

MAINE SPACE GRANT CONSORTIUM

A THREE-YEAR STRATEGIC PLAN

July 19, 2006

ORGANIZATION

The Maine Space Grant Consortium (MSGC), an Affiliate-based, 501(c)(3) organization, is a member of the national network of 52 space grant consortia administered by the National Aeronautics and Space Administration (NASA) National Space Grant College and Fellowship Program. The network was established to increase the nation's research infrastructure and human potential necessary, in order to properly respond to what the nation wants to achieve via its space program. All space grant consortia are required to support space grant's national objectives in Research, Education and Public Service.

MSGC is one of 20 Capability Enhancement programs that were so designated because - in spite of the potential - the research infrastructure and development of human potential relevant to NASA (i.e. careers in science, engineering, and mathematics, technical management, etc.) are not as well developed as compared to many other states. Accordingly, Capability Enhancement programs are required to invest space grant funds in collaborative activities designed to build their Affiliates research and higher education capacities in areas of relevance to NASA. Affiliates may include 2-Year and 4-Year institutions of Higher Education, not-for-profit research and education institutions, state agencies, K-12 schools, and businesses.

MISSION

The mission of MSGC is to develop and maintain a statewide program that is mutually beneficial to the State and NASA that effectively leverages NASA resources to (1) improve Maine's research infrastructure, (2) encourage more students to consider careers in fields of science, technology, engineering, and mathematics, (STEM), and (3) enhance NASA's presence throughout the State of Maine.

OPERATING FRAMEWORK

To accomplish its mission, MSGC invests NASA resources within, and through, its Affiliates to leverage resources that are used to develop and sustain programs that are of interest to both NASA and Maine. In so doing, MSGC helps establish (1) working partnerships between MSGC Affiliates, and (2) interactions between Maine citizens and NASA personnel and programs through the nation. Operating within the Space Grant Guidelines set forth by NASA, MSGC invests NASA resources to benefit both NASA and the State of Maine.

OVERARCHING PRINCIPLES

Just as NASA does not set space policy - but responds to those set by the nation, MSGC uses its Affiliates to help determine how best to invest NASA resources to benefit both NASA and the state of Maine. The affiliates are selected to provide state guidance, leveraged support, and activity, in each of the areas requested by NASA: research infrastructure, education, and public service.

A successful Space Grant program, that is responsive to the needs of both NASA and the state of Maine, is one in which the Affiliates are effectively engaged in (a) formulating the design; (b) driving the implementation; and in (c) providing appropriate information used to evaluate activities and programs supported, (or partially supported) by MSGC. The Staff's role is to provide support and guidance, and to

provide the Space Grant link between NASA and the State of Maine. Accordingly and through MSGC, the Affiliates will:

- maintain an active state-wide network of universities, colleges, not-for-profit research institutions, industries, state governmental agencies, and informal educational organizations whose activities are of mutual interest to both NASA and the State of Maine;
- build strong partnerships with technical staff in NASA field centers;
- help develop cooperative programs among educational and research institutions, industry, and the appropriate level of state government; also, when opportunities arise, with other Space Grant Consortia;
- promote cooperative research that focuses on Maine's research strengths;
- work to develop a strong STEM workforce by recruiting and educating professionals, especially underrepresented minorities; and
- promote strong STEM education from kindergarten through university level, using both formal and informal science programs.

APPROACH

As a small organization with limited Space Grant funds, MSGC must maintain a well focused approach to the selection and execution of programs and activities. To achieve this focus the Affiliates, through the MSGC staff, will convene a biennial workshop modeled after the Gordon Conference to engage members of Maine's science and engineering research community (academic, corporate and not-for-profit private research labs), the educational community (involving K-12 education, universities and colleges, and appropriate state agencies), and key personnel from NASA's Mission Directorates and Field Centers. The purpose of this "intellectual mixing bowl," is to help the Affiliates develop an Implementation Work Plan specific to the goals and implementation strategies outlined in our Strategic Plan.

The Implementation Work Plan will (a) identify 2-3 topical research areas in which the Affiliates, individually or collaboratively, have strength and are ripe for NASA and Space Grant support; (b) identify specific activities in Higher Education, Pre-college, and Public Service that are aligned with the goals and objectives of our Strategic Plan; (c) specify the measurable outcomes and the budget for each activity; (d) specify the specific implementation roles and responsibilities for the Affiliates, NASA personnel, the MSGC Board, and the MSGC Staff; and (e) identify sources of funding, including that from Space Grant, that might be leveraged to achieve mutually beneficial results.

The part of the Implementation Plan, which is specific to Space Grant, will serve as the basis by which MSGC Staff and the MSGC Board develop a balanced program mix as part of the Consortium's annual budget submission.

EVALUATION EFFORTS

MSGC through the cooperation of its affiliates will implement evaluation efforts consistent with the evaluation plan that is the companion to this strategic plan. Evaluation results will be used regularly by MSGC to make changes as appropriate to its strategic plan and implementation strategies.

GOALS & OBJECTIVES

The Affiliates will meet Space Grant's national objectives by achieving goals within the core areas of Research Infrastructure, Education, and Public Service. Each core area has an identified goal(s) and objective(s) which describe what the Affiliates are expected to accomplish on a strategic level, with

support from MSGC Staff. The actual implementation work plan will be the outcome of the biennial workshop.

