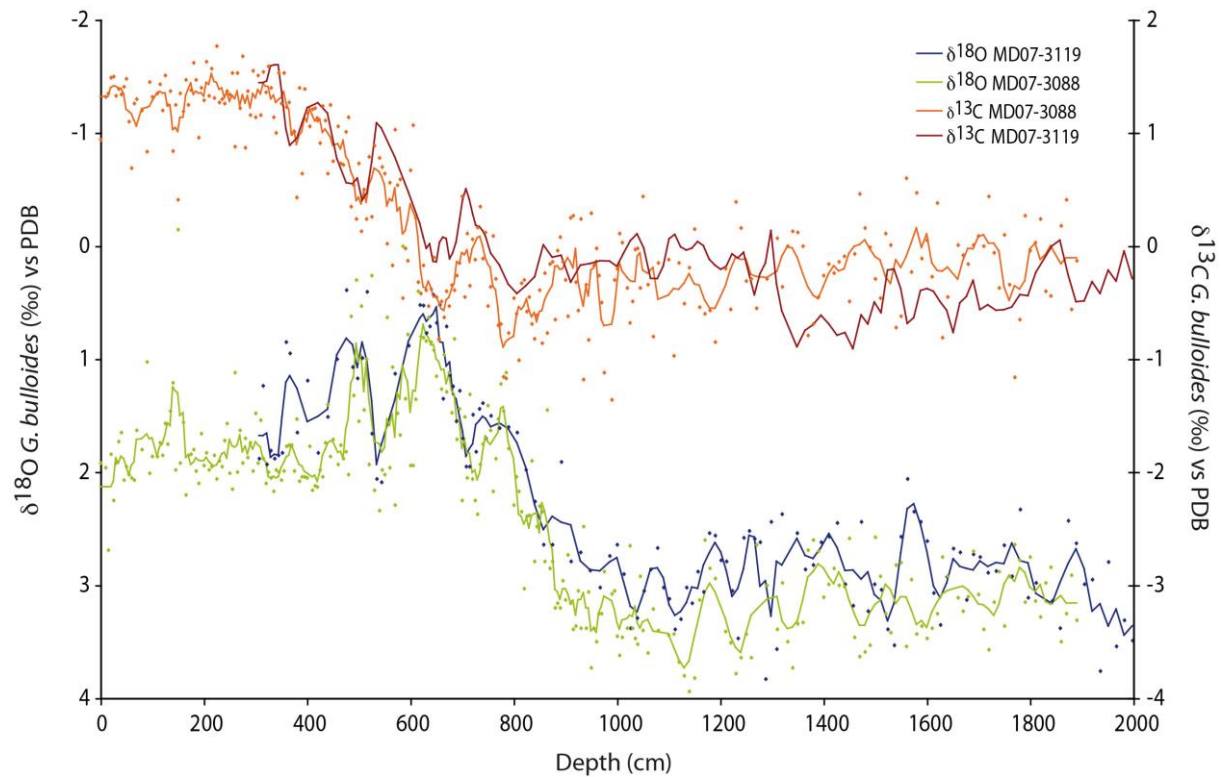
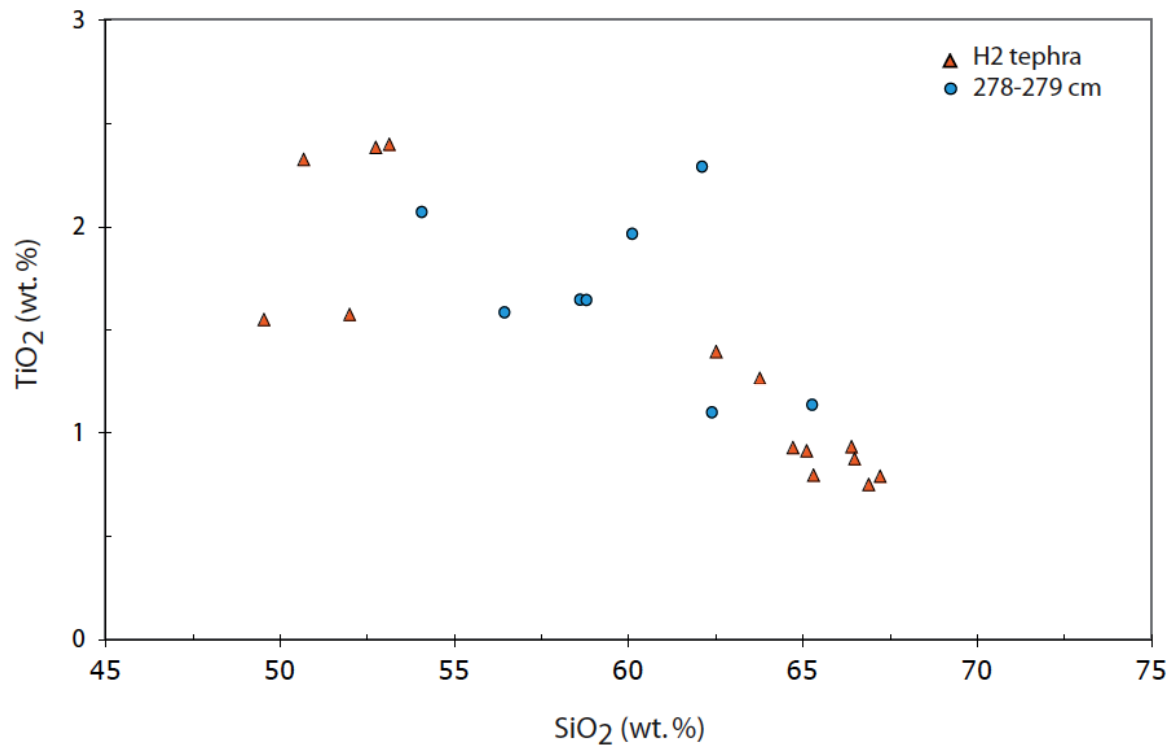


