the National Aeronautics and Space Act, as amended, provides that information or data produced by NASA employees, in carrying out NASA's participation in an agreement entered into under the Space Act, may be protected for a period of up to 5 years if such information would constitute a trade secret or confidential commercial information if it had been produced by the non-Government party. This provision is generally applicable to agreements that have the objective of developing commercial products or processes. Such data should be properly marked by the cognizant NASA project office. NASA agrees to protect the data for the period of time established in the agreement between NASA and the other party, up to 5 years.

4.5.12.2 Notice of Availability Limitation. If NASA STI is restricted due to information subject to Section 303(b) of the Space Act, all distributed copies must contain one of the document distribution limitations listed in section 4.5.15 along with the appropriate expiration date of the limitation. Copying and dissemination of marked information must be consistent with its markings or legends and any applicable document distribution limitations. Any questions regarding appropriate markings or legends and applicable document distribution limitations should be referred to NASA Headquarters or the Center's Patent or Intellectual Property Counsel.

4.5.13 Copyright

4.5.13.1 General. A copyright owner is the owner of the exclusive rights comprised in a copyright. A copyright provides the copyright owner the exclusive right to, or authorize others to: reproduce the copyrighted work; prepare derivative works based upon the copyrighted work; distribute copies of the copyrighted work to the public; perform the copyrighted work publicly; and display the copyrighted work publicly. Others are restricted from exercising the exclusive rights reserved to the copyright owner without the copyright owner's permission. (See also section 2.8.6.)

4.5.13.2 Contracts, grants, and agreements often permit the contractor, grantee, or recipient to assert copyright in reports and other publications first produced in the performance of the specified activity, e.g., works containing or based on data first produced under a NASA contract, grant, or agreement and published in academic, technical or professional journals, symposia proceedings, or similar works. When copyright is asserted, the contractor or grantee must include a copyright notice and acknowledgment of Government sponsorship (including contract or grant number) of the work when it is published. Ordinarily, the Government receives a government purpose license (also called federal purpose license) in the copyrighted work. The cognizant program or project office provides written notification to the responsible Center Technical Publications Office of instances in which documents containing a copyright notice are provided without a license authorizing public distribution.

4.5.13.3 Under most contracts, grants, and agreements, a government purpose license includes the right to use, modify, reproduce, release copies to the public, perform publicly, and display publicly a copyright work or authorize others to do so for governmental purpose. Under a government purpose license, the Government may use the work within the Government without restriction and may release or disclose the work outside the Government for government purposes. Under Section 203 of the Space Act, it is a governmental purpose to provide for the widest practicable and appropriate dissemination of information concerning NASA's activities and their results. Thus, public distribution of the results of work funded by NASA is a governmental purpose. However, although

NASA may publicly release copyrighted works in which it has a government purpose license, these works are still protected by copyright, and recipients of the works must comply with the Copyright Law, e.g., they may not further copy or distribute the copyrighted work without permission of the copyright owner.

4.5.13.4 Documents produced by Government employees in the performance of official duties are not subject to copyright protection in the United States. However, the U.S. Government may obtain copyright protection in other countries depending on the treatment of government works by the national copyright law of the particular country. For additional information, contact the NASA Headquarters or Center Patent or Intellectual Property Counsel. (See also the CENDI ( http://www.cendi.gov) Frequently Asked Questions About Copyright, available from http://www.cendi.gov/publications/04-8copyright.html.)

4.5.13.5 Notice of Availability Limitation. If NASA STI is restricted due to copyrighted content, all distributed copies must bear the appropriate "Notice for Copyrighted Information" notice shown in Exhibit 4-5 at the end of this chapter. Release or distribution of the same information by NASA contractors is subject to the same notice.

4.5.14 Document Distribution Limitations

4.5.14.1 Document distribution limitations determined during the DAA review and indicated on the NF-1676 are:

a. U.S. Government Agencies and U.S. Government Agency Contractors Only.
b. NASA Contractors and U.S. Government Agencies Only.
c. U.S. Government Agencies Only.
d. NASA Personnel and NASA Contractors Only.
e. NASA Personnel Only.
f. Available Only with Approval of Issuing Office (Program Office or NASA Center).

4.5.14.2 When STI is no longer subject to restriction (or following the date cited in "Limited until..."), the cognizant NASA Center (program officials and Export Control Administrators or Patent or Intellectual Property Counsel, as appropriate) must re-mark the STI and provide the NASA CASI with a copy of the new or modified DAA through the Center's Technical Publications Office or STI Manager. Because NASA CASI is a contractor facility, it is not approved to change or alter authorization categories.

4.5.15 Subject to NITR-2810-3 ("NASA Internet Publishing Content Guidelines")

4.5.15.1 Prior to loading a NASA document to a public website, refer to NASA Information Technology Requirement (NITR) 2810-3. If restrictions apply based on this document, use the appropriate restriction indicated in the exhibits at the end of this section.

4.5.16 Documents Disclosing Inventions

4.5.16.1 General. Information that is otherwise approved for public release may be withheld if it discloses an invention. The publication of information disclosing an invention by any party before the filing of a patent application may create a bar to a valid patent. Accordingly, under 35 U.S.C. 205 and implementing regulations, agencies are to withhold from release to the public documents that contain information about an invention in which the Government owns or may own a right, title, or interest (including a nonexclusive license). This applies to inventions made and reported by NASA employees contractors, and grantees. Release is delayed in order for a patent application to be filed or, if a decision not to file is made, until release is approved by NASA Headquarters or the Center Patent or Intellectual Property Counsel.

4.5.16.2 When STI discloses an invention, the invention must also be formally disclosed to NASA via eNTRe, the NASA electronic New Technology Reporting website at http://invention.nasa.gov, or using NF-1679, Disclosure of Invention and New Technology, also available at the eNTRe website.

4.5.16.3 Notification. The party making and disclosing or reporting the invention is responsible for notifying the Agency as to the nature of the information and the invention to which it relates. In the case of reports submitted under contract or grant, notification should be made to the Contracting Officer or Grant Officer, the designated Patent Representative, and the STI Manager. In the case of NASA-prepared documents, notification should be made to the Project Officer, the Center Patent or Intellectual Property Counsel, and the STI Manager.

4.5.16.4 Notification Response. Regardless of availability category and any blanket availability authorization that may have been granted, all documents that disclose an invention (except security-classified documents that disclose an invention) for which notification has been made must be withheld by the originating office, with notice to the Center Technical Publications Manager, until the patent applications process is complete (that is, an application is filed with U.S. Patent and Trademark Office or a decision not to file an application is made, and release is approved by the Center Patent or Intellectual Property Counsel). Such withholding does not require NASA Program Office approval. Security-classified documents that disclose an invention must be withheld until approved for release under applicable security guidelines.

4.5.17 Nonstandard Restrictions

4.5.17.1 Use of restrictions other than those specified in this chapter must receive prior approval by the Headquarters Office of General Counsel. Requests for use of nonstandard restrictions must include the following information:

a. Clear statement of who can and cannot receive the document.
b. Time limit for the restriction.
c. Reason for the restriction.
d. Copy of the legal citation on which the proposed restriction is based.

4.5.18 Delegations

4.5.18.1 The Document Availability Authorization (DAA) process is based on statutory requirements for NASA and is coordinated with the Headquarters Office of General Counsel, External Relations, and Security and Program Protection. The responsibility held by the OICs of Headquarters Offices is delegated to NASA Center Directors (with the exception of policy and standards information requiring review by the Office of External Relations).

4.5.19 Documentation of DAA Review and Approval

4.5.19.1 Approvals should be documented on NF-1676 or the Center-specific implementation of this form. The DAA also documents which restrictions, if any, must be applied to the distribution of the publication or presentation. Individuals originating STI in any form may consult with the NASA Headquarters or Center DAA representative and, as appropriate, the Headquarters or Center Export Administrator, who can explain the availability categories and authorization requirements, and with their NASA Program or Project Manager, COTR, and Contract Technical Monitor, as applicable.

