

Submission Date: _____

Priority: _____ of _____



Ted Stevens

United States Senator for Alaska

Please Note:

- Fill out one request form for each request
- This form (and any attachments) can be returned via:

Fax - (202) 224-2354
 Mail - The Honorable Ted Stevens
 United States Senate
 522 Hart Senate Office Bldg.
 Washington, D.C. 20510

- Requests are due by February 15, 2008.

FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Wood Utilization (University of Alaska)

Project Location: Sitka, Ketchikan, Juneau

Project Description (please attach additional pages as required):

This is a continuation of an existing federal earmark that is a part of the national program, Wood Utilization Research (WUR) that addresses forest products research in the United States including non-timber products and education and extension associated with new product development and production processes¹. The initiative has been in place for nationally for 20 years. In Alaska, WUR is designed to conduct research programs to assist with the restructuring of the forest products industry with an emphasis on southeast Alaska. Projects are designed to respond to the needs of the industry and communities, primarily those affected by the Tongass Land Management Plan that severely restricted access and allowable cut in the Tongass National Forest. This restriction caused the closure of all pulp mills in southeast Alaska and numerous small mills severely impacting employment and community viability. Projects that are undertaken are based on needs identified by on-going research, direct request from industry organizations, private sector individuals and businesses, as well as educational institutions and government agencies.

Related Appropriations Bill: AG

Amount of federal funding requested for FY09: \$5m consortium

Total funding to complete this project: _____

Number of years to fund this project: On going

Matching funds from the State of Alaska: _____

Matching funds from local and private entities:

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Yes, for many years. In FY08, it is funded at \$4.875M
 UAF receives approximately \$600K a year

Amount included in the President's FY09 Budget: None

Amount included in the State of Alaska FY09 Budget: None

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

Projects are organized under three major categories.

1. Non-Timber forest Products: Objective - develop short-term projects to produce products from forest materials not related to the dimension lumber industry
2. Timber products; Develop grading standards for Alaska produced dimension lumber
3. Resources Development: investigate feasibility and marketing of products and processes related to forest materials

Accomplishments in Previous Years:

2001-2004:

The Survey of the Educational Needs of the Alaska Forest Products Industry was completed and the final report prepared. There is a need for training to develop new markets for Alaska forest products. Final reports were received for: Fast PYROLYSIS – Wood to Gas, Bio-oil and Fuel Grade Charcoal – A Preliminary Economic Analysis for Southeast Alaska, and Technical Potential for Small Scale Wood Pulping Appropriate for Alaska, with an emphasis on the Matanuska-Susitna Valley that showed a potential to support small but environmentally friendly pulp mills in Alaska. No amber was located at secondary sites on the Koalak River at the completion of the North Slope Amber Project in 2002. In 2003, amber was located and collected at primary sites and made available to Alaska Native craftsmen. Wood composite planting boxes were placed at the Georgeson Botanical Garden at UAF and in Sitka as a result of the Wood Plastic Composite Material project. The source of the wood in the composite is beetle-damaged spruce. Evaluation continued in 2003. Cutting yields were determined for hemlock growing at the extreme northern limits in southeast Alaska for the growth range of hemlock as a result of the Cutting Yields from Alaska Hemlock project. Sampled material suitable for dimension lumber and grading processes are in place. The Natural Tea Project in Haines evaluated fresh and dry weights of selected tea material from forest products and developed drying schedules. This project involves an undergraduate senior thesis and a Ph.D. research project. In cooperation with the Ketchikan Wood Technology Center's Alaska Species Grading project, establishment of grading standards for western hemlock, Alaska yellow cedar², Sitka spruce, and white spruce

2 New growth of Alaska yellow cedar is declining and there is a die-off of mature trees. This problem is being addressed by a research project funded by the New Crop's Opportunities earmark.

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were begun. Yellow cedar and hemlock were forwarded to the American Lumber Standards Committee in 2004. Work was completed on the Yellow Cedar and Alaska Hemlock Knot Dispersion Study in 2004 and results forwarded to the Western Wood Products Association and Engineered Wood Products Association. In 2004, it was determined that the wood/plastic composite acted comparable to a plastic in a planter-box application.

2005:

The Ketchikan Wood Technology Center (KTWC) continued to investigate the basic properties of Alaska species and develop updated strength values based on a relatively new technology that uses small clear samples. As updated grading standards for Alaska wood are established, efforts were directed toward defining consumer reaction to terms used to describe lumber produced from Alaska species. Testing was completed for white spruce, hemlock, white birch, yellow cedar and red alder. The results are new design values for Alaska lumber. Investigation for the economic potential of production of medium density fiberboard in southeast Alaska continued. The cut stock yields from western hemlock in the extreme northern portion of its growth range were compared to the southern reaches of its growth range in southeast Alaska. A wood chemistry position (post-doctoral) in the School of Natural Resources and Agricultural Sciences was advertised. It is proposed for the University of Alaska Fairbanks campus to cooperate with the College of Engineering and Mines and the Chemistry Department in the College of Natural Sciences and Mathematics.

2006:

New projects in 2006 included determining the potential of using underutilized Alaska hardwoods such as birch, aspen, cottonwood and red alder for the manufacture of woodwind instruments like the bassoon and oboe. A new phase of the on-going wood composite study is building upon prior work to develop and demonstrate that high value wood-plastic composites can be produced from commercially viable, low-grade or low-value woody material from local forests with the potential to benefit many areas of Alaska. This is a collaborative effort between the University of Alaska Fairbanks and Washington State University. A demand study for wood composites in Alaska by an economist at the University of Alaska Anchorage is also beginning.

Research into marketing of value-added Alaska wood products continues and new research will try to identify appropriate Japanese niche markets for glulam beams made with Alaska wood. Another part of the marketing component will be a series of marketing workshops for wood products and non-timber forest products from Alaska.

Our partnership with Ketchikan Wood Technology Center, a non-profit research institute, will continue with a new initiative to study the defect strength ratios for Alaska lumber building on results from and determining a quantitative relationship between in-grade testing and small clear testing.

The new wood chemist position was filled and is located at the University of Alaska Fairbanks, Palmer Research and Extension Center. Plans began to move the Ketchikan Wood Technology Center and the WUR Principal Investigator to Palmer.

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Converting Alaska's Seafood Processing Byproducts - UNIVERSITY OF ALASKA

Project Location: Alaska - Fairbanks, Kodiak & Juneau

Project Description (please attach additional pages as required):

The over-arching goal of this project is to develop new knowledge that will be used to increase the value of under-utilized seafood processing by-products for aquaculture, agriculture, and other high value uses in a sustainable manner. Development of effective means of dealing with processing by-products will increase the economic viability and sustainability of the seafood industries. There is increasing recognition that oils from cold water marine fish, especially salmon oils, have a high content of the long chain 3-omega fatty acids, a low content of environmental contaminants and come from certified sustainable wild fisheries. The problem is that many salmon processing plants are located in communities that lack the infrastructure to further purify the oil. Raw salmon oil, if not further purified, deteriorates quickly. UA is requesting funds to build a small scale, low cost, transportable pilot plant unit that can effectively purify oil from salmon heads using adsorption technologies. The unit would be sized such that it could be easily shipped by container to remote and seasonal salmon processing operations for proof of concept experimentation.

Related Appropriations Bill: NA

Amount of federal funding requested for FY09: \$ 900,000

Total funding to complete this project: \$ 900,000

Number of years to fund this project: ongoing

Matching funds from the State of Alaska: \$ 0

Matching funds from local and private entities:
\$ 0

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

AG/ARS

Amount included in the President's FY09 Budget: \$ 0

Amount included in the State of Alaska FY09 Budget: \$ 0

List legislation that authorizes this project:

NA

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

Check this box if state funding was sought but not provided.

The Alaska seafood industries harvest more than 50% of the total US fish catch; however, much of the processing by-product is under-utilized or discarded. The total Alaskan seafood harvest is over 2.4 million metric tons (MT) per year, which results in over 1.1 million MT of fish protein meal and other co-products with an annual value in excess of \$200,000,000. Further, Alaskan seafood processing by-products contain unusual and often unique fractions that could be recovered and utilized as high value food and feed ingredients or supplements. These include oils rich in long-chain omega-3 fatty acids, specific proteins, peptides and other biochemicals.

The project objectives include:

- 1) elucidate the chemical, biological and physical properties of under-utilized Alaska processing by-products and their biochemical constituents to identify components that can be used to make new and improved aquaculture and agriculture feed ingredients, and other high value products;
- 2) improve processes and methods for analysis, collection, and storage of raw materials, to retain the chemical biological, and physical qualities of Alaska seafood processing raw materials for developing new and improved ingredients and biochemicals;
- 3) make and evaluate the effectiveness of new and improved aquaculture and agriculture ingredients and feeds from under-utilized Alaska seafood by-products and their constituents.

