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Sea ice cover in the Copernicus Arctic Regional Reanalysis

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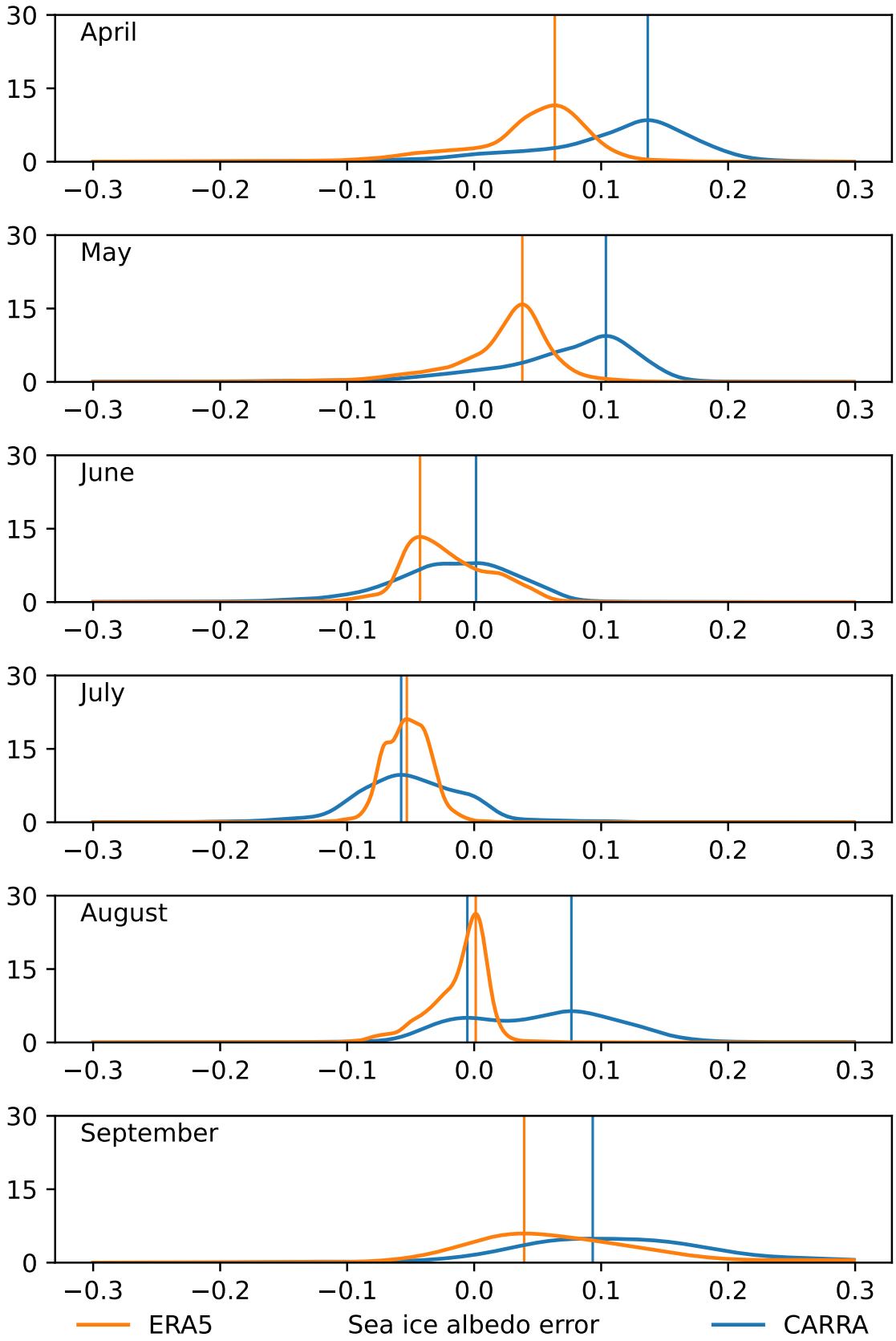

Figure S1: Estimated probability density functions (PDF) of the errors in the modelled sea ice albedo in CARRA and ERA5 reanalysis products. Errors are computed against the CLARA-A2 satellite product over a time period from 2000 to 2015. Also one the panels, modes of the error PDFs are marked. On the panels: x-axis – sea ice albedo error; y-axis – density.

