

Supplementary Material

Validation of dive foraging indices using archived and transmitted acceleration data: the case of the Weddell seal

Karine HEERAH^{1,2*}, Sam L COX^{1,3, 4}, Pierre BLEVIN¹, Christophe GUINET¹, Jean-Benoît CHARRASSIN²

¹ Centre d'Etude Biologique de Chizé, UMR 7372 CNRS, Villers-en-Bois, France,

² UMR 7159 CNRS-IRD-MNHN, LOCEAN-IPSL, Sorbonne Université, Paris, France,

³ Centre National d'Études Spatiales, Toulouse, France,

⁴ MARBEC(Institut de Recherche pour le Développement), Sète, France

*** Correspondence:**

Karine Heerah

karine.heerah@hotmail.fr

1 Supplementary Figures and Tables

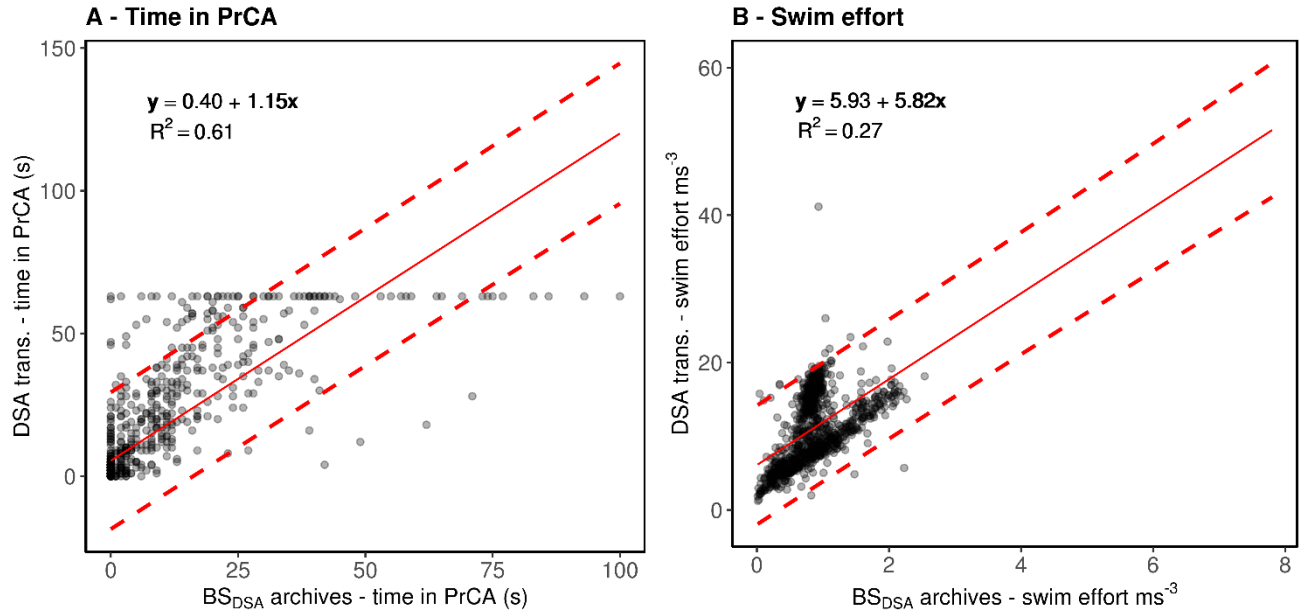
1.1 Supplementary Table

Supplementary Table 1. Results from linear models used to assess correlations between DSA transmissions (response) and estimates from the corresponding BS_{DSA} summarised archives (explanatory) for (a) time in PrCA behaviours and (b) swimming effort (#143468). Intercept and slope values close to 0 and 1 respectively reflect stronger correlations/likeness between the two data types than those far from 0 and 1. R^2 values show the amount of variation accounted for by the model. Root mean square errors are shown for the fitted values of the model vs the BS_{DSA} summarised archives (RMSE_{mod}), and the DSA transmissions vs the BS_{DSA} summarised archives (RMSE_{data}; standardised out with brackets and raw in brackets).

