

**Monthly progress report, February 2011**

1) Summary of work performed and progress made during preceding month

A. *Analysis of ice distribution and lead patterns*

Having completed the catalog of sufficiently clear-sky images for both the Chukchi and Beaufort study regions, we are now working with the Geographic Network for Alaska (GINA) to acquire the full resolution calibrated AVHRR imagery for the quantitative analysis of lead statistics. With the passing of Kevin Engle, the project has been impacted in several ways, since Kevin was chiefly responsible for processing and staging of AVHRR scenes and had been preparing the next step towards automated analysis of the AVHRR data catalog compiled as part of this project. Hajo Eicken and Tom Heinrichs (GINA Associate Director) had a meeting and follow-up conversations in February to work on a strategy that will allow this work to go forward. While delays into summer (when it is anticipated that somebody new will be hired into Kevin's position) are unavoidable, part of the processing (pulling raw imagery out of the archive for processing based on the data catalog, reprojecting and generation of Geo-TIFF imagery may be handled by another GINA programmer.

The updating of the landfast ice/leads bibliography is undergoing a set of final checks and should be available in March. Having manually examined daily AVHRR scenes for both study areas from 1994-2010, Lew Shapiro is now starting work on a detailed summary of repeatable lead patterns, including the presence of open water around Wrangell Island as well as in the vicinity of Hanna and Herald Shoals.

B. *Analysis of landfast ice extent*

Acquisition of bathymetry data

Allison Gaylord acquired the Alaska Region Bathymetric DEM from Seth Danielson with UAF's School of Fisheries (<http://mather.sfos.uaf.edu/~seth/bathy/>). This information was converted from NetCDF to GeoTiff and Floating point formats for use in the landfast ice analysis.

SAR data mining and processing

Data mining continued through February, but recent changes at the Alaska Satellite Facility (ASF) SAR Data Center have impacted the rates at which our data orders are being processed. The changes are intended to improve overall accessibility to SAR data users by making imagery available for immediate download. However, as a result of the transition, we are experience difficulties and delays in receiving data from recent orders. As a result, we have had little new data to process into mosaics. We have complete SLIE delineations for the Chukchi Region in 1996-97. We now have 9 seasons left to complete in the Chukchi region and just one (2004-05, which is underway) in the Beaufort region. Tables 1-4 below show the current status of SAR data mining and processing.

**Table 1: Data acquisition and processing status for the Chukchi study region. Lower case y's indicate issues that will require further work / reprocessing**

<b>Chukchi</b>	<b>Order Placed</b>	<b>Order Retrieved</b>	<b>Geocoded</b>	<b>Mosaicked</b>	<b>Uploaded to web site</b>	<b>Notes</b>
1996-1997	Y	Y	y	y	N	20 km geocoding error on 2 mosaics; leap year issue with some image dates
1997-1998	Y	N	N	N	N	No data for October; 1 frame not available?
1998-1999	Y	Y	Y	Y	N	
1999-2000	Y	N	N	N	N	1 frame needs to be reprocessed by ASF
2000-2001	Y	N	N	N	N	
2001-2002	Y	N	N	N	N	
2002-2003	Y	N	N	N	N	Only 2 mosaics available in December
2003-2004	Y	N	N	N	N	4 frames need to be reprocessed by ASF
2004-2005	Y	Y	y	y	N	Mosaicks need to be re-run with original overlaying order
2005-2006	Y	Y	Y	y	N	Mosaicks need to be re-run with original overlaying order; 8 Mosaics w/ 1km+ geocoding errors
2006-2007	Y	Y	Y	Y	N	
2007-2008	Y	Y	N	N	N	Frames ready to be geocoded/mosaicked (data only through April)

**Table 2: Data acquisition and processing status for the Chukchi study region Lower case y's indicate issues that will require further work / reprocessing**

