Supplementary Table S1: Summary details of Ross seal deployments that recorded diving, haul out, time at depth and temperature data. Campaigns: S55 - SA Agulhas II expedition 2016-2017, PS111 – Polarstern expedition 2018; SCALE – South African Seasonal cycle experiment 2019.

ID	Campaign	Device type	Sex	Deployment date	Deployment latitude	Deployment longitude	Total tracking duration (days)	Diving data	Haul out data	Time at depth
RossF_2	S55	Splash9	F	2016/01/13	70° 06' 41.99" S	3° 04' 23.99" W	35.6	Yes	Yes/No?	Yes
RossF_12	S55	SPLASH10-309A	F	2016/01/22	69° 53' 31.92" S	2° 02' 27.24" W	114.9	Yes	Yes	Yes
RossF_15	S55	SPOT-300s / 6	F	2016/01/22	69° 55’ S	02° 05’ W	57	No	Yes	No
RossF_18	S55	SPLASH10-309A	F	2016/01/23	70° 02' 07.14" S	2° 09' 03.35" W	175.6	Yes	Yes	Yes
RossF_19	S55	SPOT-300s / 6	F	2016/01/23	70° 04' 42.83" S	2° 13' 35.34" W	349.0	No	Yes	No
RossM_21	S55	SPOT-300s / 6	M	2016/01/27	70° 30' 57.18" S	8° 06' 30.54" W	253.3	No	Yes	No
RossF_22	PS111	SPLASH10-309A	F	2018/01/28	70°31.5'S	8°05.3'W	159.6	Yes	Yes	Yes
RossM_23	PS111	SPLASH10-309A	M	2018/01/31	71°06.743'S	13°39.208'W	140.8	Yes	Yes	Yes
RossF_24	SCALE	SPOT-300s / 6	F	2019/10/27	59°16.71’S	5°11.552’E	83.1	No	Yes	No
RossF_25	SCALE	SPOT-300s / 6	F	2019/11/02	58°45.65’S	21°4.45’E	100.6	No	Yes	No

Supplementary Table S2: Summary statistics of Ross seal mean and maximum diving depths and durations (± standard deviaiton; SD).

Seal ID	Mean depth ± SD	Mean max depth ± SD	Mean duration ± SD	Mean max duration ± SD	Mean ± SD nr of dives per 4 hour bin
RossF_18	205 ± 86 m	288 ± 103 m	12 ± 5 min	15 ± 6 min	19 ± 8
RossF_12	155 ± 74 m	239 ± 98 m	7 ± 2 min	9 ± 3 min	31 ± 13
RossF_2	194 ± 82 m	284 ± 95 m	9 ± 4 min	19 ± 9 min	11 ± 12
RossM_23	139 ± 74 m	235 ± 99 m	5 ± 2 min	8 ± 2 min	42 ± 19
RossF_22	168 ± 62 m	227 ± 74 m	8 ± 4 min	11 ± 4 min	25 ± 13

