

FIGURE S1 Pairwise correlations per trip number of trip duration (days), maximum distance from Marion Island (km), mean speed of travel (m/s) and total distance travelled during trip (km) of trips undertaken by underyearling southern elephant seals from Marion Island. Upper panel values indicate correlation values (Pearson correlation) between metrics.

TABLE S1 Posterior estimates of the circular mean of each of the conditions included in the full circular mixed effects model applied to travel directions of recently weaned southern elephant seals from Marion Island. *SD* = standard deviation; HPD LB = lower bound of the 95% highest posterior density interval; HPD UP = upper bound of the 95% highest posterior density interval.

Parameter	Mode	Mean	<i>SD</i>	HPD LB	HPD UB
Intercept	0.028	0.046	0.034	0.011	0.106
trip number_2	0.06	0.264	0.208	0.015	0.702
trip number_3	0.057	0.257	0.205	0.013	0.689
sex_male	0.082	0.215	0.159	0.023	0.548
year_2006	0.136	0.263	0.17	0.031	0.614
year_2007	0.091	0.281	0.198	0.021	0.687
year_2008	0.065	0.222	0.175	0.015	0.56

TABLE S2 Posterior estimates of the circular mean of each of the conditions included in the full circular mixed effects model applied to travel directions of all elephant seals tracked from Marion Island. *SD* = standard deviation; HPD LB = lower bound of the 95% highest posterior density interval; HPD UP = upper bound of the 95% highest posterior density interval.

Parameter	Mode	Mean	<i>SD</i>	HPD LB	HPD UB
Intercept	0.09	0.097	0.022	0.062	0.141
age class_1	0.155	0.167	0.037	0.103	0.237
age class_2	0.131	0.14	0.03	0.089	0.202
sex_1	0.422	0.417	0.108	0.225	0.636

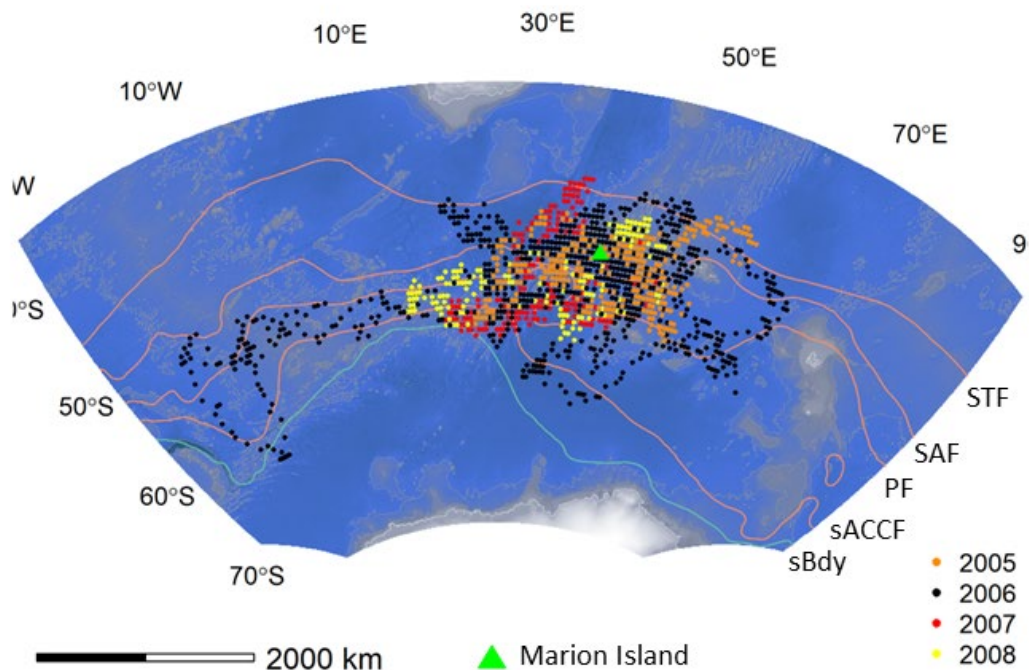


FIGURE S2 Track locations of 16 underyearling (<1 yr old) southern elephant seals tracked from Marion Island, color coded by year of track. Frontal locations are indicated as per Chapman et al. (2020). Accordingly, STF = Subtropical Front, SAF = Subantarctic Front; PF = Polar Front; sACCF = southern Antarctic Circumpolar Front; sBdy = Southern Boundary front.

