

*University of Alaska Fairbanks*  
**2010 Annual Unit Plan**

The information collected in the Annual Unit Plan (AUP) is used in a variety of required reports, including but not limited to Performance Review (formerly PBB), Alaska Budget System (ABS), Missions and Measures (M&M), and the Annual Operating and Management Reviews. Submission of the AUP is required in August of each year.

Please complete the following information using the format provided, and submit it electronically to by August 3, 2009 to Deb Horner, University Planner ([fndgh@uaf.edu](mailto:fndgh@uaf.edu)), with a copy to Ian Olson, PAIR ([ian.olson@alaska.edu](mailto:ian.olson@alaska.edu)), as well as to Susan Henrichs, Provost ([fyprov@uaf.edu](mailto:fyprov@uaf.edu)). Research units (ARSC, IAB, IARC, GI) should copy Julie Benson, Center for Research Services ([jbenson@gi.alaska.edu](mailto:jbenson@gi.alaska.edu)).

<b>A. General Information</b>
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**A1. Unit Name: Geophysical Institute**

**A2. Unit Mission:**

- Understanding basic geophysical processes governing the planet Earth, especially as they occur in or are relevant to Alaska;
- Training graduates and undergraduates to play leading scientific roles in tomorrow's society;
- Solving applied geophysical problems and developing related technologies of importance to the state and the nation;
- Satisfying the intellectual and technological needs of fellow Alaskans through public service.

**A3. Core Services :**

- Geophysical research in selected regimes between the center of the Earth and the center of the Sun, Discovery of new knowledge, publication and scientific leadership.
- Provision of research opportunities for faculty, graduate and undergraduate students. Support services and facilities that enable research projects. Mentoring students for MS and PhD degree programs.

- Educational and outreach activities supporting better familiarity and knowledge of geophysics within the State of Alaska. This is achieved through lecture series, such as *Science for Alaska*, teacher education such as the State of Alaska STEP program, development of new curriculum for K-12 such as the *Aurora Alive*, *Volcanoes Alive*, *Climate Modeling* and *Alaska Tsunami* programs.

## B. Progress Report

### B1. Major Accomplishments

- Teaching, research and public service:
  - Program to develop and utilize a computer code simulating non-EPA-compliant winter conditions in temperature inversions enabling scientifically-based planning to minimize the build-up of harmful PM2.5 pollution.
  - Significant enhancement of the airborne lidar glacier profiling program with the addition of a scanning lidar system.
  - Successful mission to spot seals at the Bering Sea ice edge by ship-based operations of the GI unmanned aerial vehicle equipped with a high resolution camera.
  - Successful launch of the 5<sup>th</sup> Student Research Rocket including 10 student instruments from the Poker Flat Research Range on January 10<sup>th</sup>, 2009.
  - New UAF rocket program funded by NASA to be launched at Poker Flat
  - Operations monitoring and researching Redoubt Volcano during the recent extended period of eruption.
  - Success with the design, manufacture and sales of a new rugged data-logger for industrial use in harsh environments.
  - Very successful summer STEP teacher education program conceived and operated by the GI Information Office coordinated with the School of Education.
- Faculty, student and staff awards, competencies, regional/national/international recognition:
  - Hajo Eicken selected to lead the international SEARCH program that is strongly endorsed by circumpolar nations.
  - Steve McNutt stepped down after two 4-year terms as general secretary of the International Association for Volcanism and Chemistry of the Earth's Interior.
  - Jeff Freymueller completed his term as American Geophysical Union Chair of the Geodesy Section.

## B2. End Results and Strategies

Review end results, strategies, targets, etc, in the table below for the period July 1, 2008 to June 30, 2009, based on the 2009 AUP. Add rows as needed.

End Result:	Strategies to Achieve End Result	Target(s):	Measure(s)/Assessment(s):	Status:	Budget Impact
Develop opportunities in remote sensing including continued support for the Advanced Land Observing Satellite Americas Data Node, Alaska Volcano Observatory and Synthetic Aperture Radar product development	Explore faculty hire opportunities where appropriate. Follow up the George Mason University partnership to the point of scheduling regular activities in teaching and research.	Appoint new faculty in remote sensing as opportunities arise.	Several new faculty hire opportunities have been found and appointments have been made for four new research professors in remote sensing. Expertise is spread across ice, permafrost, volcanology, and synthetic aperture radar.	Hired Anthony Arendt (ice) Guido Grosse (p'frost) Franz Meyer (radar) Peter Webley (volcano) Into research faculty positions in remote sensing.	Each of these positions is substantially supported by grants and contracts. Fund 1 resources have been used for start-up arrangements.
Diversify business at Poker Flat Research Range to include strong support for the Unmanned Aerial Vehicle (UAV) Program and for the National Science Foundation Advance Modular Incoherent Scatter Radar (AMISR) activities.	Put a high priority on building the UAV program. Sustain the existing AMISR and satellite tracking activities that are collocated on our site.	Train 2 more pilots, acquire more aircraft and ground stations, and develop trailer-based operations. Acquire new sensors to fly in the payload bay. Encourage the cooperative use of AMISR with rocket flights. Support the use of satellite antennas with rockets	New operational modes from trailer-based sites and ships have been used successfully in the past year. Specialized lidar and still camera instruments have been acquired. New pilot training is being coordinated. AMISR cooperative use on all 9 rockets flown this year. Satellite antenna business is declining.	Successful trials on ice edge in the Bering Sea and with land-trailer operations of the UAV. Successful operations with the new camera. New pilot training expected Fall 2009. AMISR operations producing excellent science. NASA decided to dismantle 1 of 4 satellite antennas.	All activities supported from external funds.

Re-establish the Alaska Volcano Observatory (AVO) with a long-term stable funding. source	Explore new ideas for AVO funding with Federal and State sources. Make use of the ARRA stimulus funds.	Secure the help of Martha Stewart's Office to work with the Congressional Delegation. Engage the USGS and FAA for continuing budget lines for AVO. Engage the State for the same.	Target annual funding for AVO in Alaska is \$10M	Present situation is \$6M annual funding from USGS. Extra one-time only funding through ARRA stimulus. New approaches being made for State resources.	UAF contributed \$100k to cover Federal shortfall for UAF part of AVO in May 2009. Further \$300k expected to cover further shortfall in August and September 2009.
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### B3. Analysis of Performance Metrics and Supporting Data

#### Data Review

- Evaluate the differences in final numbers as compared to your unit targets. Did your unit meet its stated goal? Why or why not? The outcomes form 2009 compared favorably with predictions for our unit..

- Discuss data trends, both positive and negative.