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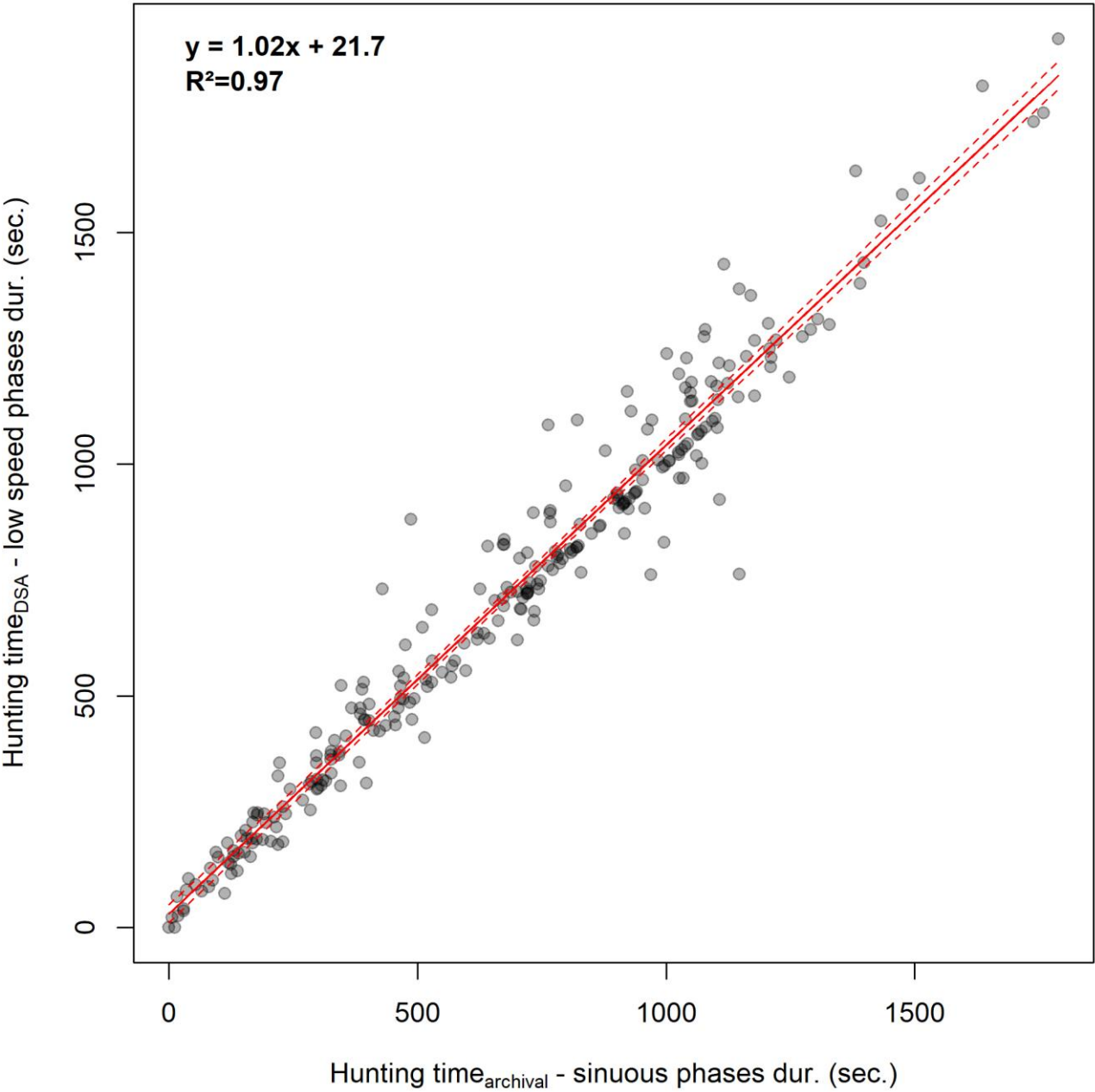
	Intercept	Slope	R ²	RMSE _{mod}	RMSE _{data}
(a) Time in PrCA behaviours					
<i>ALL</i>	0.40	1.15	0.61	0.39	0.82 (13.88)
<i>Segment 1</i>	-0.20	0.51	0.25	0.16	0.31 (5.24)
<i>Segment 2</i>	0.57	1.05	0.52	0.57	1.04 (17.54)
<i>Segment 3</i>	0.73	0.93	0.53	0.72	1.17 (19.76)
<i>Segment 4</i>	0.47	1.24	0.63	0.50	0.90 (15.21)
<i>Segment 5</i>	0.09	1.01	0.53	0.08	0.15 (2.59)
(b) Swimming effort					
<i>ALL</i>	5.93	5.82	0.27	1.72	1.83 (11.23)
<i>Segment 1</i>	7.01	7.39	0.49	1.02	1.08 (6.60)
<i>Segment 2</i>	11.37	11.60	0.43	1.78	1.89 (11.59)
<i>Segment 3</i>	7.26	6.81	0.13	2.11	2.22 (13.61)
<i>Segment 4</i>	3.77	3.03	0.10	2.05	2.13 (13.04)
<i>Segment 5</i>	5.48	5.80	0.65	1.58	1.61 (9.84)

1.2 Supplementary Figures



Supplementary Figure 1. Overall comparisons between DSA transmission of time spent in PrCA behaviours (A) and swimming effort (B) to estimates from BS_{DSA} summarised archives (for one