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Related Appropriations Bill: NA

Amount of federal funding requested for FY09: \$ 900,000

Total funding to complete this project: \$ 900,000

Number of years to fund this project: ongoing

Matching funds from the State of Alaska: \$ 0

Matching funds from local and private entities:

\$ 0

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

AG/ARS

Amount included in the President's FY09 Budget: \$ 0

Amount included in the State of Alaska FY09 Budget: \$ 0

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

NA

Check all that apply:

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Extended Continental Shelf Mapping, University of Alaska

Project Location: Arctic Ocean

Project Description (please attach additional pages as required):

Article 76 of the Law of the Sea establishes extended EEZs (beyond 200 NM) for seabed resources. This is based on natural prolongation from existing shelves, distinguishing the juridical shelf from the physiographic shelf, and is developed from bathymetric and geophysical data.

SCAMP II will rejuvenate the Arctic submarine data acquisition for extended continental shelf claims under Article 76 by the United States. Technological advances since last data mapping cruises (1993-1999) allow much more accurate mapping possible using swath bathymetric sonar and deep penetration reflection profiling system. Submarine surveys will provide access to new sectors of the Arctic Ocean and allow for establishing the full extent of claims. Submarine surveys provide much more accurate and refined mapping data than is possible through any other means.

Related Appropriations Bill: NA

Amount of federal funding requested for FY09: \$ 1,000,000

Total funding to complete this project: One

Number of years to fund this project: One

Matching funds from the State of Alaska: _____

Matching funds from local and private entities: _____

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Amount included in the President's FY09 Budget: \$ 0

Amount included in the State of Alaska FY09 Budget: \$ 0

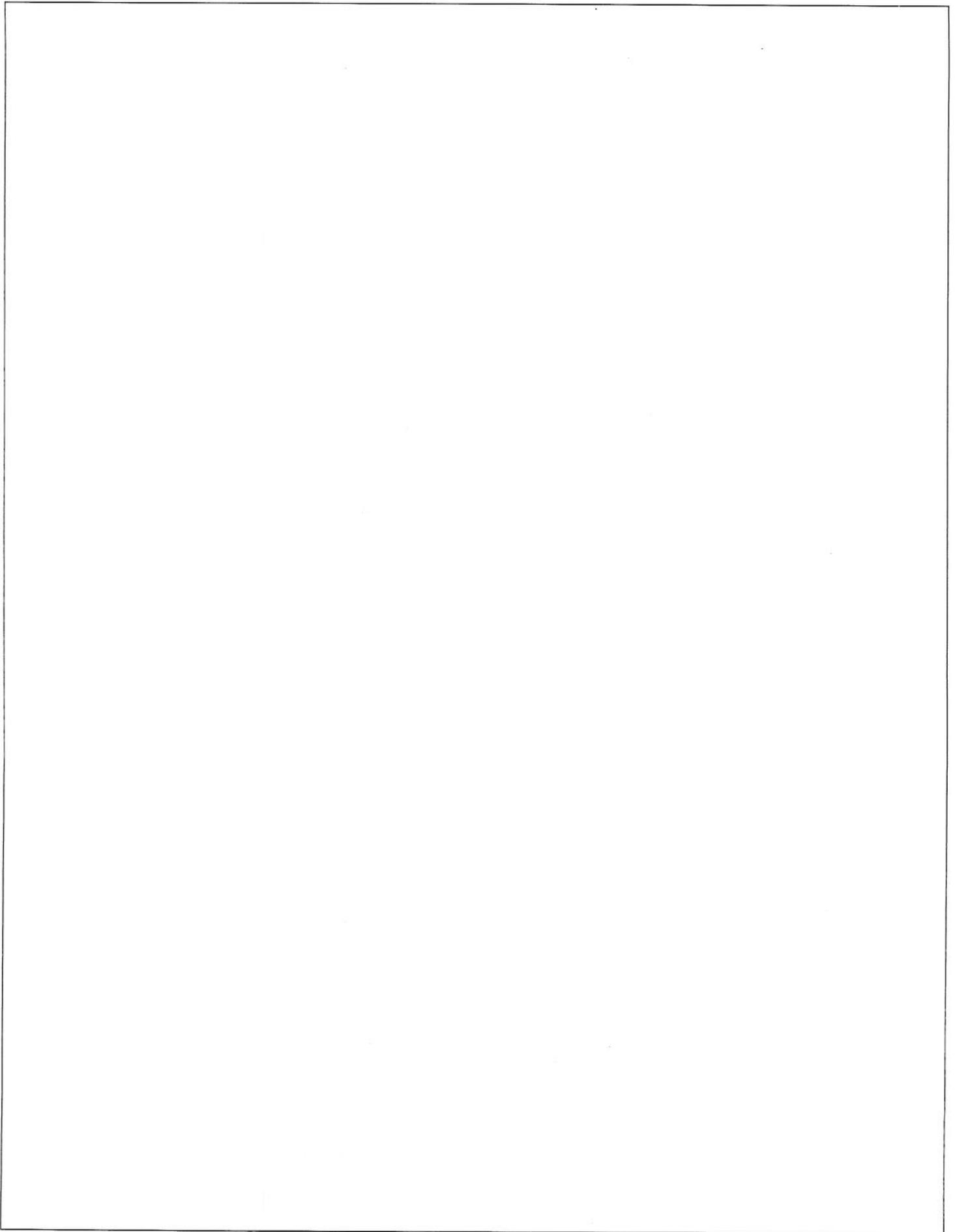
Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

Important result of the pending passage of the Law of the Sea Treaty

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)



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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Alaska Climate Center

Project Location: University of Alaska-Fairbanks but Statewide Implications

Project Description (please attach additional pages as required):

Establish a Center for Research and Climate studies at the Fairbanks campus. See second page justification.

Related Appropriations Bill: NOAA/Commerce

Amount of federal funding requested for FY09: \$3m

Total funding to complete this project: \$6m

Number of years to fund this project: 3 yrs

Matching funds from the State of Alaska: Pending

Matching funds from local and private entities:

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Amount included in the President's FY09 Budget: 0

Amount included in the State of Alaska FY09 Budget: Pending

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

1. Size. Alaska is physically as large as or larger than most of the other regional climate centers and on that basis alone merits its own climate center.
2. Special needs. Alaska's weather and climate is strongly influenced by the Arctic, a situation unique in the United States. Further, its northerly position means that its link to larger-scale hemispheric circulation patterns are different from the conterminous US and require unique analysis approaches. For example, most textbooks about synoptic meteorology focus on the mid-latitudes. This type of thinking often does not serve when analyzing Alaskan weather and climate patterns.
3. Variety of climate types. Alaska's size, location, and topography means that it encompasses a variety of very distinct climate types, ranging from temperate rain forest in southeast to a virtual desert-dry in interior, mountain climates, some of the harshest marine regions in the world that the Aleutians and the Bristol Bay fishing fleets must endure, strong temperature ranges and extremes through to relatively temperate zones. The ocean areas of Alaska breed series of storms every fall and winter that cause significant hardship in the coastal zones while other areas experience extended periods of calm weather.
4. Lack of sufficient resources. Alaska's climatic variety is unparalleled in any other climate center jurisdiction and requires its own resources to properly study.
5. Vulnerability of populace to weather/climate. Accurate climate information and contextually relevant research efforts are arguably more important here than many other areas because a) the climate is much harsher for longer periods each year and b) a greater majority of the populace lives by the whim of the weather. For example, many areas are not accessible by road and many people make their living on the land or at sea. The people of the state need to have more dedicated support.
6. Education mandate. Many of the regional climate centers have educational outreach components. This is another critically under served sector in Alaska, to the extent that many of the community schools rely on materials from California which are devoid of Alaskan context.
7. Climate centers also conduct research into the links between large-scale climate drivers, such as El Nino, and the impacts at a weather and forecasting level. This sort of information would be of assistance to the National Weather Service forecast offices (WFOs) in the state (in Juneau, Anchorage, and Fairbanks).

This Center would provide UAF with human and computational resources to support the work needed by the PIs in the area of weather forecasting research (WRF). WRF has been developed and is overseen by the National Center for Atmospheric Research (NCAR) and other federal interests. It has been adopted as the primary model used by weather forecasters. However, NCAR has no plans to customize/optimize WRF for Arctic use, as was the case with MM5, WRF's predecessor. It is up to the Arctic researchers to design, implement and validate Arctic WRF.