There was a modest improvement in research expenditures and the NGF/GF ratio. Graduate student numbers fell slightly, but we predict will rise again as our IPY legacy activities attract more attention from applicants.

- Indicate whether or not the targets should be adjusted for future years in light of trends.

Research expenditures and indirect costs are predicted to rise 3% per year and have been readjusted accordingly.

#### Strategies

- Reflect upon key unit strategies initiated over the last year – which ones worked and which ones returned results that did not meet your expectations. Please explain. Take careful note of this critical piece as it plays an important role in the university's overall Performance evaluation.

Of the three strategies stated above, the first two were substantially successful. Our remote sensing faculty strength has been increased with relatively little cost to general funds because the new research faculty came with substantial external fund support. Key areas of research potential have been supported in these hires. All areas of research are strongly linked with the graduate program in the Department of Geology and Geophysics in the College of Natural Science and Mathematics. UAV developments have also been strong, with the exception of the training of new pilots. The new pilots are expected to be trained during the Fall 2009. There have been very serious problems securing federal funding for AVO this year because of lack of funds at the USGS. Competition is not the problem.

However, progress has been made through Lisa Murkowski's bill to authorize a \$15M annual national fund for volcano observatories, through USGS adopting a budget plan to provide \$6M annually to AVO, through State contacts that could result in direct support and through UAF providing support to avoid layoffs within this vital program when federal support broke down.

- If there is a formal plan (e.g., Enrollment Management Plan) that is strongly related to a particular performance criteria, discuss any evidence that the plan is or is not achieving its objectives, and if not, any changes implemented or planned.

There has been a concerted effort supported by the USGS to resolve the AVO funding problem. This has involved several meetings held in Washington DC and Fairbanks. The AVO leadership group remains active following a strategy to secure its financial future.

### ***Resources and Reallocation***

- Were there any resources allocated or reallocated to support achievement of your unit's targets and strategies? If so, please explain.

During this past year, the GI carried out a plan to reduce fund 1 expenditures to relieve pressure on the unrestricted fund budget through a reduction in force. The guiding principle in this process was to retain our research capability in spite of the losses we may have to absorb. Seven people were laid off and three further individuals had their hours reduced. The estimated annual savings were \$500k for 2010. The resources were reallocated to pay off over-expenditures in our recharge centers and also to stimulate business in our electronic, machine and computer resource shop services that are critical to our research success.

- Are any areas of achievement suffering from a resource (re)allocation that additionally impacts other metrics?
- No.
- Of all your strategies, which is your most critical for unit success and is it in need of additional resources in order to make it successful?

The most critical strategy is to restore the stability and funding level of the Alaska Volcano Observatory to enable performance of its essential tasks. If the USGS holds to its promise of \$6M for next year, a further \$2M remains to be found in order to avoid the removal of western Aleutian observatory equipment and the consequent loss of service to aviation during volcanic eruptions.

**Fairbanks Academic Unit-Level Historical Performance and Targets**

Line No.	Performance Metrics and Supporting Data Reporting Period: FY08 (July 1, 2008 to June 30, 2009)	Historical Performance					FY10 Target		FY11 Target
		FY05	FY06	FY07	FY08	FY09	Current	New	
1	Student Credit Hours Generated (ex. 500-level)								
2	Grant-Funded Research Expenditures								
3	High Demand Job Academic Awards								
4	Undergraduate Student Retention								
5	Undergraduate Enrollment								
6	UA Scholar Enrollment								
7	Graduate Enrollment								
8	Unit Enrollment Management Plan								
9	Student Learning Outcomes Assessment								

**Community Campus Academic Unit-Level Historical Performance and Targets**

Line No.	Performance Metrics and Supporting Data Reporting Period: FY08 (July 1, 2008 to June 30, 2009)	Historical Performance					FY10 Target		FY11 Target
		FY05	FY06	FY07	FY08	FY09	Current	New	
1	Student Credit Hours Generated (ex. 500-level)								
2	High Demand Job Academic Awards								
3	Undergraduate Student Persistence								
4	Undergraduate Enrollment								
5	UA Scholar Enrollment								
6	Unit Enrollment Management Plan								
7	Student Learning Outcomes Assessment								
8	Non-credit Instructional Productivity Units (NCU) Delivered								

### Research Unit-Level Historical Performance and Targets

Line No.	Performance Metrics and Supporting Data Reporting Period: FY08 (July 1, 2008 to June 30, 2009)	Historical Performance					FY10 Target		FY11 Target
		FY05	FY06	FY07	FY08	FY09	Current	New	
1	Grant-Funded Research Expenditures	28900	28006	27138	28161	31778	31000	32732	33714
2	Indirect-Cost Recovery	8002	7770	7430	7443	7169		7384	7606
3	Non-General Fund (NGF) Revenue	27445	27155	28232	29108	31402		32334	33314
4	Ratio of NGF Revenue to GF Revenue	6.7	6.1	5.6	6.1	6.6		6.6	6.6
5	TA/RA Positions	79	68	58	56	54	59	66	72

**B4. Publications in refereed journals/periodicals**

Use the format below to report publications for CY2007. Include only UAF lead and co-authors. Books/ chapters may also be reported using the appropriate table below. Citation reporting is optional.

School, College or Institute	Journal/Publication	Title of article	Lead author (last name, first initial)	Co-author(s)	Publication Date
<u>GI</u>	<u>Ann. Geophys.</u>	<u>Electron impact ionization in Titan's atmosphere - a Cassini case study</u>	<u>Agren, K.</u>	<u>Modolo, R.; Wahlund, J.E.; Lummerzheim, D.; Galand, M.I; Buller-Wodarg, I.; Cravens, T.; Yelle, R.; Coates, A.; Lewis, G.; Waite Jr.; J.H.</u>	<u>2007</u>
<u>GI</u>	<u>Geophysical Research Letters</u>	<u>An evaluation of deep soil configurations in the CLM3 for improved representation of permafrost</u>	<u>Alexeev, V.A.</u>	<u>Nicolosky, D.J.; Romanovsky, V.E.; Lawrence, D.M.</u>	<u>2007</u>
<u>GI</u>	<u>IEEE Trans. On Geosciences and Remote Sensing</u>	<u>DEM control in arctic Alaska with ICESat laser altimetry</u>	<u>Atwood, D.K.</u>	<u>Guritz, R.M.; Muskett, R.R.; Lingle, C.S.; Sauber, J.M.; Freymueller, J.T.</u>	<u>2007</u>
<u>GI</u>	<u>Cold Regions Science and Technology</u>	<u>Capacitance probe measurements of brine volume and bulk salinity in first-year sea ice</u>	<u>Backstrom, L.G.E.</u>	<u>Eicken, H.</u>	<u>2006</u>
<u>GI</u>	<u>The Holocene</u>	<u>Methane gas release from the Storegga submarine landslide linked to early-Holocene climate change a speculative hypthesis</u>	<u>Beget, J.</u>	<u>Addison, J.</u>	<u>2007</u>
<u>GI</u>	<u>Crustal evolution of southern Alaska: Geological Society of America Special Paper</u>	<u>Neotectonic framework of the north-central Alaska Range foothills, in Ridgway, K.D., Trop, J.M., Glen, J.M.G., and O'Neill, J.M. editors, Tectonic growth of a collisional continental margin</u>	<u>Bemis, S.P.</u>	<u>Wallace, W.K.</u>	<u>2007</u>
<u>GI</u>	<u>Annals of Glaciology</u>	<u>Glacier-volcano interactions in the North Crater of Mt. Wrangell, Alaska</u>	<u>Benson, C.</u>	<u>Motyka, R.J.; McNutt, S.; Lüthi, M.; Truffer, M.</u>	<u>2007</u>
<u>GI</u>	<u>Computing in Science and Engineering</u>	<u>Examining glacier mass balances with a hierarchical modeling approach</u>	<u>Bhatt, U.S.</u>	<u>Zhang, J.; Tangborn, W.V.; Lingle, C.S.; Phillips, L.</u>	<u>2007</u>