4.5.19.2 Copies of NF-1676 are available from the Center or Headquarters Forms Manager and are also accessible via the NASA Forms website (http://www.hq.nasa.gov/office/codec/codeci/help/forms/forms.htm) and the NASA STI program home page (http://www.sti.nasa.gov, Publish STI, Required Approvals). Use of the form in other

media and in other formats is permitted as long as the data elements contained on NF-1676 are retained.

# 4.6 Special Concerns

4.6.1 Grants and Cooperative Agreements

4.6.1.1 In accordance with NPR 5800.1, Grant and Cooperative Agreement Handbook, the widest practicable dissemination should be made of results of a NASA grant or cooperative agreement, subject to the restrictions noted above. If the results of a NASA grant or cooperative agreement are published as a NASA Contractor Report (CR), they must meet the requirements for CRs as specified in section 4.5. The DAA review of grant reports published in the NASA STI Report Series should be initiated by the Technical Officer or by the applicable Headquarters Program Office. For grants that are subject to restrictions, see also sections 4.2.3, 4.5.13, 4.5.17, and 5.2.

4.6.2 Reports Funded by Other Agencies

4.6.2.1 NASA STI Report Series that result from efforts fully funded by other Government agencies, e.g., the Department of Defense or the Department of Energy, do not require a specific NASA DAA review if the report has been subject to the review process of that agency. Such reports will carry the limitations assigned by the other Government agency. If a review has not been made by another Government agency, a DAA review initiated by the appropriate NASA program is required. Reports resulting from efforts funded in part by NASA require a NASA DAA review.

**Exhibit 4-1. International Traffic in Arms Regulations (ITAR) Notice**

*International Traffic in Arms Regulations (ITAR) Notice*

This document contains information which falls under the purview of the U.S. Munitions List (USML), as defined in the International Traffic in Arms Regulations (ITAR), 22 CFR 120-130, and is export controlled. It shall not be transferred to foreign nationals, in the U.S. or abroad, without specific approval of a knowledgeable NASA export control official, and/or unless an export license/license exemption is obtained/available from the United States Department of State. Violations of these regulations are punishable by fine, imprisonment, or both.

**Exhibit 4-2. Export Administration Regulations (EAR) Notice**

*Export Administration Regulations (EAR) Notice*

This document contains information within the purview of the Export Administration Regulations (EAR), 15 CFR 730-774, and is export controlled. It may not be transferred to foreign nationals in the U.S. or abroad without specific approval of a knowledgeable NASA export control official, and/or unless an export license/license exception is obtained/available from the Bureau of Industry and Security, United States Department of Commerce. Violations of these regulations are punishable by fine, imprisonment, or both.

**Exhibit 4-3. Limited Rights Data Notice**

*Limited Rights Notice*

These data are submitted with limited rights under Government Contract No. _____ (and subcontract_____, if appropriate). These data may be reproduced and used by the Government with the express limitation that they will not, without written permission of the Contractor, be used for purposes of manufacture nor disclosed outside the Government. This Notice shall be marked on any reproduction of these data, in whole or in part.

INFORMATION CONTAINED HEREIN IS PROPRIETARY IN ACCORDANCE WITH FAR 52.227-14.

**Exhibit 4-4. SBIR Rights Notice**

*SBIR Rights Notice*

These SBIR data are furnished with SBIR rights under Contract No._____. For a period of 4 years after acceptance of all items to be delivered under this contract, the Government agrees to use these data for Government purposes only, and they shall not be disclosed outside the Government (including disclosure for procurement purposes) during such period without permission of the Contractor, except that, subject to the foregoing use and disclosure prohibitions, such data may be disclosed for use by support Contractors. After the aforesaid 4-year period the Government has a royalty-free license to use, and to authorize others to use on its behalf, these data for Government purposes, but is relieved of all disclosure prohibitions and assumes no liability for unauthorized use of these data by third parties. This Notice shall be affixed to any reproductions of these data, in whole or in part. Date for public release:_____.

INFORMATION CONTAINED HEREIN IS PROPRIETARY FOR 4 YEARS IN ACCORDANCE WITH FAR 52.227-20.

**Exhibit 4-5. Copyright Notices**

**(a) Notice for Copyrighted Information (Contractor/Grantee-Prepared Works)**

*Notice for Copyrighted Information*

This manuscript has been authored by employees of _____ under Contract/Grant No._____ with the National Aeronautics and Space Administration. The United States Government has a nonexclusive, irrevocable, worldwide license to prepare derivative works, publish or reproduce this manuscript, and allow others to do so, for United States Government purposes. Any publisher accepting this manuscript for publication acknowledges that the United States Government retains

such a license in any published form of this manuscript. All other rights are retained by the copyright owner.

**(b) Notice for Copyrighted Information (Government Works)**

*Notice for Copyrighted Information*

This manuscript is a work of the United States Government authored as part of the official duties of employee(s) of the National Aeronautics and Space Administration. No copyright is claimed in the United States under Title 17, U.S. Code. All other rights are reserved by the United States Government. Any publisher accepting this manuscript for publication acknowledges that the United States Government retains a nonexclusive, irrevocable, worldwide license to prepare derivative works, publish or reproduce the published form of this manuscript, or allow others to do so, for United States Government purposes.

**(c) Notice for Copyrighted Information (Joint Works)**

*Notice for Copyrighted Information*

This manuscript is a joint work of employees of the National Aeronautics and Space Administration and employees of _____ under Contract/Grant No._____ with the National Aeronautics and Space Administration. The United States Government may prepare derivative works, publish or reproduce this manuscript, and allow others to do so. Any publisher accepting this manuscript for publication acknowledges that the United States Government retains a nonexclusive, irrevocable, worldwide license to prepare derivative works, publish or reproduce the published form of this manuscript, or allow others to do so, for United States Government purposes.

**Exhibit 4-6. Notice for NASA Web Guidelines**

*NASA Web Guidelines Notice*

Do Not Release on a Public Website Based on ÒNASA Internet Publishing Content Guidelines,Ó NASA Information Technology Requirement (NITR)-2810-3.

# Chapter 5. Dissemination of STI

## 5.1 Purpose

5.1.1 To ensure the widest practicable and appropriate dissemination of the results of NASA STI activities, NASA maintains an electronic and alternative media duplication capability, adheres to printing regulations that direct printing and reproduction procedures, and maintains a variety of distribution mechanisms that ensure easy access to the NASA STI Report Series as well as other STI-related products and services.

## 5.2 Responsibilities

a. General distribution requirements for the NASA STI program are determined by the NASA STI Program Director.
b. Distribution and dissemination requirements for individual publications are determined by the author and his or her management in coordination with the general requirements of the NASA STI Program Director.
c. All duplicating or printing, if applicable, of NASA STI is performed in accordance with NPD 1490.1, NASA Printing, Duplicating, Copying, Forms, and Mail Management, and NPR 1490.5, NASA Procedural Requirements for Printing, Duplicating, and Copying Management.
d. Grantee reports published by the Grantee that are unclassified/unlimited are exempt from dissemination controls, unless otherwise stated in the grant; however, if NASA elects to publish the final grant report as a NASA Contractor Report, dissemination controls that are applicable to NASA publications apply. See sections 4.2.3 and 4.6.1.
e. NASA Center for AeroSpace Information (CASI) is responsible for the primary dissemination of NASA STI, which is done electronically. NASA Centers may elect to also disseminate unclassified/unlimited STI by placing it on their Center Technical Report Server once it has undergone a NF-1676 or Center version of this form review. Documents on a public website must also meet requirements in NITR-2810-3.

5.2.1 A more-detailed discussion of distribution procedures is provided in section 5.6.

## 5.3 Duplication/Printing

5.3.1 Print Media. NASA disseminates STI electronically. On occasion, a Center may also require a hard copy duplication/printing. The duplication or printing of publications in the NASA STI Report Series in hard copy, if a Center elects to do so, is accomplished through Center Publications Offices using NASA Headquarters or Center duplicating/copying facilities and/or GPOs, in accordance with NPD 1490.1, NASA Printing, Duplicating, Copying, Forms, and Mail Management, and NPR 1490.5, NASA Procedural Requirements for Printing, Duplicating, and Copying Management. Special handling is required for limited or restricted STI.

