

# Maine NASA EPSCoR Program



NASA EPSCoR provides seed funding for eligible states to develop an academic research enterprise directed toward long-term, self-sustaining, nationally-competitive capabilities in aerospace-related research. Maine became eligible for funding in 2000.

## In Maine:

The Maine Space Grant Consortium (MSGC) is responsible for administering the NASA EPSCoR programs in Maine. Its mission is to improve research infrastructure in areas of mutual interest to NASA and the state of Maine; encourage more students to consider careers in fields of science, technology, engineering, and mathematics (STEM); and enhance NASA's presence throughout the State of Maine. MSGC works with undergraduate and graduate institutions, not-for-profit research laboratories, state agencies, technology-based businesses, and science and education organizations.

## Recent Awards:

### FY2017 - University of Maine



*Development of an observational network for assessing the effects of climate change on Maine's forest, Daniel Hayes, Principal Investigator* Developing an enhanced strategic network of field sites for forest inventory in the state of Maine by using emerging remote sensing technologies.

### FY2016-FY2019 – University of Maine

*Multi- and Hyperspectral bio-optical identification and tracking of Gulf of Maine water masses and harmful algal bloom habitat, Andrew Thomas, Principal Investigator* Use multi and new hyperspectral data from multiple NASA satellites platforms and field data to bio-optically classify different Gulf of Maine surface water masses, identify those water masses that are Alexandrium habitat, track these water masses and map their interaction with, and impact on, coastal shellfish harvesting sites.



### FY2016 – Valt Enterprises, LLC



*Hypersonic Inlet Design for Air-breathing Propulsion Accelerators, Karl Hoose, Principal Investigator* Development of a small launch vehicle for nanosatellites, that combines hypersonic-air breathing and rocket propulsion to dramatically reduce the launch vehicle size, weight and cost.

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## Recent Awards Continued:

### **FY2013 – FY2016 – University of Maine**

*Behavior and Optimization of Hypersonic Inflatable Atmospheric Decelerator Devices for Spacecraft Re-Entry, Bill Davids, Principal Investigator*

Advancing the understanding of the load-deformation behavior of Hypersonic Inflatable Aerodynamic Decelerators (HIADs). These structures can be more readily deployed in thin atmospheres.



### **FY2015 – FY2018 – University of Maine**

*Joint leak detection and localization based on fast Bayesian inference from network of ultrasonic sensors arrays in microgravity environment, Ali Abedi, Principal Investigator*

Development of a flight ready wireless sensor system to detect and localize leaks in the International Space Station.

### **FY2015 – FY2018 – Gulf of Maine Research Institute**

*Earth System Data Solutions for Detecting and Adapting to Climate Change in the Gulf of Maine, Andrew Pershing, Principal Investigator*

Create high resolution dynamic models of the distribution of commercially and ecologically important marine species based on Earth system data. These products will provide a foundation for hindcasts, real time estimates, and seasonal forecasts to support climate adaptation in fisheries throughout New England, including specific forecasts for Maine's \$1B lobster industry.



### **FY2016 – University of Maine**

*Visionary Workshop for Understanding and Forecasting the Impact of Climate Change on Maine's Forest, Aaron Weiskittel, Principal Investigator*

Organizing and hosting a 3-day visionary workshop in Summer 2016 that would bring together academics, government, and practitioners to generate ideas and potential solutions for addressing the potential of climate change on Maine's forest. The workshop's primary goal would be to generate two to three ideas that could be pursued as research projects that would simultaneously address the needs of both NASA and Maine.

## Summary:

- Since 2000, Maine has been awarded a total of \$8,310,000.
- 53 projects have been supported at 16 different institutions.