

# Canadian Ice Service Contribution

to the

## September 2014 Sea Ice Outlook (July Update)

**No Change from the CIS forecast issued in June.**

Environment Canada's Canadian Ice Service (CIS) is predicting the 2014 minimum Arctic sea ice extent to lie between the record minimum value set in 2012 and the recovery minimum value experienced in 2013. A value of **4.9 million square kilometres** is predicted, which will make the Arctic sea ice extent in September, 2014, tied for the fifth lowest in the 1979-2012 record (tied with 2010). A value of 4.9 million square kilometres still lies well below the 1981-2010 average September minimum extent of 6.3 million square kilometres based on the NSIDC sea ice index.

As with previous CIS contributions, the 2014 forecast was derived by considering a combination of methods: 1) a qualitative heuristic method based on observed end-of-winter Arctic ice thicknesses and 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 Model (OFBM) 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.

Based on winter air temperatures and sea ice extents and thicknesses, a September 2014 *minimum* ice extent value of **4.8 million square kilometres** is heuristically predicted (*no change from June*). The CIS experimental OFB model predicts a September 2014 *average* ice extent of **4.37 million square kilometres** (*no change from June*). The CIS experimental MLR forecast system predicts a September 2014 *average* sea ice extent of **5.5 million square kilometres** (3 model runs with a range of 4.7 to 6.3) (*very slight change from June's forecast*). The average forecast value of the three methods combined remains **4.9 million square kilometres**. Therefore, the CIS is forecasting a 2014 pan-Arctic September sea ice minimum of **4.9 million square kilometres**.