

Figures:

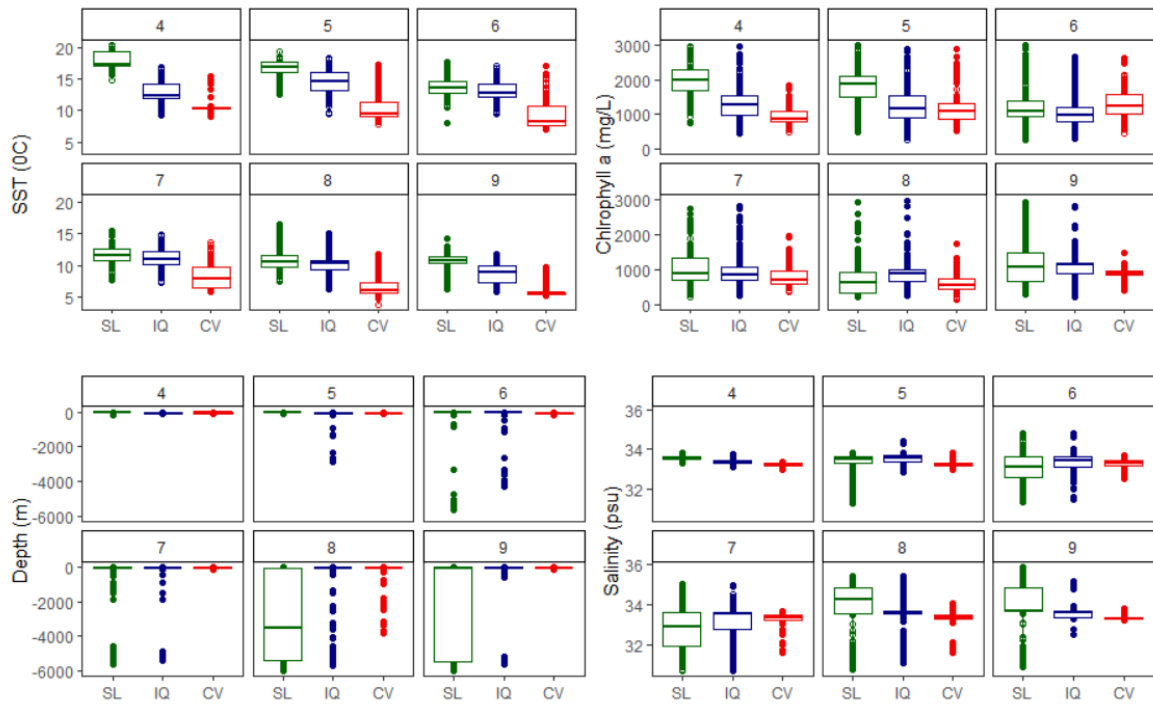


Figure S1. Boxplots for sea surface temperature (SST), Chlorophyll-*a*, salinity and bathymetry (Depth) experienced by penguins from the three colonies (SL: Estancia San Lorenzo, IQ: Isla Quiroga, CV: Cabo Vírgenes) during the non-breeding dispersion from April (4) to September (9).