5.3.2 Electronic and Alternative Media. The dissemination of STI in electronic or alternative media,

which may or may not be issued jointly with a print version, in the NASA STI Report Series must be made in accordance with the standards in section 2.6.

# 5.4 Archiving of NASA STI

5.4.1 The NASA STI Report Series are scanned or converted into PDF Searchable Image Exact format (if they are not received in this format) for submission to NARA for archiving requirements. This process is in accordance with NASA's Records Retention Schedules (NPR 1441.1).

# 5.5 Duplication for Secondary Distribution

5.5.1 NASA CASI is responsible for subsequent requests for NASA STI. This is called secondary distribution. NASA CASI fulfills requests for STI in electronic formats.

# 5.6 Dissemination/Distribution of NASA STI Report Series

5.6.1 NASA has four types of dissemination/distributions of its STI as follows:

a. Initial (primary).
b. Center.
c. Author.
d. Secondary (i.e., requests on demand).

5.6.2 Initial (Primary) Dissemination/Distribution

5.6.2.1 Initial or primary dissemination/distribution is made at the time the report is first produced.

5.6.2.2 NASA CASI is responsible for the initial distribution of STI that is made in electronic formats. For STI in alternative media formats (videos, CD-ROM's) and for alternative media format supplements to electronic STI, the Center must provide to NASA CASI the number of copies necessary for distribution. If a Center elects to do a hard copy printing, the Center is still required to send an electronic file to NASA CASI.

5.6.3 Dissemination/Distribution of Unclassified/Unlimited Documents

5.6.3.1 NASA CASI provides the widest practicable dissemination of publications in the NASA STI Report Series. If the document is unclassified/unlimited, NASA CASI sends a copy to NASA Centers, domestic and international organizations, corporations, and universities that are registered with NASA CASI to receive NASA STI publications in any or all of the 11 broad subject divisions. This includes other government agencies, NTIS, the Superintendent of Documents/GPO, and the Federal Depository libraries (unclassified/unlimited STI only).

5.6.4 Distribution of Restricted Documents

5.6.4.1 NASA CASI makes the appropriate distribution based on the approved registration. National Technical Information Service (NTIS), the Superintendent of Documents/GPO, and the Federal Depository libraries do not handle restricted information. Centers are not approved to distribute restricted documents other than to NASA CASI and to authors (who are approved to receive them). Any distribution by an author must be reviewed by the appropriate Center's personnel (export control, general counsel, etc.).

5.6.5 Submittal of STI to NASA CASI

5.6.5.1 NASA STI Managers and COTRs ensure that copies of all unclassified publications are forwarded to NASA CASI once the publications have been approved via the NF-1676 (or Center implementation of this form). Electronic formats are strongly recommended. See http://www.sti.nasa.g http://www.sti.nasa.gov, Publish STI, Electronic File Formats for NASA STI, for appropriate types of electronic formats. For unclassified STI containing restricted-access information as described in section 4.2.2, use the notices indicated in Chapter 4. Such STI should be electronically transferred in encrypted format as approved by NASA or sent in hard copy or electronic form on CD-ROM if encryption is not available.

5.6.5.2 Two copies (1 electronic (required) and 1 hard copy (recommended)) of NASA STI Report Series are to be sent to NASA CASI. The hard copy may be used to validate that math and symbols have not encountered a font substitute during transmission. For NASA STI reports that are in an alternative media that NASA CASI cannot accommodate, contact NASA CASI to determine the number of copies that must be provided so that they can make the appropriate distribution.

5.6.5.3 Documents provided to NASA CASI are processed into the NASA Aeronautics and Space Database and announced in a variety of published bibliographies and other external resources.

5.6.6 Center Dissemination/Distribution

5.6.6.1 A Center may elect to distribute copies of the STI internally to appropriate approved personnel, such as to their records management office, export control office, other specific organizations, etc. The Center is responsible for this distribution.

5.6.7 Author Dissemination/Distribution

5.6.7.1 Authors may also request that their Center provide a supplementary distribution of NASA STI publications in addition to the initial distribution. The author distribution may include known authors in the field, conference registrants, members of organizations or groups known to have an interest in the field, and/or persons who have requested similar prior papers. This distribution may also contain the names of persons included in lists obtained from contractors and other agencies. For restricted-access STI, authors must ensure that the names of potential recipients for this distribution have been approved by the Center management prior to the Center or the author making this distribution. Distribution of restricted-access STI requires additional approvals.

5.6.8 Secondary Dissemination/Distribution

5.6.8.1 Secondary distributions are sent to authorized requesters on demand. This distribution is the responsibility of NASA CASI.

5.6.9 NASA STI Help Desk

5.6.9.1 For additional information concerning announcement and dissemination/distribution, contact the STI Help Desk as follows:

a. Telephone the NASA STI Help Desk at 301-621-0390.
b. Send a fax to the NASA STI Help Desk at 301-621-0134.
c. Send an e-mail via Internet to help@sti.nasa.gov.
d. Write to the NASA STI Help Desk at the NASA Center for AeroSpace Information, 7121 Standard Drive, Hanover, MD 21076-1320.

# 5.7 Use of Commercial or Nonprofit Publishers

5.7.1 The decision to use commercial or nonprofit publishers (e.g., society and nonprofit publishers) for printing NASA STI involves the following considerations:

a. When appropriated funds have been used to create information to be published, printing services must be provided by the GPO, and the information shall not be made available to a private publisher for initial publication.
b. If appropriated funds have not been used, other factors (e.g., type and content of the publication, audience, statutory requirements, past practice, and distribution to depository libraries) must be taken into consideration, and both the Office of the General Counsel and the office responsible for the preparation of the work must be consulted.
c. The contractual arrangement with the publisher would not be a procurement or assistance transaction but rather a Space Act agreement.

# Appendix A. List of Acronyms and Definitions of Terms

## A.1 Acronyms

| | |
|---|---|
| ADDS | Automatic Document Distribution Service (a subscription service for NASA Publications) |
| AIIM | Association for Information and Image Management |
| ANSI | American National Standards Institute |
| CASI | See NASA CASI |
| CD-ROM | Compact Disk-Read Only Memory |
| CFR | Code of Federal Regulations |
| CO | Contracting Officer |
| CP | Conference Publication |
| CR | Contractor Report |
| COTR | Contracting Officer's Technical Representative |
| DAA | Document Availability Authorization (NASA Form 1676) |
| EAR | Export Administration Regulations |
| FAR | Federal Acquisition Regulations |
| GPO | Government Printing Office |
| IEEE | Institute of Electrical and Electronics Engineers |
| ISBN | International Standard Book Number |
| ISSN | International Standard Serial Number |
| ITAR | International Traffic in Arms Regulations |
| JCP | Joint Committee on Printing |
| LCCN | Library of Congress Control Number |
| NARA | National Archives and Records Administration |
| NASA CASI | NASA Center for AeroSpace Information |
| NFS | NASA FAR Supplement |

| | |
|---|---|
| NISO | National Information Standards Organization |
| NPD | NASA Policy Directive |
| NPR | NASA Procedural Requirements |
| NTIS | National Technical Information Service |
| NSS | NASA Safety Standard |
| OIC | Official-in-Charge |
| OMB | Office of Management and Budget |
| PDF | Portable Document Format |
| PMS | PantoneR Matching System |
| RDP | Report Documentation Page (SF-298) |
| SBIR | Small Business Innovation Research |
| SF | Standard Form |
| SP | Special Publication |
| STI | Scientific and Technical Information |
| STRN | Standard Technical Report Number |
| TM | Technical Memorandum |
| TP | Technical Publication |
| TRS | Technical Report Server |
| TT | Technical Translation |
| U.S.C. | United States Code |
| WBS | Work Breakdown Structure |

# A.2 Definitions of Terms

Accession, Accessioning. The process by which documents are added to the NASA Aeronautics and Space Database.

