

## **September 2009 Sea Ice Outlook: June Report**

### **Canadian Ice Service**

The Canadian Ice Service (CIS) is predicting the minimum Arctic sea ice extent to be near 5 million square kilometres in September, 2009, which will make it the third lowest in the 1979-2009 record. This value is slightly greater than that observed in September, 2008, but still lies well below the average extent for 1979-2008 (which is equal to 6.67 million square kilometres, based on the SMMR- and SSM/I-derived data available on the NSIDC web site).

The CIS value was derived empirically, based on the following two factors: 1) the amount of multi-year ice remaining in the Arctic Ocean at the end of May, 2009, which was similar to but slightly less than the amount remaining at the end of May, 2008; and 2) the unexpected formation of a large area of second-year ice over the pole at the end of the 2008 melt season, and the new uncertainties associated with this. Predictions for first-year sea ice loss in summer 2008 were for the most part overestimates (especially near the pole, where the large area of second-year ice now exists), leading to new reservations regarding the potential rate of ice loss in summer 2009. Taking the above into consideration, the operational staff at CIS are predicting a summer sea ice minimum extent similar to but slightly greater than that of 2008.

CIS is also currently testing two models for long-range sea ice prediction. A Multiple Linear Regression model, based on atmospheric inputs alone, predicts a September, 2009, Arctic sea ice extent of 5.5 to 5.8 million square kilometres. An Optimal Filtering model, based on ice inputs alone, predicts 4.2 million square kilometres. So the above value of ~5.0 million square kilometres also represents an average of these *very* experimental model predictions. CIS will be conducting verification studies of the predictions produced by these models in the coming years.