Predictions of Alaskan Summer Ice Conditions, July Report

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Here is our outlook for the Barrow navigation season from the end of May and now the end of June:

	End of May		End of June		
	prediction	error	prediction	error	
ice_dist_10Aug	151.4	23.0	165.2	21.1	km
ice_dist_15Sep	419.8	52.6	513.2	50.7	km
ice_05_10Aug	215.2	26.7	221.8	29.4	km
ice_05_15Sep	480.0	69.2	592.9	58.7	km
date_start	184.0	7.4	171.1	6.9	year day
date_end	297.9	9.0	317.8	6.8	year day
Ndays_ice_free	93.6	13.9	122.2	12.1	days
Ndays_ice_05	114.1	15.1	145.2	11.6	days
Ndays_start_1oct	89.8	7.5	102.8	7.0	days
Barnett_Indx	1145.0	131.8	1420.8	111.4	
RANK	1	8.5	1	8.5	

All of the measures show a more open season than what was predicted last month because of the rapid thinning of the ice simulated by the PIOMAS model. It remains to be seen if this rapid thinning is actually observed. The date of the start of navigation was predicted to be 3 July last month and 20 June this month, yet there is still ice seen in the MODIS image of 9 July around Point Barrow, so already our forecast is blown. Obviously much of the variability is due to changing summer winds which our method cannot predict, yet there is still a high correlation between many of the measures and the output of the model. For reference I'll put the correlation table in again, the same as I submitted last month:

end of	Apr	May	Jun	Jul	Aug	
ice_dist_10Aug	0.71	0.72	0.77	0.77	0.70	R2 value
	G1.0m	IC	IC	IC	IC	predictor field
ice_dist_15Sep	0.83	0.81	0.82	0.83	0.86	
	G1.0m	G1.0m	IC	IC	IC	
ice_05_10Aug	0.82	0.79	0.75	0.72	0.72	
	G1.0m	G0.4m	G0.4m	G0.4m	G0.4m	
ice_05_15Sep	0.76	0.72	0.80	0.81	0.85	
	G1.0m	G1.0m	IC	IC	IC	
date_start	0.62	0.64	0.68	0.58	0.54	
	G1.0m	IC	IC	IC	G1.0m	
date_end	0.40	0.34	0.62	0.50	0.40	
	G1.0m	G1.0m	IC	IC	IC	
Ndays_ice_free	0.50	0.60	0.70	0.57	0.53	
	G1.0m	IC	IC	IC	G1.9m	
Ndays_ice_05	0.49	0.58	0.75	0.59	0.47	
	G1.0m	IC	IC	IC	G1.9m	
Ndays_start_1oc	0.62	0.63	0.67	0.58	0.53	
	G1.0m	IC	IC	IC	G1.0m	
Barnett_Indx	0.81	0.78	0.84	0.86	0.89	
	G1.0m	G1.0m	IC	IC	IC	
Rank	0.70	0.69	0.69	0.70	0.70	
	G1.9m	G1.9m	G1.9m	G1.9m	G1.0m	

Predictor fields: IC = ice concentration,

G1.0m = area fraction of open water and ice less than 1 m thick

G0.4m = area fraction of open water and ice less than 0.4 m thick