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: NABOS Russian Icebreaker Missions

Project Location: Coordinated out of Fairbanks

Project Description (please attach additional pages as required):

See next page

Related Appropriations Bill: Commerce/NOAA

Amount of federal funding requested for FY09: \$3m

Total funding to complete this project: _____

Number of years to fund this project: 2 more years

Matching funds from the State of Alaska: None

Matching funds from local and private entities:

Other institutions contribute their share

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Bill Number	Amount Funded

Amount included in the President's FY09 Budget: 0

Amount included in the State of Alaska FY09 Budget: 0

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

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Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

For the International Polar Year (IPY), the arctic science community has decided to operate a coordinated large-scale mooring-based observational experiment in the Eurasian and Canadian basins of the Arctic Ocean with the IARC/UAF-led program NABOS/CABOS as the key component. The widely spaced array of moorings will emphasize the largest-scale modes of variability, including basin-scale shifts of the Arctic Ocean circulation and water mass structure. The overall purpose of the experiment is to provide a quantitative, observationally based assessment of circulation, water mass transformations, biogeochemical fluxes, key mechanisms of variability in the Arctic Ocean, and links to the lower-latitude processes. Coupled with existing oceanographic datasets, the observational data obtained in this experiment will enhance our understanding of Arctic Ocean variability on a broad range of time scales (from hours to years) and space scales (from meters to basin-scales). Our program was successful in providing important information about unprecedented transitions occurring recently in the Arctic Ocean. This success attests that the monitoring system we are jointly establishing and maintaining, works and delivers valuable information for understanding changes in the Arctic climate system. A number of regional monitoring programs have elucidated local details of the circulation of the Eurasian and Canadian basins, but none has provided the large-scale coverage we propose here. Linked with North Atlantic observations provided by the international ASOF (Arctic/Subarctic Ocean Fluxes), our large-scale oceanographic survey will provide a unique opportunity for coordinated long-term measurements over a vast polar/sub-polar region. We expect that our program will nicely complement related Arctic Ocean field programs in a synergistic manner. We are confident that our program will become an important element of the IPY enhancing international cooperation, resulting in shared research infrastructure, updated databases, and fostering of synergy and interdisciplinary dialog.

A paper co-authored by 19 scientists from eight countries, with the IARC PI being the lead author, was published in 2007, reporting on the wide-spread warming of the North Arctic Ocean. The amount we received for the FY07 operation was \$1.8M.

Details of the project change every year. For the FY09 period, 12 institutions from 6 countries plan to join the project. The funds are provided through NOAA.

Subcontracts to Russia, Norway, etc. \$1.73M

Salaries \$0.55M

Travel \$0.05M

Other related expenses \$0.67M

Total \$3.00M

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Wood Utilization (University of Alaska)

Project Location: Sitka, Ketchikan, Juneau

Project Description (please attach additional pages as required):

This is a continuation of an existing federal earmark that is a part of the national program, Wood Utilization Research (WUR) that addresses forest products research in the United States including non-timber products and education and extension associated with new product development and production processes¹. The initiative has been in place for nationally for 20 years. In Alaska, WUR is designed to conduct research programs to assist with the restructuring of the forest products industry with an emphasis on southeast Alaska. Projects are designed to respond to the needs of the industry and communities, primarily those affected by the Tongass Land Management Plan that severely restricted access and allowable cut in the Tongass National Forest. This restriction caused the closure of all pulp mills in southeast Alaska and numerous small mills severely impacting employment and community viability. Projects that are undertaken are based on needs identified by on-going research, direct request from industry organizations, private sector individuals and businesses, as well as educational institutions and government agencies.

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Number of years to fund this project: On going

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2006:

New projects in 2006 included determining the potential of using underutilized Alaska hardwoods such as birch, aspen, cottonwood and red alder for the manufacture of woodwind instruments like the bassoon and oboe. A new phase of the on-going wood composite study is building upon prior work to develop and demonstrate that high value wood-plastic composites can be produced from commercially viable, low-grade or low-value woody material from local forests with the potential to benefit many areas of Alaska. This is a collaborative effort between the University of Alaska Fairbanks and Washington State University. A demand study for wood composites in Alaska by an economist at the University of Alaska Anchorage is also beginning.

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Alaska Climate Center

Project Location: University of Alaska-Faribanks but Statewide Implications

Project Description (please attach additional pages as required):
Establish a Center for Research and Climate studies at the Fairbanks campus. See second page justification.

Related Appropriations Bill: NOAA/Commerce

Amount of federal funding requested for FY09: \$3m

Total funding to complete this project: \$6m

Number of years to fund this project: 3 yrs

Matching funds from the State of Alaska: Pending

Matching funds from local and private entities:

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Amount included in the President's FY09 Budget: 0

Amount included in the State of Alaska FY09 Budget: Pending

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

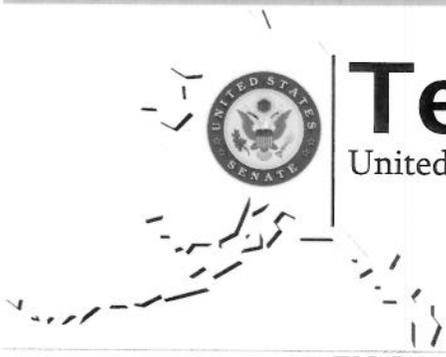
Check all that apply:
 A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
 Bill or report language is needed. (If so, attach requested language)

1. Size. Alaska is physically as large as or larger than most of the other regional climate centers and on that basis alone merits its own climate center.
2. Special needs. Alaska's weather and climate is strongly influenced by the Arctic, a situation unique in the United States. Further, its northerly position means that its link to larger-scale hemispheric circulation patterns are different from the conterminous US and require unique analysis approaches. For example, most textbooks about synoptic meteorology focus on the mid-latitudes. This type of thinking often does not serve when analyzing Alaskan weather and climate patterns.
3. Variety of climate types. Alaska's size, location, and topography means that it encompasses a variety of very distinct climate types, ranging from temperate rain forest in southeast to a virtual desert-dry in interior, mountain climates, some of the harshest marine regions in the world that the Aleutians and the Bristol Bay fishing fleets must endure, strong temperature ranges and extremes through to relatively temperate zones. The ocean areas of Alaska breed series of storms every fall and winter that cause significant hardship in the coastal zones while other areas experience extended periods of calm weather.
4. Lack of sufficient resources. Alaska's climatic variety is unparalleled in any other climate center jurisdiction and requires its own resources to properly study.
5. Vulnerability of populace to weather/climate. Accurate climate information and contextually relevant research efforts are arguably more important here than many other areas because a) the climate is much harsher for longer periods each year and b) a greater majority of the populace lives by the whim of the weather. For example, many areas are not accessible by road and many people make their living on the land or at sea. The people of the state need to have more dedicated support.
6. Education mandate. Many of the regional climate centers have educational outreach components. This is another critically under served sector in Alaska, to the extent that many of the community schools rely on materials from California which are devoid of Alaskan context.
7. Climate centers also conduct research into the links between large-scale climate drivers, such as El Nino, and the impacts at a weather and forecasting level. This sort of information would be of assistance to the National Weather Service forecast offices (WFOs) in the state (in Juneau, Anchorage, and Fairbanks).

This Center would provide UAF with human and computational resources to support the work needed by the PIs in the area of weather forecasting research (WRF). WRF has been developed and is overseen by the National Center for Atmospheric Research (NCAR) and other federal interests. It has been adopted as the primary model used by weather forecasters. However, NCAR has no plans to customize/optimize WRF for Arctic use, as was the case with MMS, WRF's predecessor. It is up to the Arctic researchers to design, implement and validate Arctic WRF.

Submission Date: _____

Priority: _____ of _____



Ted Stevens

United States Senator for Alaska

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: NABOS Russian Icebreaker Missions

Project Location: Coordinated out of Fairbanks

Project Description (please attach additional pages as required):
See next page

Related Appropriations Bill: Commerce/NOAA

Amount of federal funding requested for FY09: \$3m

Total funding to complete this project: _____

Number of years to fund this project: 2 more years

Matching funds from the State of Alaska: None

Matching funds from local and private entities:
Other institutions contribute their share

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Amount included in the President's FY09 Budget: 0

Amount included in the State of Alaska FY09 Budget: 0

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

Check all that apply:
 A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
 Bill or report language is needed. (If so, attach requested language)

For the International Polar Year (IPY), the arctic science community has decided to operate a coordinated large-scale mooring-based observational experiment in the Eurasian and Canadian basins of the Arctic Ocean with the IARC/UAF-led program NABOS/CABOS as the key component. The widely spaced array of moorings will emphasize the largest-scale modes of variability, including basin-scale shifts of the Arctic Ocean circulation and water mass structure. The overall purpose of the experiment is to provide a quantitative, observationally based assessment of circulation, water mass transformations, biogeochemical fluxes, key mechanisms of variability in the Arctic Ocean, and links to the lower-latitude processes. Coupled with existing oceanographic datasets, the observational data obtained in this experiment will enhance our understanding of Arctic Ocean variability on a broad range of time scales (from hours to years) and space scales (from meters to basin-scales). Our program was successful in providing important information about unprecedented transitions occurring recently in the Arctic Ocean. This success attests that the monitoring system we are jointly establishing and maintaining, works and delivers valuable information for understanding changes in the Arctic climate system. A number of regional monitoring programs have elucidated local details of the circulation of the Eurasian and Canadian basins, but none has provided the large-scale coverage we propose here. Linked with North Atlantic observations provided by the international ASOF (Arctic/Subarctic Ocean Fluxes), our large-scale oceanographic survey will provide a unique opportunity for coordinated long-term measurements over a vast polar/sub-polar region. We expect that our program will nicely complement related Arctic Ocean field programs in a synergistic manner. We are confident that our program will become an important element of the IPY enhancing international cooperation, resulting in shared research infrastructure, updated databases, and fostering of synergy and interdisciplinary dialog.