Table S1: Estimated monthly quantiles of the sea ice surface temperature in CARRA and ERA5, as well as in the MODIS sea ice surface temperature product. Quantiles are computed over the western CARRA model domain for the period from 2000 to 2020.

		Ice surface temperature quantile Q_q, °C										
	q	0.01	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.99
Jan	MO[1]	−44.82	−37.94	−34.53	−31.79	−29.16	−26.49	−23.89	−21.15	−17.84	−13.19	−3.90
	CA[2]	−42.11	−34.90	−31.43	−28.91	−26.74	−24.68	−22.65	−20.38	−17.28	−12.34	−3.04
	E5[3]	−35.78	−30.94	−28.25	−26.13	−24.24	−22.50	−20.63	−18.41	−15.52	−11.03	−3.18
Feb	MO	−46.06	−38.16	−34.17	−31.26	−28.49	−25.79	−23.15	−20.28	−16.67	−11.60	−3.42
	CA	−42.66	−35.85	−32.13	−29.32	−27.07	−24.97	−22.63	−19.74	−16.09	−10.69	−2.66
	E5	−36.56	−31.07	−28.19	−25.94	−23.99	−22.14	−20.10	−17.52	−14.14	−9.50	−2.87
Mar	MO	−45.47	−36.92	−33.06	−30.07	−27.26	−24.69	−22.18	−19.59	−16.66	−12.53	−3.90
	CA	−42.44	−34.03	−30.46	−28.00	−25.94	−23.95	−21.86	−19.58	−16.75	−12.36	−3.38
	E5	−35.77	−29.25	−26.40	−24.31	−22.53	−20.87	−19.14	−17.21	−14.76	−10.93	−3.36
Apr	MO	−37.53	−30.20	−26.53	−23.91	−21.63	−19.50	−17.32	−14.96	−12.34	−8.67	−2.73
	CA	−33.51	−26.52	−23.64	−21.55	−19.73	−18.01	−16.28	−14.45	−12.10	−8.63	−1.89
	E5	−27.78	−22.42	−20.04	−18.27	−16.79	−15.43	−14.05	−12.51	−10.59	−7.76	−2.27
May	MO	−24.29	−18.35	−15.51	−13.46	−11.72	−9.93	−8.17	−6.41	−4.65	−2.92	−0.96
	CA	−20.69	−15.24	−12.94	−11.18	−9.57	−8.06	−6.53	−4.96	−3.37	−1.66	−0.02
	E5	−16.43	−12.51	−10.67	−9.2	−7.91	−6.73	−5.49	−4.25	−3.01	−1.61	0.51