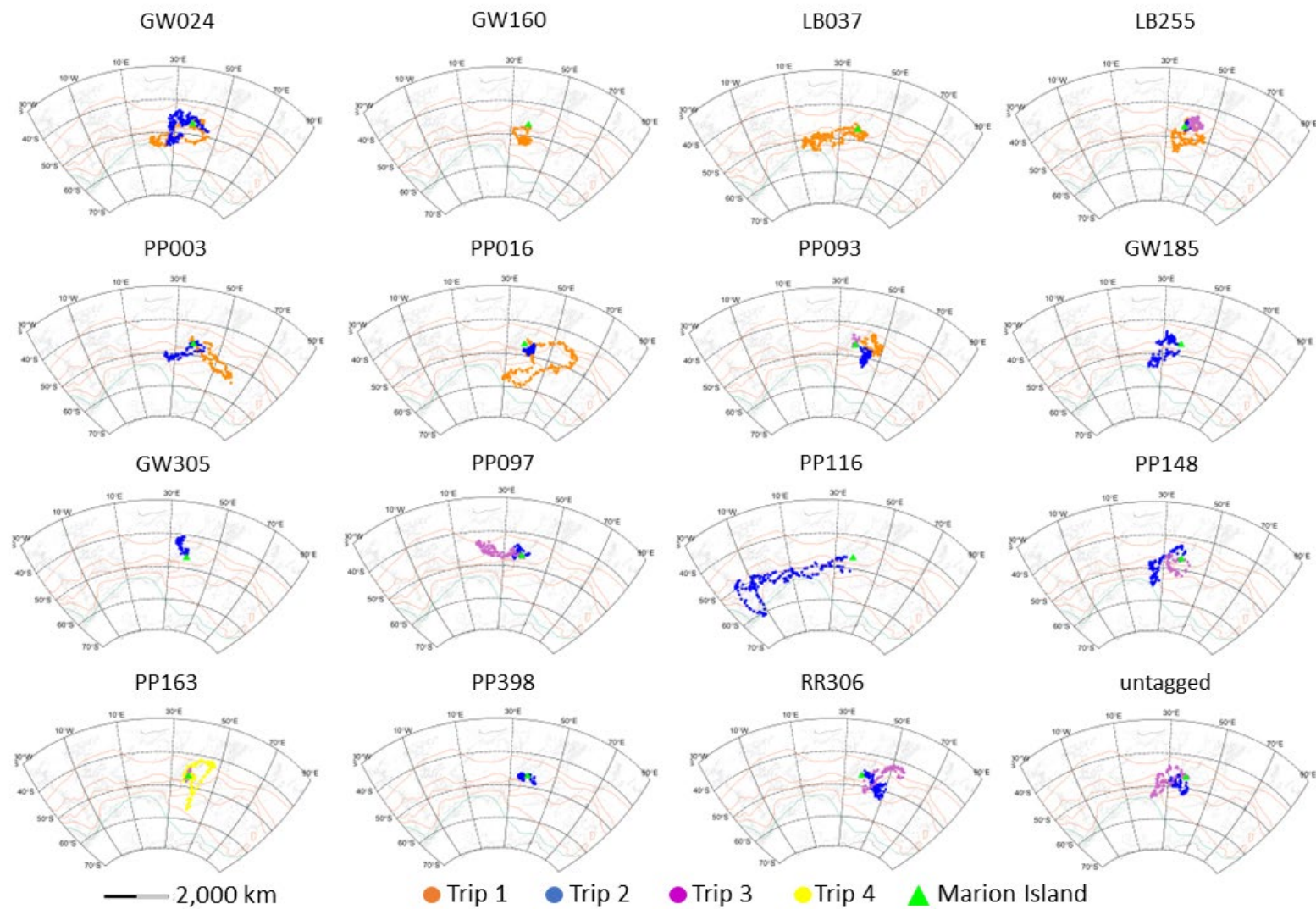


FIGURE S3 Track locations of underyearling southern elephant seals tracked from Marion Island.