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<a href="#">GI</a>	<a href="#">Deep Sea Research</a>	<a href="#">Bathymetry and deep-water exchange across the central Lomonsov Ridge at 88-99 degrees N</a>	<a href="#">Bjork, G.; Jakobsson, B.; Rudels, B.; Swift, J.H.; Anderson, L.; Darby, D.A.; Backman, J.; Coakley, B.; Winsor, P.; Polyak, L.; Edwards, M.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Glaciology</a>	<a href="#">Flotation and retreat of a lake-calving terminus, Mendenhall Glacier, Southeast Alaska</a>	<a href="#">Boyce, E.S.; Motyka, R.J.; Truffer, M.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">IAHS Publ.</a>	<a href="#">Comparison of remote sensing derived glacier facies maps with distributed mass balance modeling at Engabreen, northern Norway</a>	<a href="#">Braun, M.; Schuler, T.; Hock, R.; Brown, I.; Jackson, M.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Geophysical Research</a>	<a href="#">A superposed epoch study of SuperDARN convection observations during substorms.</a>	<a href="#">Bristow, W.A; Jensen, P.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Surveys in Geophysics</a>	<a href="#">A decade of the Super Dual Auroral Radar Network (SuperDarn) scientific achievements, new techniques and future directions</a>	<a href="#">Chisham, G.; Lester, M.; Milan, S.E.; Freeman, M.P.; Bristow, W.A.; Gocott, A.; McWilliams, K.A.; Ruohoniemi, J.M.; Yeoman, T.K.; Dyson, P.L.; Greenwald, R.A. I Kikuchi, T.; Pinnock, M.; Rash, J.P.S.; Sato, N.; Sofko, G.J.; Villain, J.P.; Walker, A.D.M.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Ann Geophysi-cae</a>	<a href="#">Polar vortex evolution during Northern Hemisphere winter 2004/2005</a>	<a href="#">Chshyolkova, T.; Mason, A.H.; Meek, C.E.; Aso, T.; Avery, S.K.; Hall, C.M.; Hocking, W.; Igarashi, K.; Jocobi, C.; Makarov, N.; Mitchell, N.; Murayama, Y.; Singer, W.; Thorsen, D.; Tsutsumi, M.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of the National Institute of Information and Communications Technology</a>	<a href="#">Predicting and validating the motion of an ash cloud during the 2006 eruption of Mount Augustine volcano, Alaska, USA</a>	<a href="#">Collins, R.L.; Fochesatton, J.; Sassen, K.; Webley, P.W.; Atkinson, D.E.; Dean, K.; Cahill, C.F.; Mizutani, K.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Bulletin of the American Meteorological Society</a>	<a href="#">An intercomparison of microphysical retrieval algorithms for upper tropospheric ice clouds</a>	<a href="#">Comstock, J.M.; d'Entremont, R.; DeSlover, D.; Mace, G.G.; Matrosov, S.Y.; McFarlane, S.A.; Minis, P.; Mitchell, D.; Sassen, K.; Shupe, M.D.; Turner, D.D.; Wang, Z.;</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Geophysical Research Letters</a>	<a href="#">Plate coupling variation and block translation in the andeanof segment of the Aleutian arc determined by subduction zone modeling using GPS data</a>	<a href="#">Cross, R.; Freymueller, J.T.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Vadose Zone Journal</a>	<a href="#">Modeling Patterned Ground in the Arctic Tundra</a>	<a href="#">Daanen, R.P.; Misra, D.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Bulletin of Volcanology</a>	<a href="#">Observations of volcanic tremor during the January-February 2005 eruption of Mt. Veniaminof, Alaska</a>	<a href="#">De Angelis, S.; McNutt, S.R.</a>	<a href="#">2007</a>