A paper co-authored by 19 scientists from eight countries, with the IARC PI being the lead author, was published in 2007, reporting on the wide-spread warming of the North Arctic Ocean. The amount we received for the FY07 operation was \$1.8M.

Details of the project change every year. For the FY09 period, 12 institutions from 6 countries plan to join the project. The funds are provided through NOAA.

Subcontracts to Russia, Norway, etc. \$1.73M

Salaries \$0.55M

Travel \$0.05M

Other related expenses \$0.67M

Total \$3.00M

Submission Date: _____

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: West Coast Consortium of Undersea Habitat Centers - UNIVERSITY OF ALASKA

Project Location: Alaska - Statewide

Project Description (please attach additional pages as required):

Based on the recent concerns about the sustainability of marine living resources, a major effort is now underway by scientists, managers, and policy makers to advance the ocean sciences. Much of this effort lies in the emerging field of marine benthic habitat characterization and mapping. The states of Oregon, Washington, California and Alaska are now independently initiating efforts to include their respective regions into the ground swell of coastal and marine science habitat investigative activities. Investigating the marine environment in a systematic manner with the assistance of as many experts as feasible is necessary if our troubled oceans are going to be saved. This approach is the basic underpinnings of the new oceans protection bill "Oceans 21."

The merger of NURP and Ocean Exploration is underway and it is important for UA to support the merger and prepare for the future. This proposal to support the Undersea Habitat Center will pay off handsomely in positioning for the transition to a new structure for OER and to compete effectively with other west coast institutions for the right to set up the Coop Institute.

Related Appropriations Bill: NA

Amount of federal funding requested for FY09: \$ 4,000,000

Total funding to complete this project: _____

Number of years to fund this project: _____

Matching funds from the State of Alaska: _____

Matching funds from local and private entities:

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Amount included in the President's FY09 Budget: \$ 0

Amount included in the State of Alaska FY09 Budget: \$ 0

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

NA

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

A new NOAA program is being proposed to establish a West Coast Consortium of Undersea Habitat Centers (WCCUHC) dedicated to support scientific projects that will further our understanding and advancement of habitat characterization and community integration. The foundation for this initiative is a group of diverse and multidisciplinary scientists from institutes that include Federal and State Government agencies, universities, NGOs, industry, and the private sector. The intent is to share funding and facilities in such a fashion that the major effort and finances are directed to address scientific issues, allowing flexibility to address topical management issues with the most qualified experts in the field. To implement this Consortium, we propose to use existing facilities with personnel chosen for the specific task and issues of interest.

The main office for the West Coast Consortium of Undersea Habitat Centers will be housed at the Center for Habitat Studies of Moss Landing Marine Laboratories, which has been characterizing and mapping marine benthic habitats for the past 13 years and has pioneered the field of marine benthic habitat mapping. A habitat scheme developed at the Center for Habitat Studies is now being used in California, Oregon, Washington, Alaska, Canada, Ireland, and the UK. Mirrored facilities will be developed at NOAA's Hatfield Marine Science Center in Oregon, the Friday Harbor Laboratories of the University of Washington supported by a private lab, Tomolo of Orcas Island, and at the University of Alaska, Fairbanks and the Kasitsna Bay Laboratory. This brings together NOAA's Underwater Research Program (NURP), National Marine Fisheries Service (NMFS), Pacific Marine Environmental Laboratory (PEML) and other NOAA organizations such as the National Oceans Survey (NOS), as well as the USGS, universities, and the private sector into a sphere of influence that can both draw upon well-established scientific organizations and credible scientists that can work cooperatively on regional habitat-related problems. In addition, the Geological Survey of Canada (GSC), Canadian Department of Fisheries and Oceans (CDFO), and the Canadian Hydrographic Service (CHS) will be included in the consortium and will participate in cross-boundary investigations between Canada and the States of Washington and Alaska.

An increased, quantitative understanding of the oceans, especially close to shore, is an imperative for Alaska's coastal communities as they face unprecedented and unknown impacts from global climate change and/or other large scale ocean processes. The objectives of this new program complement those of the WCPR Center at UAF and of the developing nearshore observatory at Kasitsna Bay. Working in partnership, these entities will be able to leverage resources for research that is critical to our Alaskan coastal communities.

Submission Date: _____

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Coastal Vulnerability to Climate Change

Project Location: UAF, but activities statewide

Project Description (please attach additional pages as required):

See attached.

Related Appropriations Bill: NOAA/Commerce/OAR

Amount of federal funding requested for FY09: \$1m

Total funding to complete this project: \$1m

Number of years to fund this project: 3 total and this is las

Matching funds from the State of Alaska: 0

Matching funds from local and private entities:

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Amount included in the President's FY09 Budget: 0

Amount included in the State of Alaska FY09 Budget: 0

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
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This initiative is a continuation of an FY06 earmark, "Alaska Coastal Vulnerability to Climate Change". Activity was initiated on this project in Fall of 2006 with the first funding installment of \$1.35M; two bi-annual reports have been submitted to NOAA OAR to date.

Work accomplished to date is grouped under five main categories, presented below. Note that this project is supporting five graduate students; much of this work has been accomplished by them:

Project Coordination (David Atkinson, Atmospheric Science/IARC)

Outreach activities: Attended Northwest Borough Economic Summit (Kotzebue), July 2007, Talk to Upward-Bound students, Outreach with other projects on campus

Liaison efforts with allied projects: SNAP (UA system), see below, ACCAP (NOAA-RISA), see below, Alaska Climate Modeling Project (GI), UA IPY Science Subcommittee and "Coastal Infrastructure" theme lead

Capacity building – submission of other proposals to build partnerships and gain additional revenue streams:

- Integrated Management Tools for Arctic Coastal Zone Resiliency. NSF - 850k
- Collaborative Research: Impact of sea ice and ocean conditions on Arctic cyclones in a changing climate. NASA - 50k for UAF component (with University of Colorado)

Management:

- Met with individual theme leads, established initial priorities
- First "all themes" progress meeting, Sept 2007
- Report submissions to NOAA OAR

Storm Dynamics and Climate (David Atkinson, Atmospheric Science/IARC)

Research:

- Storm tracks. Comparison and development work with computer storm tracking algorithms
- Simple General Circulation Model. Simple storm-response experiments (e.g. ice-pack position) have been conducted using this model
- Reanalysis comparison. Comparison of reanalysis model parameters with observational data from the Arctic Ocean

Technical :

- AWIPS capacity. Installation of the National Weather Service synoptic analysis system (AWIPS)
- Wave gauge deployment. Deployment of bottom-sensor into the southern Chukchi Sea (TeckCominco Red Dog mine a major contributing partner)

Marine Ecosystems (Reid Brewer, SFOS – Marine Advisory Program, Unalaska)

- Data gathering. Working extensively with communities has allowed Brewer access to information about changes observed and what is affecting the fisheries
- Literature review. Work has been done to gather relevant published material

Community Changes and Impacts (Craig Gerlach, Anthropology – CLA)

- Literature review. In this theme work has also been done to gather relevant published material

Model downscaling (Uma Bhatt, Atmospheric Science/GI and Jing Zhang, GI)

- Implement new "Weather and Research Forecast" model (WRF) on ARSC
- Perform extensive wind/temperature downscaling in northern Alaska
- Ongoing assessment of which model will be more suitable to this project (WRF or Polar MM5)

FY09 Initiative Justification and Description: The team assembled for the FY06 initiative consists of atmospheric scientists, a marine mammal researcher, and anthropological experts drawn from the following UAF units: IARC, GI, SFOS-MAP, CLA. That component of the effort is starting to lay the ground work to a) build the necessary partnerships and infrastructure and b) start providing detailed, specific information. It is clear, however, that while trends in climate form the backdrop that set the stage for adverse impacts the main vehicle of delivery are the individual weather events or series of events that are immediately problematic. Thus this component of the initiative will launch efforts to identify specific adverse weather events, link these into weather models and then further up into the large climate projection models, and so predict possible trends in these specific, problematic events.

FY09 Initiative Mandates:

This request will allow the project to be scaled up to focus on these new target themes:

- 1) For coastal communities of western Alaska and the Aleutian Islands, what are the weather events that cause disruption, what kinds of disruption are being caused, and what are the synoptic and climatic scale drivers of problematic weather? How can forecasts of these events be improved, and how can forecast products be made more useful to the communities?
- 2) What are the return frequencies of severe weather? Have these changed over time? What are the planning implications of this, and how will this continue to affect these communities in terms of physical infrastructure and policy?