Authorized Requester. Individual or organizational user properly registered with the NASA CASI to receive STI services and products. (See also User Registration.)

Availability. The degree of authorized access to a given document based on approved distribution limitations.

Copyrighted Document. A document for which the exclusive legal rights under the Copyright Law (right to reproduce, modify, distribute, perform publicly, and display publicly) have been asserted by the author of the work.

Dissemination/Distribution. Dissemination is normally referred to as the process by which STI is transmitted to the user community. Distribution is normally referred to as the transmittal of STI electronically or by hard copy and/or alternative media to authorized users. For the purposes of this NPR, these two terms are used interchangeably. Government distribution or dissemination means, in

accordance with OMB Circular A-130, Management of Federal Information Resources, the Government- initiated distribution of information to the public. Dissemination within the meaning of the Circular does not include distribution limited to Government employees or agency contractors or grantees, intra- or inter-agency use or sharing of Government information, and responses to requests for agency records under the Freedom of Information Act (5 U.S.C. 552) or Privacy Act.

Document. An information package that may consist of printed hard copy, alternative media, diskettes, CD-ROM's, or electronic versions.

Document Availability Authorization (DAA). The process by which NASA determines which restrictions, if any, need to be placed on the availability of a document. The form used in this process is NASA Form 1676, DAA, available at http://nodis3.gsfc.nasa.gov.

Duplicating/Copying Facility. Any location having at least one employee operating duplicating/copying equipment on a full-time basis, excluding authorized printing plants.

Export Administration Regulations (EAR). U. S. export control regulations (15 CFR 730-774) administered by the U.S. Department of Commerce that require limited availability for technical data pertaining to commodities, technology, and software listed on the Commerce Control List. NASA STI reports subject to restriction under this regulation often are referred to as EAR documents.

Electronic Dissemination/Distribution. The delivery of information through the use of electronic communications or machine-readable representations of documents or release via the Internet.

Formal STI. Scientific and technical information intended for publication in the NASA STI Report Series (e.g., Technical Memorandum, Conference Publication) or as a professional journal article or presentation for which the NASA STI program maintains responsibility for dissemination and preservation.

Hard Copy. See Paper Copy.

Informal STI. Scientific and technical information not intended for initial publication in the NASA STI Report Series or as a professional journal article or presentation for which the NASA STI program maintains responsibility for dissemination and preservation.

Initial (Primary) Dissemination/Distribution. Dissemination/distribution made by NASA CASI when the document is first published.

International Traffic in Arms Regulations (ITAR). U. S. Export Control Regulations (22 CFR 120-130) that require limited availability for technical data that pertain to commodities, technology, and software listed on the United States Munitions List. NASA STI reports subject to restriction under this regulation are often referred to as ITAR documents.

NASA Center for AeroSpace Information (NASA CASI). The NASA STI program's contract facility that maintains the NASA Aeronautics and Space Database and processes information into it. NASA CASI currently serves as the historical repository of all NASA STI Report Series and as the physical full-text distribution center for these reports.

NASA STI. STI produced by NASA or under NASA funding agreements where NASA has the right to publish or otherwise disseminate the STI. For example, NASA STI includes STI authored by a NASA employee as part of the employee's official duties, STI co-authored by a NASA employee and a non-NASA employee, and STI authored by a NASA contractor or grantee employee where NASA has the right to publish or otherwise disseminate the STI.

NASA STI Report Series. Discrete report designations that characterize NASA and NASA contractor STI reports. The NASA STI Report Series comprises six types of publications: Technical

Publication (TP), Technical Memorandum (TM), Contractor Report (CR), Conference Publication (CP), Special Publication (SP), and Technical Translation (TT).

Paper (Hard) Copy. Full-sized reproduction of a document on paper.

Printing. The processes of composition, platemaking, presswork, duplicating, silk-screen processes, binding, microform, and the end items of such processes.

Professional Journals. Scientific, technical, and trade publications produced by professional, technical, and/or academic organizations.

Publication. The process of officially releasing a NASA document for public or restricted access through print, electronic, or alternative media. Also, the resultant Document.

Publicly Available. Availability assigned to STI information for which distribution and use are unrestricted (i.e., unclassified/unlimited).

Report Series. See NASA STI Report Series.

Review paper. A comprehensive review of literature or other research that includes extensive analysis and comparison of the literature or research.

Scientific and technical information. NASA STI is defined as the results (facts, analyses, and conclusions) of the Agency's basic and applied scientific, technical, and related engineering research and development. STI also includes management, industrial, and economic information relevant to this research. Examples include, but are not limited to, technical papers and reports, journal articles, meeting, workshop, and conference papers and presentations, conference proceedings, preliminary or non-published STI, including any of these examples that will be posted to a public website.

Secondary Dissemination/Distribution. Dissemination/distribution by NASA CASI when an approved user or customer requests a document (dissemination on demand).

Security Classified. Documents containing classified information as defined in NPR 1600.1, NASA Security Program Procedural Requirements, similar regulations, or directives of other Government agencies (e.g., Department of Defense).

Sponsored research report. A report that is sponsored by NASA but performed by another agency (CRSX) or sponsored by another agency but performed by NASA (TMSX).

Subject Division. Specific subject areas used to categorize documents in the collection which are used in the NASA announcement journals, e.g., aeronautics, astronautics, chemistry, and materials. A complete listing of the subject divisions and the subject categories included in each division covered by the NASA Aeronautics and Space Database is provided in Appendix H.

Symposia. Technical conferences, seminars, and similar meetings held by Government agencies, professional societies, universities, or industrial organizations.

Technical Report Server (TRS). A file server that serves as a repository for technical reports.

Trademark. A word or symbol that is used to identify a particular product or service in a way that distinguishes it from other similar products or services. A trademark may be registered.

Trade Name. A trade name, or commercial name, to identify business, product, or vocation.

Technical Monitor. The NASA employee appointed to monitor or manage technical progress, referred to in grant instructions as the Technical Officer. In contract instructions, this employee may be identified as the Project Manager or the Contracting Officer's Technical Representative (COTR).

User Registration. The process by which eligible organizations and individuals become authorized to receive STI services and products from the NASA Center for AeroSpace Information.

# Appendix B. Types of NASA STI Publications and Related NASA STI Report Series

This two-page table lists the types of documents that may be published and disseminated in the NASA STI Report Series. See sections 2.6 and 5.6 for the types of formats that NASA CASI can distribute and additional guidance.

| Manuscript Contents | Appropriate Series |
|---|---|
| Article for a professional journal | None required; TP for expanded treatment and TM for preprint |
| Article for a technical magazine | None required; TP for expanded treatment and TM for preprint |
| Atlas of scientific imagery | TP or SP |
| Bibliography:<br>Continuing<br>Extensive annotation<br>Minimal annotation | <br>SP<br>TP<br>TM |
| Contractor or grantee results and findings | CR, TP, or SP |
| Critical review of the literature | TP |
| Critical tables | TP |
| Data compilation:<br>Extensive use<br>Limited use | <br>TP<br>TM |
| Design standards | TP |
| Dissertation or thesis by employee, relating to work | TM |
| Dissertation or thesis by NASA contractor or grantee (if funded by NASA) | CR |
| Engineering report | TP |

| | |
|---|---|
| Handbook | TP |
| History | SP |
| Letter (e.g., for a professional journal) | None required |
| Limited distribution report | TP, TM, CR |
| Literature survey, review | TP |
| Management Report | SP (6000 series) |
| Manual | TP or TM |
| Monograph | TP |
| Preliminary results report | TM |
| Preprint of paper for a professional meeting | TM |
| Proceedings of a workshop, conference, seminar, etc. | CP |
| Program description or summary | SP |
| Report to another agency | TM |
| Research report | TP |
| Review paper | TP |
| Security-classified report | TP, TM, CR |
| Sponsored research report:<br>NASA sponsor<br>Non-NASA sponsor | <br>CR<br>TM |
| State-of-the-art review | TP |
| Technical report - complete, comprehensive | TP |
| Textbook, scientific or technical | TP |
| Translation | TT |
| Working paper (external circulation) | TM |

# Appendix C. Sample Forms

## C.1 Sample forms (or reference to a form and where it can be located) are presented in the following order:

- NASA Form 1676, NASA Scientific and Technical Information (STI) Document Availability Authorization (DAA) and Instructions.
- OMB Standard Form 298, Report Documentation Page and Instructions.
- NASA Supplementary Instructions To Complete SF-298 (Rev. 8-98 Version).
- Sample OMB Standard Form 298.