<a href="#">GI</a>	<a href="#">Atmos. Chem. Phys.</a>	<a href="#">Snow Physics as relevant to snow photochemistry</a>	<a href="#">Domine, F.; Albert, M.; Huthwelker, T.; Jacobi, H.W.; Kokhanovsky, A.A.; Lehning, M.; Picard, G.; <b>Simpson, W.R.</b></a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Geophysical Research</a>	<a href="#">Coseismic deformation of the 2002 Denali fault earthquake: contributions from SAR range offsets</a>	<a href="#">Elliott, J.; <b>Freymueller, J.T.</b>; Rabus, B.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of the Geological Society, London</a>	<a href="#">Palaeomagnetism and <sup>40</sup>Ar/<sup>39</sup>Ar age determinations of the Ediacaran traps from the southwestern margin of the East European Craton, Ukraine: relevance to the Rodinia break-up</a>	<a href="#">Elming, S.A.; Kravchenko, <b>S.</b>; <b>Layer, P.</b>; Rusakov, O.M.; Glevasskaya, A.M.; Mikhailova, N.P.; Bachtadse, V.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Geophys. Res. Lett</a>	<a href="#">Model calculations of electron precipitation induced ionization patches on the nightside of Mars</a>	<a href="#">Fillingim, M.O.; Peticolas, L.M.; Lillis, R.J.; Brain, D.A.; Halekas, J.S.; Mitchel, D.L.; Lin, R.P.; <b>Lummerzhiem, D.</b>; Bougher, S.W.; Kichner, D.L.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">GSA Abstract with Programs (Published Article)</a>	<a href="#">Dinosauria and fossil Aves within the Late Cretaceous Prince Creek Formation North Slope, Alaska</a>	<a href="#">Fiorillo, A.R.; <b>McCarthy, P.J.</b>; Breithaupt, B.H.; Brease, P.F.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">J. Phys. Chem. A</a>	<a href="#">Wavelength Dependence of Nitrate Radical Quantum Yield from Peroxyacetyl Nitrate Photolysis: Experimental and Theoretical Studies</a>	<a href="#">Flowers, B.A.; Stanton, J.F.; <b>Simpson, W.R.</b></a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Geophysical Research Letters</a>	<a href="#">Transition from locked to creeping subduction in the Shumagin region, Alaska</a>	<a href="#">Fournier, T.J.; <b>Freymueller, J.T.</b></a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Cretaceous Research</a>	<a href="#">A multidisciplinary study of the Lower Cretaceous Cedar Mountain Formation, MusSENTUCHIT Wash, Utah: a determination of the paleoenvironment and paleoecology of the Eolambia caroljonesa dinosaur quarry</a>	<a href="#">Garrison, J.R.; Brinkman, D.; Nichols, D.; <b>Layer, P.</b>; Burge, D.; Thayn, D.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Geophysical Research Letters</a>	<a href="#">Thermal evolution of permeability and microstructure in sea ice</a>	<a href="#">Golden, K.M.; <b>Eicken, H.</b>; Heaton, A.L.; Miner, J.; Pringle, D.J.; <b>Zhu, J.</b></a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Atmos. Chem. Phys.</a>	<a href="#">An overview of snow photochemistry: Evidence, mechanisms and impacts</a>	<a href="#">Grannas, A.M.; Jones, A.E.; Dibb, J.; Ammann, M.; Ansastasio, C.; Ariya, P.; Beine, H.J.; Bergin, M.; Bottenhien, J.; Boxe, C.S.; Carber, G.; Chen, G.; Crawford, J.H.; Domine, F.; Fre, M.M.; Guzman, M.I.; Heard, D.E.; Hemig, D.; Hoffmann, M.R.; Honrath, R.E.; Shepson, P.B.; <b>Simpson, W.R.</b>; Sodeau, J.R.; Von Glasgow, R.; Weller, R.; Wolff, E.; Zhu, T.</a>	<a href="#">2007</a>

<a href="#">GI</a>	<a href="#">Geomorphology</a>	<a href="#">Geological and geomorphological evolution of a sedimentary periglacial landscape in Northeast Siberia during the Late Quaternary</a>	<a href="#">Grosse, G.;</a> Schirmeister, L.; Siegert, Ch.; Kunitzky, V.V.; Slagoda, E.A.; Andreev, A.A.; Dereviagn, A. Yu.	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Geoscience Education</a>	<a href="#">Surveys development for Measuring the Near-term effectiveness of a program to recruit minority geoscientists</a>	<a href="#">Hanks, C.;</a> Levine, R.; Gonzalez, R.; Wartes, D.; Fowell, S.	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Geoscience Education</a>	<a href="#">Introducing the geosciences to Alaska Natives via the Rural Alaska Honors Institute (RAHI)</a>	<a href="#">Hanks, C.L.;</a> Wartes, D.; Levine, R.; Gonzalez, R.; Fowell, S.; Owens, G.	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">IAHS Publ.</a>	<a href="#">Deriving glacier mass balance from accumulation area ratio on Storglaciaren, Sweden</a>	<a href="#">Hock, R.;</a> Kootstra, D.; Reijmer, C.	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Ann. Glaciol.</a>	<a href="#">Climate sensitivity of Storgaliciaren - An intercomparison of mass balance models using ERA-40 reanalysis and regional climate model data</a>	<a href="#">Hock, R.;</a> Radic, V.; de Woul, M.	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Remote Sensing of Environment</a>	<a href="#">Mapping sediment-laden sea ice in the Arctic using AVHRR remote-sensing data: Atmospheric correction and determination of reflectances as a function of ice type and sediment load</a>	<a href="#">Huck, P.;</a> Light, B.; <a href="#">Eicken, H.;</a> Haller, M.;	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Glaciology</a>	<a href="#">Glacier-dammed lake outburst events of Gornensee, Switzerland</a>	<a href="#">Huss, M.A.;</a> Bauder, A.; Werder, M.; Funk, M.; <a href="#">Hock, R.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Annals of Glaciology</a>	<a href="#">Some aspects of ice phenology on ponds in central Alaska</a>	<a href="#">Jeffries, M.O.;</a> <a href="#">Morris, K.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Volcanology and Geothermal Research</a>	<a href="#">Three-dimensional P-wave velocity structure derived from local earthquakes at the Katmai group of volcanoes, Alaska</a>	<a href="#">Jolly, A.D.;</a> Moran, S.C.; <a href="#">McNutt, S.R.;</a> <a href="#">Stone, D.B.;</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Geophysical Research Letters</a>	<a href="#">Altitude resolved sprite spectra with 3 ms temporal resolution</a>	<a href="#">Kammae, T.;</a> <a href="#">Stenbaek-Nielsen, H.C.;</a> McHarg, M.G.	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Alaska Division of Geological &amp; Geophysical Surveys Report of Investigation</a>	<a href="#">Sequence Stratigraphy and Geochemistry of the Upper Lower to Upper Triassic of Northern Alaska: Implications for Pleo-redox History, Source Rock Accumulation and Paleoceanography</a>	<a href="#">Kelly, L.N.;</a> <a href="#">Whalen, M.T.;</a> McRoberts, C.A.; Hopkin, E.; Tomisch, C.S.	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Geophysical Research</a>	<a href="#">Temporal evolution of pump beam self-focusing at the High-Frequency Active Auroral Research Program</a>	<a href="#">Kosch, M.J.;</a> Pedersen, T.; Mishin, E.; Starts, M.; Gerkn-Kendall, E.; <a href="#">Sentman, D.;</a> Oyama, S.; <a href="#">Watkins, B.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Geophysical Research</a>	<a href="#">Coordinated optical and radar observations of ionospheric pumping for a frequency pass through the second electron gyroharmonic at HAARP</a>	<a href="#">Kosch, M.J.;</a> Pedersen, T.; Mishin, E.; Starts.; Oyama, S.; Hughs, J.; Senior, A.; <a href="#">Watkins, B.;</a> <a href="#">Bristow, B.</a>	<a href="#">2007</a>

