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Supplement of

Past ice sheet–seabed interactions in the northeastern Weddell Sea embayment, Antarctica

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Table S1: Coordinates, water depths and recoveries of gravity cores (GC) and piston cores (PC) deployed in the study area.

Core ID	Cruise ID	Corer type	Latitude (°)	Longitude (°)	Water depth (m)	Recovery (m)	Reference
GC631	JR244	GC	-75.1238	26.6918	-261	0	this study
GC632	JR244	GC	-75.1277	-26.6920	-256	0	this study
GC633	JR244	GC	-75.1055	-26.6568	-314	0	this study
GC634	JR244	GC	-75.0070	-25.4493	-500	0.145	this study
GC635	JR244	GC	-74.9917	-25.4635	-494	1.17	this study
GC636	JR244	GC	-74.8118	-25.4755	-626	1.77	this study
GC637	JR244	GC	-74.6838	-25.5817	-606	2.7	this study
013	IWSOE68	GC	-75.4500	-26.5500	-507	0.9	Anderson et al. (1981)
3-7-1	IWSOE70	PC	-75.4170	-26.4670	-235	5.3	Anderson et al. (1981)
3-10-1	IWSOE70	PC	-74.9000	-25.9000	-490	0.06	Anderson et al. (1981)
3-11-1	IWSOE70	PC	-74.4500	-25.7170	-528	0.06	Anderson et al. (1981)
PS1637-3	ANT-VI/3	GC	-74.7630	-26.4420	-445	0.6	Grobe and Fütterer (2015)
PS111_139-1	PS111	GC	-74.8251	-25.2659	-669	0	Schröder (2018)
PS111_140-2	PS111	GC	-75.1325	-26.6295	-341	0	Schröder (2018)
PS111_142-1	PS111	GC	-75.2169	-27.4585	-373	0.2	Schröder (2018)

Table S2: Conventional and calibrated AMS ^{14}C dates on calcareous microfossils from sediment cores recovered from the northeastern Weddell Sea Embayment shelf (for location see Fig. 2 and Supplementary Table S1) analysed in this study (GC634 and GC635) and in previously published studies (3-7-1, Stollndorf et al., 2012; Anderson et al., 1980; Anderson et al., 1981).

Lab. sample ID	Core ID	Corer type [#]	Sample depth (cm)	Mat. dated*	^{14}C age (yrs BP)	$\pm 1\sigma$ (yrs BP)	Calibrated age $\pm 2\sigma$		
							Min. age (cal ka BP)	Max. age (cal ka BP)	Rounded mean age (cal ka BP)
CCAMS-87463	3-7-1	PC	70	E	>52800	N/A	N/A	N/A	N/A
AA-27756	3-7-1	PC	200	bF	26660	490	28589	30723	29660
CCAMS-95860	3-7-1	PC	223-227	bF	28930	160	31157	31802	31480
CCAMS-96164	3-7-1	PC	223-227	bF	30740	140	33443	33995	33720
CCAMS-96250	3-7-1	PC	223-227	bF	29490	220	31500	32839	32170
CCAMS-95861	3-7-1	PC	304-308	bF	17980	50	20014	20430	20220
CCAMS-96165	3-7-1	PC	304-308	bF	13315	30	13842	14119	13980
CCAMS-96251	3-7-1	PC	304-308	bF	15330	45	16956	17410	17180
CCAMS-96262	3-7-1	PC	304-308	bF	14655	40	15966	16348	16160
CCAMS-96263	3-7-1	PC	304-308	bF	14970	40	16366	16871	16620
CCAMS-95862	3-7-1	PC	348-352	bF	16610	45	18534	18790	18660
CCAMS-96166	3-7-1	PC	348-352	bF	18820	45	21023	21507	21270
CCAMS-96252	3-7-1	PC	348-352	bF	19400	70	21819	22289	22050
AA-27757	3-7-1	PC	400	bF	13640	130	14087	15093	14590
ETH-69711	GC634	GC	12	pF	5470	70	4651	5166	4910
ETH-69710	GC634	GC	12	bF	5490	70	4717	5200	4960
ETH-69709	GC635	GC	50	B	10475	90	10259	10783	10520

[#]Corer types: GC: gravity corer, PC: piston corer

*Material dated: B: bivalve shell, E: echinoid spine, bF: benthic foraminifera, pF: planktic foraminifera

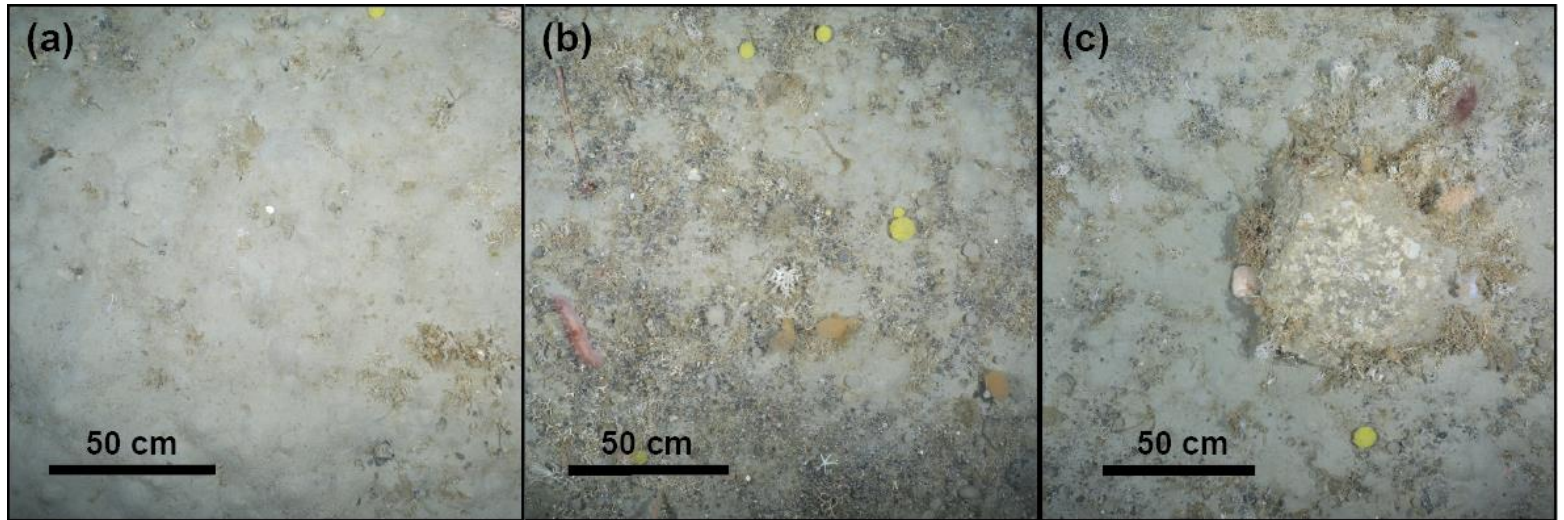


Figure S1: Ocean Floor Observation System (OFOS) seafloor images taken during RV *Polarstern* expedition PS96 on station 10-3 (Piepenburg, 2016) showing (a) a thin veneer of fine-grained mud, locally penetrated by hardrock pebbles and cobbles. Where the mud veneer is absent, the images show (b) a layer of hardrock pebbles and cobbles, and (c) locally, large cobbles and boulders, whose presence may explain the poor recovery of gravity cores in the area of Class H ramps. For location of photos see Fig. 2.

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