## C.2 NASA Form 1676, NASA Scientific and Technical (STI) Document Availability Authorization (DAA) and Instructions

a. NF 1676 and Instructions and Publish STI, Required Approvals: http://www.sti.nasa.gov
b. NASA requires this form for all STI to be published and disseminated external to NASA or presented at internal meetings at which foreign nationals are likely or invited to be present.

## C.3 OMB Standard Form 298, Report Documentation Page

| REPORT DOCUMENTATION PAGE | Form Approved<br>OMB No. 0704-0188 |
|---|---|

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.
PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

| 1. REPORT DATE *(DD-MM-YYYY)* | 2. REPORT TYPE | 3. DATES COVERED *(From - To)* |
|---|---|---|

| 4. TITLE AND SUBTITLE | 5a. CONTRACT NUMBER |
|---|---|
| | 5b. GRANT NUMBER |
| | 5c. PROGRAM ELEMENT NUMBER |
| 6. AUTHOR(S) | 5d. PROJECT NUMBER |
| | 5e. TASK NUMBER |
| | 5f. WORK UNIT NUMBER |

| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) | 8. PERFORMING ORGANIZATION REPORT NUMBER |
|---|---|
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) | 10. SPONSORING/MONITOR'S ACRONYM(S) |
| | 11. SPONSORING/MONITORING REPORT NUMBER |

12. DISTRIBUTION/AVAILABILITY STATEMENT

13. SUPPLEMENTARY NOTES

14. ABSTRACT

15. SUBJECT TERMS

| 16. SECURITY CLASSIFICATION OF: | | | 17. LIMITATION OF ABSTRACT | 18. NUMBER OF PAGES | 19a. NAME OF RESPONSIBLE PERSON |
|---|---|---|---|---|---|
| a. REPORT | b. ABSTRACT | c. THIS PAGE | | | 19b. TELEPHONE NUMBER *(Include area code)* |

**Standard Form 298** (Rev. 8-98)
Prescribed by ANSI Std. Z39-18

OMB Standard Form 298, Report Documentation Page (Concluded)

## INSTRUCTIONS FOR COMPLETING SF 298

**1. REPORT DATE.** Full publication date, including day, month, if available. Must cite at least the year and be Year 2000 compliant, e.g. 30-06-1998; xx-06-1998; xx-xx-1998.

**2. REPORT TYPE.** State the type of report, such as final, technical, interim, memorandum, master's thesis, progress, quarterly, research, special, group study, etc.

**3. DATES COVERED.** Indicate the time during which the work was performed and the report was written, e.g., Jun 1997 - Jun 1998; 1-10 Jun 1996; May - Nov 1998; Nov 1998.

**4. TITLE.** Enter title and subtitle with volume number and part number, if applicable. On classified documents, enter the title classification in parentheses.

**5a. CONTRACT NUMBER.** Enter all contract numbers as they appear in the report, e.g. F33615-86-C-5169.

**5b. GRANT NUMBER.** Enter all grant numbers as they appear in the report, e.g. AFOSR-82-1 234.

**5c. PROGRAM ELEMENT NUMBER.** Enter all program element numbers as they appear in the report, e.g. 61101 A.

**5d. PROJECT NUMBER.** Enter all project numbers as they appear in the report, e.g. 1F665702D1 257; ILIR.

**5e. TASK NUMBER.** Enter all task numbers as they appear in the report, e.g. 05; RF0330201; T4112.

**5f. WORK UNIT NUMBER.** Enter all work unit numbers as they appear in the report, e.g. 001; AFAPL30480105.

**6. AUTHOR(S).** Enter name(s) of person(s) responsible for writing the report, performing the research, or credited with the content of the report. The form of entry is the last name, first name, middle initial, and additional qualifiers separated by commas, e.g. Smith, Richard, J, Jr.

**7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES).** Self-explanatory.

**8. PERFORMING ORGANIZATION REPORT NUMBER.** Enter all unique alphanumeric report numbers assigned by the performing organization, e.g. BRL- 1234; AFWL-TR-85-4017-Vol-21 -PT-2.

**9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES).** Enter the name and address of the organization(s) financially responsible for and monitoring the work.

**10. SPONSOR/MONITOR'S ACRONYMS).** Enter, if available, e.g. BRL, ARDEC, NADC.

**11. SPONSOR/MONITOR'S REPORT NUMBER(S).** Enter report number as assigned by the sponsoring/monitoring agency, if available, e.g. BRL-TR-829; -215.

**12. DISTRIBUTION/AVAILABILITY STATEMENT.** Use agency-mandated availability statements to indicate the public availability or distribution limitations of the report. If additional limitations/ restrictions or special markings are indicated, follow agency authorization procedures, e.g. RD/FRD, PROPIN, ITAR, etc. Include copyright information.

**13. SUPPLEMENTARY NOTES.** Enter information not included elsewhere such as: prepared in cooperation with; translation of; report supersedes; old edition number, etc.

**14. ABSTRACT.** A brief (approximately 200 words) factual summary of the most significant information.

**15. SUBJECT TERMS.** Key words or phrases identifying major concepts in the report.

**16. SECURITY CLASSIFICATION.** Enter security classification in accordance with security classification regulations, e.g. U, C, S, etc. If this form contains classified information, stamp classification level on the top and bottom of this page.

**17. LIMITATION OF ABSTRACT.** This block must be completed to assign a distribution limitation to the abstract. Enter UU (Unclassified Unlimited) or SAR (Same as Report). An entry in this block is necessary if the abstract is to be limited.

**Standard Form 298 Back** (Rev. 8/98)

# C.4 NASA Supplementary Instructions To Complete SF-298 (Rev. 8-98 Version)

NASA uses this inter-governmental form that does not allow customization. Look for special notes (NOTE) if NASA's procedures differ slightly from other agencies.

| | |
|---|---|
| Block 1: | NOTE: NASA uses month and year (February 2005) on the covers and title pages of its documents. However, this OMB form is coded for block 1 to accept data in the following format: day, month, and year (ex.: day (23), month (02), year (2005) or 23-02-2005, which means February 23, 2005). For this block, use the actual date of publication (on the cover and title page) and add 01 for the day. Example is March 2005 on the cover and title page, and 01-03-05 for block 1. |
| Block 2: | Technical Paper, Technical Memorandum, etc. |
| Block 3: | Optional for NASA |
| Block 4: | Insert title and subtitle (if applicable) |
| Block 5a: | Complete if have the information |
| Block 5b: | Complete if have the information |
| Block 5c: | Optional for NASA |
| Block 5d: | Optional for NASA; if you have a cooperative agreement number, insert it here |
| Block 5e: | Optional for NASA |
| Block 5f: | Required. Use funding number (WU, UPN, etc.) |
| Block 6: | Complete (ex.: Smith, John J. and Brown, William R.) |
| Block 7: | NASA Center (ex.: NASA Langley Research Center)<br>City, State, Zip Code (ex.: Hampton, Virginia 23681-2199)<br>You can also enter contractor's or grantee's organization name here, below your NASA Center, if they are the performing organization for your Center |
| Block 8: | Center tracking number (ex.: L-17689) |

| | |
|---|---|
| Block 9: | National Aeronautics and Space Administration<br>Washington, DC 20546-0001 |
| Block 10: | NASA |
| Block 11: | ex.: NASA/TM--2005-123456 |
| Block 12: | ex.:<br>Unclassified - Unlimited<br>Subject Category http://www.sti.nasa.gov/subjcat.pdf<br>Availability: NASA CASI (301) 621-0390<br>If restricted/limited, also put restriction/limitation on cover and title page |
| Block 13: | (ex.: Smith and Brown, Langley Research Center. An electronic version can<br>be found at http://_____, etc.) |
| Block 14: | Self-explanatory |
| Block 15: | Use terms from the NASA Thesaurus<br>http://www.sti.nasa.gov/thesfrm1.htm,<br>Subject Division and Categories Fact Sheet<br>http://www.sti.nasa.gov/subjcat.pdf,<br>or Machine-Aided Indexing tool<br>http://www.sti.nasa.gov/nasaonly/webmai/ |
| Block 16a,b,c: | Complete all three |
| Block 17: | UU (unclassified/unlimited) or SAR (same as report) |
| Block 18: | Self-explanatory |
| Block 19a: | STI Help Desk at email: help@sti.nasa.gov |
| Block 19b: | STI Help Desk at: (301) 621-0390 |