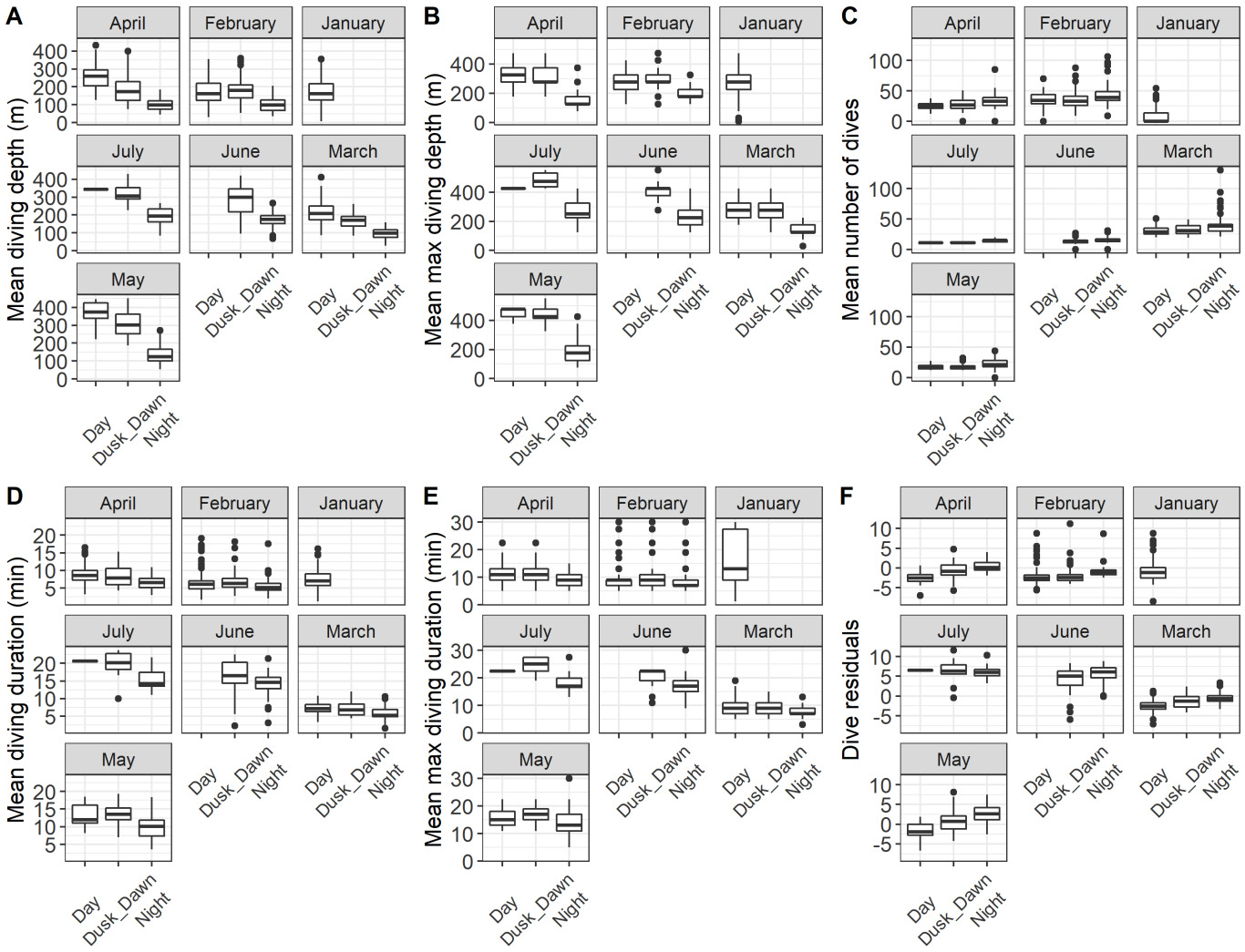

Figure S1: Summary statistics of monthly variation among Ross seal dives that occurred in the day, night or during dusk and dawn in (A) mean diving dept (m), (B) Mean maximum diving depth (m); (C) mean number of dives; (D) mean diving duration (min); (E) mean maximum diving duration (min); and (F) diving residuals.