GI	<a href="#">Journal of Geophysical Research</a>	<a href="#">Glacier changes in southeast Alaska and northwest British Columbia and contribution to sea level rise</a>	<a href="#">Larsen, C.F.; Motyka, R.J.; Arendt, A.A.; Echelmeyer, K.A.; Geissler, P.E.</a>	<a href="#">2007</a>
GI	<a href="#">Cosmic Research</a>	<a href="#">Studies of substorm on March 12, 1991: 1. Structure of the substorm activity and auroral ions</a>	<a href="#">Lazutin, L.L.; Kozelova, T.V.; Meredith, N.P.; Danielides, M.; Kozelov, B.V.; Jussila, J.; Korth, A.</a>	<a href="#">2007</a>
GI	<a href="#">Cosmic Research</a>	<a href="#">Studies of substorm on March 12, 1991: 2. Auroral electrons. Acceleration, injection and dynamics</a>	<a href="#">Lazutin, L.L.; Kozelova, T.V.; Meredith, N.P.; Danielides, M.; Kozelov, B.V.; Jussila, J.; Korth, A.</a>	<a href="#">2007</a>
GI	<a href="#">Climate Dynamics</a>	<a href="#">Impact of doubled CO2 on the interaction between the regional and global water cycle in four study regions</a>	<a href="#">Li, Z.; Bhatt, U.S.; Mölders, N.</a>	<a href="#">2007</a>
GI	<a href="#">EOS 88 (Fall AGU 2007)</a>	<a href="#">Mantle Anistropy in Northern Alaska: Analysis of ARCTIC Seismic Data Using Shear Wave Splitting</a>	<a href="#">Litherland, M.; Christensen, D.; Song, X.</a>	<a href="#">2007</a>
GI	<a href="#">Computing in Science and Engineering</a>	<a href="#">Modeling and forecasting aurora</a>	<a href="#">Lummerzheim, D.</a>	<a href="#">2007</a>
GI	<a href="#">Journal of Geophysical Research</a>	<a href="#">Alaska landfast sea ice: Links with bathymetry and atmospheric circulation</a>	<a href="#">Mahoney, A.; Eicken, H.; Graves A.G.; Shapiro, L.</a>	<a href="#">2007</a>
GI	<a href="#">Cold Regions Science and Technology</a>	<a href="#">How fast is landfast sea ice? A study of attachment and detachment of nearshore ice at Barrow, Alaska</a>	<a href="#">Mahoney, A.; Eicken, H.; Shapiro, L.H.</a>	<a href="#">2007</a>
GI	<a href="#">Global and Planetary Change</a>	<a href="#">Permafrost Warming in the Tien Shan Mountains, Central Asia</a>	<a href="#">Marchenko, S.; Gorbunov, A.; Romanovsky, A.</a>	<a href="#">2007</a>
GI	<a href="#">Geophysical Research Letters</a>	<a href="#">Observations of streamer formation in sprites</a>	<a href="#">McHarg, M.G.; Stenbaek-Nielsen, H.C.; Kammer, T.</a>	<a href="#">2007</a>
GI	<a href="#">Atmospheric Research</a>	<a href="#">Influence of wildfire induced land-cover changes on clouds and precipitation in Interior Alaska - a case study</a>	<a href="#">Mölders, N.; Kramm, G.</a>	<a href="#">2007</a>
GI	<a href="#">Meteorology and Atmospheric Physics</a>	<a href="#">Use of Atmospheric Radiation Measurement program data from Barrow, Alaska, for evaluation and development of snow albedo parameterizations</a>	<a href="#">Mölders, N.; Luijting, H.; Sassen, K.</a>	<a href="#">2007</a>
GI	<a href="#">Journal of Volcanology and Geothermal Research</a>	<a href="#">Geology and geochemistry characteristics of the Chiapnecan Volcanic Arc (Central Area), Chiapas Mexico</a>	<a href="#">Mora, J.C.; Jaimes-Viera, M.C.; Garduno-Monroy, V.H.; Layer, P.W.; Pompa-Mera, V.; Godinez, M.L.</a>	<a href="#">2007</a>
GI	<a href="#">Journal of Geophysical Research - Planets</a>	<a href="#">Deposition and degradation of a volatile-rich layer in Utopia Planitia, and implications for climate history on Mars.</a>	<a href="#">Morgenstern, A.; Hauber, E.; Reiss, D.; van Gasselt, S.; Grosse, G.; Schirmeister, L.</a>	<a href="#">2007</a>
GI	<a href="#">Alaska Park Science</a>	<a href="#">Post Little Ice Age Glacial Rebound in Glacier Bay National Park and Surrounding Areas</a>	<a href="#">Motyka, R.J.; Larsen, C.F.; Freymueller, J.T.; Echelmeyer, K.A.</a>	<a href="#">2007</a>
GI	<a href="#">Journal of Geophysical Research</a>	<a href="#">Hubbard Glacier, Alaska: 2002 closure and outburst of Russell Fjord and post-flood conditions at Gilbert Point</a>	<a href="#">Motyka, R.J.; Truffer, M.</a>	<a href="#">2007</a>
GI	<a href="#">Journal of Geophysical Research, Earth Surface</a>	<a href="#">Hubbard Glacier, Alaska: 2002 Closure of Russell Fjord and implications for future dams.</a>	<a href="#">Motyka, R.J.; Truffer, M.</a>	<a href="#">2007</a>