# C.5 Sample OMB Standard Form 298

NOTE: For covers and title pages, NASA uses the month and year of actual publication. Block 1 should also include the actual date of publication (not when you first fill out the RDP). Since the RDP is an intergovernmental form that does not allow Agency customization, input your data as follows: day (always insert the first day of the month as 01), month (ex. 03 for March), and year in 4 digits (ex. 2005).

**REPORT DOCUMENTATION PAGE**

*Form Approved*
*OMB No. 0704-0188*

The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.
PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.

| | | |
|---|---|---|
| **1. REPORT DATE** *(DD-MM-YYYY)*<br>31-01-2005 | **2. REPORT TYPE**<br>Technical Memorandum, Contractor Report, etc. | **3. DATES COVERED** *(From - To)* |

| | |
|---|---|
| **4. TITLE AND SUBTITLE**<br>Insert title and subtitle (if applicable)<br>***SAMPLE*** | **5a. CONTRACT NUMBER**<br>NAS1-12345 *(CR Report type -- contract)*<br>**5b. GRANT NUMBER**<br>NAG1-1234 *(CR Report type -- grant)*<br>**5c. PROGRAM ELEMENT NUMBER** |
| **6. AUTHOR(S)**<br>Smith, John J.; Brown, William R.; and Jones, Thomas R. | **5d. PROJECT NUMBER**<br>NCC1-123 *(CR Report type -- cooperative agreement)*<br>**5e. TASK NUMBER**<br>Task 6 *(CR Report type, if applicable)*<br>**5f. WORK UNIT NUMBER**<br>323-10-05-01 |
| **7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)**<br>[Insert NASA center here, ex. NASA Langley Research Center]<br>[Insert city, state, and zip code here, ex. Hampton, VA 23681-2199]<br>[Insert contract or grant organizational name, as applicable] | **8. PERFORMING ORGANIZATION REPORT NUMBER**<br>Ex. L-12345 (For TP, TM, CP, SP) or appropriate number for CR |
| **9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)**<br>National Aeronautics and Space Administration<br>Washington, DC 20546-0001 | **10. SPONSORING/MONITOR'S ACRONYM(S)**<br>NASA<br>**11. SPONSORING/MONITORING REPORT NUMBER**<br>NASA/TM-2005-000000 |

**12. DISTRIBUTION/AVAILABILITY STATEMENT**
Unclassified - Unlimited
Subject Category 00
Availability: NASA CASI (301) 621-0390

**13. SUPPLEMENTARY NOTES**
Smith, Brown, and Jones, Langley Research Center *(If CR report type add: COTR or Technical Monitor: First, MI, Last Name)*
An electronic version can be found at http://techreports.larc.nasa.gov/ltrs or http://techreports.larc.nasa.gov/cgi-bin/NTRS

**14. ABSTRACT**
Insert a brief abstract (not to exceed 200 words)

**15. SUBJECT TERMS**
Insert 4 or 5 subject terms

| **16. SECURITY CLASSIFICATION OF:** | | | **17. LIMITATION OF ABSTRACT** | **18. NUMBER OF PAGES** | **19a. NAME OF RESPONSIBLE PERSON** |
|---|---|---|---|---|---|
| **a. REPORT** | **b. ABSTRACT** | **c. THIS PAGE** | | | STI Help Desk (email:help@sti.nasa.gov) |
| U | U | U | UU | 25 | **19b. TELEPHONE NUMBER** *(Include area code)*<br>(301) 621-0390 |

**Standard Form 298** (Rev. 8-98)
Prescribed by ANSI Std. Z39-18

# Appendix D. Front and Back Covers, Title Pages, and Spine

## D.1 STI Report Series Covers and Title Pages

D.1.1 The following samples illustrate the standard elements (e.g., report number and title) described in section 2.5.3 of this NPR. Templates are available on the NASA STI program home page (http://www.sti.nasa.gov, under Publish STI) which indicate font types, sizes, and spacing. Use these templates for electronic and hard copy NASA STI Report Series. If you use other media, you must include the standard elements but you may adapt the format.

D.1.2 The following samples are presented:

a. Front Cover.

b. Back of Front Cover.

c. Title Page.

d. Back of Title Page.

e. Back Cover.

f. Front Cover with Black-and-White Halftone Photograph.

g. Front Cover with Line Art.

h. Spine.

## D.2 Front Cover

NASA/TM—2005–004346

# Influence of Fiber Sizing on Mechanical Properties of Carbon-Carbon Composites

*Y. Roberts Yamak and Howard G. Maahs*
*Langley Research Center, Hampton, Virginia*

**International Traffic in Arms Regulations (ITAR) Notice**
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March 2005

# D.3 Back of Front Cover

## NASA STI Program … in Profile

Since its founding, NASA has been dedicated to the advancement of aeronautics and space science. The NASA scientific and technical information (STI) program plays a key part in helping NASA maintain this important role.

The NASA STI program operates under the auspices of the Agency Chief Information Officer. It collects, organizes, provides for archiving, and disseminates NASA's STI. The NASA STI program provides access to the NASA Aeronautics and Space Database and its public interface, the NASA Technical Report Server, thus providing one of the largest collections of aeronautical and space science STI in the world. Results are published in both non-NASA channels and by NASA in the NASA STI Report Series, which includes the following report types:

- TECHNICAL PUBLICATION. Reports of completed research or a major significant phase of research that present the results of NASA Programs and include extensive data or theoretical analysis. Includes compilations of significant scientific and technical data and information deemed to be of continuing reference value. NASA counterpart of peer-reviewed formal professional papers but has less stringent limitations on manuscript length and extent of graphic presentations.

- TECHNICAL MEMORANDUM. Scientific and technical findings that are preliminary or of specialized interest, e.g., quick release reports, working papers, and bibliographies that contain minimal annotation. Does not contain extensive analysis.

- CONTRACTOR REPORT. Scientific and technical findings by NASA-sponsored contractors and grantees.

- CONFERENCE PUBLICATION. Collected papers from scientific and technical conferences, symposia, seminars, or other meetings sponsored or co-sponsored by NASA.

- SPECIAL PUBLICATION. Scientific, technical, or historical information from NASA programs, projects, and missions, often concerned with subjects having substantial public interest.

- TECHNICAL TRANSLATION. English-language translations of foreign scientific and technical material pertinent to NASA's mission.

Specialized services also include creating custom thesauri, building customized databases, and organizing and publishing research results.

For more information about the NASA STI program, see the following:

- Access the NASA STI program home page at *http://www.sti.nasa.gov*.

- E-mail your question via the Internet to help@sti.nasa.gov.

- Fax your question to the NASA STI Help Desk at (301) 621-0134.

- Phone the NASA STI Help Desk at (301) 621-0390.

- Write to:
  NASA STI Help Desk
  NASA Center for AeroSpace Information
  7121 Standard Drive
  Hanover, MD 21076-1320

# D.4 Title Page

NASA/TM—2005–004346

## Influence of Fiber Sizing on Mechanical Properties of Carbon-Carbon Composites

*Y. Roberts Yamak and Howard G. Maahs*
*Langley Research Center, Hampton, Virginia*

National Aeronautics and
Space Administration

Langley Research Center
Hampton, Virginia 23681

March 2005

# D.5 Back of Title Page

**Acknowledgments**

The authors thank William James, who was instrumental in obtaining source data.