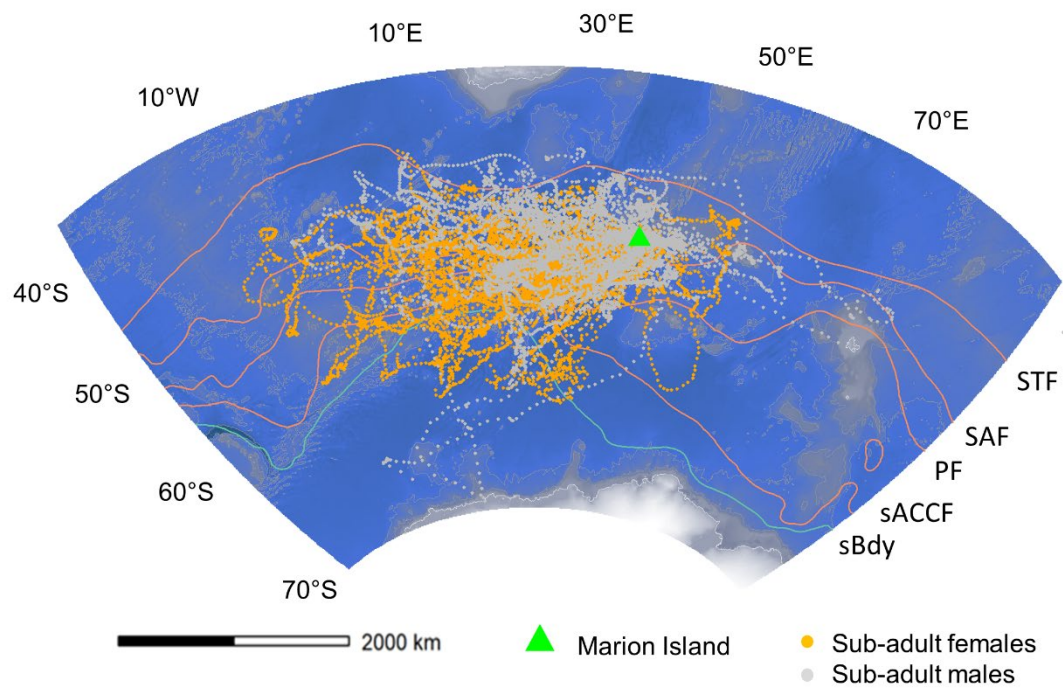


FIGURE S4 Track locations of subadult southern elephant seals tracked from Marion Island, color coded by sex. Frontal locations are indicated as per Chapman et al. (2020). Accordingly, STF = Subtropical Front, SAF = Subantarctic Front; PF = Polar Front; sACCF = southern Antarctic Circumpolar Front; sBdy = Southern Boundary front.