<a href="#">GI</a>	<a href="#">JGR</a>	<a href="#">The structure of an MHD-scale Kelvin-Helmholtz vortex; Two-dimensional two-fluid simulations including finite electron inertial effects, in press</a>	<a href="#">Nakamura, T.K.M.; Fujimoto, M.; <b>Otto, A.</b></a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Radio Science</a>	<a href="#">Line splitting in the Schumann resonance oscillations</a>	<a href="#">Nickolaenko, A.P.; <b>Sentman, D.D.</b></a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Geophysical Research Letters</a>	<a href="#">Improved modeling of permafrost dynamics in Alaska with CLM3</a>	<a href="#">Nicolisky, D.J.; Romanovsky, V.E.; Alexeev, V.A.; Lawrence, D.M.;</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">ASCE Cold Regions Engineering</a>	<a href="#">Liquid water model for snow</a>	<a href="#">Nieber, J.L.; <b>Daanen, R.P.</b></a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Astronomy and Astrophysics</a>	<a href="#">MHD simulation using force-free extrapolated solar magnetic fields, in press</a>	<a href="#">Otto, A.; B"uchner, J.; Nikutowski, B.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Theor. Appl. Climatol</a>	<a href="#">Evaluation of Community Climate System Model soil temperatures using observations from Russia.</a>	<a href="#">PaiMazumder, D.; Miller, J.; Li, Z.; Walsh, J.E.; Etringer, A.; McCreight, J.; <b>Zhang, T.; M"olders, N.</b></a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Geophysical Research - Oceans</a>	<a href="#">Formation and structure of refrozen cracks in land-fast first-year sea ice</a>	<a href="#">Petrich, C.; Langhorne, P.J.; Haskell, T.G.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Geophysical Research</a>	<a href="#">Thermal conductivity of landfast Antarctic and Arctic sea ice</a>	<a href="#">Pringle, D.J.; <b>Eicken, H.</b>; Trodahl, H.J.; <b>Backstrom, L.G.E.</b></a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Ann. Glaciol.</a>	<a href="#">Volume-area scaling vs. flowline modeling in glacier volume projections</a>	<a href="#">Radic, V.; <b>Hock, R.</b>; Oerlemans, J.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Bulletin of Seismological Society of America</a>	<a href="#">Crustal deformation and seismic history associated with the 2004 Indian Ocean earthquakes: A perspective from the Andaman-Nicobar Islands</a>	<a href="#">Rajendran, C.P.; Rajendran, K.; Earnest, A.; Anu, R.; Machado, T.; <b>Frey Mueller, J.</b></a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Remote Sensing of Environment</a>	<a href="#">Image Analysis Experiments for Improving Datal Quality in the GLIMS Glacier Database</a>	<a href="#">Raup, B.H.; Khalsa, S.J.S.; Armstrong, R.; Helm, C.; Sneed, W.; Hamilton, G.; Paul, F.; Cawkwell, F.; Beedle, M.J.; Menounos, B.; Wheate, R.; Ridel, C.; Rott, H.; Georges, C.; Liu, S.; Li, X.; Shanguan, D.; Cheng, G.; Kargel, J.S.; <b>Larsen, C.F.</b>; Dyurgerov, M.; Geissler, P.; Lee, E.; Molnia, B.F.; Kincaid, J.L.; Klein, A.; Konovalov, V.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Special Supplement to the Bulletin of the American Meteorological Society</a>	<a href="#">The Poles: Arctic. In: A.Argues, Ed., State of the Climate in 2006. (Special supplement)</a>	<a href="#">Richter-Menge, J.; Overland, J.; Proshutinsky, A.; <b>Romanovsky, V.</b>; Armstrong, R.; Morison, S.;Nghiem, N.; Oberman, N.; Perovich, D.; Rigor, I.; Bengtsson, L.; Przybylak, R.; Shiklomanov, A.; Walker, D.; Walsh, J.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Global and Planetary Change</a>	<a href="#">Past and recent changes in permafrost and air temperatures in Eastern Siberia</a>	<a href="#">Romanovsky, V.E.; Sazonova, T.S.; Balobaev, V.T.; Shender, N.I.; Sergueev, D.O.</a>	<a href="#">2007</a>

<a href="#">GI</a>	<a href="#">Atmospheric Research</a>	<a href="#">Microphysical and radiative properties of mixed phase altocumulus: a model evaluation of glaciation effects</a>	<a href="#">Sassen, K.; Khvorostyanov, V.I.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Geophysical Research Letters</a>	<a href="#">CloudSat spaceborne 94 GHz radar bright bands in the melting layer: An attenuation-driven upside-down lidar analog</a>	<a href="#">Sassen, K.; Matrosov, S.; Campbell, J.;</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Atmospheric Science</a>	<a href="#">A midlatitude cirrus cloud climatology from the facility for atmospheric remote sensing: v. cloud structural properties</a>	<a href="#">Sassen, K.; Wang, L.; Starr, D.O.C.; Comstock, J.M.;</a> <a href="#">Quante, M.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Geophysical Research Letters</a>	<a href="#">Volcanic ash plume identification using polarization lidar: Augustine eruptions, Alaska</a>	<a href="#">Sassen, K.; Zhu, J.; Webley, P.; Dean, K.; Cobb, P.;</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Geophysical Research</a>	<a href="#">Comparison of model-produced active layer fields: Results for northern Alaska</a>	<a href="#">Shiklomanov, N.I.; Anisimov, O.A.; Zhang, T.;</a> <a href="#">Marchenko, S.; Nelson, F.E.; Oelke, C.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Japanese Government Research Report on NICT-Japan-Alaska cooperative projects</a>	<a href="#">Artificial ionospheric irregularities measured with MUIR (Modular UHF Ionospheric Radar) at HAARP (High Frequency Active Auroral Research Program)</a>	<a href="#">Shin-ichiro; Oyama; Brenton, J.; Watkins, B.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Atmos. Chem. Phys.</a>	<a href="#">The Dependence of Arctic Tropospheric Halogen Chemistry on Sea Ice Conditions</a>	<a href="#">Simpson, W.R.; Carlson, D.; Hoenninger, G; Douglas, T.A.;</a> <a href="#">Sturm, M.; Perovich, D.K.; Platt, U.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Atmos. Chem. Phys.</a>	<a href="#">Halogens and their role in polar boundary-layer ozone depletion</a>	<a href="#">Simpson, W.R.; Von Glasgow, R.; Riedelm K.; Anderson, P.;</a> <a href="#">Ariya, P.; Bottenhiem, J.; Burrows, J.; Carpenter, L.; Frieb, U.;</a> <a href="#">Goodsite, M.E.; Heard, D.; Hutterli, M.; Jacobi, H. W.;</a> <a href="#">Kaleschke, L.; Neff, B.; Plane, J.; Platt, U.; Richter, A.;</a> <a href="#">Roscoe, H.; Sander, R.; Shepson, P.; Sodeau, J.; Steffen, A.;</a> <a href="#">Wagner, T.; Wolff, E.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Geophysical Research Letters</a>	<a href="#">Observed emission rates in sprite streamer heads</a>	<a href="#">Stenbaek-Nielsen, H.C.; McHarg, M.G.; Kanmae, T.;</a> <a href="#">Sentman, D.D.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Global and Planetary Change</a>	<a href="#">Using dynamical downscaling to close the gap between global change scenarios and local permafrost dynamics</a>	<a href="#">Stendel, M.; Romanovsky, V.E.; Christensen, J.H.;</a> <a href="#">Sazonova, T.S.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Glaciology</a>	<a href="#">Glacier Perito Moreno, Patagonia: Climate sensitivities and glacier characteristics preceding the 2003/2004 and 2005/2006 damming events</a>	<a href="#">Stuefer, M.; Rott, H.; Skvarca, P.;</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Journal of Geophysical Research</a>	<a href="#">Rate of decrease of the specific surface area of dry snow: Isothermal and temperature gradient conditions</a>	<a href="#">Taillandier, A.; Domine, F., Simpson, W.R., Sturm, M.;</a> <a href="#">Douglas, T.A.</a>	<a href="#">2007</a>
<a href="#">GI</a>	<a href="#">Science</a>	<a href="#">Electrical activity during the 2006 Mount St. Augustine volcanic eruptions.</a>	<a href="#">Thomas, R.J.; Krehbiel, P.R.; Rison, W.; Aulich, G.;</a> <a href="#">Edens, H.; McNutt, S.R.; Tytgat, G.; Clark, E.</a>	<a href="#">2007</a>