Supplementary Information

Supplementary Figures



Supplementary Figure S1. Stable isotope records of *Globigerina bulloides*. Carbon ($\delta^{13}\text{C}$) and oxygen ($\delta^{18}\text{O}$) isotopic records from core MD07-3088 (this study) and nearby farther offshore core MD07-3119. Thick lines for oxygen and carbon isotope records correspond to the smoothed curve using a 3 point average.



Supplementary Figure S2. Discrimination of the marine tephra volcanic source. TiO₂ vs. SiO₂ showing the correlation between cryptotephra layer at 278-279 cm in core MD07-3088 and on-land deposits of the H2 eruption attributed to the explosive activity of the Hudson volcano⁵⁷.

Supplementary Tables

Supplementary Table S1. Tephra ages and sea surface reservoir ^{14}C ages estimates in core MD07-3088 . Marine and terrestrial ^{14}C age results of the tephra recovered in core MD07-3088 and on the continent⁵⁷⁻⁵⁸, eruption sources and reservoir age (R_{surf}) calculations. Terrestrial ^{14}C dating marked with an asterisk are from ref. 57. Dating in bold correspond to the weighted means and 1σ uncertainties. Reservoir age (R_{surf}) = marine ^{14}C age - terrestrial ^{14}C age. Conventional ^{14}C age, as defined by ref. 59. Calendar ages are calculated from ref. 25 and 26.

Marine Tephra depth (cm)	Marine samples	Marine conventional ^{14}C age (yr BP) $\pm 1\sigma$	Terrestrial samples	Terrestrial conventional ^{14}C age (yr BP) $\pm 1\sigma$	Eruption	Origin	R_{surf} (yr) $\pm 1\sigma$	Calendar age (yr BP)
159-161	<i>Globigerina bulloides</i>	2510 \pm 30	Charcoal Charcoal	1830 \pm 75 1605 \pm 55 1720\pm160	HW7	Hudson	790 \pm 160	1695
280-281	<i>Globigerina bulloides</i>	4475 \pm 30	Peat Peat Charcoal Charcoal	3740 \pm 60* 3485 \pm 100* 3670 \pm 70* 3790 \pm 80* 3670\pm130	H2	Hudson	805 \pm 140	4015
660-661	<i>Globigerina bulloides</i>	10,880 \pm 35	Charcoal Charcoal Charcoal Charcoal	9830 \pm 90 10,080 \pm 100 9995 \pm 85 9930 \pm 85 9960\pm105	HW3	Hudson	920 \pm 135	11470
750-751	<i>Globigerina bulloides</i>	12,885 \pm 40	Charcoal Charcoal	11,965 \pm 100 11,855 \pm 120 11,910\pm80	HW2	Hudson	975 \pm 120	13840
800-801	<i>Globigerina bulloides</i>	13,755 \pm 35	Charcoal Charcoal	12,390 \pm 120 12,480 \pm 100 12,435\pm65	HW1	Hudson	1320 \pm 95	14465

Supplementary Table S2. Compiled radiocarbon data. Planktic and benthic radiocarbon dates, B-P offset and $\Delta^{14}\text{C}$ estimates from core MD07-3088.

