Summary brief:
“Toward an Alaskan Wind/Wave Climatology” workshop
David E. Atkinson, International Arctic Research Center, Fairbanks, Alaska

This workshop was organized as part of an Alaskan sector contribution to the NOAA “Pacific Regional Integrated Data Enterprise” (PRIDE) initiative call for proposals that took place earlier in FY05. The objective of this proposal is to initiate work leading to improved operational capacity for the prediction of coastal erosion and flooding with a demonstration project in place by the International Polar Year (IPY - FY07-08). The project’s specific FY05 objectives are to initiate work in support of this objective using directed research activity and via a workshop. Another important objective at this stage was to map out linkages with corresponding needs and activities in Hawaii and the US Pacific regions. The workshop was organized by myself, David Atkinson (International Arctic Research Center, University of Alaska Fairbanks – IARC/UAF) as lead PI, and James Partain, NOAA/NWS – Alaska Region Headquarters.

The specific goals for the workshop were to identify capacity and needs for the following: wave modeling in the Alaska region, stakeholder requirements, data availability, and aspects of the terrestrial zone. Given that relevant experience in many of these areas is available in various agencies a wide range of participation was solicited from a variety of federal, state, academic, and other research groups. The following organizations and disciplines represented are listed in Appendix A; names of participants with affiliation are listed in Appendix B (NOAA staffers are identified by line office).

Given that a variety of groups work on issues related to this effort, a broad spectrum of participation was sought in terms of agency/academic representation and disciplinal representation. In order to better equip the participants to achieve the stated goals Day 1 was devoted to a series of presentations (listed in Appendix C) designed to represent to all participating agencies and disciplines. This gave the attendees a basis from which to move forward on Day 2, which was devoted to discussion.

Plenary discussion on Day 2 provided material that led to the development of a draft science/implementation plan to move the project forward with specific objectives for FY06. This was quickly developed after Day 2 and presented for discussion to a small group retained on the morning of Day 3 for this purpose (present: John Walsh, John Jensen, Molly McCammon, James Partain, Dave Levinson, Oceana Francis-Chythlook, David Atkinson). Development of the plan is ongoing. Discussion on Day 3 was also directed towards making sure the outcomes from the meeting were aligned with the objectives originally stated in the proposal.

The main results from the meeting are as follows:
1) Judging by comments made to me and to others assisting in the workshop organization and running, the participants left with a sense of momentum and project buy-in. This was in part due to the presence of NOAA senior staff, which lent an air of firm agency backing.
2) The stakeholders to whom this work is being directed were more concisely identified and some of them, including emergency preparedness workers and city planners, articulated their needs and lent useful direction to this early stage of the project.
3) Solid links with Hawaii and the broader Pacific region were identified. These include:
   a. Aspects of a conceptual coastal dynamics model framework can be imported and exported to various regions to build complete models at all locations.
   b. Partnerships with existing Hawaii PRIDE data teams were established.
   c. It was realized that this project can draw guidance from an established template outlined by the NOAA Pacific Risk Management ‘Ohana (PRiMO) project http://www.csc.noaa.gov/psc/FHMPPPl/.
   d. The PRIDE project was firmly plugged into the larger Integrated Ocean Observing System initiative.
   e. Operationally, it was identified that a denser ocean observing network in the Pacific would greatly enhance the ability of the Global Forecast System (GFS) to predict the heavy storms that start life as Pacific typhoons and which curve back to the northeast and which can hit Alaska. This one action would at once aid both the Pacific and Alaska sectors.

4) Objectives and results at various stakeholder-relevant time frames were identified. The time frames represent different prediction horizons, and consist of:
   a. Several days – “reactive” level – emergency planning
   b. Weeks/months/seasonal – “proactive” level – an anticipatory response
   c. Several years – “planning” level – city planners identify “no-build” zones
   d. Climate trend scenarios – “lifecycle” level – civil engineering horizon – 50+ years

5) Tangible, short-term products have already been produced or identified by the project.
   a. Wave model comparison chart that will be submitted for peer-reviewed publication.
   b. Literature review. (note a. and b. were compiled by a PhD student working on the project)
   c. Existing data and products were identified during the workshop as being of immediate potential benefit to emergency planners. In response to that the project is in the process of adopting additional directions to attend to these opportunities.