GI	<a href="#">Arctic Ant. Alpine Res.</a>	<a href="#">Glacier recession on Heard Island, Southern Indian Ocean</a>	<a href="#">Thost, D.; Truffer, M.</a>	<a href="#">2007</a>
GI	<a href="#">Science</a>	<a href="#">Rethinking ice sheet time scales.</a>	<a href="#">Truffer, M.; Fahnestock, M.</a>	<a href="#">2007</a>
GI	<a href="#">Bulletin of the American Meteorological Society</a>	<a href="#">The mixed-phased arctic cloud experiment</a>	<a href="#">Verlinde, J.; Harrington, J.Y.; McFarquhar, G.M.; Yannuzzi, V.T.; Avramov, A.; Greenberg, S.; Johnson, N.; Zhang, G.; Poellot, M.R.; Mather, J.H.; Turner, D.D.; Eloranta, E.W.; Zak, B.D.; Prenni, A.J.; Daniel, J.S.; Kok, G.L.; Tobin, D.C.; Holz, R.; Sassen, K.; Spangenberg, D.; Minnis, P.; Tooman, T.P.; Ivey, M.D.; Bahrmann, C.P.; DeMott, P.J.; Heymsfield, A.J.; Schofield, R.</a>	<a href="#">2007</a>
GI	<a href="#">Science</a>	<a href="#">Thermokarst lakes as a source of atmospheric CH4 during the last deglaciation</a>	<a href="#">Walter, K.M.; Edwards, M.; Grosse, G.; Chapin III, F.S.; Zimov, S.A.</a>	<a href="#">2007</a>
GI	<a href="#">Annals of Glaciology</a>	<a href="#">Response of glaciers in Northwestern North America to future climate change: an atmospheric/glacial hierarchical modeling approach</a>	<a href="#">Zhang, J.; Bhatt, U.S.; Tangborn, W.V.; Lingle, C.S.; Phillips, L.</a>	<a href="#">2007</a>
GI	<a href="#">Geophysical Research Letters</a>	<a href="#">Climate Downscaling for Estimating Glacier Mass Balances in Northwestern North America: Validation with a USGS Benchmark Glacier</a>	<a href="#">Zhang, J.; Bhatt, U.S.; Tangborn, W.V.; Lingle, C.S.; Phillips, L.</a>	<a href="#">2007</a>
GI	<a href="#">Geophysical Research Letters</a>	<a href="#">Relative impacts of vegetation coverage and leaf area index on climate change in a greener north</a>	<a href="#">Zhang, J.; Walsh, J.E.;</a>	<a href="#">2007</a>
GI	<a href="#">Journal of Geophysical Research</a>	<a href="#">Albedo of summer snow on sea ice, Ross Sea, Antarctica</a>	<a href="#">Zhou, X.; Li, S.; Morris, K.; Jeffries, M.O.</a>	<a href="#">2007</a>
GI	<a href="#">Geophysical Research Letters</a>	<a href="#">Feasibility of observing dayside auroral using NIR camera onboard high-altitude balloons</a>	<a href="#">Zhou, X.; Lummerzheim, D.; Gladstone, G.; Gunapala, S.</a>	<a href="#">2007</a>

School, College or Institute	Book/Chapter(s)	Chapter Title	Lead author (last name, first initial)	Co-author(s)	Publication Date
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Unit	Book/Chapter (s)	Chapter Title	Lead author/Co-author(s)	Pub date
GI	<a href="#">Invited chapter for an American Geophysical Union Monograph titled "Arctic Sea Ice Decline."</a>	<a href="#">The atmospheric response to realistic reduced summer Arctic sea ice anomalies</a>	<a href="#">Bhatt, U.S.; Alexander, M.A.; Deser, C.; Walsh, J.E.; Miller, J.S.; Timlin, M.S.; Scott, J.</a>	<a href="#">2007</a>
GI	<a href="#">In Proceedings of the American Association of Aerosol Research 26th Annual Conference, Reno, NV. Published by the American Association for Aerosol Research.</a>	<a href="#">Phreatomagmatic to Magmatic: The Evolution of Aerosol Size and Composition during the 2006 Eruptions of Augustine Volcano.</a>	<a href="#">Cahill, C.F.; Cahill, T.A; Dehn, J.; McNutt, S.; Dean, K.; Webley, P.</a>	<a href="#">2007</a>





		awarded, proposed)	
Geophysical Institute	Alaska Earthquake Information Center	Active	Receives seismic signals from 400 seismometers deployed across the state and processes the data to compute locations and magnitudes of earthquakes. Supports seismic systems for the Alaska Pipeline and Bradley Lake Hydroelectric Plant. Provides services to coastal cities and towns susceptible to tsunami events through computation of wave run-up estimates and educational programs on tsunami survival.
Geophysical Institute	Alaska Volcano Observatory	Active	Receives seismic, infrasound and webcam signals from 40 instrumented volcanoes in Alaska. Provides data for warnings of impending eruptions and monitors eruptions in progress. Receives satellite images of ash clouds from eruptions in Alaska, Kamchatka and the Kuriles and computes the expected track to provide forecasts of danger to aircraft in the vicinity and danger of ashfall for ground infrastructure and communities. Partners with the federal USGS and state ADGGS in this work.
Geophysical Institute	Alaska Climate Research Center	Active	Archives and researches the climate records of the state. Provides a public service through a comprehensive website (5000 hits per day?) and publishes new work in the professional literature and in book form. The latest book is "The Climate of Alaska" by Martha Shulski and Gerd wendler.
Geophysical Institute	Poker Flat Research Range Unmanned Aerial Vehicle Program.	Active	Operates an unmanned aerial vehicle center for development. Current equipment includes three aircraft and a mobile ground control unit. Operations have been made successfully from our range and elsewhere on land and from the NOAA ship McArthur II at sea on the ice edge. The payload bay can accept instruments such as small cameras, lidars, pollution monitors, atmospheric samplers. Instrument weight is limited to a few pounds. The aircraft is computer controlled and navigates through the use of on-board GPS receivers. Activities-to-date include mapping forestry, searching and photographing seals at the ice edge and operations with forest fire-fighters.
Geophysical Institute	Program to study Fairbanks winter pollution.	Active	An atmospheric science group, led by Dr. Nicole Moelders has implemented a computer model of the winter-time atmosphere in Fairbanks and vicinity based on the WRF-CHEM code. This model enables the analysis of the

			current situation which is in violation of EPA regulations and synthesis of scenarios that would remove the violation.
Geophysical Institute	Program to forecast wildfire smoke tracks in Alaska		An atmospheric science group led by Dr. Martin Stuefer has implemented a computer model based on the WRF-CHEM code to predict the track of smoke from wild fires in Alaska. It is found at smoke.arsc.edu. This program is supported by the Arctic Region Supercomputing Center.