Lab Code	Species	Depth (cm)	Conventional ^{14}C age (yr)	1 σ (yr)	B-P ages (yr)	1 σ (yr)	Calendar age (yr)	Upper limit (1 σ)	Lower limit (1 σ)	$\Delta^{14}\text{C}$ benthic (‰)	(1 σ)
SacA 10551	<i>Mix benthic</i>	0-3	1595	30						-180	23
SacA 10552	G.bulloides	159-161	2510	30	990	40	1695	190	180	-206	21
SacA 12814	<i>Mix benthic</i>	159-161	3500	30							
SacA 12815	G.bulloides	280-281	4475	30	770	35	4015	195	185	-154	19
UCIAM-S97354	<i>Mix benthic</i>	280-282	5245	20							
SacA 12816	G.bulloides	360-362	5975	35			5940	170	170		
SacA 12817	G.bulloides	500-501	8430	30			8435	175	155		
SacA 10553	G.bulloides	539-541	9080	30	1185	40	9250	155	185	-147	21
SacA 12818	<i>Mix benthic</i>	540-541	10265	30							
SacA 12819	G.bulloides	610-611	10050	35	1010	55	10450	210	180	-107	26
SacA 21652	<i>Mix benthic</i>	609-610	11060	40							
SacA 10554	G.bulloides	660-661	10880	35	730	50	11470	210	160	-75	26
SacA 21653	<i>Mix benthic</i>	660-661	11610	35							
SacA 21648	G.bulloides	700-701	11765	35	910	55	12760	165	135	-34	22
SacA 21654	<i>Mix benthic</i>	700-701	12675	40							
SacA 12820	G.bulloides	750-751	12885	40	765	60	13840	95	115	-25	28
SacA 21655	<i>Mix benthic</i>	750-751	13650	45							
SacA 21649	G.bulloides	780-781	13185	45	580	65	14085	225	165	-10	29
SacA 21656	<i>Mix benthic</i>	780-781	13765	45							
SacA 12821	G.bulloides	800-801	13755	35	645	60	14465	225	185	-42	29
SacA 21657	<i>Mix benthic</i>	800-801	14400	45							
UCIAM-S97349	G.bulloides	810-811	13840	45	450	100	14835	225	255	16	41
UCIAM-S97355	<i>Mix benthic</i>	810-811	14290	90							
UCIAM-S97350	G.bulloides	830-831	14290	50	575	70	15530	380	290	28	48
UCIAM-S97356	<i>Mix benthic</i>	830-831	14865	50							
UCIAM-S97351	G.bulloides	850-851	14560	50	670	85	16205	290	370	66	52
UCIAM-S97357	<i>Mix benthic</i>	850-851	15230	70							
SacA 12822	G.bulloides	870-871	14970	80	850	90	16735	145	195	56	28
SacA 12823	<i>Mix benthic</i>	870-871	15820	45							
UCIAM-S97352	G.bulloides	880-881	15145	50	915	80	16935	125	115	50	23
UCIAM-S97358	<i>Mix benthic</i>	880-881	16060	60							
SacA 21650	G.bulloides	900-901	15365	50	1105	80	17175	205	155	28	30
SacA 21658	<i>Mix benthic</i>	900-901	16470	60							
UCIAM-S97353	G.bulloides	940-941	15540	70	1210	85	17700	180	220	57	32
SacA 21659	<i>Mix benthic</i>	940-941	16750	50							
SacA 12824	G.bulloides	990-991	16295	50	960	115	18065	155	145	38	33
SacA 21660	<i>Mix benthic</i>	990-991	17180	60							
SacA 21662	Uvigerina	990-991	17330	60							
	<i>Mean benthic</i>		17255	106							
SacA 21651	G.bulloides	1020-1021	15990	50	935	155	18235	140	130	104	38
SacA 21663	Uvigerina	1020-1021	16820	50							
SacA 21664	<i>Mix benthic</i>	1020-1021	17030	50							
	<i>Mean benthic</i>		16925	150							
SacA 12825	G.bulloides	1040-1041	15755	45	1345	75	18420	105	145	105	25
SacA 21661	<i>Mix benthic</i>	1040-1041	17100	60							
SacA 10555	G.bulloides	1170-1172	16320	45	1470	75	18730	165	125	52	26
SacA 12826	<i>Mix benthic</i>	1170-1171	17790	60							
SacA 12827	G.bulloides	1710-1711	17610	50	980	110	19960	205	235	105	43
UCIAM-S97359	<i>Mix benthic</i>	1710-1711	18590	100							
SacA 12828	G.bulloides	1890-1891	18800	60			21415	280	320		

Supplementary References

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