<b>Beaufort</b>	<b>Order Placed</b>	<b>Order Retrieved</b>	<b>Geocoded</b>	<b>Mosaicked</b>	<b>Uploaded to web site</b>	<b>Notes</b>
1996-1997	Y	Y	Y	Y	Y	Complete (Previous study)
1997-1998	Y	Y	Y	Y	Y	Complete (Previous study)
1998-1999	Y	Y	Y	Y	Y	Complete (Previous study)
1999-2000	Y	Y	Y	Y	Y	Complete (Previous study)
2000-2001	Y	Y	Y	Y	Y	Complete (Previous study)
2001-2002	Y	Y	Y	Y	Y	Complete (Previous study)
2002-2003	Y	Y	Y	Y	Y	Complete (Previous study)
2003-2004	Y	Y	Y	Y	Y	Complete (Previous study)
2004-2005	Y	Y	Y	Y	N	Complete, but not on web
2005-2006	Y	Y	y	y	N	*Geocoding errors on 7 mosaics; mosaics need to be reprocessed
2006-2007	Y	Y	Y	Y	N	Complete, but not on web
2007-2008	Y	Y	Y	Y	N	Complete, but not on web

**Table 3: SLIE processing and database status for the Chukchi study region**

	SLIE Delineations	Shapefiles	Grids	GeoDB	Uploaded to web site	Notes
<b>Chukchi</b>						
1996-1997	Y	Y	Y	Y	Y	In progress
1997-1998						
1998-1999	Y	Y	Y	Y	Y	Complete
1999-2000						
2000-2001						
2001-2002						
2002-2003						
2003-2004						
2004-2005						In progress; pending mosaic updates
2005-2006						Need updated mosaics (unresolved geocoding errors, etc.)
2006-2007	Y	Y	Y	Y	Y	Complete
2007-2008						Need mosaics

**Table 4: SLIE processing and database status for the Chukchi study region**

	SLIE Delineations	Shapefiles	Grids	GeoDB	Uploaded to web site	Notes
<b>Beaufort</b>						
1996-1997	Y	Y	Y	Y	Y	Complete (Previous study)
1997-1998	Y	Y	Y	Y	Y	Complete (Previous study)
1998-1999	Y	Y	Y	Y	Y	Complete (Previous study)
1999-2000	Y	Y	Y	Y	Y	Complete (Previous study)
2000-2001	Y	Y	Y	Y	Y	Complete (Previous study)
2001-2002	Y	Y	Y	Y	Y	Complete (Previous study)
2002-2003	Y	Y	Y	Y	Y	Complete (Previous study)
2003-2004	Y	Y	Y	Y	Y	Complete (Previous study)
2004-2005	Y	Y	Y	Y	Y	Complete
2005-2006						In progress; need mosaics (unresolved geocoding errors)
2006-2007	Y	Y	Y	Y	Y	Complete
2007-2008	Y	Y	Y	Y	Y	Complete

*C. Assessing potential alternative approaches at deriving landfast ice edge locations and landfast ice stability*

We are waiting for peer reviews on the two manuscripts we submitted during the previous reporting period to the journals *Environmental Remote Sensing* and the *Journal of the Marine Technological Society*.

*D. Miscellaneous activities*

We have resolved issues with the URLs for the current and previous project websites. The current project website can be viewed at:

<http://boemre-new.gina.alaska.edu> (aliased with <http://mms-new.gina.alaska.edu>)

The previous project website is linked from the current site and can be viewed at:

<http://boemre.gina.alaska.edu> (aliased with <http://mms.gina.alaska.edu>)

We have also posted all monthly reports to date on the current website at:

<http://boemre-new.gina.alaska.edu/reports>

2) *Summary of significant technical, schedule or cost problems encountered during preceding month*

n/a

3) *Summary of resolutions agreed to between Contractor and MMS re item (2)*

n/a

4) *Significant meetings held or other contacts made in connection with project during preceding month*

Hajo Eicken and Tom Heinrichs met to work on a strategy that will allow the AVHHR lead analysis component of this project to go forward following the passing of Kevin Engle.

5) *Action items, open questions etc.*

n/a