1 **Supplement of**

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3 **Holocene hydrography evolution in the Alboran Sea: a multi-record and**
4 **multiproxy comparison**

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Table S1: Radiocarbon ^{14}C AMS dates from the ALB-2 core. Dates are calibrated with the MARINE13 calibration curves (Reimer, et al., 2013)

Figure S2: ALB-2 age-depth model based on Bayesian accumulations simulations (Blaauw and Christen, 2011). (a) The three upper plots show the stable MCMC run achieved (left), the prior (green line) and posterior (grey) distributions of the accumulation rates (middle), and the prior (green line) and posterior (grey) distributions of the memory (right). The main graph shows (c) the age-depth model with its errors. Yellow dots, correspond to those tie-points (most recent, the recovering year of the core, and the last one is product of the correlation with the well-expressed event in (b) MD99-2343 record. (d) Show the location of these dates on the ALB-2 $\delta^{18}\text{O}$ ‰ (VPDB). (e) Show the accumulation rates in (cm/kyr).

Table S3: Radiocarbon ^{14}C AMS dates from the ALB-2 core. Dates are calibrated with the MARINE13 calibration curves (Reimer, et al., 2013)

Figure S4: MD99-2343 age-depth improved from the original published by Frigola et al. (2007). The age model is based on Bayesian accumulations simulations (Blaauw and Christen, 2011). (a) The three upper plots show the stable MCMC run achieved (left), the prior (green line) and posterior (grey) distributions of the accumulation rates (middle), and the prior (green line) and posterior (grey) distributions of the memory (right). The main graph shows (c) the age-depth model with its errors. Yellow dots, correspond to those tie-points (most recent, the recovering year of the core, and the other two points are product of the correlation with the well-expressed event in (b) MD95-2043 record. (d) Show the location of these dates on the MD99-2343 $\delta^{18}\text{O}$ ‰ (VPDB). (e) Show the accumulation rates in (cm/kyr).

Figure S5: Comparison for all ALB-2 data obtained between the *G. bulloides* Mg/Ca ratios with (a) Al/Ca and (b) Mn/Ca ratios (Pena et al., 2005). In both plots red dots are those samples that were removed to avoid possible interferences in Mg/Ca – SST.

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Supplementari Figure
Table S1

Depth, cm	Specie	Age ¹⁴ C years BP	2 error	Calendar Years
0	Tie Point (Recovered core year)	-	-	-56
10	<i>G. inflata</i>	725	25	407
15	<i>G. inflata</i>	1334	29	856.5
26	<i>G. inflata</i>	2097	26	1668
36	<i>G. inflata</i>	2688	26	2355.3
62	<i>G. inflata</i>	3778	28	3706.8
83	<i>G. inflata</i>	4538	27	4703.1
112	<i>G. inflata</i>	5370	30	5866
114	<i>G. inflata</i>	5773	31	5996.9
131	<i>G.inflata</i>	6200	90	6709.5
153	<i>G.inflata</i>	7170	85	7686.8
184	<i>G. inflata, N. pachyderma, G. bulloides</i>	8814	41	9192.1
209	<i>G. inflata, N. pachyderma</i>	9190	35	10094.2
231	<i>G. inflata, N. pachyderma</i>	10084	45	11094
265	<i>G. inflata, N. pachyderma, G. bulloides</i>	11194	42	12699.8
314	Tie Point (MD95-2043)	-	-	14610

Supplementari Figure
Figure S2

Supplementari Figure
Table S3

Depth, cm	Isotop Event/Radiocarbon Samples	Age ¹⁴ C years BP	2 error	Calendar Years
0	Tie Point (Recovered core year)			-49
28	¹⁴ C AMS	790	89	436
42	¹⁴ C AMS	1090	61	680.3
54	¹⁴ C AMS	1520	90	1093.6
88	¹⁴ C AMS	3110	94.5	2612.4
118	¹⁴ C AMS	3390	142.5	3283.2
144	¹⁴ C AMS	3880	111	3887.9
184	¹⁴ C AMS	4850	128.5	5164.5
208	¹⁴ C AMS	5720	388.5	6009
238	¹⁴ C AMS	6210	135.5	6624.8
274	¹⁴ C AMS	6720	74	7314.6
296	¹⁴ C AMS	7580	107	7990.4
308	¹⁴ C AMS	7700	121	8266.4
312	¹⁴ C AMS	7660	85.5	8427.7
334	¹⁴ C AMS	8750	106	9411.1
364	¹⁴ C AMS	9890	180	10793
398	¹⁴ C AMS	10650	207	11978.1
418	¹⁴ C AMS	11200	116	12670.4
485	Tie Point - Base of GI-1			14622.4
534	Tie Point - Top Anomaly GS-2a			15373.2
568	¹⁴ C AMS	14550	344	16163.3
604	¹⁴ C AMS	13850	345	16980.9

Supplementari Figure
Figure S4

Supplementari Figure
Figure S5