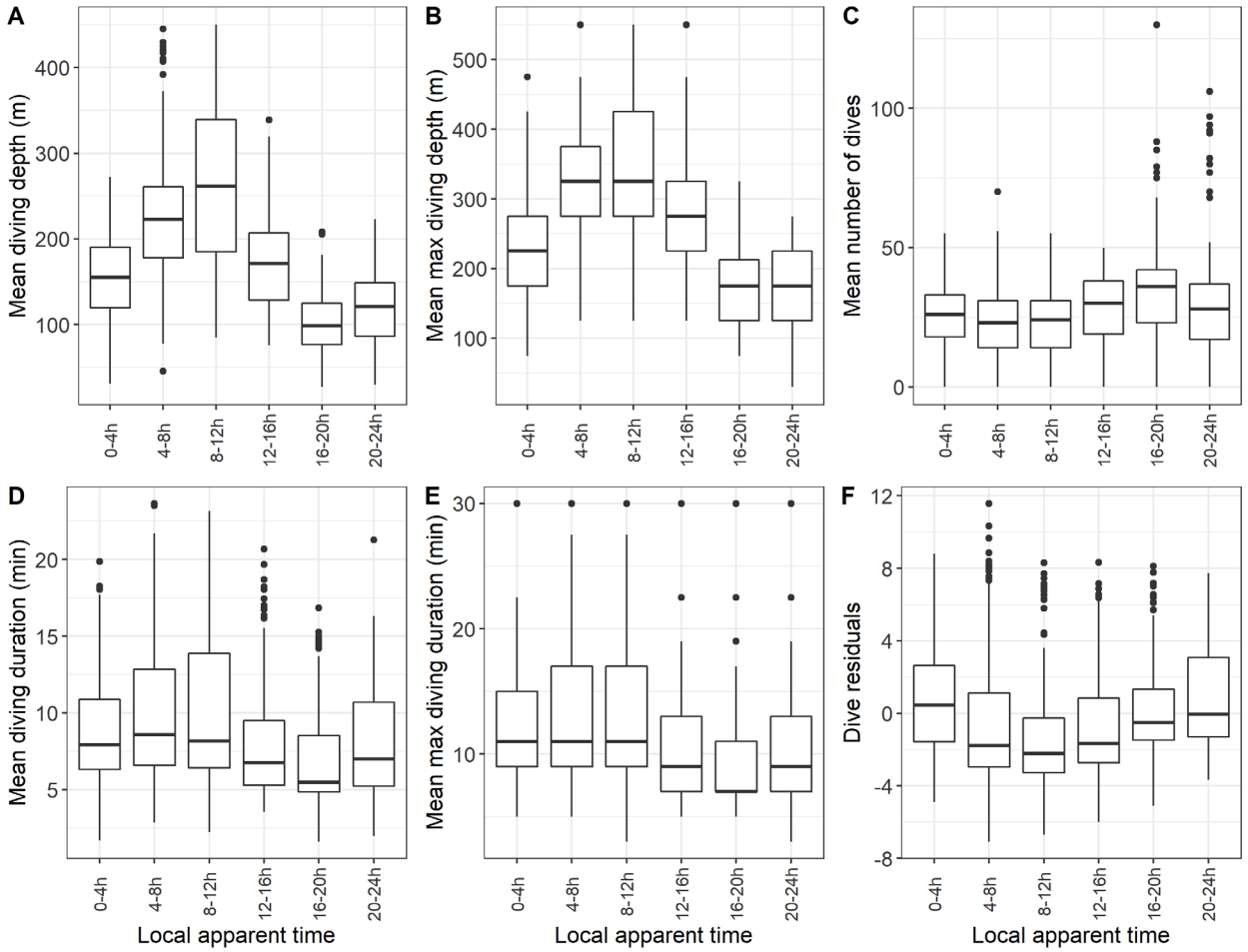

Figure S2: Summary statistics across the day in Ross seal (A) mean diving dept (m), (B) Mean maximum diving depth (m); (C) mean number of dives; (D) mean diving duration (min); (E) mean maximum diving duration (min); and (F) diving residuals.

