SEA ICE PREDICTION NETWORK (SIPN)

June Report (Using May Data)

1. CPOM (David Schroeder, Danny Feltham, Daniela Flocco, Michael Tsamados)

2. Type: statistical

3. Predicted mean September ice extent 2015: 5.1 million km^2

4. Short explanation:
This is a statistical prediction based on the correlation between the ice area covered by melt-ponds in May and ice extent in September. The melt pond area is derived from a simulation with the sea ice model CICE in which we incorporated a physically based melt-pond model[1]. See our publication in Nature Climate Change http://www.nature.com/nclimate/journal/v4/n5/full/nclimate2203.html for details[2].

References:
1. Flocco, D., Schröder, D., Feltham, D. L. & Hunke, E. C., 2012: Impact of melt ponds on Arctic sea ice simulations from 1990 to 2007. *J. Geophys. Res.* **117**, C09032.
2. Schröder D., D. L. Feltham, D. Flocco, M. Tsamados, 2014: September Arctic sea-ice minimum predicted by spring melt-pond fraction. *Nature Clim. Change* **4**, 353-357, DOI: 10.1038/NCLIMATE2203.

5. Uncertainty: 0.50 million km^2

6. The given uncertainty is the mean forecast error based on forecasts for the years 1984 to 2013. For all these forecasts only data from previous years were used (forecast mode). In the hindcast mode the prediction error amounts to 0.33 million km^2.

7. "Executive summary":
We predict the September ice extent 2015 to be slightly lower than in 2013 and 2014, but considerably larger than in 2012. The melt-pond area in May is below the 1979 to 2015 trend line. In our model simulation this is mainly due to thicker ice in April 2015 in comparison to previous years. The increase in ice thickness and volume is also confirmed by the PIOMAS simulation: maximum ice volume in 2015: 24388 km3, in 2014: 23104 km3 and in 2011: 22677 km3.