Jun	MO	−11.04	−6.32	−4.52	−3.39	−2.61	−2.04	−1.57	−1.18	−0.83	−0.50	−0.21
	CA	−8.01	−3.28	−1.59	−0.83	−0.52	−0.33	−0.20	−0.12	−0.03	0.01	0.83
	E5	−4.43	−1.84	−0.95	−0.44	−0.07	0.22	0.48	0.75	1.05	1.45	3.34
Jul	MO	−5.36	−2.45	−1.78	−1.36	−1.06	−0.83	−0.66	−0.51	−0.40	−0.29	−0.17
	CA	−1.58	−0.88	−0.64	−0.47	−0.37	−0.30	−0.25	−0.21	−0.18	−0.04	1.07
	E5	−1.57	−0.32	0.12	0.40	0.62	0.83	1.06	1.31	1.58	2.01	6.53
Aug	MO	−12.82	−6.79	−4.64	−3.42	−2.60	−2.02	−1.56	−1.17	−0.83	−0.51	−0.22
	CA	−8.40	−4.06	−2.12	−1.43	−1.06	−0.76	−0.48	−0.30	−0.22	−0.18	0.74
	E5	−6.89	−3.24	−1.87	−0.99	−0.42	−0.03	0.26	0.53	0.82	1.23	3.81
Sep	MO	−25.79	−19.55	−16.61	−14.52	−12.94	−11.33	−9.69	−8.01	−6.10	−3.88	−1.64
	CA	−18.21	−13.60	−11.57	−10.16	−8.95	−7.84	−6.74	−5.61	−4.38	−2.84	−0.91
	E5	−19.42	−14.91	−12.76	−11.32	−10.09	−9.00	−7.96	−6.89	−5.58	−3.96	−1.30
Oct	MO	−35.05	−28.66	−25.40	−22.75	−20.21	−17.81	−15.46	−13.14	−10.49	−6.96	−2.66
	CA	−27.77	−22.07	−19.51	−17.52	−15.79	−14.16	−12.49	−10.72	−8.74	−6.10	−2.06
	E5	−27.21	−22.06	−19.57	−17.69	−16.07	−14.63	−13.16	−11.54	−9.55	−6.77	−2.38
Nov	MO	−40.89	−33.62	−30.14	−27.21	−24.45	−21.83	−19.22	−16.46	−13.45	−9.57	−3.21
	CA	−34.85	−27.51	−24.42	−22.25	−20.38	−18.60	−16.74	−14.59	−12.01	−8.68	−2.77
	E5	−31.57	−26.49	−23.57	−21.47	−19.55	−17.71	−15.84	−13.87	−11.53	−8.29	−2.96
Dec	MO	−43.52	−36.01	−32.14	−28.87	−25.95	−23.30	−20.64	−17.99	−14.99	−10.89	−3.66
	CA	−39.40	−31.03	−27.71	−25.41	−23.37	−21.38	−19.21	−16.71	−13.76	−9.77	−3.06
	E5	−34.26	−28.53	−25.62	−23.40	−21.44	−19.55	−17.62	−15.41	−12.75	−9.01	−3.10