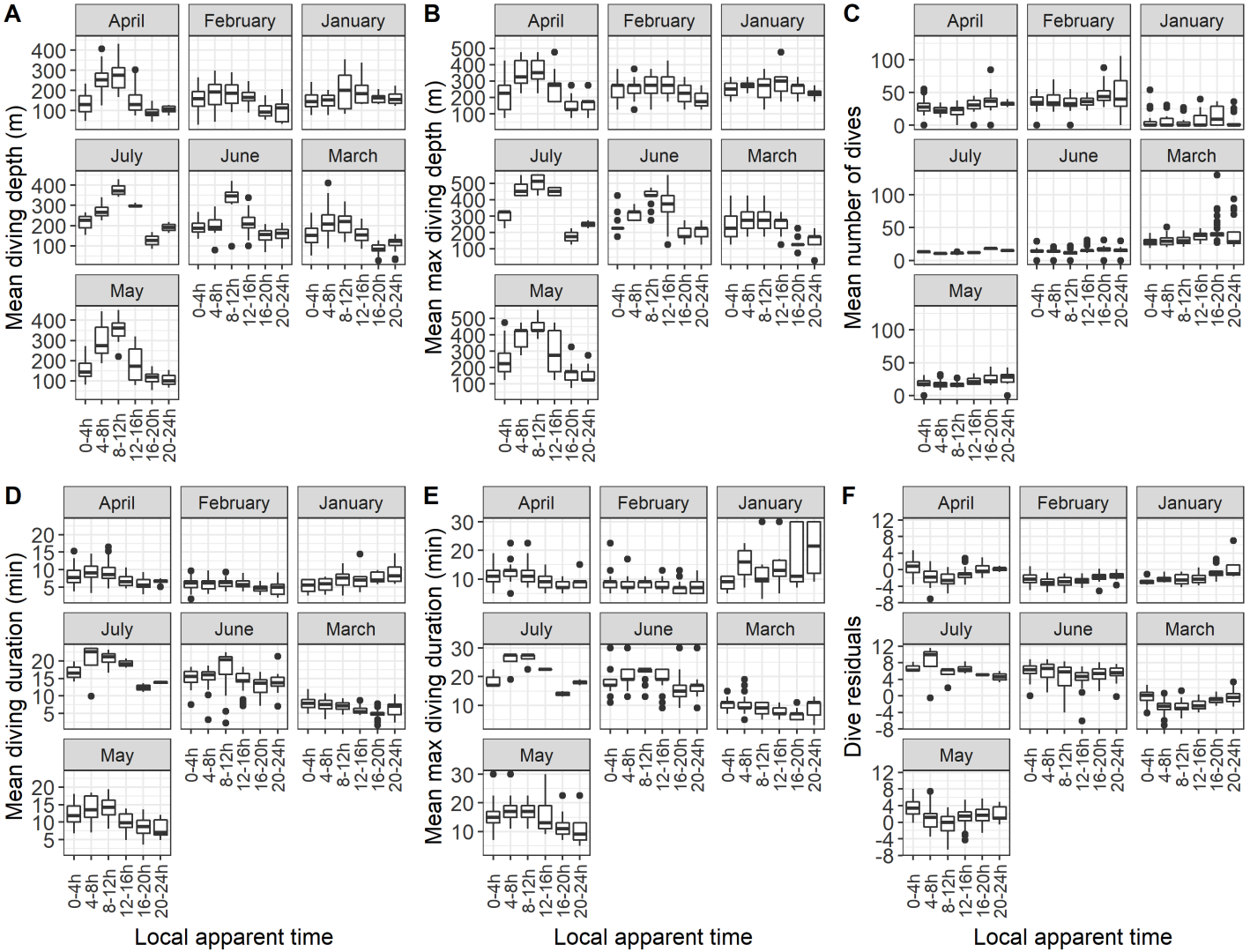

Figure S3: Summary statistics of monthly variation in Ross seal (A) mean diving dept (m), (B) Mean maximum diving depth (m); (C) mean number of dives; (D) mean diving duration (min); (E) mean maximum diving duration (min); and (F) diving residuals across the day.

