MEMORANDUM OF AGREEMENT

BETWEEN

THE NATIONAL SCIENCE FOUNDATION

AND

THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

ON

SPACE, EARTH, AND BIOLOGICAL SCIENCES COOPERATIVE ACTIVITIES

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I. STATEMENT OF INTENT

This Memorandum of Agreement continues to provide the framework for collaboration between the National Science Foundation (NSF) and the National Aeronautics and Space Administration (NASA) on activities advancing space, Earth, and biological science research and exploration.

Typical joint activities may include:

1. Review of current and planned program efforts that relate to mutually beneficial areas.

2. Establishment of joint scientific research projects, providing for joint solicitation and selection of researchers.

3. Preparation of strategic plans to identify, prioritize, and develop technology and applications common to Earth and space-science needs.

4. Preparation and execution of appropriate demonstration projects.

II. AUTHORITIES

This agreement is authorized by Section 203(c) of the National Aeronautics and Space Act of 1958, as amended, and Section 3(a) and (b) of the National Science Foundation Act of 1950, as amended, 42 USC 1861 *et seq.*

III. BACKGROUND

NSF and NASA have a long history of cooperative projects that have advanced the space, Earth, and biological sciences. These projects include: the study of Life in Extreme Environments in a variety of locations on Earth; the study of ocean biogeochemical cycles and the flux of ocean carbon; ocean basin-scale regime shifts and the cascading impacts on coastal ecosystems of the North Pacific (in GLOBEC); support of post-doctoral symposia encouraging linkages between limnology and oceanography; and research to understand the physical processes responsible for climate variability and predictability on seasonal, inter-annual, decadal, and centennial time-scales in the CLIVAR program.

There continue to be new opportunities that will prove to be mutually beneficial in these areas. Science activities related to NASA's ongoing programs in the space, Earth, and biological sciences often complement and extend those undertaken through NSF support, while NSF supported projects often can benefit from activities underway at NASA to study the Earth and to use Earth environments to prepare for future exploration of space. Moreover, basic research activities and Earth-based observatories supported by the NSF have important and even essential roles in providing for the scientific underpinnings of NASA missions.

IV. SCOPE

1. NSF interests under this agreement are to:

   - Provide for cooperative activities with NASA in the space, Earth, and biological sciences, broadly construed, to advance the national interests in science and technology as detailed in the Authority cited above.

   - Identify and apply NASA-developed technologies that offer potential short and long-term benefits to planned NSF ongoing programs and potential new initiatives.

   - Apply and test promising technologies at the earliest practical time to determine useful applications/benefits.

   - Foster interagency cooperation to provide long-term science and technology research benefits.

   - Foster the interagency discussions and cooperation to ensure the continuation and development of earth observing assets instrumental for environmental research.

2. NASA interests under this agreement are to:

   - Provide for cooperative activities with NSF in the space, Earth, and biological sciences, broadly construed, to advance the national interests in science and technology as detailed in the Authority cited above.

   - Demonstrate research, environmental, and other benefits of space technology within the context of NSF's ongoing programs and potential new initiatives.

   - Provide maximum leverage on NASA's investment in technology to assist other agencies that have common needs and interests.

   - Foster interagency cooperation to provide long-term space program benefits.

V. AGREEMENT

NASA and NSF, as represented by the Directorates or Offices party to this Agreement and signed below, will to the extent practicable and appropriate and within legal limits, jointly support mutually beneficial and agreed upon activities concerned with space, Earth, and biological science research and exploration, including preparation and planning activities, joint science projects, and demonstration projects involving both research and technology.

VI. DURATION, AMENDMENTS AND TERMINATION

1. This agreement is effective as of the date of the signatures of the first executing authorities from both NASA and NSF, and execution is complete when all have signed. This overall agreement shall remain in force for ten (10) years after the effective date, unless otherwise modified or terminated.

2. This Memorandum of Agreement may be modified or amended only by written mutual agreement of the parties.

3. This MOA can be terminated with 90 days advance written notice by either party, or sooner by mutual written consent of both parties.

4. In the event circumstances are such that all executing authorities at either organization deem it necessary or desirable to terminate this agreement before completion of any services or activities initiated hereunder, the parties will consult in advance of such termination and will, insofar as possible, fix a termination date sufficiently in advance so that they may determine how on-going grants or contracts shall be completed; and to make personnel and other adjustments in their operations in light of such termination.

5. Subject to written approval of the NSF and NASA, this MOA may be renewed and/or modified. In the event that this agreement is not earlier modified, amended, or terminated, NSF and NASA shall by written communications mutually initiate discussions to extend this agreement no later than six (6) months prior to its expiration, as provided for above.

VII. IMPLEMENTATION SYNOPSIS

1. Mutually agreed upon tasks will include a statement of:

   A. Overall goal/objectives
   B. Work requirements by each party
   C. Time constraints/completion dates
   D. Cost/funding detailed by agency
   E. Approval points/milestones
   F. Logistics requirements
   G. Other pertinent information

2. Statements of tasks to be conducted under this agreement will be appended to this document. Approval authority for subordinate task statements may be delegated to officials with resource authority to execute their terms. Once agreement is reached by NSF and NASA on a statement of task, any reimbursable funding arrangements will be accompanied with or followed by a written order with funding that will be authorized and signed by a Contracting Officer or other appropriate statutory authority from each agency. Specific work projects or activities that require transfer of funds, services or property will be contingent upon the availability of funds.

VIII. FUNDING AND RESOURCE COMMITMENTS

1. Nothing in this MOA may be construed to obligate the NSF or NASA to any current or future expenditure of resources in advance of the availability of appropriations. Nor does this MOA obligate the NSF or the NASA to spend funds on any particular project or purpose, even if funds are available.

2. All commitments made in this MOA are subject to the availability of appropriated funds and each party's budget priorities. Nothing in this MOA, in and of itself, obligates NSF or NASA to expend appropriations or to enter into any contract, assistance agreement, interagency agreement, or other financial obligation.

3. This MOA is neither a fiscal nor a funds obligation document. Any endeavor involving reimbursement or contribution of funds between the parties to this MOA is expected to be handled in accordance with applicable laws, regulations, and procedures, and is expected to be

subject to separate subsidiary task agreements that are expected to be effected in writing by representatives of both parties.

4. Except as provided in Section VIII paragraphs (1) and (2), this MOA is not legally binding and does not create any right or benefit, substantive or procedural, enforceable by law or equity against NSF or NASA, their officers or employees, or any other person. This MOA does not direct or apply to any person outside NSF and NASA.

IX. RESOLUTION OF DISPUTES

Should disagreement arise under this agreement, or amendments and/or revisions thereto, that cannot be resolved at the Division Director or equivalent level, the area(s) of disagreement shall be stated in writing by each party and presented to the other party at the Assistant Director/Associate Administrator or equivalent level for consideration.

National Science Foundation

James P. Collins
Assistant Director for Biological Sciences

Date August 1, 2008

Timothy L. Killeen
Assistant Director for Geosciences

Date August 4th 2008

Tony F. Chan
Assistant Director for Mathematical and Physical Sciences

Date 8/4/08

National Aeronautics and Space Administration

Edward J. Weiler
Associate Administrator for Science Mission Directorate

Date 9-29-08

~~Richard J. Gilbrech~~ Douglas R. Cooke
Associate Administrator for Exploration Systems

Date 2/22/2010

William H. Gerstenmaier
Associate Administrator
for Space Operations

Date 22 jan 2010