Instruction: If the report is restricted or limited, delete National Technical Information Service below.

This is a preprint of a paper intended for presentation at a conference. Because changes may be made before formal publication, this is made available with the understanding that it will not be cited or reproduced without the permission of the author.

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| | |
|---|---|
| NASA Center for AeroSpace Information<br>7121 Standard Drive<br>Hanover, MD 21076-1320 | National Technical Information Service<br>5285 Port Royal Road<br>Springfield, VA 22161 |

[Optional Information:]
This report is also available in electronic form at http://_____

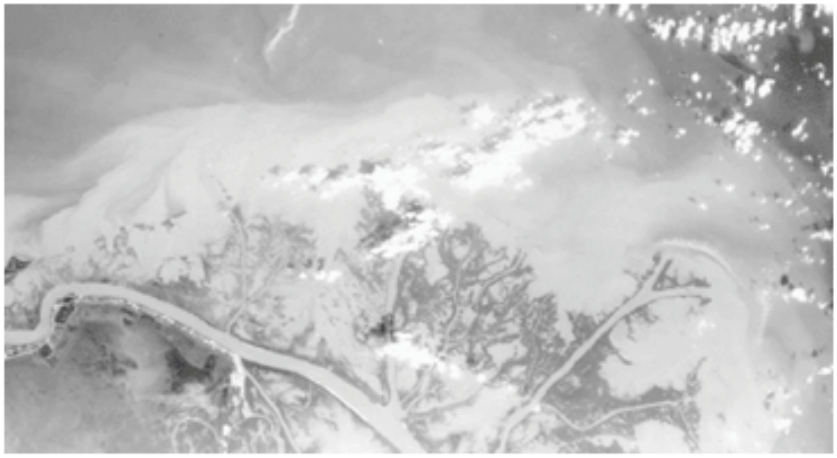
# D.6 Back Cover

# D.7 Front Cover with Black-and-White Halftone Photograph

NASA/TM—2005–004346

## Application of the Airborne Ocean Color Imager for Commercial Fishing

*Y. Roberts Yamak and Howard G. Maahs*
*Langley Research Center, Hampton, Virginia*



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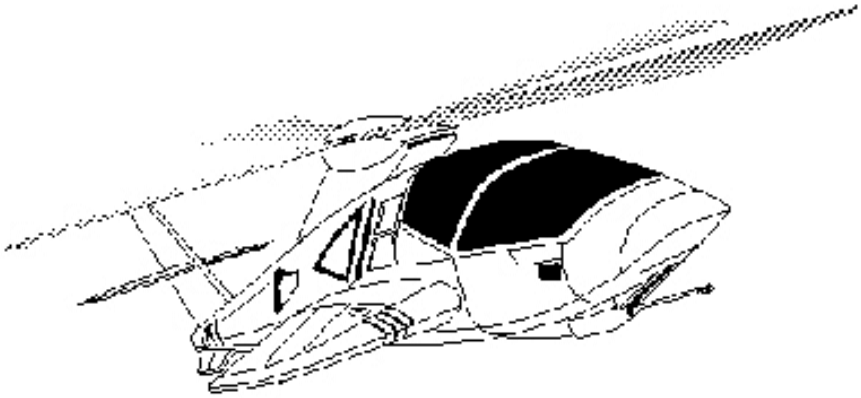
March 2005

# D.8 Front Cover with Line Art

NASA/TM—2005–004346

## Influence of Fiber Sizing on Mechanical Properties of Carbon-Carbon Composites

*Y. Roberts Yamak and Howard G. Maahs*
*Langley Research Center, Hampton, Virginia*



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# D.9 Spine

March 2005

**Sample Spine for Conference Publication**

NASA/CP-2000-210291

Fifth International Symposium on Magnetic Suspension Technology

# Appendix E Reference List for Book Numbers

## E.1 NASA STI Report Series Numbering (Required)

E.1.1 Authorized NASA Headquarters or Center personnel may obtain NASA STI Report Series numbers by:

a. Telephoning the NASA STI Help Desk at 301-621-0390.
b. Sending a fax to the NASA STI Help Desk at 301-621-0134.
c. Sending an e-mail via Internet to help@sti.nasa.gov.
d. Writing to the NASA STI Help Desk, NASA Center for AeroSpace Information, 7121 Standard Drive, Hanover, MD 21076-1320.

## E.2 Options Items

E.2.1 International Standard Serial Number (ISSN).

a. Used for serial titles (periodicals, annuals, and other publications regularly issued under the same title).
b. Available from the Library of Congress, National Serials Data Program, Washington, DC 20540.

E.2.2 International Standard Book Number (ISBN).

a. Used by libraries and bookstores as an aid in book publishing
b. Available from the U.S. ISBN Agency, 630 Central Ave., New Providence, NJ 07974; URL: http http://www.isbn.org/standards/home/isbn/us/isbnus.asp.
c. NASA maintains a block of ISBN numbers; for additional information on how to assign an ISBN number for an STI document contact the STI program office or the Help Desk at help@sti. help@sti.nasa.gov.

E.2.3 Library of Congress Card Control Number (LCCN).

a. Used for monographic publications selected and cataloged by the Library of Congress.
b. Available from the Library of Congress, Cataloging in Publication Division, Washington, DC 20540, URL's: http://www.copyright.gov/faq/html#q51; http://cip.loc.gov/cip/cipfaq.html#control.

# Appendix F. Sample Errata

ERRATA

NASA/TM—2005-123456

Performance and Durability in High-Temperature Foil Bearings

J. M. Smith

March 2005

Page 33, equation (1) should read as follows:

[Insert correct information into Errata sheet; if the needed correction is extensive, see the wording below]

A corrected copy of the report is attached. Please destroy all copies previously sent to you.

Issued April 2005

# Appendix G. Reference List for Metric Measurements

## G.1 Reference List

IEEE/ASTM-S1 10 "Standard for Use of the International System of Units (SI) - The Modern Metric System." http://standards.nasa.gov/NPTS/main_menu.taf.

Artusa, Elisa A. SI (Metric) Handbook. National Aeronautics and Space Administration, John F. Kennedy Space Center. NASA TM-109197. Baltimore, MD: NASA Center for AeroSpace Information, 1994. Provides information for an understanding of SI units, symbols, and prefixes, and style and usage in documentation in both the U.S. and in the international business community; conversion techniques; limits, fits, and tolerance data; and drawing and technical writing guidelines. Also provides information on SI usage for specialized applications like data processing and computer programming, science, engineering, and construction. Related information in the appendixes includes legislative documents, historical and biographical data, a list of metric documentation, rules for determining significant digits and rounding, conversion factors, shorthand notation, and a unit index.

Conversion Factors. Northridge, CA: U.S. Metric Association. A comprehensive one-page table that provides conversion factors from both inch-pound units to metric system units and from metric system units to inch-pound units. Shows the conversion factors for length, area, volume, torque, mass, energy/work, power, pressure/stress, force, speed, and temperature. Order from USMA website: http://lamar.colostate.edu/~hillger/.

Institute of Electrical and Electronics Engineers. American National Standard Illustrations for Publication and Projection. ANSI Y15.1M. New York: ANSI, 1979 (1986).

Metric Editorial Guide, Fifth Edition. Bethesda, MD: American National Metric Council, 1993. Explains and illustrates proper use of SI metric units, terms, and symbols. Provides standard spelling, punctuation, and usage for metric terms, abbreviations, and symbols.

Pedde, Lawrence D., et al. Metric Manual. U.S. Bureau of Reclamation. GPO S/N 024-0003-00129-5. Washington, DC: U.S. Government Printing Office, 1978. Presents the basics of SI (International System of Units), metric conversion techniques, and examples of engineering problems associated with metric conversion.