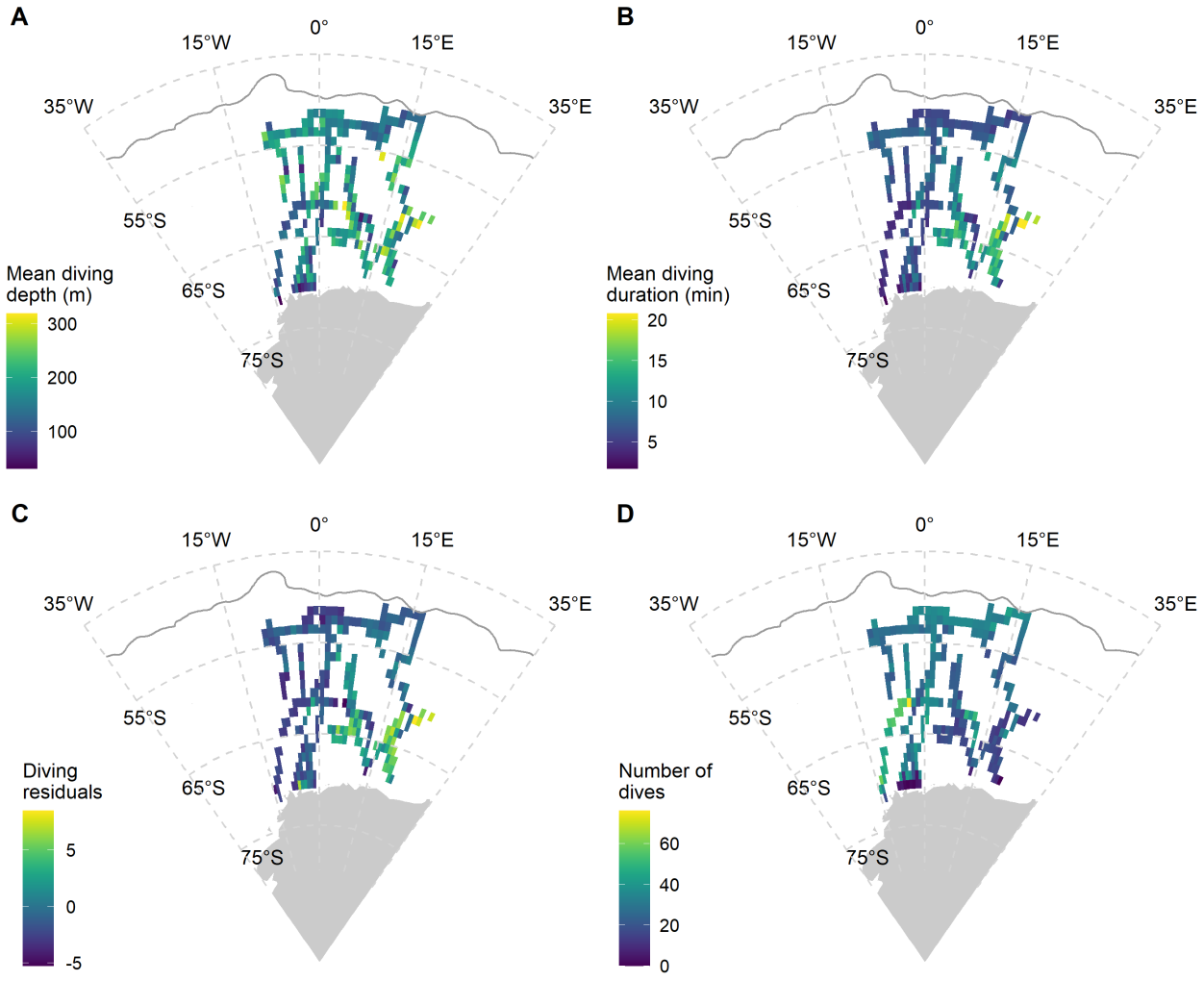

Figure S4: Gridded maps (0.1 x 0.1° resolution) of the mean value for a) mean diving depth, b) mean diving duration, c) diving residuals, and d) number of dives.

The mean position of the Polar Front is shown by the grey line (Orsi *et al.* 1995).

References:

ORSI, H., WHITWORTH, T. & JR, W.D.N. 1995. On the meridional extent and fronts of the Antarctic Circumpolar Current Pronounced meridional gradients in surface properties separate waters of the Southern Ocean from the warmer and saltier waters of the subtropical circulations . Deacon (1933 , the S. *Deep Sea Research*, **42**, 641–673, 10.1016/0967-0637(95)00021-W.