[1)] MODIS sea ice surface temperature product
[2)] CARRA reanalysis
[3)] ERA5 reanalysis

Table S2: Same as Table S1 but for the eastern CARRA model domain.

		Ice surface temperature quantile Q_q, °C										
	q	0.01	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.99
	MO	−40.33	−33.80	−30.60	−27.74	−25.36	−23.05	−20.47	−17.48	−14.05	−9.59	−3.08
Jan	CA	−39.28	−34.07	−30.66	−27.64	−24.92	−22.06	−19.25	−16.24	−12.67	−8.29	−2.44
	E5	−32.94	−28.45	−26.05	−23.83	−21.40	−18.84	−16.22	−13.47	−10.42	−6.92	−2.36
	MO	−39.94	−33.67	−30.41	−27.60	−25.10	−22.53	−19.60	−16.30	−12.70	−8.22	−2.82
Feb	CA	−39.86	−33.96	−30.29	−27.29	−24.49	−21.66	−18.73	−15.56	−11.97	−7.56	−2.02
	E5	−32.94	−28.13	−25.61	−23.26	−20.83	−18.10	−15.37	−12.69	−9.85	−6.55	−2.22
	MO	−39.36	−32.48	−29.22	−26.46	−24.04	−21.52	−18.81	−15.86	−12.52	−8.18	−2.47
Mar	CA	−39.72	−32.99	−29.12	−26.11	−23.46	−20.98	−18.46	−15.60	−12.29	−8.08	−2.10
	E5	−31.41	−26.60	−24.11	−21.96	−19.83	−17.53	−15.25	−12.79	−10.00	−6.71	−2.26
	MO	−33.31	−25.62	−22.35	−20.02	−18.05	−16.14	−14.11	−11.94	−9.15	−5.65	−1.69
Apr	CA	−32.28	−24.83	−21.58	−19.31	−17.44	−15.69	−13.83	−11.68	−9.03	−5.83	−0.76
	E5	−26.03	−20.05	−17.45	−15.54	−13.95	−12.52	−11.08	−9.44	−7.46	−5.06	−1.22
	MO	−21.23	−15.92	−13.42	−11.59	−9.93	−8.43	−7.00	−5.55	−4.07	−2.66	−0.74
May	CA	−19.74	−14.41	−11.95	−10.19	−8.69	−7.31	−5.98	−4.63	−3.16	−1.56	−0.05
	E5	−14.43	−10.64	−9.01	−7.78	−6.68	−5.64	−4.67	−3.69	−2.69	−1.51	0.54
	MO	−10.41	−6.34	−4.57	−3.48	−2.75	−2.21	−1.79	−1.40	−1.03	−0.65	−0.25
Jun	CA	−6.60	−2.65	−1.42	−0.91	−0.64	−0.45	−0.31	−0.20	−0.12	−0.02	0.59