**B6. Comparative scores of students who take professional exams**

List examination scores:

School, College or Institute	Examination Type	Test Date	# of UAF Students Tested	UAF Pass Rate	National Pass Rate

**C. End Results and Strategies – FY 2010**

**C1. End Results Table**

Complete the table below for the period July 1, 2009 to June 30, 2010. Add rows as needed.

End Result:	Strategies to Achieve End Result	Target(s):	Measure(s)/Assessment(s):	Status:	Budget Impact
Stabilize long-term funding for AVO at \$8M per annum and continue to serve Cook Inlet and Western Aleutian volcanoes.	Work with FAA, State of Alaska and private airlines coordinated with Martha Stewart. Work with USGS to maintain agreement for \$6M per annum.	Secure the promise of \$1M per annum from FAA in FY11. Campaign in Alaska for the extra \$1M per annum needed.		\$300k short of absolute minimum for UAF part of AVO in current year.	\$300k promised through VCR and Chancellor in 2010.

Extend the scope of the partnership with George Mason University (GMU) establishing a joint venture in remote sensing called the Potomac Research Center (PRC).	Continue present joint work in this area in advanced coursework. Add funded research through proposals to federal agencies. Join GMU plan for a building to house PRC.	3 advanced courses run this year. 2 research programs funded. Full plans established for a new data processing center.		Coursework ready for new classes. 2 proposals submitted for joint research. Meetings planned for PRC building development.	Travel funds of about \$10k
Continued effort to build the unmanned aerial vehicle program	Train more pilots and develop capability for simultaneous missions.	Fly missions over land and from ships in Alaskan waters.		Currently have 2 pilots and 3 planes. Also successful experience flying from NOAA ship at the Bering Sea Ice.	Expect to fund from external sources.
Maintain GI technical services at level required for funded research.	Provide shop managers with development funds to encourage new customers for services. Engage shops in well-chosen enterprises.	All shops provide services required and finish the year in good financial health.	Periodic reviews with shop managers to review progress and employ corrective measures as needed.	All shops begin the year without debt. GI will pay past year overspend centrally.	Unknown.
Maintain Space Physics faculty numbers at a time of rapid incidence of retirements.	Working with the Physics Department, it has been agreed to adopt a program of one replacement per year for as long as needed.	Maintain the research program in Space Physics and the graduate programs in the Physics Department.		A search has begun for the first position with expected appointment in Fall 2010.	Replacement costs assumed available in continuing Physics Department budget. For the GI, each replacement costs about \$100k each year for 3 years including startup and initial salaries.
Develop capabilities of the Alaska Climate Research Center (ACRC) at GI	Use the newly appointed staff scientist replacing Martha Shuski to initiate an enlarged program of activities and services. Seek more grant funding to support activities	Make the climate archives maintained at ACRC more available to the university and state.		ACRC website gets 5000 hits per day at present. Staff includes Director Gerd Wendler, staff scientist and students.	Staff salaries are currently internally funded. Any new staff will cost about \$100k each.

Secure legacies of the International Polar Year	Identify legacies with significant importance to the GI and UAF. Work to sustain key personnel and funding to sustain the activity.	Develop work in snow, ice and permafrost.	Monitor publications and research expenditures in snow, ice and permafrost.	Relevant new hires already in place: Sergei Marchenko Guido Grosse Anthony Arendt Hires in process: Andy Mahoney	Each of these positions is substantially supported by grants and contracts. Fund 1 resources have been used for start-up arrangements
Engage GI scientists in geothermal and hydroelectric research and development programs working together with the Center for Energy and Power.	Continue work already in process in geothermal projects and begin working on the seismic and tectonic aspects of major hydroelectric projects such as the Susitna Dam.	Fully exploit GI faculty expertise in State energy projects.		Already working in geothermal research. Need to start into hydroelectric opportunities.	Expected to be covered by external grants and contracts.

**D. Long Range End Results and Strategies – FY 2011 and Beyond**

**D1. Long Range End Results Table**

Complete the table below. For End Results with an anticipated start date of 2011, the results should be in line with budget requests for FY2011. Add rows as needed.

End Result:	Strategies to Achieve End Result	Target(s):	Measure(s)/Assessment(s):	Budget Impact	Anticipated start date
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Maintain Space Physics Group and Space Physics Graduate Program	Hire one new faculty member per year for five years	Keep the research and graduate program going in the face of 5 retirements	Review research expenditures, graduate student numbers and graduation rates.	Replacement costs assumed available in continuing Physics Department budget. For the GI, each replacement costs about \$100k each year for 3 years including startup and initial salaries.	5 year program begun in 2010.

**D2. Top three challenges for FY2011**

Identify the top three challenges confronting the unit for the period July 1, 2010 to June 30, 2011. These challenges must be directly related to the unit's FY2011 budget request.

- Challenge 1: Maintain the Space Physics Group and Space Physics Graduate Program in the face of anticipated 5 retirements in the next few years.
- Challenge 2: Halve the GI debt on Fund 17 activities
- Challenge 3: Maintain the funding level for the Unmanned Aerial Vehicle Program.

**D3. Use of unanticipated funds**

Specify what the unit would do with additional funds, should they be made available later in FY2011. Activities must be in line with the FY2011 budget request. Accelerate the program to hire replacement faculty for the Space Physics Group and Space Physics Graduate Program.

**E. Additional Information**

**E1. Unit Unmet Needs**

Identify unmet unit needs that could be supported through private, non-governmental funding, such as donors, foundations, etc.

The Alaska Volcano Observatory currently expects reduced funding resulting in the closure of observatories on islands in the western Aleutians. This may be an acceptable motivation for investment from private, non-governmental funding, such as donors, foundations,

**E2. Major Capital Investment Priorities and Space Needs**

In order to better connect academic and research priorities with capital investment planning, identify the unit's highest priority facility needs, if any, for consideration in the six-year capital plan. Units should also describe any other significant space management issues in this section. Be sure to show the linkages between facilities needs and unit End Results.