Submission Date: _____

Priority: _____ of _____



Ted Stevens

United States Senator for Alaska

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Alaska Center for Energy and Power, University of Alaska

Project Location: Based in Fairbanks, but delivered statewide

Project Description (please attach additional pages as required):

See second page

Related Appropriations Bill: Energy

Amount of federal funding requested for FY09: \$3m

Total funding to complete this project: \$9m

Number of years to fund this project: Three

Matching funds from the State of Alaska: yes

Matching funds from local and private entities:

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Amount included in the President's FY09 Budget: none

Amount included in the State of Alaska FY09 Budget: _____

List legislation that authorizes this project:

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

Check this box if state funding was sought but not provided.

The Alaska Center for Energy and Power (ACEP) is a proposed transition for the Arctic Energy Technology Development Laboratory (AETDL), presently funded by the Department of Energy. Unlike AETDL, ACEP seeks only partial support from federal sources and seeks to meet state and regional needs through research, development, and testing in three focus areas. The first is sustainable energy. Here we will meet sustainable energy needs for the State of Alaska, including solutions to the high cost of power in rural Alaska. In most cases, rural Alaska generates power with diesel generators. We will conduct research and testing on hybrid solutions that may include wind, hydro-, solar, biomass, and geothermal power. The foundation of ACEP has been laid with a memorandum of understanding for the Alaska Sustainable Energy Center between UAF, the Cold Climate Housing Research Center (CCHRC), the Fairbanks North Star Borough (FNSB), and the Fairbanks Economic Development Corporation (FEDC). The second leg of ACEP is "Powering the Economy". Here we look for big power opportunities to increase state revenue. For example, a large geothermal power plant in the Aleutian Islands could serve as a source of cheap power for refining of raw materials from Alaska, Canada, Russia and other countries, just as Iceland currently serves as a refining center for the pan-Arctic. This is an issue that could benefit Alaska, but could also make great strides toward energy security for the United States. A power plant in the Aleutians could also help take advantage of the increased flow of raw materials out of a seasonally ice free Arctic. The third leg of ACEP is the "oilfield of the future". The oilfield is a tremendous infrastructure asset to Alaska. How will the state and its industry grow in the future, particularly as oil reserves decrease? One way forward, among many, is methane hydrates. Unfortunately, we still do not know how to recover hydrates in a managed way. Research, development, and testing are included in all areas of the three legs of ACEP.

\$3M/year is sought from federal sources. A detailed budget plan is available for ACEP, but in general, 60% of the \$9M/yr would go towards grants. The grants program would be modeled after the Alaska University Transportation Center for which an outside panel of industry and agency representatives selects projects for funding. Projects are not limited to submittals by UAF faculty. The competition will be open to other UA MAUs, other universities, and private organizations and businesses. In addition to the grants program, funding will be allocated to space modification, equipment, supplies, personnel, and administration, including the salary of a director.

ACEP is currently planning and building partnerships. An example of partnerships is the new MOU signed by UAF to participate in the "Sustainable Energy Center" which would serve as one piece of ACEP. The Alaska Sustainable Energy Center is a partnership between UAF and the Cold Climate Housing Research Center, the Fairbanks North Star Borough, and the Fairbanks Economic Development Corporation.

As discussed above, we are seeking funding from state and private sources to complement the federal funding. We are also working with DOE EPSCoR as a potential source of federal funding for ACEP.

Submission Date: _____

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Alaska Statewide Digital Mapping – Development of Satellite Receiving Station

Project Location: Alaska - Statewide

Project Description (please attach additional pages as required):

The State of Alaska has the opportunity to acquire a new SPOT satellite capture, processing, and archive system based in Fairbanks. The system will create higher-resolution images covering the state's land and off-shore territories every 3-4 years at the lowest cost possible. These multi-color images, at 2.5-meters spatial resolution, are sufficient to accurately evaluate coastal erosion, track marine shipping, monitor sea ice, plan/monitor infrastructure development, and ensure effective resource management. Ortho-photo maps at a scale of 1:12,000 (five times better than most Alaska maps in use) can be made from these photographic-quality images. Images will be directly sent from the satellite to the NOAA Fairbanks ground station in real-time, eliminating the cost and delay of satellite storage and transmission. Large data volumes will be processed rapidly into distributable products, assuring all Alaskans access to current information. The image data will be freely available to everyone via the web. Raw data will be available to all government and university users for research and policy making at no additional cost.

Related Appropriations Bill: NA

Amount of federal funding requested for FY09: \$ 2,000,000

Total funding to complete this project: _____

Number of years to fund this project: 1 (for federal)

Matching funds from the State of Alaska: \$ 6,250,000

Matching funds from local and private entities:

\$ 2,250,000

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Amount included in the President's FY09 Budget: _____

Amount included in the State of Alaska FY09 Budget: \$ 0

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

NA

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

Capabilities: The satellite ground station provides considerable advantages over previous approaches to mapping the State. First, imagery would be captured at an extremely low cost and processed in-state by both private sector and public sector entities, creating Alaska jobs. Second, the State manages the image capture schedule, so areas of interest can be prioritized or imaged repeatedly (e.g. coastlines, wildfires, floods, earthquakes). Third, real-time emergency response and resource management support is possible with this system due to the fact the data will be captured, processed, and delivered immediately to Alaskan users.

Benefits to the State: This program allows the Statewide Digital Mapping Initiative (SDMI) to strengthen its service to the State. The SDMI has been strongly supported by the Governor and her cabinet with \$2,000,000 in State funding each of the past two fiscal years. Furthermore, this program is strongly aligned with the international effort to build an Arctic Observing Network, responding to the need for better and more continuous observations of climate change effects. In addition, ties are strengthened among the University and State agencies, including DNR, DMVA, F&G, and DOT&PF. Federal partnerships with NOAA (NESDIS, NWS, CSC), DOI (USGS, BLM), and USDA (FS and NRCS) are enhanced. Finally, UA's role as a driver of industrial partnerships and provider of technology for economic development will be expanded.

Co-funding: The project would be co-funded with \$1,000,000 of University funds, \$5,250,000 from the Statewide Digital Mapping Initiative CIP budget and in-kind support from NOAA's National Environmental Satellite, Data, & Information Service (NESDIS) ground facility in Fairbanks (data capture), which amounts to an estimated \$1,000,000 contribution. Conversion of raw captured imagery will be performed under a contract with the private sector; Alaska vendors are able and willing to meet this need. High speed networks will transmit the data to UAF which will assure public access and training.

Use of requested funds: Federal funding of \$2,000,000 is requested. It will be spent over the first three years of the project, ramping down as agency partners join. These funds will be used to help purchase the satellite capture and processing equipment (\$1,000,000) and to cover part of the licensing costs (\$1,000,000 of \$3,500,000).

Federal contribution through existing programs: The NOAA/NESDIS Office of Satellite Operations will provide in excess of \$1,000,000 of hardware and operations staff support over the initial five year planning cycle.

State and University contribution: University \$1,000,000 of funding; State-funded Statewide Digital Mapping Initiative CIP \$5,250,000.

Project partners: Existing partners include the Alaska Fire Service, Alaska Aviation Safety Program (DMVA, FAA, NASA), US Air Force, National Weather Service, Alaska Volcano Observatory (UA, DNR, USGS, FAA, Air Force), DNR, and DMVA. Through the SDMI planning effort, new partners will be cultivated to cost share the first five year cycle, with emphasis on the major land and resource management agencies (federal, state, and local governments); emergency response agencies; and others with a need for updated information. The capability of existing partnerships already in place within the SDMI and University programs will be enhanced with this program.

Private sector benefits: Private sector Alaska mapping companies look forward to this SPOT reception program for several reasons in addition the immediate processing work it will provide. First, it will supply them with an expanded source of data they can resell to their clientele. Second, they recognize that the availability of 2.5-meter resolution data will "whet the appetites" of customers and allow them to sell additional and enhanced products. Finally, the greatly improved statewide base layer will make their operations easier by having a sound foundation to develop additional value-added products and services upon.

Deliverables:

- Satellite receiving ground station with real-time data delivery capability installed in Fairbanks (data reception at NOAA/Gilmore Creek; data processing/delivery at UAF)
- Satellite image maps of the entire state within 3-4 years
- Improved competitive research capability centered around better, more continuous monitoring of coastal erosion, wildfire, vegetation change and other climate-induced effects for the life of the project
- Imagery available to all over the web; raw data available to US public sector
- Alaska jobs operating the station and creating value-added products
- Enhanced emergency response and disaster management capabilities

Business plan and post-Federal funding transition: The project will provide substantial benefits while being executed under joint State, University, and Federal funding. It is anticipated that image and map products and their monitoring capabilities will be incorporated into operational processes within State and Federal agencies. UA will propose to the National Science Foundation for ongoing support of the program through their Arctic Observing Network and Major Research Instrumentation programs. Starting in year 3, ongoing funding from agency partners will be sought with the intention of transitioning from Federal Initiative and State CIP funds into ongoing operating budgets. Worst case, if ongoing operations funding does not meet continuation needs, the program can be decommissioned. Even so, Alaska will be substantially better off with a greatly improved base map.