	E5	−3.39	−1.64	−1.03	−0.64	−0.34	−0.08	0.17	0.42	0.74	1.16	2.10
	MO	−6.03	−2.89	−2.05	−1.59	−1.26	−1.01	−0.82	−0.65	−0.50	−0.35	−0.18
Jul	CA	−1.61	−0.97	−0.72	−0.55	−0.43	−0.34	−0.27	−0.21	−0.16	0.08	0.93
	E5	−1.47	−0.69	−0.37	−0.12	0.09	0.29	0.49	0.72	1.00	1.36	2.29
	MO	−15.74	−7.68	−5.60	−4.20	−3.25	−2.59	−2.10	−1.67	−1.25	−0.81	−0.29
Aug	CA	−7.07	−3.79	−2.26	−1.70	−1.38	−1.15	−0.90	−0.60	−0.40	−0.26	0.48
	E5	−5.72	−3.17	−2.12	−1.46	−0.99	−0.65	−0.37	−0.09	0.21	0.61	1.35
	MO	−22.34	−16.29	−13.95	−12.52	−11.19	−9.94	−8.65	−7.27	−5.76	−4.00	−2.02
Sep	CA	−14.63	−11.49	−9.68	−8.32	−7.23	−6.22	−5.27	−4.32	−3.32	−2.22	−0.60
	E5	−13.43	−10.12	−8.67	−7.75	−6.97	−6.14	−5.30	−4.44	−3.58	−2.54	−0.77
	MO	−30.15	−24.57	−21.84	−19.59	−17.58	−15.59	−13.68	−11.86	−9.64	−6.59	−2.37
Oct	CA	−23.50	−18.14	−15.87	−14.22	−12.75	−11.41	−10.04	−8.60	−6.91	−4.66	−1.35
	E5	−20.56	−16.33	−14.32	−12.85	−11.55	−10.37	−9.11	−7.77	−6.26	−4.38	−1.59
	MO	−36.63	−30.58	−27.55	−25.01	−22.63	−20.38	−18.18	−15.81	−13.05	−9.00	−2.94
Nov	CA	−32.93	−26.11	−22.89	−20.56	−18.67	−16.80	−14.93	−12.87	−10.34	−7.04	−2.18
	E5	−28.95	−23.29	−20.44	−18.32	−16.43	−14.71	−12.98	−11.12	−8.78	−5.92	−2.03
	MO	−39.37	−31.69	−28.00	−25.31	−23.03	−20.79	−18.36	−15.51	−12.34	−8.26	−3.09
Dec	CA	−37.43	−29.51	−25.89	−23.10	−20.81	−18.58	−16.16	−13.46	−10.53	−6.96	−2.33
	E5	−31.29	−25.43	−22.49	−20.11	−17.98	−15.75	−13.55	−11.24	−8.72	−5.96	−2.28

Table S3: Annual evolution of ice surface temperature errors in CARRA and ERA5 over the four areas of interest presented as monthly values. Scores are computed against the MODIS ice surface temperature product for the period from 2000 to 2020.