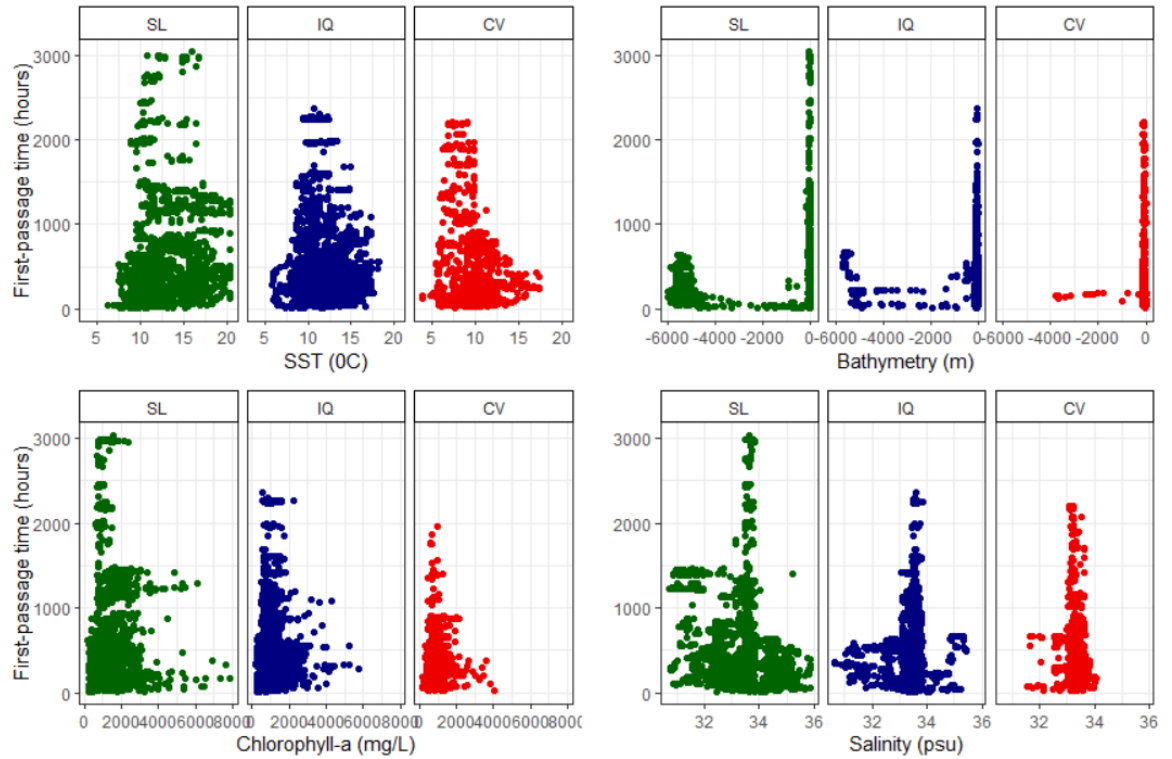


Figure S2. Relationship between first-passage time (the amount of time spent on each location across the trip) for Magellanic penguins non-breeding distribution and the different oceanographic parameters according to different colonies. SL: Estancia San Lorenzo, IQ: Isla Quiroga and CV: Cabo Vírgenes.

Tables:**Table S1.** Mean \pm s.e. and I.C. extracted for bathymetry, sea surface temperature (SST), salinity and Chlorophyll-*a* of the dispersion trips of Magellanic penguins according to their breeding colonies.

		San Lorenzo	Isla Quiroga	Cabo Vírgenes
Bathymetry (m)	Mean \pm s.e.	-933 \pm 1,978	-227 \pm 863	-107 \pm 360
	IC (2.5%; 97.5%)	-953; -934	-231; -223	-109; -106
SST (°C)	Mean \pm s.e.	13.62 \pm 0.45	11.77 \pm 0.31	8.47 \pm 0.46
	IC(2.5%; 97.5%)	12.16; 15.06	11.18; 12.38	6.92; 10.01
Salinity (psu)	Mean \pm sd	33.40 \pm 0.95	33.43 \pm 0.51	33.30 \pm 0.24
	IC(2.5%; 97.5%)	33.39; 33.41	33.43; 33.43	33.29; 33.31
Chlorophyll- <i>a</i> (mg/ml)	Mean \pm sd	1,216 \pm 1.07	1,023 \pm 1.05	799 \pm 1.08
	IC(2.5%; 97.5%)	962; 1,538	932; 1,125	628; 1,022

Table S2. Results of the mixed models for oceanographic variables of the trips of Magellanic penguins non-breeding dispersion. Colonies was the predictor factor (IQ: Isla Quiroga, SL: San Lorenzo, CV: Cabo Vírgenes). We run a binomial model for bathymetry and Gaussian models for the other variables. Predictor variables for which the confidence interval did not include zero are shown in bold.* SST: Sea surface temperature and Chl-*a*: Chlorophyll-*a*.

Response variable	Predictor variables	t/z-value	IC 2.5%	IC 97.5%
SST*	IQ - SL	4.08	0.94	2.72
	IQ - CV	-7.09	-4.21	-2.41
	SL - CV	-10.60	-6.11	-4.19
Bathymetry	IQ - SL	0.33	-0.63	0.86
	IQ - CV	3.46	0.71	2.46
	SL - CV	3.04	0.45	2.39
Chl- <i>a</i> *	IQ - SL	2.41	0.02	0.14
	IQ - CV	-3.24	-0.16	-0.04
	SL - CV	-5.32	-0.25	-0.11
Salinity	IQ - SL	-0.16	-0.21	0.17
	IQ - CV	-1.19	-0.34	0.08
	SL - CV	-1.01	-0.33	0.10

Table S3. Linear mixed model for the first-passage time (the amount of time spent on each location across the trip) of Magellanic penguins during their dispersion period. Predictor variables were oceanographic variables and their interactions with the breeding colony. Colonies: SL, San Lorenzo; IQ, Isla Quiroga; CV, Cabo Vírgenes.

* refers to the interaction.

Predictor variable.		t	IC 2.5%	IC 97.5%
Intercept (SL)	SST	52.82	0.126	0.136
	Bathymetry	-29.31	-0.046	-0.040
	Chl- <i>a</i>	-1.33	-0.003	0.001
	Salinity	-27.45	-0.040	-0.035
Intercept (IQ)	SST	14.55	0.029	0.038
	Bathymetry	-17.69	-0.039	-0.032
	Chl- <i>a</i>	-22.96	-0.027	-0.023
	Salinity	-16.55	-0.036	-0.028
Intercept (CV)	SST	23.18	0.089	0.105
	Bathymetry	13.63	0.108	0.144
	Chl- <i>a</i>	15.21	0.031	0.040
	Salinity	-3.12	-0.021	-0.005
SST	* IQ - SL	25.50	0.090	0.104
	* IQ - CV	13.10	0.050	0.070
	* SL - CV	-7.08	-0.044	-0.025
Bathymetry	* IQ - SL	-3.02	-0.012	-0.003
	* IQ - CV	17.12	0.144	0.181
	* SL - CV	18.14	0.149	0.188
Chl- <i>a</i>	* IQ - SL	16.73	0.021	0.026
	* IQ - CV	23.42	0.056	0.065
	* SL - CV	14.73	0.032	0.042
Salinity	* IQ - SL	-2.46	-0.010	-0.001
	* IQ - CV	3.97	0.009	0.027
	* SL - CV	5.44	0.015	0.033