6) The sister agency of the International Pacific Research Center (IPRC), the International Arctic Research Center (IARC) in Fairbanks, Alaska, will adopt a more visible role in this effort.

This material was summarized at the 2nd PRIDE workshop in Honolulu that was held the following week. At that time meetings were held with Hawaii representatives, and as a result of those, to further the integration of Alaska into the NOAA Pacific sphere, arrangements are currently being made with NOAA Hawaii to have the talks, participant lists, and other information related to the Anchorage workshop placed on a website hosted in Hawaii.
Appendix A:
Organizations represented at the
NOAA PRIDE Alaskan wind/wave climatology workshop, Anchorage

Federal
(*colors identify NOAA participant affiliation in Appendix B)

**NOAA:** three line offices and one cross-cutting theme (Climate Office, C. Koblinsky)
- National Environmental Satellite, Data, and Information Service (NESDIS)/National Climatic Data Center (NCDC)
- National Weather Service (NWS)
  - Alaska region
  - Pacific region
  - National Centers for Environmental Prediction (NCEP) – Environmental Modeling Center
  - NCEP – Climate Prediction Center
- National Ocean Service (NOS)
  - Coastal Services Center
  - Pacific Services Center

The NOAA Cooperative Institute for Arctic Research (CIFAR) office at the University of Alaska Fairbanks (UAF) served as the institutional link between NOAA and UAF, as did the Joint Institute for Marine and Atmospheric Research (JIMAR) office at the University of Hawaii (UH).

**US Army Corps of Engineers (USACE):**
- Coastal and Hydraulics Laboratory
  - Flood and Storm Protection Division
- Alaska District

**US Navy:**
- Naval Research Laboratory

**US Geological Survey:**
- Alaska Science Center
- Pacific Science Center

**Minerals Management Service:**
- Alaska OCS Region

State

**State of Alaska:**
- Homeland Security and Emergency Preparedness
- Department of Commerce
  - Community and Economic Development
- Department of Transportation
Academic

University of Alaska Fairbanks
- International Arctic Research Center
- Department of Atmospheric Sciences
- Institute of Marine Science

University of Alaska Anchorage
- School of Engineering

North Carolina State University

Other
- Alfred Wegener Institute for Polar and Marine Research, Potsdam, Germany
- Alaska Ocean Observing System
- Kachemak Bay Research Reserve
- Arctic Research Commission
- Northwest Hydraulics (private consultants)
Appendix B:
List of attendees at the
NOAA PRIDE Alaskan wind/wave climatology workshop, Anchorage

Syun-Ichi Akasofu
Int'l. Arctic Research Center
University of Alaska Fairbanks
sakasofu@iarc.uaf.edu

David E. Atkinson
University of Alaska Fairbanks – Int'l. Arctic Research Center/
Atmospheric Sciences
datkinson@iarc.uaf.edu

Lawson Brigham
Arctic Research Commission
usarc@acsalaska.net

Ruth Carter
Alaska Department of Transport
RuthA_Carter@dot.state.ak.us

Oceana Francis-Chythlook
University of Alaska Fairbanks – Int'l. Arctic Research Center
Atmospheric Sciences
Oceana@iarc.uar.edu

Janet Curran
US Geological Survey
Alaska Science Center, Anchorage
jcurran@usgs.gov

Margaret Davidson
NOAA - National Ocean Service
South Carolina
Margaret.Davidson@noaa.gov

David Douglas
US Geological Survey
Alaska Science Center, Juneau
david_douglas@usgs.gov

Ken Eisses
US Army Corps of Engineers
Alaska District
Kenneth.J.Eisses@poa02.usace.army.mil

Bruce Ebersole
US Army Corps of Engineers
Coastal & Hydraulics Lab
Mississippi
Bruce.A.Ebersole@erdc.usace.army.mil