	Ice surface temperature error quantile Q_q, °C									
	CARRA					ERA5				
q	0.05	0.25	0.5	0.75	0.95	0.05	0.25	0.5	0.75	0.95
					Zone A[1]					
Jan	−2.71	−2.05	−1.39	−0.74	−0.21	0.20	0.76	1.23	2.12	2.78
Feb	−3.34	−2.24	−1.56	−1.01	−0.27	0.42	1.27	1.74	2.36	3.13
Mar	−2.05	−1.40	−0.91	−0.30	0.62	0.94	1.68	2.11	2.52	3.15
Apr	−0.38	0.11	0.51	1.03	1.74	1.59	2.05	2.34	2.88	3.56
May	0.92	1.16	1.38	1.53	2.09	1.74	2.22	2.45	2.80	3.18
Jun	0.82	0.98	1.20	1.31	1.57	1.75	1.95	2.14	2.38	2.59
Jul	0.60	0.82	0.94	1.13	1.33	1.69	2.00	2.30	2.55	2.83
Aug	0.86	1.11	1.40	1.63	2.15	−0.45	0.34	0.86	1.29	2.28
Sep	1.21	1.62	1.97	2.54	3.25	−1.86	−0.77	−0.11	0.72	2.00
Oct	0.86	1.35	1.66	1.99	2.33	0.28	0.86	1.16	1.42	2.16
Nov	−0.52	−0.06	0.44	0.96	1.33	0.77	1.20	1.54	1.80	2.27
Dec	−1.68	−0.99	−0.61	−0.08	0.38	0.70	1.08	1.45	1.88	2.96
					Zone B[2]					
Jan	0.86	1.88	2.47	3.48	4.10	4.15	4.75	5.24	5.62	6.15
Feb	0.29	1.24	2.06	2.84	3.29	3.52	4.26	4.73	5.27	5.80
Mar	−0.40	0.37	1.35	2.26	2.66	2.93	3.50	3.96	4.57	4.92
Apr	0.37	0.85	1.23	1.90	2.38	2.35	2.81	3.14	3.43	3.89
May	0.90	1.38	1.52	1.80	2.17	2.01	2.24	2.52	2.75	3.00
Jun	0.74	1.04	1.27	1.46	1.62	1.48	1.63	1.85	2.12	2.42
Jul	0.55	0.77	0.94	1.19	1.41	1.16	1.34	1.46	1.60	1.83
Aug	1.38	1.64	1.83	2.21	2.54	0.62	1.06	1.49	1.78	2.17
Sep	1.86	2.45	2.70	3.06	3.54	0.70	1.40	2.01	2.41	3.18
Oct	2.22	2.99	3.35	3.78	4.59	2.52	3.15	3.60	4.22	5.38
Nov	2.44	3.02	3.48	4.25	5.28	3.08	4.39	4.96	5.49	6.35
Dec	2.04	2.64	3.06	4.12	5.10	3.76	5.03	5.55	5.98	6.61
					Zone C[3]					
Jan	−1.30	−0.82	−0.24	0.29	1.20	1.45	2.34	2.94	3.42	3.89
Feb	−1.14	−0.77	−0.51	0.08	0.76	1.69	2.41	2.85	3.49	4.06
Mar	−1.15	−0.61	−0.40	0.21	0.53	1.38	2.28	2.77	3.05	4.11
Apr	−0.40	0.05	0.28	0.54	1.05	1.60	2.22	2.47	2.85	3.28
May	0.79	0.93	1.08	1.24	1.52	1.81	1.96	2.19	2.39	2.96
Jun	0.82	1.00	1.12	1.27	1.50	1.36	1.55	1.70	1.83	2.06
Jul	0.79	0.99	1.25	1.58	2.16	1.14	1.44	1.73	2.15	2.51
Aug	0.01	1.69	2.34	2.99	3.61	0.80	1.87	2.58	3.21	4.05
Sep	−0.76	2.34	3.34	4.41	5.49	0.56	2.42	4.04	4.97	6.59
Oct	1.04	2.20	2.75	3.53	5.50	2.16	3.27	4.23	5.17	7.13
Nov	0.35	0.84	1.33	2.03	3.24	2.13	3.06	3.55	3.98	4.47
Dec	−0.90	−0.35	0.69	1.18	2.04	2.02	2.65	3.12	3.77	4.27
					Zone D[4]					
Jan	0.86	2.07	2.85	4.48	6.42	5.23	5.85	6.35	7.51	8.16
Feb	0.11	1.81	2.85	4.57	5.39	4.86	5.96	6.61	7.55	8.59
Mar	0.80	1.77	2.64	3.86	4.49	4.53	5.67	6.26	7.04	7.63
Apr	1.44	2.03	2.65	3.32	3.92	4.62	5.03	5.33	5.70	6.24
May	1.74	2.33	2.70	3.11	3.71	3.76	4.09	4.46	4.84	5.61
Jun	1.11	1.39	1.58	2.07	2.30	2.52	2.76	3.08	3.44	3.92
Jul	0.89	1.07	1.23	1.48	2.05	2.10	2.33	2.55	2.86	3.42
Aug	2.32	2.76	3.13	3.45	3.87	2.38	3.01	3.54	3.98	4.82
Sep	4.02	4.42	4.76	5.06	5.58	3.60	4.48	5.21	6.03	6.67
Oct	3.80	4.63	5.37	5.82	6.42	5.17	6.10	6.76	7.66	8.30
Nov	2.75	3.73	4.45	5.68	7.47	5.01	6.29	6.92	7.78	9.03
Dec	1.43	2.92	3.66	5.11	7.75	5.10	5.77	6.80	7.79	8.85

