

1 Quantile-Quantile Plots of Sea Ice Thickness Anomalies

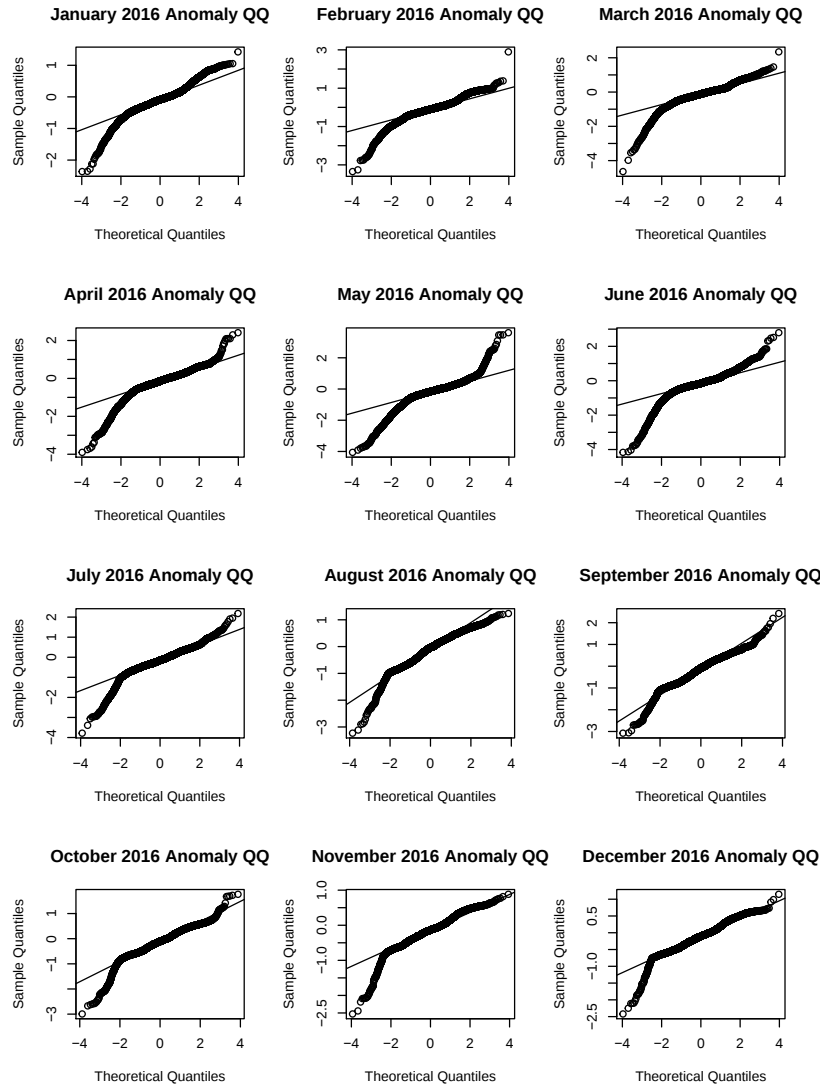


Figure S1: Quantile-Quantile Plots of Sea Ice Thickness Anomalies. The y -axis values represent the observed quantiles of values obtained by subtracting the climatological conditional thickness means from the corresponding observed AWI-CM thickness estimates, while the x -axis values represent quantiles drawn from a Gaussian distribution.

	Forecast	Lead	90% Coverage	MIS
Non-summer	ECMWF	1	0.214	9.661
		2	0.356	6.186
		3	0.443	4.432
	Non-spatial	1	0.620	2.568
		2	0.637	2.980
		3	0.679	3.025
	Spatial	1	0.780	1.905
		2	0.801	2.126
		3	0.829	2.194
Summer	ECMWF	1	0.174	10.651
		2	0.397	7.129
		3	0.465	7.187
	Non-spatial	1	0.586	3.107
		2	0.563	3.960
		3	0.550	4.378
	Spatial	1	0.699	2.641
		2	0.681	3.306
		3	0.699	3.445

Table S1: 90% empirical coverage rates and mean interval scores for Greenland Sea region

4 2 Coverage rates and mean interval scores by region

	Forecast	Lead	90% Coverage	MIS
Non-summer	ECMWF	1	0.181	7.111
		2	0.318	5.099
		3	0.348	4.554
	Non-spatial	1	0.775	1.260
		2	0.808	1.338
		3	0.839	1.277
	Spatial	1	0.857	1.218
		2	0.875	1.273
		3	0.889	1.250
Summer	ECMWF	1	0.216	7.761
		2	0.470	5.291
		3	0.554	4.292
	Non-spatial	1	0.752	1.302
		2	0.746	1.516
		3	0.746	1.501
	Spatial	1	0.795	1.221
		2	0.800	1.316
		3	0.811	1.295

Table S2: 90% empirical coverage rates and mean interval scores for Kara/Barents Seas region

	Forecast	Lead	90% Coverage	MIS
Non-summer	ECMWF	1	0.142	7.843
		2	0.266	5.978
		3	0.331	5.310
	Non-spatial	1	0.840	1.085
		2	0.813	1.520
		3	0.822	1.673
	Spatial	1	0.935	1.164
		2	0.922	1.530
		3	0.922	1.667
Summer	ECMWF	1	0.166	9.191
		2	0.303	7.494
		3	0.372	6.896
	Non-spatial	1	0.767	1.673
		2	0.755	1.986
		3	0.742	2.122
	Spatial	1	0.853	1.571
		2	0.839	1.864
		3	0.840	1.973

Table S3: 90% empirical coverage rates and mean interval scores for Central Arctic region