Submission Date: _____

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Alaska Volcano Observatory- University of Alaska

Project Location: Fairbanks, Alaska, University of Alaska

Project Description (please attach additional pages as required):

See below

Related Appropriations Bill: USGS and FAA

Amount of federal funding requested for FY09: \$10m

Total funding to complete this project: ongoing monitoring

Number of years to fund this project:

Matching funds from the State of Alaska: under consideration

Matching funds from local and private entities:

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

USGS and FAA

Amount included in the President's FY09 Budget: \$3m

Amount included in the State of Alaska FY09 Budget: _____

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

The Alaska Volcano Observatory provides 24/7 geophysical monitoring of Alaska's 31 most hazardous volcanoes, satellite surveillance of the entire Aleutian and Kamchatka volcanic arcs, and multi-disciplinary research in improved detection of volcanic events, in forecasting of eruptions, assessment of eruption hazards/impacts, and in understanding of volcanic processes. Through involvement in AVO, UAF offers a unique education for the next generation of geoscientists that is both practical and fundamental in its scope.

Frequent volcanic eruptions are a fact of life in Alaska. Modest eruptions can disrupt commerce and day-to-day activities in coastal villages and the Cook Inlet region. However, the greatest potential for loss of life and property and the greatest focus on volcano hazards resides with the airline industry where some 20,000 passengers and billions in aircraft and cargo transit the North Pacific volcanic arcs daily. Anchorage International Airport ranks fourth in the world in air cargo, only 2% behind Tokyo, Narita (The Economist). The availability of reliable, continuous information on volcanic activity— weekly under normal circumstances and immediately during crises to some 200 private and public sector customers - is an important factor in the industry's large presence in Alaska. It is not a coincidence that international passenger traffic virtually ended at the time of extended interruptions and the near crash of a KLM 747 during the Redoubt eruptions of 1989-1990 (other factors were increasing range for passenger aircraft and the opening of Russian airspace). Even a modest eruption can cause a costly landing at a remote, unsupported airstrip unless pilots know in advance to carry more fuel and less cargo. At the other end of the scale, great eruptions, which occur at about the same frequency as great earthquakes, will devastate Alaska and severely perturb the economy of the nation.

AVO is often able to forecast eruptions in a timeframe that is useful for preparations. We are invariably able to provide early detection, which provides enormous financial and safety benefits. Both reliability of detection and lead time of forecasts are being extended through an active research program encompassing field investigation of eruption processes and history, petrology and laboratory experimental replication of magmatic conditions, crustal deformation in response to magma intrusion, innovations in satellite remote sensing and near-field imaging, modeling of ash dispersal, and application of technological advances in volcano seismology and infrasound. AVO has pioneered design and installation of stand-alone geophysical stations at remote sites with harsh environments, interpretation of seismicity associated with volcano unrest, implementation of satellite remote sensing monitoring on an operational basis, meshing of GPS and InSAR volcano deformation data sets, and recognition of the role of large dikes in subduction zone volcanism. AVO also produces hazard reports and risk assessments, valuable both for advance planning and when a crisis occurs.

For the University, volcanology is an area of unquestioned excellence, for which AVO provides the core support. Students become immersed in science that is truly unique in the world because of our institutional connections, science that is at once fundamental, societally relevant, and international. We use our monitoring tie as the basis for making the University a gateway for American students to the Russia Far East and similarly for making Kamchatka State University a gateway for Russian students to Alaska. AVO has supported a substantial proportion of the University's PhD students over the past decade, from start to graduation. Many of these students now hold prominent positions in federal and state agencies, academia, and the private sector throughout the US. One student was quickly promoted to the position of State Geologist and Director of the Oregon state geological survey in another state. Another was offered and accepted a tenure-track faculty position in the California State University system. A considerable proportion of students have stayed in Alaska in the Alaska Division of Geological and Geophysical Surveys, the US Geological Survey, the minerals industry, and at UAF and UAA. AVO currently provides partial salary support for 8 faculty members, full salary support for one postdoctoral fellow, and provides funds through a "customer" relationship to GINA and the Advanced Instrumentation Laboratory (AIL).

The early 2006 eruption of Augustine Volcano was the first significant volcanic event in Cook Inlet, Alaska since 1992. In contrast to eruptions at remote Alaskan volcanoes that mainly affect aviation, ash from previous eruptions of Augustine has affected communities surrounding Cook Inlet, home to over half of Alaska's population. The 2006 eruption validated much of AVO's advance preparation, underscored the need to quickly react when a problem or opportunity developed, and once again demonstrated that while technology provides us with wonderful tools, professional relationships, especially during times of crisis, are still important.

Long-term multi-parametric instrumental monitoring and background geological and geophysical studies represent the most fundamental aspect of preparing for any eruption. Once significant unrest was detected, AVO augmented the existing real-time network with additional instrumentation including an infrasound sensor and web cameras. GPS and broadband seismometers that recorded data on site were also quickly installed as their data would be crucial for post-eruption research. A modern lightning detection system was installed and a low-light camera was placed in Homer. Each of these opened a door to new scientific research opportunities.

Prior to 2006, most of AVO's eruption response plans and protocols had focused on the threat to aviation rather than ground-based hazards. However, the relationships and protocols developed for the aviation threat were sufficient to be adapted to the ash fall hazard, though it is apparent that more work, both scientific and with response procedures, is needed. Similarly, protocols were quickly developed for warning of a flank-collapse induced tsunami.

Information flow within the observatory was greatly facilitated by an internal web site that had been developed and refined specifically for eruption response. Because AVO is a partnership of 3 agencies (U.S. Geological Survey, University of Alaska Fairbanks Geophysical Institute, and the Alaska Division of Geological and Geophysical Surveys) with offices in both Fairbanks and Anchorage, web and internet-facing data servers provided reliable and rapid access to much of the information to each office.

Submission Date: _____

Priority: _____ of _____



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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Small Public Water Systems Technology Assistance Center, University of Alaska

Project Location: Sitka, but with statewide delivery

Project Description (please attach additional pages as required):

Continuation funding for Center in Sitka that provides training to rural water and sewer operators.

See attached.

Related Appropriations Bill: EPA

Amount of federal funding requested for FY09: \$4m for 8 centers

Total funding to complete this project: Continuation

Number of years to fund this project: Since FY98

Matching funds from the State of Alaska: _____

Matching funds from local and private entities:

State of Alaska contracts with Sitka for some related services.

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

EPA since FY98 and up to FY08

Amount included in the President's FY09 Budget: 0

Amount included in the State of Alaska FY09 Budget: 0

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

Section 1420(f) of the Safe Drinking Water Act (SDWA) authorized the USEPA to make grants to institutions of higher learning to establish and operate Small Public Water Systems Technology Assistance Centers (SPWSTAC). The responsibilities of these centers include the conduct of training and technical assistance relating to the information, performance, and technical needs of small public water systems or public water systems that serve Indian Tribes. Largely due to the efforts of Senators Stevens and Murkowski Congress authorized eight regional technical assistance centers throughout the country. UAS-Sitka, with the University of Alaska Fairbanks (UAF) and the University of Alaska Anchorage (UAA) engineering programs as partners, were designated as the technical assistance center for Alaska.

ATTAC was developed in close cooperation with partner agencies, Native organizations, and educational institutions that collectively are attempting to serve the rural water and sanitation needs of Alaska. ATTAC is also affiliated with the other Technical Assistance Centers (TACs) throughout the U.S., whose service goals are closely aligned with Alaskan needs.

The Environmental Technology Program at UAS Sitka operates and manages the Alaska Training/Technical Assistance Center (ATTAC). The center was established in response to significant statewide concern about rural sanitation issues. Alaska's Governor Knowles established a Council on Rural Sanitation and charged them with recommending steps to solve the problem. The result was the Rural Sanitation 2005 Work plan. One recommendation of the 2005 Work plan was to seek the establishment of a training and technical assistance center in Alaska.

ATTAC seeks funding for continued operation of the Small Water System Training/Technical Assistance Center in order to address the unique conditions and drinking water needs of Alaska's rural communities and residents.

The center's on-going, broad objectives are: 1) to coordinate and expand training opportunities, 2) to serve as a statewide clearinghouse for training information and technical resources, 3) to increase community capacity, particularly among Alaska Native villages, for support of community water systems, and 4) to investigate water resource issues unique to small systems in arctic conditions.

Each year the center conducts about 20 water system operator training workshops throughout the state. In addition, the center has developed on-line, non-credit courses for operators and managers of small utilities. The center works closely with the ADEC and has been involved with their Area-wide Optimization Program, Operator Certification Program, conducting sanitary surveys for small systems, and the development of training materials. The Center also works closely with regional native corporations (for example, the Tanana Chiefs' Council) and the other regional training centers. The center maintains a hard copy and virtual educational materials lending library, and a technical assistance toll-free phone line and website. Center personnel are available to high schools where they serve as technical resources and promote community sanitation and environmental careers.