[1)] Baffin Bay (including the Nares Strait), Davis Strait
[2)] Greenland Sea, North Atlantic Ocean
[3)] Barents Sea, Kara Sea, White Sea
[4)] central Arctic

Table S4: Annual evolution of ice thickness errors in CARRA and ERA5 over the four areas of interest presented as monthly values. Scores are computed against the CryoSat-2/SMOS merged ice thickness product for the period from 2010 to 2020.

	Ice thickness error quantile Q_q, °C									
	CARRA					ERA5				
q	0.05	0.25	0.5	0.75	0.95	0.05	0.25	0.5	0.75	0.95
					Zone A[1]					
Oct	−0.10	−0.04	0.07	0.14	0.30	1.09	1.16	1.21	1.23	1.26
Nov	0.09	0.14	0.20	0.23	0.33	1.12	1.16	1.19	1.24	1.26
Dec	0.04	0.09	0.13	0.18	0.32	0.88	0.92	0.96	1.02	1.06
Jan	0.05	0.10	0.18	0.24	0.40	0.72	0.76	0.80	0.84	0.91
Feb	0.16	0.21	0.29	0.38	0.52	0.64	0.72	0.76	0.81	0.84
Mar	0.22	0.38	0.45	0.51	0.64	0.63	0.71	0.75	0.81	0.85
Apr	0.36	0.50	0.57	0.67	0.79	0.63	0.74	0.81	0.86	0.92
					Zone B[2]					
Oct	−0.95	−0.83	−0.50	−0.45	−0.38	0.16	0.32	0.52	0.63	0.69
Nov	−1.04	−0.79	−0.60	−0.48	−0.30	−0.04	0.24	0.35	0.47	0.61
Dec	−1.34	−0.83	−0.59	−0.47	−0.39	−0.40	0.00	0.20	0.33	0.48
Jan	−1.39	−1.09	−0.88	−0.65	−0.52	−0.62	−0.39	−0.17	0.02	0.26
Feb	−1.33	−1.09	−0.77	−0.54	−0.40	−0.58	−0.41	−0.17	0.05	0.30
Mar	−1.30	−0.97	−0.62	−0.42	−0.30	−0.58	−0.33	−0.08	0.13	0.22
Apr	−1.23	−0.74	−0.52	−0.36	−0.23	−0.55	−0.20	−0.06	0.18	0.28
					Zone C[3]					
Oct	−0.19	0.04	0.17	0.26	0.41	1.07	1.30	1.36	1.40	1.41
Nov	0.10	0.19	0.27	0.33	0.41	1.17	1.30	1.34	1.38	1.41
Dec	0.12	0.21	0.28	0.35	0.42	0.99	1.08	1.20	1.28	1.32
Jan	0.03	0.18	0.29	0.36	0.45	0.78	0.87	1.04	1.15	1.26
Feb	0.15	0.29	0.38	0.46	0.54	0.75	0.90	1.05	1.12	1.19
Mar	0.15	0.31	0.43	0.51	0.60	0.77	0.87	0.94	1.04	1.17
Apr	0.20	0.38	0.53	0.59	0.64	0.82	0.87	0.94	1.07	1.18
					Zone D[4]					
Oct	−1.28	−0.97	−0.77	−0.72	−0.60	−0.44	−0.28	−0.05	0.17	0.26
Nov	−1.33	−1.00	−0.89	−0.79	−0.67	−0.62	−0.46	−0.21	−0.01	0.09
Dec	−1.19	−0.89	−0.77	−0.70	−0.62	−0.60	−0.52	−0.31	−0.10	0.01
Jan	−1.06	−0.89	−0.78	−0.71	−0.64	−0.67	−0.57	−0.45	−0.35	−0.25
Feb	−1.10	−0.90	−0.80	−0.69	−0.54	−0.79	−0.69	−0.60	−0.50	−0.25
Mar	−1.21	−1.04	−0.96	−0.81	−0.60	−1.08	−0.95	−0.87	−0.66	−0.43
Apr	−1.25	−1.14	−1.05	−0.85	−0.64	−1.21	−1.13	−1.03	−0.73	−0.56

[1)] Baffin Bay (including the Nares Strait), Davis Strait
[2)] Greenland Sea, North Atlantic Ocean
[3)] Barents Sea, Kara Sea, White Sea
[4)] central Arctic

Table S5: Representation of the sea ice evolution is the CARRA reanalysis product as compared to the ice mass balance buoy observations. Mean values of snow depth (Hs), ice thickness (Hi), surface and snow-ice interface temperatures (Ts and Tin, respectively) are provided for buoy and reanalysis data, as well as computed correlation coefficients between the observed and modelled values.