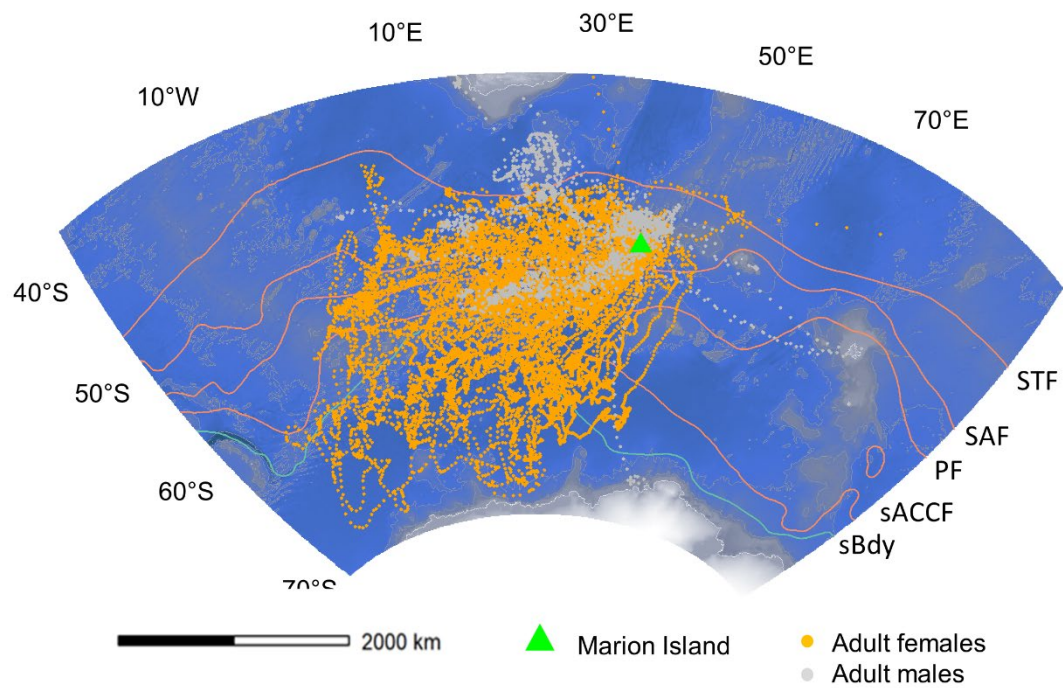


FIGURE S5 Track locations of adult southern elephant seals tracked from Marion Island, color coded by sex. Frontal locations are indicated as per Chapman et al. (2020). Accordingly, STF = Subtropical Front, SAF = Subantarctic Front; PF = Polar Front; sACCF = southern Antarctic Circumpolar Front; sBdy = Southern Boundary front.