In addition to its immensity and diverse geographic and climactic characteristics, several other factors are unique in rural Alaska. First is the extreme isolation of rural communities which results from Alaska's limited transportation and telecommunications infrastructure. Road systems are developed in only a few regions of Alaska; consequently, the great majority of Alaskan communities, scattered along remote coastlines, islands, and interior river systems, are accessible only by small aircraft or boat. Telecommunications infrastructure is similarly limited and internet access, if available at all, is slow and requires long distance connection.

In addition to their isolation, Alaska's rural settlements are quite small. The State of Alaska has approximately 1,700 federally regulated drinking water systems. Only 21 of these systems serve communities with populations greater than 3,300 persons. Of the remaining 1,679 federally regulated systems, 1,540 serve communities with populations of between 25 and 500 persons.

Also distinctive in rural Alaska is its wide ethnic diversity. Over 40 percent of the nation's federally recognized tribes are located in Alaska. The indigenous population of Alaska includes multiple and totally distinct cultures, including Tlingit, Haida, Tsimshian, Athabascan, Aleut, Inupiat, Yupik and Inuit Eskimo peoples. Most native communities continue to practice traditional cultural and subsistence lifestyles with limited cash-based economies. In many Native villages, English is a second language – certainly for the elders and frequently for younger generations as well.

Under Congressional direction, the USEPA completed a drinking water needs survey for Indian Tribes and Alaska Native Villages. The survey concluded that Alaska Native villages account for over 57 percent of the national drinking water needs for Indian Tribes and Alaska Native villages. Successful service delivery, whether in health care, education, law enforcement, or water system development, cannot be imposed upon such communities but must be adapted and integrated with local cultural practices.

The Alaska Training/Technical Assistance Center (ATTAC) has received \$400,000 to \$500,000 through the USEPA each fiscal year since FY 98. The center has also received occasional funding through contracts with the Alaska Department of Environmental Conservation (ADEC). To date annual federal funding has been the result of congressional "earmarks" in the USEPA budget.

Submission Date: _____

Priority: _____ of _____



Ted Stevens

United States Senator for Alaska

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Alaska Native Science & Engineering Program (ANSEP) Pre-College Component

Project Location: 36 Rural Alaska high schools, two high schools in Hawaii and two high schools in Washington State

Project Description (please attach additional pages as required):

The ANSEP program is one of the nation's most successful programs in enrolling and graduating Indigenous Americans in the fields of science, technology, engineering and mathematics (STEM). The Pre-College Component provides academic opportunities in small rural high schools that catalyze interest in engineering and science and motivates the students to take course work in high school that will foster success in BS degree programs. Prior to implementation of ANSEP Pre-College, many of the Alaska high schools did not offer the coursework necessary for students to come to the University prepared to be successful in engineering and science BS degree programs. There are now hundreds of high school students in those same schools taking physics, chemistry and trigonometry. Students in ANSEP Pre-College are provided with all of the parts for a top of the line computer. They are shown them how to put it together and taught how to use it. If they successfully complete physics, chemistry, and trigonometry in high school, show others how to build a computer, and participate in on-line tutoring sessions, the students can keep the computer when they come to the University.

Related Appropriations Bill: NA

Amount of federal funding requested for FY09: \$ 1,050,000

Total funding to complete this project: \$ 1,050,000

Number of years to fund this project: 1

Matching funds from the State of Alaska: \$ 0

Matching funds from local and private entities:

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

FY08	
FY07	

Amount included in the President's FY09 Budget: _____

Amount included in the State of Alaska FY09 Budget: \$ 200,000

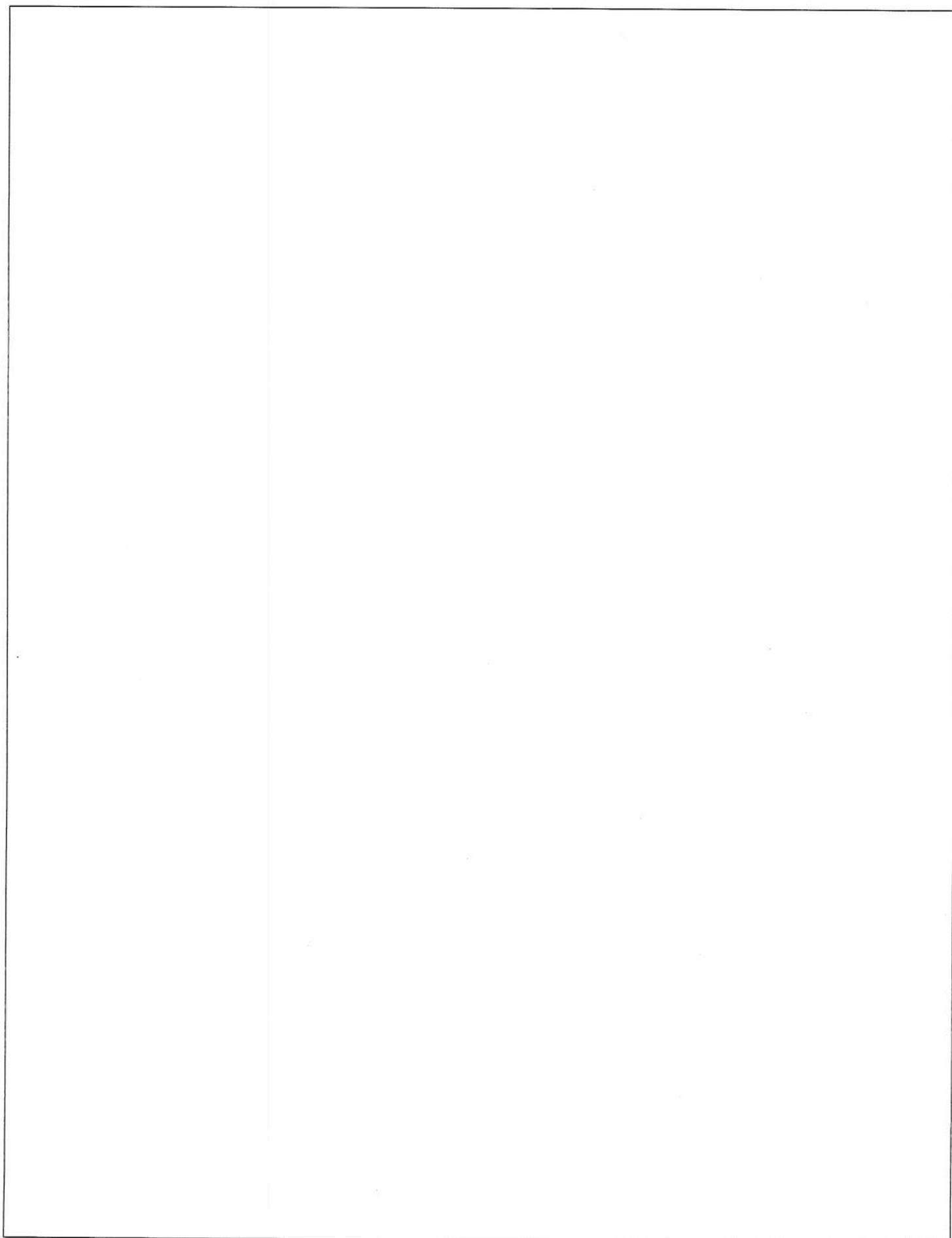
Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

NA

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)



Submission Date: _____

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Airborne Threats

Project Location: Fairbanks, Alaska, University of Alaska

Project Description (please attach additional pages as required):

See below

Related Appropriations Bill: DOD

Amount of federal funding requested for FY09: \$2 m

Total funding to complete this project:

Number of years to fund this project: Three, this is end

Matching funds from the State of Alaska:

Matching funds from local and private entities:

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

DOD

Amount included in the President's FY09 Budget: 0

Amount included in the State of Alaska FY09 Budget:

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

Project will survey and benchmark existing technologies for real-time identification of airborne chemical, radiological and biological compounds, explore innovative applications of MEMS-based particle separation, collection, and spectroscopic identification methods, and build engineering prototype detection systems with reduced costs of ownership that meet combat deployment, homeland security and first responder requirements. The systems will be suitable for rapid deployment on small, mobile platforms such as UAVs. The project will provide opportunities for student training in troop support and homeland security technologies.

This is a continuation of an existing FY07 federal appropriation of \$850,000 and a proposed FY08 federal appropriation of \$1,600,000 through the Department of Defense (Army Research Laboratory).

Since the initial award arrived at UAF four months ago, several new methods of biological aerosol detection and identification have been tested in the laboratory. Additionally, a collaboration with Dr. Linda Powers at the University of Arizona, an expert in identifying biological aerosols using ligand-based detection, has been initiated. The collaboration between Dr. Cahill and Dr. Powers should lead to a field-deployable aerosol sampler capable of being used on a small UAV, such as the UAF UAV, and determining the spatial and temporal variability of biological and chemical aerosols along a flight track. The engineering specifications for the smaller, more portable aerosol sampler and inlet system are being determined so the production of a prototype for field testing can be built. In addition to the production of the aerosol sampler, the survey of available rapid-response techniques available for aerosol characterization has been initiated.