Stephanie Fauver
NOAA - National Ocean Service
South Carolina
Stephanie.Fauver@noaa.gov

John Gottschalck
NOAA – Climate Prediction Center
jon.gottschalck@noaa.gov

Peter Haeussler
US Geological Survey
Alaska Science Center, Anchorage
pheuslr@usgs.gov

Warren Horowitz
Minerals Management Service
Anchorage
Warren.Horowitz@mms.gov

Gary Hufford
NOAA - National Weather Service
Anchorage
Gary.Hufford@noaa.gov

Bob Jensen
US Army Corps of Engineers
Coastal & Hydraulics Lab
Mississippi
Robert.E.Jensen@erdc.usace.army.mil

John Jensen
NOAA – National Climatic
Data Center, Asheville
John.A.Jensen@noaa.gov

Mark Johnson
University of Alaska Fairbanks
Institute of Marine Science
johnson@ims.uaf.edu

Doug Jones
Private contractor
Coastal Engineering
dougjones@gei.net

Tom Karl
NOAA - National Climatic
Data Center, Asheville
Thomas.R.Karl@noaa.gov

Chet Koblinsky
NOAA Climate Office
chester.j.koblinsky@noaa.gov

Jim Laver
NOAA – Climate Prediction Center
jim.laver@noaa.gov

Dave Levinson
NOAA – Nat’l Env., Satellite,
Data, and Information Service
David.Levinson@noaa.gov

Christy Miller
Alaska Department of Commerce
christy_miller@commerce.state.ak.us

John Marra
NOAA – National Ocean Service
Hawaii
john.marra@noaa.gov

Bob Macarthur
Northwest Hydraulic Consultants
rmacarthur@nhc-sac.com

Molly McCammon
Arctic Ocean Observing System
Anchorage
mccammon@aoos.org

Bill McDougal
University of Florida
mcdougal@wgmcdougal.com

James Partain
NOAA - National Weather Service
Anchorage
James.Partain@noaa.gov

Volker Rachold
Arctic Coastal Dynamics Project
Alfred Wegener Institute
Germany
vrachold@awi-potsdam.de

Scott Pegau
Kachemak Bay Research Reserve
scott_pegau@fishgame.state.ak.us
Len Pietrafesa  
North Carolina State University  
lpietra@ncsu.edu

D.B. Rao  
NOAA - Marine Modeling Branch  
Desiraju.B.Rao@noaa.gov

Bruce Richmond  
US Geological Survey  
Pacific Science Center, Santa Cruz  
brichmond@usgs.gov

Erick Rogers  
Naval Research Lab  
Mississippi  
Erick.Rogers@nrlssc.navy.mil

Bruce Sexauer  
US Army Corps of Engineers  
Alaska District  
Bruce.R.Sexauer@usace.army.mil

Tom Schroeder  
Joint Institute for Marine and Atmospheric Science  
University of Hawaii  
tas@hawaii.edu

Scott Simmons  
Alaska Emergency Preparedness  
scott_simmons@ak-prepared.com

Caryn Smith  
Minerals Management Service  
Caryn.Smith@mms.gov

Harvey Smith  
Alaska Department of Transport  
harvey_smith@dot.state.ak.us

Orson Smith  
University of Alaska Anchorage  
Department of Engineering  
afops@uaa.alaska.edu

Peter Olsson  
State Climatologist for Alaska  
olsson@aeff.uaa.alaska.edu

Ken Waters  
NOAA - National Weather Service  
Hawaii  
ken.waters@noaa.gov

Kirk Waters  
NOAA - National Ocean Service  
South Carolina  
Kirk.Waters@noaa.gov

John Walsh  
University of Alaska Fairbanks  
Int’l. Arctic Research Center  
jwalsh@iarc.uaf.edu
## Appendix C:
Speakers with talk titles