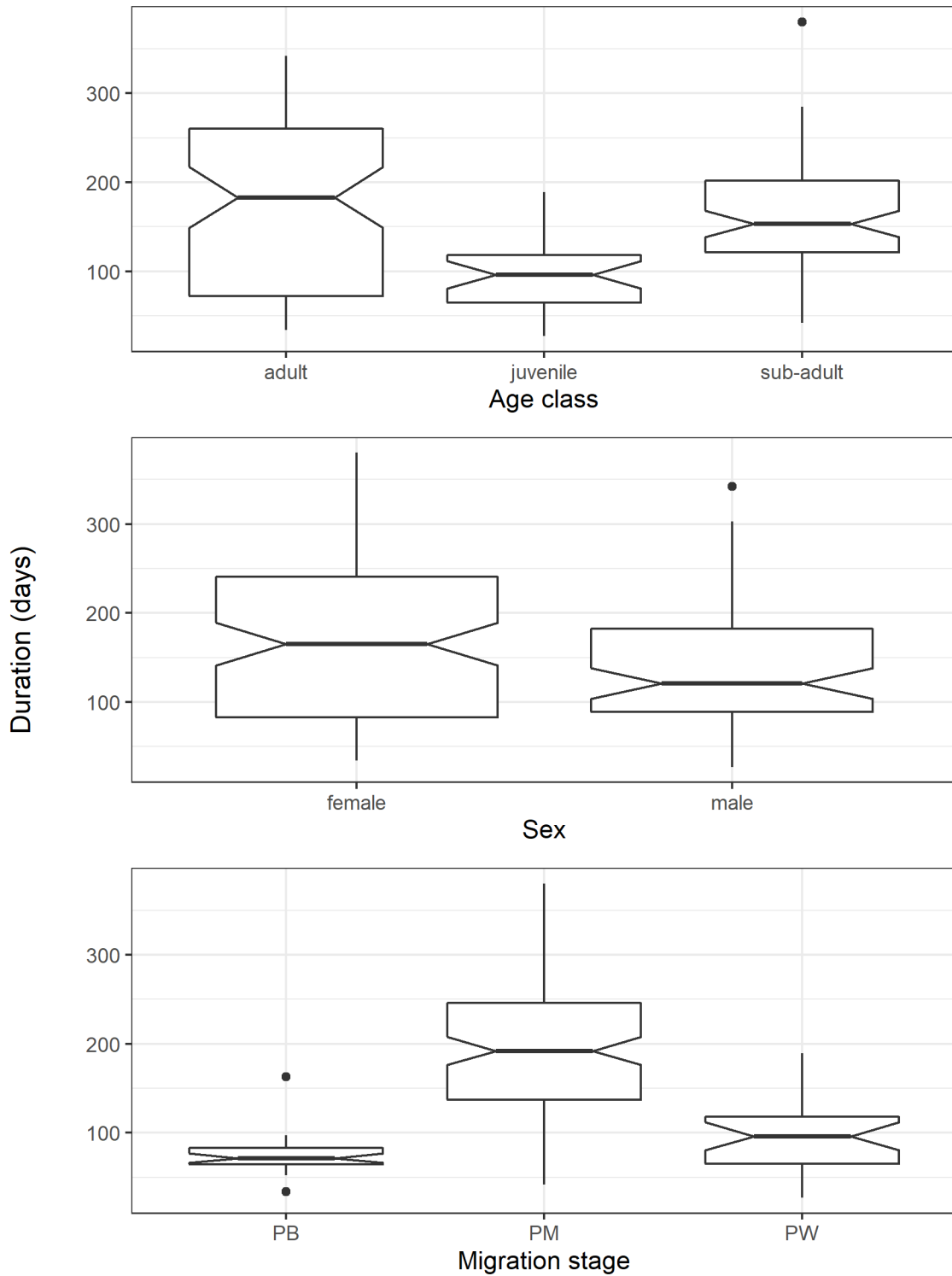


FIGURE S6 Migration durations of southern elephant seals from Marion Island summarized between age classes, sex, and foraging trip types (PB = postbreeding; PM = postmoult; PW = postweaning).