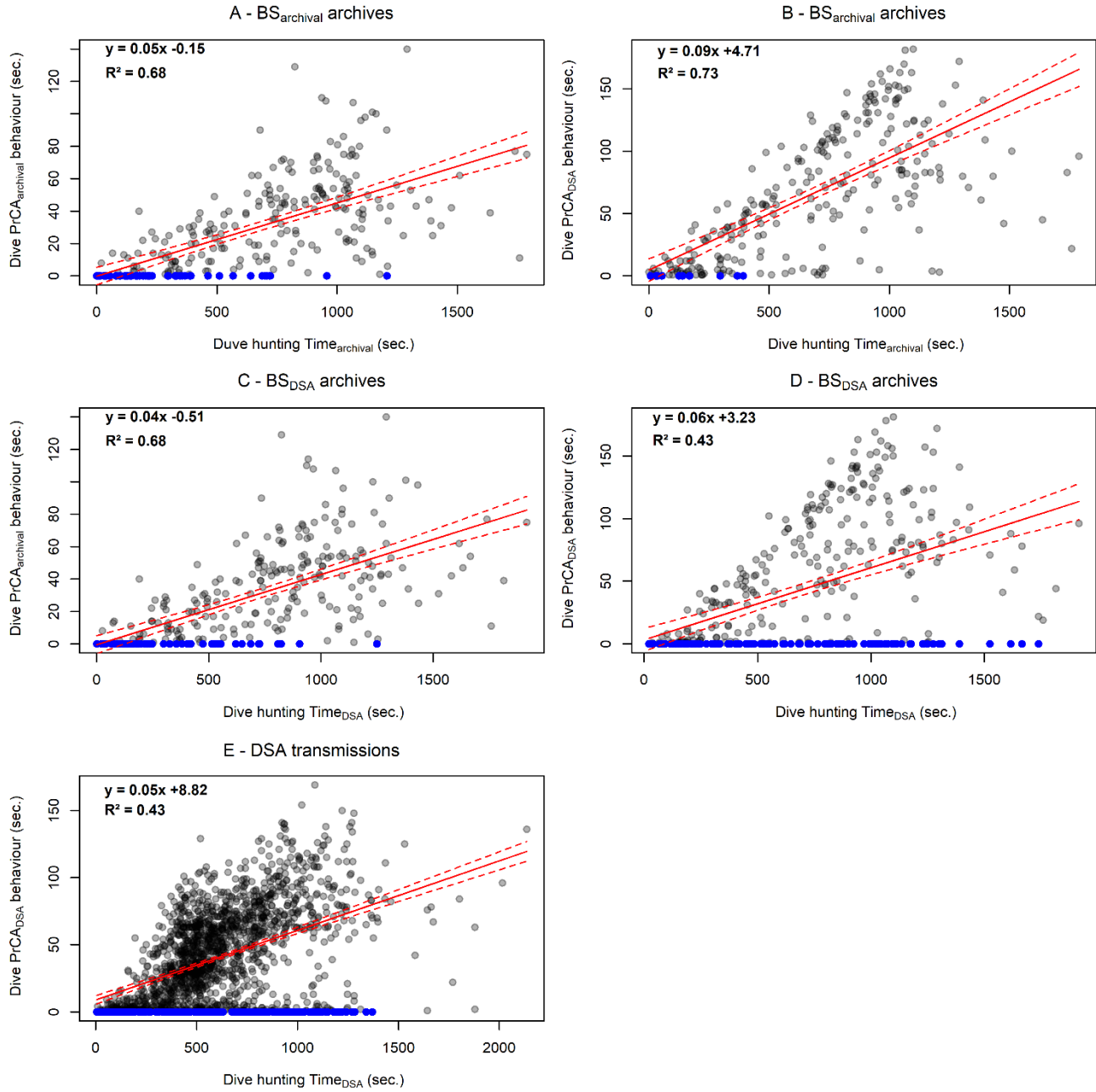
individual #143468). The red line represents the intercept-slope output, with 95% prediction intervals in dashed red.



Supplementary Figure 2. Comparison between archival and DSA foraging effort metric, the hunting time, corresponding either to the time spent in sinuous or reduced vertical velocity phases of archival

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and DSA dives, respectively (for individual #143468). Each red line represents the intercept-slope output, with 95% confidence intervals in dashed red.



Supplementary Figure 3. Overall comparisons between dive foraging duration and time spent in PrCA behaviours estimated from high-resolution archives (#143468; A and C), the DSA algorithm (B and D) and transmissions (nSeals=4, E). Each red line represents the intercept-slope output, with 95% confidence intervals in dashed red. Blue dots indicates dives during which PrCA behaviour did not occur.