

**Memorandum of Agreement  
between the  
National Science Foundation and  
the National Aeronautics and Space Administration  
in support of the  
Constellation Observing System for Meteorology,  
Ionosphere and Climate (COSMIC) Program**

**I. PURPOSE**

The purpose of this interagency Memorandum of Agreement (MOA) is to document the roles and responsibilities, and the terms and conditions, between NASA and NSF, for the NASA involvement in the COSMIC program.

**II. BACKGROUND**

The Constellation Observing System for Meteorology, Ionosphere and Climate (COSMIC) program is a multi-agency collaboration between the National Space Program Office (NSPO) in Taiwan and the University Corporation for Atmospheric Research (UCAR) in the United States. The United States Government's involvement in the COSMIC program is under the leadership of the National Science Foundation (NSF), and involves several U.S. Government departments and agencies (the U.S. Government Sponsors). NSF implements the U.S. Government's interests and requirements (including those of NASA covered by this MOA) through an arrangement with UCAR.

The objective of the COSMIC program is to apply Global Positioning System (GPS) limb sounding technology to the study of the Earth's environment. Specifically, COSMIC will use a constellation of six remote sensing micro-satellites to collect atmospheric data for weather prediction, ionosphere, climate and gravity research. COSMIC is an innovative approach to the development of cost effective and robust space based technologies for the study of the Earth's environment.

UCAR has entered into a Mission Science Support Contract with the NSPO wherein data from the COSMIC satellites will be made freely available to the international scientific community in near real-time for the first two years of the mission. However, data from the COSMIC satellites will be provided to the U.S. Government Sponsors, including NSF and NASA, for scientific, educational and research purposes for the life of the program. NSF will assure, through its arrangement with UCAR, that NASA is provided with free access to the COSMIC data for these purposes. NASA will also be provided with free access to the data in the third year following launch for the demonstration of operational capabilities, contingent upon continued operations of the COSMIC constellation, including the data processing by UCAR or other sources.

**III. RESPONSIBILITIES**

A. The National Science Foundation will use its reasonable efforts to:

1. Manage and assume the leadership role for the U.S. Government's involvement in the COSMIC program and assure the interests of NASA through its arrangement with UCAR.

2. Manage and provide funding to UCAR through an NSF/UCAR arrangement under which UCAR will operate the COSMIC Data Analysis and Archive Center (CDAAC).
3. Ensure that NASA is provided with timely information on the status of the COSMIC program for the duration of the program;
4. Ensure that NASA research facilities, data centers, and approved researchers have free and near real-time access to and use of the COSMIC data and data products and the right to re-distribute, in near real-time, the raw and higher-level data products for scientific, educational and research purposes, for the duration of the program.

B. The National Aeronautics and Space Administration will use its reasonable efforts to:

1. Make available \$3 million for purposes to be determined by the NSF, in support of the development and operations of the COSMIC program. At the request of NSF, NASA has allocated approximately \$2.5M of the \$3 million, pending approval of the task plan and this MOA, for work at the Jet Propulsion Laboratory (JPL) in support of Global Positioning System receiver development and support efforts, and \$634K of this amount was provided prior to the signing of this MOA. The work anticipated over and above the \$634K will be conducted under the auspices of a task plan with the Jet Propulsion Laboratory.
2. Provide to the COSMIC program GPS data, and software (in executable or source code form) to which NASA has Governmental use rights, as mutually agreed. Certain of the software (including certain future software enhancements) may be provided under license by Caltech as directed by NASA. The NSF acknowledges that the software provided by NASA or under license from Caltech for Governmental use is to be used only for the purposes specified in this MOA and that other non-government use is prohibited without obtaining the necessary license rights from Caltech, as applicable. Certain data from NASA's global GPS network observations, the GENESIS data system, and other NASA-sponsored GPS remote sensing missions, such as the Ørsted, CHAMP, Satellite de Aplicaciones Cientificas (SAC-C), and the Gravity Recovery And Climate Experiment (GRACE) missions will also be made available to the COSMIC program, as mutually agreed and subject to the continued operation of these programs.

#### IV. ANTI-DEFICIENCY ACT

All activities pursuant to this MOA are subject to the availability of appropriated funds, and no provision herein shall be interpreted to require obligation or payment of funds in violation of the Anti-Deficiency Act, 31 U.S.C. § 1341. This MOA is not a funding document, and does not represent the obligation or transfer of funds.

#### V. COSMIC PROGRAM DATA

Excluding the software made available by NASA pursuant to paragraph III. B.2. , the NSF will assure that UCAR makes COSMIC data analysis, results and

applications products available without restriction to the scientific community and end users through the publication in appropriate journals or other established channels as soon as practicable and consistent with good scientific practice. In the event such reports or journal publications are copyrighted, NSF shall assure that the Government, and others acting on its behalf, obtains a paid-up, nonexclusive, irrevocable worldwide license in such copyrighted report or publication to reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, by or on behalf of the Government. When claim to copyright is made, the author shall affix the applicable copyright notices of 17 U.S.C. § 401 or § 402 and acknowledgement of Government sponsorship.

## VI. POINTS of CONTACT

The NSF Point of Contact for implementation of this agreement is:

Dr. Jay S. Fein  
Program Director  
Climate Dynamics Program  
Room 775S  
National Science Foundation  
4201 Wilson Boulevard  
Arlington, Virginia 22230  
Tel: (703) 292-8527  
e-Mail: [jfein@nsf.gov](mailto:jfein@nsf.gov)


The NASA Point of Contact for implementation of this agreement is:


Dr. John L. LaBrecque  
Program Manager  
Solid Earth and Natural Hazards Program  
Code YS  
NASA Headquarters  
Washington, DC 20546  
Tel: (202) 358-1373  
e-Mail: [jlalabrecq@hq.nasa.gov](mailto:jlalabrecq@hq.nasa.gov)

## VII. TERMINATION

This Memorandum of Agreement shall commence upon the date of the last signature appearing below, and will remain in effect for the duration of the COSMIC program. This Agreement may be terminated by either the National Aeronautics and Space Administration (NASA) or the National Science Foundation (NSF) subsequent to 6 months advance notice to the other party.

Signed:

  
Dr. Margaret S. Leinen  
Assistant Director for Geosciences  
National Science Foundation

  
Dr. Ghassem R. Asrar  
Associate Administrator for Earth Science  
National Aeronautics and Space  
Administration

Date: 11/21/02

Date: 2 December 2002