

Project Number: 070340

Project Title: Long-term oceanographic monitoring of the Gulf of Alaska Ecosystem

PI Name: Thomas Weingartner

Time period covered by report: 10/1/07 - 8/31/08

Date of Report: 8/5/08

Report prepared by: Thomas Weingartner

Project website address (if applicable): <http://www.ims.uaf.edu/gak1/>.

Work Performed:

We:

1. have conducted the monthly CTD sampling at station GAK 1
2. have continued archiving and quality controlling Middleton and Prince William Sound weather buoy and computed air-sea heat flux time series from these data.
3. recovered and re-deployed the GAK 1 mooring, including the ISUS nitrate sensors provided by the Alaska Ocean Observing System. The instruments from the GAK 1 mooring are at Seabird undergoing post-calibration.
4. are preparing a manuscript on the temperature changes at GAK 1.
5. experienced a problem with the portable CTD used for the monthly casts in August, which prevented us from completing data collection in this month. The instrument is being examined and we are determining if manufacturer's repairs are needed.

The anomalously cold conditions detected in the winter-spring of 2006-2007 at station GAK 1 continued into spring 2008. The cooling in winter 2007 - 08 was primarily confined to the upper 100 m of the water column and did not penetrate to the bottom of the shelf as occurred during the anomalous cooling observed in 2006-07. We believe that the primary reason for this is that the upper 100 meters of the shelf were fresher this past winter than in 2006-07. The freshening resulted in enhanced upper ocean stratification that limited deep mixing and cooling to depths greater than 100 m. Hence the cold anomaly that developed in 2006-07 was moderately reduced at depths greater than 100 m, but intensified at shallower depths. We are collecting and comparing the wind and heat flux data for this winter and spring for comparison with other years.

Future Work: We will continue the monthly CTD sampling and recover the GAK 1 mooring in March 2009. At that time we will re-deploy it along with the ISUS nitrate sensor provided by AOOS. We will continue our analyses of the unusual cooling observed in the winters of 2006-07 and 2007-08 and report on this in detail at the Alaska Marine Science Symposium and hope to submit a manuscript to a peer-reviewed journal before this meeting.

Coordination/Collaboration: We collaborate with T. Royer and C. Grolsch (Old Dominion University) on the analyses of these data.

Community Involvement/TEK & Resource Management Applications: N/A although we communicate our results to several fishermen and community organizations.

Information Transfer:

Markus A. Janout, M. A., T. J. Weingartner, D. L. Musgrave, S. R. Okkonen, and T. E. Whitledge, Some characteristics of Yakutat eddies propagating along the continental slope of the northern Gulf of Alaska, (in press Deep-Sea Research).

Janout, M. A., S. Danielson, T. Weingartner, and T. Royer, Anomalously cold conditions on the northern Gulf of Alaska shelf in spring 2007, (poster presented at the Alaska Marine Science Symposium, January 2008, Anchorage Alaska).

Janout, M. A., S. Danielson, T. Weingartner, and T. Royer, On the nature of the 2006-07 cooling on the northern Gulf of Alaska shelf. (poster presented at the AGU/ASLO Ocean Sciences Meeting, February 2008, Orlando, Florida)

Budget: NO CHANGE