<table>
<thead>
<tr>
<th>Time</th>
<th>Person/activity</th>
<th>Talk title</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30</td>
<td>Registration</td>
<td>Adventure Room, Captain Cook Hotel</td>
</tr>
<tr>
<td>8:10</td>
<td>Chet Koblinsky</td>
<td>NOAA Climate goal wrt AK HI coastal hindcast, operations</td>
</tr>
<tr>
<td>8:30</td>
<td>Tom Karl</td>
<td>Alaskan Coastal Climatology workshop: Erosion and Innundation</td>
</tr>
<tr>
<td>8:50</td>
<td>David Atkinson</td>
<td>Alaska PRIDE wind/wave climatology workshop: Objectives and deliverables</td>
</tr>
<tr>
<td>9:10</td>
<td>Kirk Waters (for Margaret Davidson)</td>
<td>NOAA - National Ocean Capacity in Alaska: Coasts, Nearshore, Offshore</td>
</tr>
<tr>
<td>9:30</td>
<td>Jim Laver</td>
<td>Climate Prediction Center (CPC): Services, Products, Partnerships, Potential</td>
</tr>
<tr>
<td></td>
<td>Jon Gottshalck</td>
<td>Storm Track Capabilities at CPC: Monitoring and Research</td>
</tr>
<tr>
<td>9:50</td>
<td>Questions, discussion for the first</td>
<td></td>
</tr>
<tr>
<td></td>
<td>session presenters</td>
<td></td>
</tr>
<tr>
<td>10:10</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>10:30</td>
<td>D.B. Rao</td>
<td>Ocean Modeling Capabilities: Plans for Storm Surge and Wave Modeling Research</td>
</tr>
<tr>
<td>10:50</td>
<td>Bruce Ebersole</td>
<td>US Army Corps of Engineers: Coastal Alaska Program - Projects and Issues</td>
</tr>
<tr>
<td>11:10</td>
<td>Volker Rachold</td>
<td>Arctic Coastal Dynamics: Overview, objectives, coastal erosion models and their needs in terms of waves/wind/temperature</td>
</tr>
<tr>
<td>11:30</td>
<td>Erick Rogers</td>
<td>Navy Modelling Activities</td>
</tr>
<tr>
<td>11:50</td>
<td>James Partain</td>
<td>NWS Alaska Region: Challenges in an Era of Changing Climate</td>
</tr>
<tr>
<td>12:10</td>
<td>LUNCH - on your own - back for 13:30</td>
<td></td>
</tr>
<tr>
<td>13:30</td>
<td>Kirk Waters</td>
<td>Topography and Bathymetry in Alaska</td>
</tr>
<tr>
<td>13:50</td>
<td>Bruce Sexauer</td>
<td>US Army Corps of Engineers: Coastal Alaska Program - Projects and Issues</td>
</tr>
<tr>
<td>14:10</td>
<td>Orson Smith</td>
<td>Concerns and Needs related to Alaskan Coastal Infrastructure</td>
</tr>
<tr>
<td>14:30</td>
<td>Bruce Richmond</td>
<td>US Geological Survey Coastal and Marine Geology Program</td>
</tr>
<tr>
<td>14:50</td>
<td>David Atkinson</td>
<td>Preliminary wave energy hindcast results for the circum-arctic region</td>
</tr>
<tr>
<td>15:10</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>15:30</td>
<td>Mark Johnson</td>
<td>Alaskan Ocean data and basic oceanography</td>
</tr>
<tr>
<td>15:50</td>
<td>Gary Hufford / Lawson Brigham</td>
<td>The State of Arctic Sea Ice</td>
</tr>
<tr>
<td>16:10</td>
<td>Molly McCammon</td>
<td>Alaska Ocean Observing System (AOOS) - A Regional Observing System within the Integrated Ocean Observing System</td>
</tr>
<tr>
<td>16:30</td>
<td>Warren Horowitz</td>
<td>MMS perspectives and needs</td>
</tr>
<tr>
<td>16:50</td>
<td>Ken Waters</td>
<td>Pacific Region Integrated Data Enterprise (PRIDE) - A Hawaii-Pacific View</td>
</tr>
<tr>
<td>17:10</td>
<td>Scott Simmons</td>
<td>Mitigation (Alaska)</td>
</tr>
</tbody>
</table>