The funding for this project will be managed by Catherine Cahill. She will decide the allocation of the funds and coordinate the multi-institutional efforts. Edward Hume, Jr., and Linda Powers will assist in the development and deployment of sensors and transitioning the technology to future partners. The travel, logistics and personnel costs include the costs associated with transporting the UAF UAV and its operators to Dugway Proving Grounds for tests and demonstrations to potential customers. A subcontract to Dugway Proving Ground is included to provide for the usage of a facility that can test/use hazardous biological and chemical aerosols.

For FY09, the fund allocation would be as follows (indirect is built into all of these values):

This will be the last federal initiative funding request for this project. It is assumed that the equipment and future work will be funded through other mechanisms. The companies Boeing and Insitu have been approached and have preliminarily suggested that we join them in Phase 2 of their Defense Threat Reduction Agency Biological Combat Assessment System Advanced Concept Technology Demonstration proposal.

Submission Date: _____

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Arctic Regional Supercomputer

Project Location: Fairbanks, Alaska, University of Alaska

Project Description (please attach additional pages as required):

See below

Related Appropriations Bill: DOD

Amount of federal funding requested for FY09: \$5m consortium

Total funding to complete this project: Likely last year

Number of years to fund this project: _____

Matching funds from the State of Alaska: _____

Matching funds from local and private entities: _____

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Amount included in the President's FY09 Budget: ~\$11m HCPMO

Amount included in the State of Alaska FY09 Budget: _____

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

Ongoing funding for the maintenance and operation the Arctic Regional Supercomputer. ARSC is a significant resource for the university, providing a full range of computational, data and visualization systems to the faculty, staff, and students. It is also a resource for the Dept of Defense in support of computational requirements of the DOD research and development community. One value ARSC has over the other centers is its open access and non-classified nature.

ARSC provides UA with access to very large supercomputing and mass data storage systems, high bandwidth connectivity to the lower 48 and five computational and visualization systems.

Submission Date: _____

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Hibernation Genomics

Project Location: Fairbanks, Alaska, University of Alaska

Project Description (please attach additional pages as required):

See below

Related Appropriations Bill: DOD

Amount of federal funding requested for FY09: \$3m

Total funding to complete this project: Last year

Number of years to fund this project: _____

Matching funds from the State of Alaska: _____

Matching funds from local and private entities:

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

Amount included in the President's FY09 Budget: 0

Amount included in the State of Alaska FY09 Budget: _____

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

The purpose of the proposed initiative is to establish a magnetic resonance imaging (MRI) facility in Alaska that will include standard, state-of-the-art strength magnets for spectroscopy and in vivo imaging. These facilities will enhance research infrastructure for studies of Arctic and sub-Arctic phenomenon including energetics and metabolism in hibernation, tolerance to lack of oxygen, lack of blood flow and extreme cold in a variety of Arctic species, soil organic matter composition and turnover dynamics related to Arctic ecosystems and global warming, and composition of natural products found in flora and fauna of Alaska. The imaging facility will significantly enhance opportunities to attract external funding from NIH, NSF and DOD. Research at the facility may lead to development of improved therapeutics for stroke and cardiac arrest and combat causality care, identification of natural products and novel compounds with commercial potential, and better understanding of the fragile Arctic ecosystem.

The new facility will house an 800MHz NMR that will upgrade our existing 300 MHz NMR (<http://www.uaf.edu/chem/green/NMR.htm>) and will bring NMR spectroscopy capabilities in line with comparable chemistry programs. A 7T animal MRI will bring in vivo imaging capabilities up to speed with competitive biomedical programs and serve as the northern most MRI imaging facility for study of Arctic and sub-Arctic species and phenomenon.

An imaging facility will significantly enhance research infrastructure and contribute to research programs in neuroscience, biology and chemistry that address Arctic questions related to hibernation physiology, cryoprotection and metabolism in Arctic species, flux of nutrients in Arctic soils, composition of natural products such as wild Alaskan blueberries and analysis of novel compounds with commercial value synthesized by UA chemists.

The facility will expand and improve collaborative research ventures with clinicians at Fairbanks Memorial Hospital as well as MRI/NMR specialists interested in metabolism and energy homeostasis, cryobiology, protein structure, cell biology and human health. An imaging facility at UAF will enhance access to study of unique Arctic species and attract collaboration with experts from other institutions (e.g., Jeff Dunn, U. Calgary; Jack Duman, Notre Dame; Mary McKenna, U. Maryland).

The enhanced research infrastructure will lead to more competitive grant proposals to be submitted to NIH, NSF and DOD and increase the proportion of students and faculty engaged in research and scholarly activities

Partnership with Fairbanks Memorial Hospital will enhance training opportunities for radiology technicians through TVC and in this way grow strategic partnerships with FMH to train health care technicians in response to Alaska's needs.

Submission Date: _____

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FISCAL YEAR 2009 PROJECT REQUEST FORM

Project Name: Unmanned Aerial Research - UNIVERSITY OF ALASKA

Project Location: Fairbanks, Alaska

Project Description (please attach additional pages as required):

Staff at the University of Alaska Fairbanks Geophysical Institute are using their operational knowledge, technical background, and airspace expertise to conduct unmanned aircraft system experiments. Their work is focusing on identifying the various hurdles that must be overcome for a new operational concept to become financially feasible. They are doing this by performing both long and short-term demonstration projects using the unmanned aircraft system owned by the University.

The technology involved in this modern unmanned system has matured rapidly within the military. The University team is focused on exploiting this new capability to aid in solving existing civil and commercial needs. Much of the technology necessary to make significant enhancements in the civil and commercial sectors now exists. What is missing is a skilled operations design to realize the potential benefits. This shortcoming is precisely what the University team is rectifying.

Related Appropriations Bill: NA

Amount of federal funding requested for FY09: \$ 2,000,000

Total funding to complete this project: \$ 2,000,000

Number of years to fund this project: 1

Matching funds from the State of Alaska: \$ 0

Matching funds from local and private entities:

\$ 0

If this project was funded in prior appropriations bills (within the last five years), list each bill and the amount funded:

FY 07 \$1,000,000
 FY 08 \$2,000,000

Amount included in the President's FY09 Budget: \$ 0

Amount included in the State of Alaska FY09 Budget: \$ 0

Check this box if state funding was sought but not provided.

List legislation that authorizes this project:

NA

Check all that apply:

- A change in the current law is necessary in order to proceed with the project. (If so, attach language and a list of laws that need to be amended)
- Bill or report language is needed. (If so, attach requested language)

This new area of research at the University of Alaska is meeting relevant educational needs in a new and growing industry while providing service to a long and growing list of customers. Alaska is a location where the unique remote sensing capabilities of unmanned aircraft can provide early payoff as they naturally move into non-military applications. This University effort is pushing that transition with in-the-field demonstrations.

An additional benefit to the State of Alaska is in regard to civil air regulations related to unmanned aircraft operations. Currently the operational regulations are not keeping up with technological advances and limiting the potential benefit to the State and other places in the nation. The team working on this project is uniquely qualified to help with this problem and is recognized by the FAA at the national level and is under contract with both the FAA and the USAF to do just that.

The military partners working with this program are using the University research to expand their operational capabilities. Since the University is flying identical hardware to what is deployed by the Military it is possible to achieve short-term payoffs for the services from the ongoing research. For example, the University is (1) integrating additional payloads that have significant military value, are (2) developing techniques to exploit the imaging products collected by the unmanned aircraft with standard analysis tools, and (3) modifying the aircraft system so it can successfully deploy in demanding environmental conditions.

Another DoD benefit from this initiative has been to connect the National Oceanic and Atmospheric Administration (NOAA) unmanned aircraft systems program, which is in the President's budget for FY08 and beyond, with our sponsor's offices within the US Navy that have related objectives. The collaboration opportunities between these two organizations appear to be beneficial to both parties.

Funding Request

Between the current contracts, the University support, and past year appropriations routed through the US Navy this unmanned aircraft operations evaluation activity has a promising future. The FY2009 budget request is to continue maintaining the program's health at its current level of \$2M as it moves towards financial independence. Interactions looking for long-term support have begun with the following potential sponsors:

1. The US Navy's unmanned aircraft program office considering creating a procurement program of record for the Insitu system the University owns
2. Department of Homeland Security
3. Department of Interior's Bureau of Land Management
4. National Oceanic and Atmospheric Administration

The New Mexico State University (NMSU) program, which the University of Alaska program is in collaboration with, has begun moving towards financial independence. The University of Alaska program is taking the NMSU lessons and refining their strategies to become independent.

Fund Management

Program funds will be managed by Gregory Walker in collaboration with the Unmanned Systems manager at NSWC Crane. The FY09 funds will be dispersed primarily to the University of Alaska but the entire team working on making this unmanned aircraft evaluation capability successful includes the New Mexico State University and the SAIC Unmanned Systems Division in Albuquerque NM. A portion of the initiative funds in the past and these anticipated initiative funds will be used to provide, as direct support, their expertise to the University of Alaska program.