			Inside CARRA domains		Mean Hs, m			Mean Hi, m			Mean Ts, °C			Mean Tin, °C		
			Time period	Days[1]	Ob[2]	Re[3]	r,[4] %	Ob	Re	r, %	Ob	Re	r, %	Ob	Re	r, %
CRREL	2010A	2010	17 Sep – 15 Nov	60	0.35	0.16	90	1.34	0.67	14	−14.3	−13.9	85	−2.8	−6.8	74
	2012D	2012	29 Jun – 23 Oct	117	0.29	0.05	79	1.22	1.15	88	–			–		
	2013B[e]	2013	29 Nov – 12 Dec	14	0.12	0.11	−82	1.58	0.91	−12	–			–		
	2013B[w]	2013	21 Sep – 12 Dec	83	0.17	0.13	−12	1.59	1.08	−5	−20.0	−16.8	82	−19.4	−9.6	73
	2015D	2015	5 Sep – 24 Nov	81	0.50	0.18	89	1.02	0.66	−72	–			–		
	2015E	2015	23 May – 5 Jul	44	0.21	0.31	69	0.89	1.01	92	−0.4	−1.3	80	−1.5	−1.2	84
SIMBA	FMI0601	2020	9 May – 17 May	8	0.22	0.42	−65	2.20	1.68	−1	−6.7	−6.8	95	−6.4	−5.5	98
	FMI0602	2020	8 May – 17 May	8	0.09	0.43	92	1.32	1.67	57	−6.9	−7.2	83	−7.1	−5.7	95
	FMI0603	2020	8 May – 17 May	9	0.15	0.44	−84	1.85	1.66	70	−7.3	−7.4	95	−6.6	−5.7	90
	PRIC0901	2020	10 May – 17 May	7	0.20	0.43	−78	1.74	1.67	1	−5.9	−6.4	95	−5.7	−5.6	96
	PRIC0902	2020	10 May – 15 May	5	0.25	0.41	86	1.88	1.68	−94	−5.4	−7.2	94	−6.3	−6.1	97
	PRIC0903	2020	23 Apr – 17 May	24	0.24	0.27	−61	2.28	1.85	14	−10.9	−9.8	87	−8.9	−7.2	69
	PRIC0904	2020	10 May – 17 May	6	0.30	0.42	−64	1.74	1.68	−22	−5.0	−5.3	90	−6.1	−5.4	98
	PRIC0905	2020	10 May – 17 May	7	0.12	0.44	−92	1.62	1.66	−74	−5.8	−6.2	95	−5.7	−5.5	94
	PRIC0906	2020	10 May – 17 May	7	0.22	0.43	−21	2.05	1.68	−89	−5.8	−5.9	94	−5.9	−5.5	97
	FMI02	2013	9 Apr – 5 Jul	88	0.26	0.39	76	2.08	1.65	−22	−9.6	−9.2	97	−5.6	−5.4	98
	FMI0606	2019	3 Nov – 11 Apr	159	0.46	0.69	98	0.89	0.58	97	−17.6	−17.7	81	−6.9	−4.4	80
	2015A[e]	2015	20 Jan – 16 Mar	55	0.53	0.23	62	1.24	1.09	25	−21.7	−21.2	92	−13.7	−13.2	65
	2015A[w]	2015	20 Jan – 16 Mar	55	0.53	0.20	41	1.24	1.06	56	−20.4	−20.2	89	−8.5	−13.4	63
	2015D[e]	2015	7 Mar – 25 Apr	49	0.42	0.42	−5	1.27	1.32	−40	−16.6	−17.4	94	−8.1	−8.4	73
	2015D[w]	2015	7 Mar – 25 Apr	49	0.42	0.39	−39	1.27	1.30	−43	−17.3	−16.9	93	−8.3	−8.3	72

SIMBA: MOSAiC (FMI0601 … PRIC0906); N-ICE (2015A[e] … 2015D[w])

[1)] total duration, in days, of the buoy drift within a CARRA model domain
[2)] observed value
[3)] modelled value in the CARRA reanalysis product
[4)] correlation coefficient between the observational series and reanalysis data
[e)] part of the trajectory inside the eastern CARRA domain
[w)] part of the trajectory inside the western CARRA domain

Table S6: Data access links for the MOSAiC ice mass balance buoys used in the present study.

Buoy ID	DOI
FMI0601	https://doi.org/10.1594/PANGAEA.940650
FMI0602	https://doi.org/10.1594/PANGAEA.938096
FMI0603	https://doi.org/10.1594/PANGAEA.940659
PRIC0901	https://doi.org/10.1594/PANGAEA.940231
PRIC0902	https://doi.org/10.1594/PANGAEA.940593
PRIC0903	https://doi.org/10.1594/PANGAEA.940617
PRIC0904	https://doi.org/10.1594/PANGAEA.940634
PRIC0905	https://doi.org/10.1594/PANGAEA.938134
PRIC0906	https://doi.org/10.1594/PANGAEA.938128

Table S7: Data access links for the ice mass balance buoys FMI02 and FMI0606.

Buoy ID	DOI
FMI02	https://doi.org/10.1594/PANGAEA.961763
FMI0606	https://doi.org/10.1594/PANGAEA.959824