Canadian Ice Service Contribution

to the

September 2011 Sea Ice Outlook: August Update

No Change from the CIS forecast issued in July.

Environment Canada's Canadian Ice Service (CIS) is predicting the minimum Arctic sea ice extent to again be less than 5 million square kilometres in September, 2011. A value similar to or less than the average extents observed in September, 2008, and September, 2010, is expected. This value ($4.5 \leq x \leq 4.9$ million square kilometres) will make the Arctic sea ice extent in September, 2011, either the second or third lowest in the 1979-2011 record. This value lies well below the average September extent for 1979-2010 of 6.6 million square kilometres based on the NSIDC sea ice index.

As with CIS contributions in 2009 and 2010, the 2011 forecast was derived using a combination of three methods: 1) a qualitative heuristic method based on observed end-of-winter Arctic Multi-Year Ice (MYI) extents, as well as an examination of Surface Air Temperature (SAT), Sea Level Pressure (SLP) and vector wind anomaly patterns and trends; 2) an experimental Optimal Filtering Based (OFB) Model which uses an optimal linear data filter to extrapolate NSIDC's September Arctic Ice Extent time series into the future; and 3) an experimental Multiple Linear Regression (MLR) prediction system that tests ocean, atmosphere and sea ice predictors.

For August, the only change in the model results was a small decrease in the MLR forecast values which brings them more in line with the other forecast methodologies used by CIS and lowers the extreme maximum forecast to below 5.0 million square kilometres extent. Based on end-of-winter MYI extents and SAT patterns, a September 2011 minimum ice extent value of $4.5 \leq x \leq 4.9$ million square kilometres is heuristically predicted. **The CIS August outlook is 4.7 +/- 0.2 million square kilometres, unchanged from July.**