Research

Goal: Strengthen the Affiliates' science and engineering research capacity in areas mutually beneficial to Maine and NASA.

Implementation strategies may include:

- Through the biennial workshops, identify 2-3 high priorities areas in which the Affiliates excel individually or collectively and design implementation activities to help those areas become nationally prominent.
- Leverage Space Grant funds to support travel to NASA Headquarters and Field Centers, workshops, start-up activities that are expected to lead to mainstreaming researchers in NASA-supported research programs and/or other non-NASA federally-supported science and engineering research/development activities that are aligned with NASA's requirements.
- Leverage Space Grant funds, (and NASA EPSCoR fund when appropriate), to encourage, promote and, to the extent possible, to fund support of the development of multi-institutional collaborations around targeted science and engineering areas where collaboration greatly enhances the development of such programs.
- Advocate support for Maine's Science and Technology Plan developed by the Maine Office of Innovation and the capitalization of state matching fund for EPSCoR programs.

Higher Education

Goal: Increase participation of Maine undergraduate and graduate students in science and engineering research conducted by the Affiliates and NASA Field Centers.

Implementation strategies may include:

- Provide support for competitive scholarships for Maine undergraduate and graduate students to conduct research in STEM.
- Leverage funds from Space Grant and NASA Field Centers to support competitive summer internships at NASA Field Centers for Maine undergraduates who are actively pursuing career paths that may lead them to become NASA employees, contractors to NASA, or as principal investigators in STEM.
- Increase activities to encourage Maine's Native Americans, and other under represented minorities (especially in the Greater Portland and Bangor Areas) to consider opportunities and matriculate in STEM. Some activities would be to engage minorities at NASA Field Centers, for example working with individuals associated with JPL's JPLUS program, to expose Maine's under represented minorities to the opportunities that are available to them through out NASA.
- Partner with Maine's higher education institutes to identify current Master's and Doctoral degree programs that support NASA's STEM requirements; identify deficiencies; determine whether new degree programs need to be developed or existing programs need to be enhanced based upon the institutions' strategic plans; and determine if Space Grant support would be appropriate.
- Leverage Space Grant funds to strengthen integration of STEM in teacher pre-service programs.

Pre-College

Goal: Strengthen the capacity of Maine K-12 teachers to deliver educational programs that increase student awareness, knowledge, and participation in STEM activities.

For all of the pre-college strategies, MSGC and its affiliates will place emphasis on supporting and supplementing existing affiliate and state resources and assets as opposed to the creating new programs, services, and activities.

A top priority strategy within this goal is to:

- Leverage Space Grant funds to enhance existing in-service STEM-focused professional development programs.

Other implementation strategies may include:

- Leverage Space Grant funds to support existing programs designed to help teachers and school districts acquire and utilize NASA and NASA related educational programs and resources.
- Develop partnerships to leverage and expand K-12 initiatives that connect schools to science and engineering research and education strengths of the Affiliates.
- Develop partnerships to design and implement an informal science/engineering education program that provide school-aged children and their families' access to Affiliates and NASA-based STEM resources.

Public Service

Goal: Increase the public's awareness of STEM research, education, and activities that are associated with NASA and the Affiliates.

This goal and subsequent strategies require coordination and sharing of resources and responsibilities among the MSGC staff, board, and affiliates.

Implementation strategies may include:

- Find more effective ways in which to publicize the roles of NASA, MSGC and the Affiliates in supporting Maine students engaged in STEM activities.
- Find more effective ways in which to communicate the achievements made by Maine students, teachers and researchers supported by MSGC and the Affiliates.
- Focus better upon communicating the Space Grant mission and achievements specifically to Maine students, researchers, faculty, teachers, parents, corporations, the general public and to Maine legislatures. Such activities may include press releases, working with college and local newspapers, electronic media, trade shows and conferences, and other activities such as Space Day and the Challenger Learning Center.
- Update and maintain the MSGC Web site to highlight MSGC, the Affiliates and NASA activities in such a way to provide access to additional electronic resources that are truly helpful to the citizens of Maine.
- Encourage students and researchers who are supported by Space Grant to visit K-12 school in order to share their STEM experiences and to promote Space Grant in Maine.
- Develop and implement strategy for regular communication with the State Legislature such as annual legislative breakfasts or mixers - some of which- bring them into contact with students, (including their parents) and researchers who have received support from Space Grant.
- Develop and distribute an annual report that highlights the results of MSGC/Affiliates investments in Maine students, teachers, and researchers. These reports would be distributed to the Affiliates and would point out the contributions that Space Grant has made to Maine's science and technology goals and objectives.
- Assist the University of Maine's Cooperative Extension Program in increasing faculty and student's awareness of the applications of geospatial technology.

Goal: Promote the growth and development of Maine's science and technology-based industry clusters that support NASA's technology transfer objectives.

Implementation strategies may include:

- Leverage existing industry technical assistance programs in Maine to help firms identify and support the transfer of NASA technologies for the purpose of product and process enhancements.
- Leverage existing industry technical assistance programs in Maine to help firms effectively respond to technology requirements of NASA's Mission Directorates and Field Centers.