

MEMORANDUM OF UNDERSTANDING
BETWEEN
FEDERAL AVIATION ADMINISTRATION
OFFICE OF COMMERCIAL SPACE TRANSPORTATION
AND
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE
SPACE WEATHER PREDICTION CENTER

Article I. Parties

The Office of Commercial Space Transportation (AST) regulates the U.S. commercial space launch and reentry (transportation) industry consistent with public health and safety, the safety of property, and national security and foreign policy interests of the U.S. AST currently licenses commercial launch and reentry operations to provide safety oversight of these operations. AST is also responsible for promoting the U.S. commercial space transportation industry.

The Space Weather Prediction Center (SWPC) is the U.S. Government official and definitive source of civilian space weather forecasts, warnings and alerts to support continuity of government by providing space weather services that help ensure essential infrastructure is maintained and operational during space weather events. It provides continuous (24x7) accurate and reliable solar-terrestrial information; leads applied research and development programs to understand the space environment to improve services; advises policy makers and planners; and fosters the commercial space weather services industry. SWPC leverages cooperative national and international relationships to monitor and forecast the space environment.

Article II. Background

The scope of commercial space transportation activities is increasing significantly. The National Space Policy has directed the United States Government to use commercial space transportation services whenever possible. This has led to increased commercial launch activity including NASA's planned use of commercial space transportation to transport crew to and from the International Space Station. In addition, the development of commercial reusable launch vehicles has allowed for the development of scientific research capabilities, space tourism, and emerging commercial spaceports. As commercial space transportation continues to develop and

expand the scope of operations, crews, spaceflight participants, safety critical electronic/microelectronic components and communication systems will be continually exposed to the (ionizing) radiation environment. In order to effectively accomplish its critical safety mission, the FAA requires a deeper understanding of the space environment and the interaction of environmental forces on people and equipment. The FAA seeks to access and incorporate the latest space weather observations, alerts, warnings, forecast models and tools to characterize the near-Earth space environment prior to, during, and after launch activities.

Article III. Purpose

The purpose of this Memorandum of Understanding (MOU) is to carry out joint activities for fostering development and dissemination of space weather data, tools, and models to advance space safety and efficiency during FAA authorized activities within the space environment.

This MOU is designed to facilitate efforts by the Parties' to achieve mutual goals, and leverage resources for sharing information and for planning, developing, and implementing services.

Article IV. Agreements/Responsibilities

Pursuant to this MOU the participants have a mutual interest in collaborating in the following areas:

- Identifying a point of contact within each organization to be responsible for internal coordination of the activities of this agreement.
- Developing an effective means to capture and communicate space transportation operators' space environment requirements to SWPC for use in developing or refining space environment products.
- Integrating space environment data into actionable information to enhance personnel and equipment safety in support of United States Government efforts to preserve the space environment for future generations.
- Providing access to SWPC's near real-time secure space weather data base to ensure priority access during critical space weather events.
- Developing a two year-long plan to support commercial space transportation through cooperative activities, i.e., workshops, seminars, public education on space weather impacts.
- Producing space transportation space weather industry needs assessments
- Implementing web site link exchanges.
- Sharing resources, information, facilities, and programs of mutual benefit.

Article V. Financial Arrangements

- This MOU is neither a fiscal nor a funds obligation document, and no funds are being transferred hereunder.
- This MOU defines in general terms the basis upon which the Parties will cooperate and, as such, does not constitute a financial obligation to serve as a basis for expenditures.

- This MOU does not obligate the Parties to expend appropriations on any particular project or purpose or to enter into any agreements, contracts, or other obligations, even if funds are available.

Article VI. Publications and Release of Information

- Both organizations agree to coordinate for prior approval all public release of information on joint programs and any display or use of identifying titles or logos.
- Publications documenting cooperative efforts may be prepared by each individual party or jointly. For joint publications, all participating Parties shall have an opportunity to review and approve manuscripts prior to publication. To the extent possible, decisions involving authorship, review of reports, and other conditions and circumstances will be addressed during the preparation of documents implementing this MOU.
- The Parties agree that sharing credit is mutually beneficial and will make reasonable efforts to ensure that appropriate citation and attribution are used for cooperative work performed under this MOU and consistent with each Party's policies.
- Publicity and public information products related to cooperative work, including news releases, reports, briefing papers, or other information products, are subject to the same terms and conditions as other publications as stated above, or as otherwise agreed between the Parties.
- Any commitment of a Party to preserve the confidentiality of information is subject to applicable laws and regulations.

Article VII. Terms of Understanding

- This MOU will take effect upon the date of the last signature of the Parties.
- This MOU may be amended, including the inclusion of additional agencies and partners, at any time during the term by mutual written agreement of the Parties and signed by the original signatories to the MOU or their designees or successors.
- This MOU will remain in effect for a period of five (5) years from its effective date. Any Party may terminate its participation in this MOU by providing written notice to the other Parties at least 30 calendar days in advance of the effective date of termination. This MOU will remain in full force and effect for the remaining Party unless it provides written notice and explanation of early termination as herein provided. In addition, the Parties may immediately terminate this MOU upon their mutual written agreement.
- This MOU may be renewed for successive five-year terms by mutual written consent or vote by the Parties, subject to their respective clearance requirements.
- This MOU is strictly for internal management purposes for each of the Parties. It is not legally enforceable and shall not be construed to create any legal obligation on the part of the Parties. This MOU shall not be construed to provide a private right or cause of action for or by any person or entity.
- Nothing in this MOU shall be interpreted as limiting, superseding, or otherwise affecting a Party from conducting normal operations or making decisions in carrying out its mission and duties. This MOU does not limit or restrict the Parties from participating in similar activities or arrangements with other entities.

- Each Party shall accept full and primary responsibility for any and all expenses incurred by that Party relating to this MOU. No Party will be responsible for any expense incurred by the other Party unless specifically agreed to, in writing, separate from this MOU.

Article VIII. Authorities

AST has the authority to enter into this agreement under 49 U.S.C §106 (l)(m).

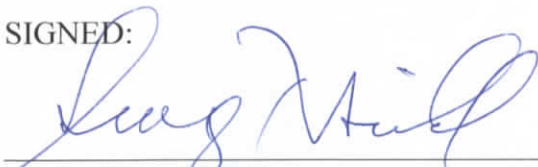
Both AST and NOAA possess programmatic authority pursuant to 51 U.S.C. 50903, which requires the heads of executive agencies to assist the Secretary of Transportation in encouraging, facilitating and promoting commercial space launches by the private sector.

NOAA derives the legal authority to enter into this agreement under the Department of Commerce (NOAA) authority (33 U.S.C. § 883a et seq.) and the National Weather Service Organic Authority (15 U.S.C. § 313).

Article IX. Approval

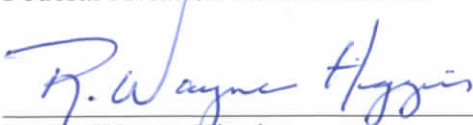
Approved and authorized on behalf of each Party by:

SIGNED:



Date: 5/14/13

Dr. George C. Nield
Associate Administrator for Commercial Space Transportation
Federal Aviation Administration



Date: 5/23/13

Dr. R. Wayne Higgins
Acting Director, National Centers for Environmental Prediction
National Oceanic and Atmospheric Administration, National Weather Service