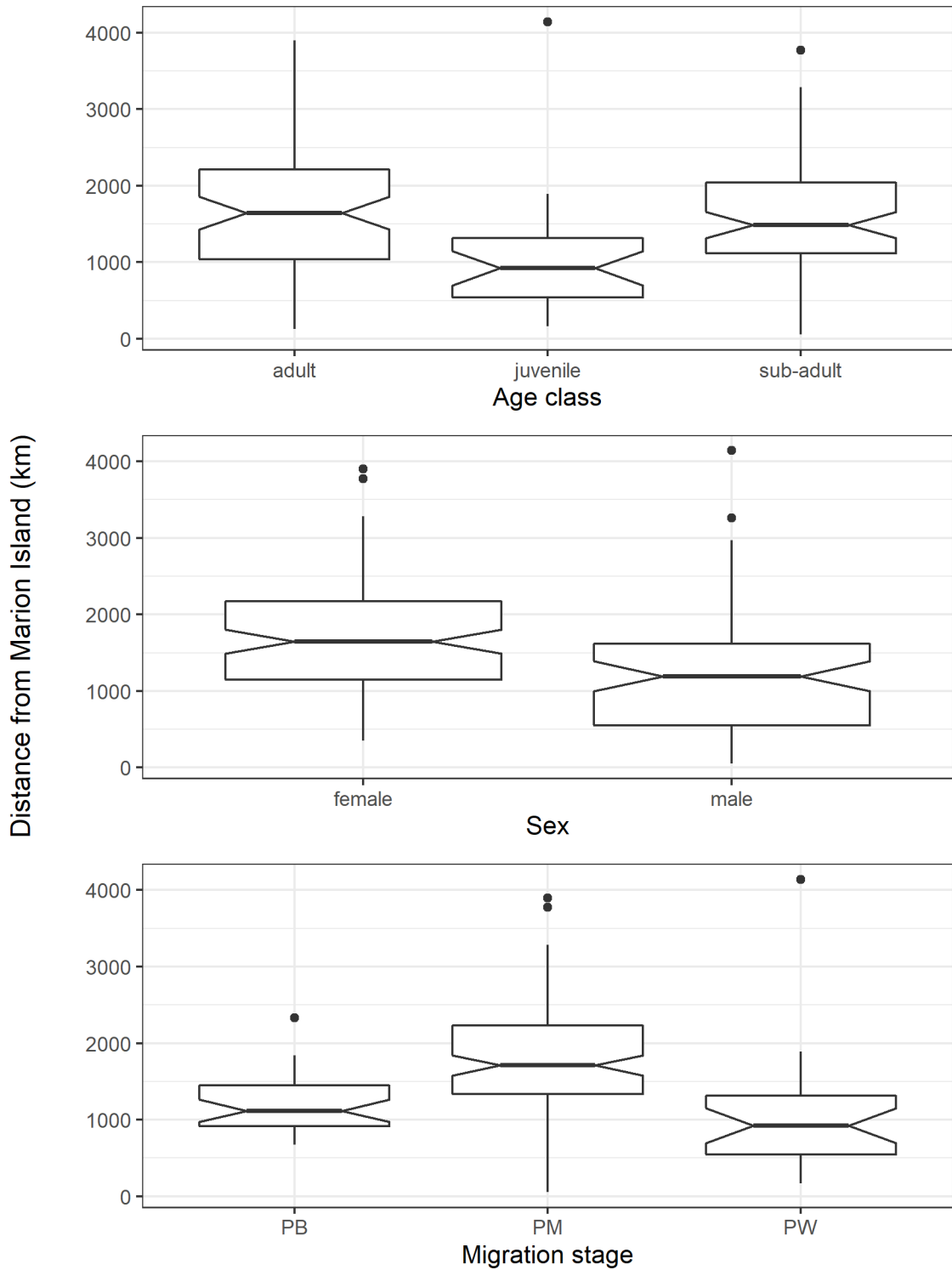


FIGURE S7 Maximum distances that southern elephant seals from Marion Island traveled from the island during their foraging migrations, summarized between age classes, sex, and foraging trip types (PB = postbreeding; PM = postmolt; PW = postweaning).