USMA's Guide to the Use of the Metric System [SI Version], 15th ed., 2000.

STI Metric Style Manual for Written and Computer Usage, http://lamar.colostate.edu/~hillger/supplies.htm.

# Appendix H. NASA Aeronautics and Space Database Subject Divisions and Categories

## H.1 Divisions and Categories

H.1.1 The subject divisions and categories used to catalog NASA STI reports before they are processed and entered in the NASA Aeronautics and Space Database are referenced in Section H.2. For additional information concerning these subject divisions and categories, refer to URL http://www.sti.nasa.gov/subjcat.pdf.

## H.2 NASA Aeronautics and Space Database Subject Divisions and Categories [For more specific guidance, see URL http://www.sti.nasa.gov/subjcat.pdf.]

AERONAUTICS
01 Aeronautics
02 Aerodynamics
03 Air Transportation and Safety
04 Aircraft Communications and Navigation
05 Aircraft Design, Testing and Performance
06 Aircraft Instrumentation
07 Aircraft Propulsion and Power
08 Aircraft Stability and Control
09 Research and Support Facilities (Air)

ASTRONAUTICS
12 Astronautics (General)
13 Astrodynamics
14 Ground Support Systems and Facilities (Air)
15 Launch Vehicles and Space Vehicles
16 Space Transportation
17 Space Communications, Spacecraft Communications, Command and Tracking
18 Spacecraft Design, Testing and Performance
19 Spacecraft Instrumentation
20 Spacecraft Propulsion and Power

CHEMISTRY AND MATERIALS
23 Chemistry and Materials (General)
24 Composite Materials
25 Inorganic and Physical Chemistry
26 Metallic Materials

27 Nonmetallic Materials
28 Propellants and Fuels
29 Materials Processing

ENGINEERING
31 Engineering (General)
32 Communications and Radar
33 Electronics and Electrical Engineering
34 Fluid Mechanics and Heat Transfer
35 Instrumentation and Photography
36 Lasers and Masers
37 Mechanical Engineering
38 Quality Assurance and Reliability
39 Structural Mechanics

GEOSCIENCES
42 Geosciences (General)
43 Earth Resources and Remote Sensing
44 Energy Production and Conversion
45 Environment Pollution
46 Geophysics
47 Meteorology and Climatology
48 Oceanography
LIFE SCIENCES
51 Life Sciences (General)
52 Aerospace Medicine
53 Behavioral Sciences
54 Man/System Technology and Life Support
55 Space Biology

MATHEMATICAL AND COMPUTER SCIENCES
59 Mathematical and Computer Sciences (General)
60 Computer Operations and Hardware
61 Computer Programming and Software
62 Computer Systems
63 Cybernetics
64 Numerical Analysis
65 Statistics and Probability
66 Systems Analysis
67 Theoretical Mathematics

PHYSICS
70 Physics (General)
71 Acoustics
72 Atomic and Molecular Physics
73 Nuclear and High-Energy Physics
74 Optics
75 Plasma Physics
76 Solid-State Physics
77 Thermodynamics and Statistical Physics

SOCIAL SCIENCES
80 Social Sciences (General)

81 Administration and Management
82 Documentation and Information Science
83 Economics and Cost Analysis
84 Law, Political Science and Space Policy
85 Urban Technology and Transportation

SPACE SCIENCES
88 Space Sciences (General)
89 Astronomy
90 Astrophysics
91 Lunar and Planetary Exploration
92 Solar Physics
93 Space Radiation

GENERAL
99 General

# Appendix I. Documentation, Approval, and Dissemination Procedures

## I.1 General Procedures

I.1.1 Planning a Publication. When planning a publication, authors should contact the NASA Center Technical Publications or STI Manager to discuss the publication's outline and format, production, authorization, review and approval, printing or reproduction (if applicable), distribution, and deadline requirements.

I.1.2 Assessing the Publication. The NASA Center Technical Publications Manager assesses, with the author and his or her technical management, the following:

a. Series in which the STI Report Series will be published, based on the content and intended audience and the applicable subject categories. (See Appendices B and H.)
b. Review and approval requirements.
c. Level of edit and production effort.
d. Artwork and functional color requirements.
e. Estimated length and number of copies (if applicable).
f. Electronic file requirements.

I.1.3 Cost Estimates. The NASA Center Technical Publications Manager coordinates with the Center Printing Officer to estimate the required production and printing costs (if applicable) and provides the resulting cost information to the author.

I.1.4 Funding Availability. Contact the Center Technical Publication Manager to determine the existing policy for funding of the publication, if applicable.

I.1.5 Report Numbers. The NASA Center Publications Office obtains a report number in the appropriate series from NASA CASI, if applicable.

I.1.6 Required Reviews. The author or COTR ensures that the required reviews are completed and approvals obtained. (See Chapter 4.)

I.1.7 Delivery. The author delivers the manuscript to the NASA Center Publications Office in draft, final, or camera-ready form (if the report is to be printed or reproduced in hard copy) accompanied by the following:

I.1.7.1 Report Documentation Page (RDP). A completed Report Documentation Page (RDP), SF-298, which is included as the last page of the report for all NASA STI reports other than SPs. (See section 2.5.5.) For SPs, a completed RDP should be included but submitted as a separate file.

I.7.2 Document Availability Authorization (DAA) - NF-1676. (See Chapter 4.) While production of the report may continue prior to the submittal and approval of this form, the DAA must be completed and signed before the report is submitted for publication or dissemination external to

NASA or presented at internal meetings or conferences at which foreign nationals may be present or loaded to a website.

I.1.7.3 Additional Approvals. This includes any other approvals and/or authorizations required by NASA Headquarters Office or Center authorizations including, but not limited to, publishing and release authorizations, funding authorization, professional and technical review approvals, security officer approvals, and printing and duplicating authorizations.

I.1.8 Standards Conformance. The NASA Center Technical Publications Manager ensures that the manuscript is reviewed for conformance to the standards in section 2.5 and NASA Headquarters or Center standards and recommends and/or incorporates final changes to produce the final copy.

I.1.9 Initial Review. The author and the Center Technical Publications Manager review and approve the final copy.

I.1.9.1 Acquiring Report Numbers and Print Volumes (if applicable). The NASA Center Technical Publications Manager acquires the appropriate report number from NASA CASI. (See section I.2.1.2.) NASA CASI disseminates STI in electronic formats. If an author or Center also determines the need to print the document in hard copy, it is the responsibility of the respective Center to do so in addition to supplying the electronic file to NASA CASI. For alternative forms of electronic media (videotapes, DVD's), contact your Center Technical Publications Manager for requirements.

# I.2 NASA STI Report Series Numbers

I.2.1 STI Report Series Numbers

I.2.1.1 ANSI/NISO-Based Numbering System. The STI program uses a standard numbering system based on ANSI/NISO Z39.23, "Standard Technical Report Number (STRN) Format and Creation," to ensure the assignment of unique report numbers to the NASA STI Report Series. The report numbers are composed essentially of the Agency acronym (NASA), a series acronym (e.g., TM), a publication year (e.g., 2005), and the report number. The report number appears on the front cover, title page, and RDP of all NASA STI Report Series in the standard STI report number format, e.g., NASA/TM--2005-123456. Report numbers for revised reports, reports comprising more than one volume, or reports with supplements must include the appropriate suffix(es), e.g., NASA/TM--2005-123456/REV2, NASA/TM--2005-123456/VOL2, NASA/TM--2005-123456/SUPPL2. If more than one suffix is used, it is connected to the other suffix(es) with a hyphen, e.g., NASA/TM--2005-123456/REV2-VOL2.

I.2.1.2 Requesting Report Numbers. Report numbers should be requested during the development of a NASA STI Report Series. Report numbers are obtained by sending a request for the report number to NASA CASI Help Desk. Send the request via mail, fax, or e-mail. The request must be made by a Center Publications Office representative, and it must include the requester's name, phone number, fax number, mail stop, e-mail address, and the type of report number requested. The report number will be issued to the recipient within one working day of the request receipt.