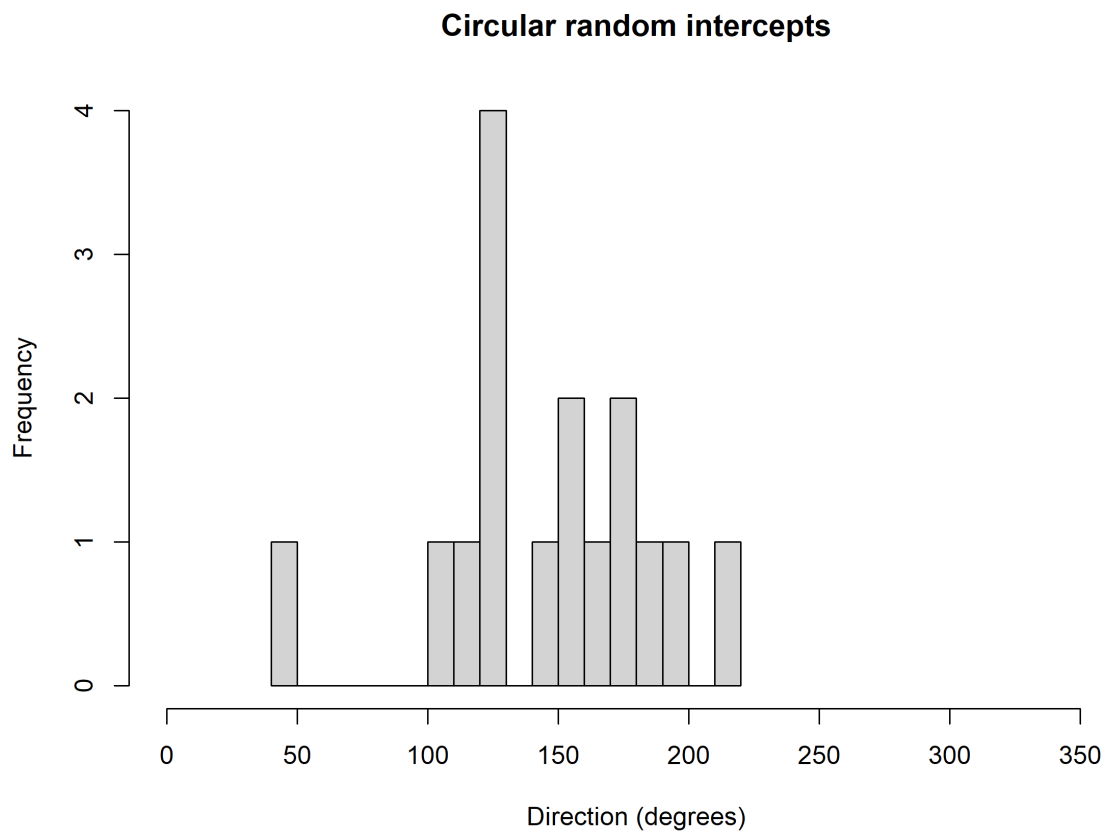


FIGURE S8 Random intercepts from the full circular mixed-effects model for travel directions of underyearling southern elephant seals ($n = 16$).

Circular random intercepts

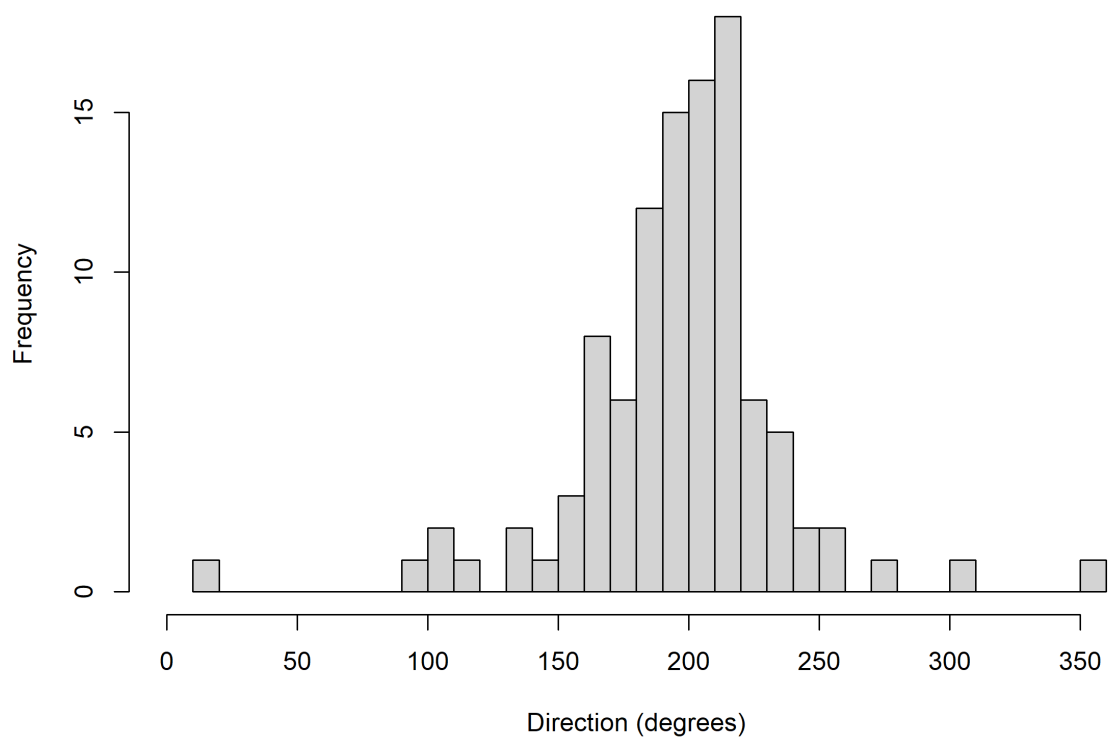


FIGURE S9 Random intercepts from the full circular mixed-effects model for travel directions of all southern elephant seals with completed foraging trips recorded ($n = 110$).