



Supplement of

Sedimentary ancient DNA insights into foraminiferal diversity near the grounding line in the western Ross Sea, Antarctica

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Supplementary materials

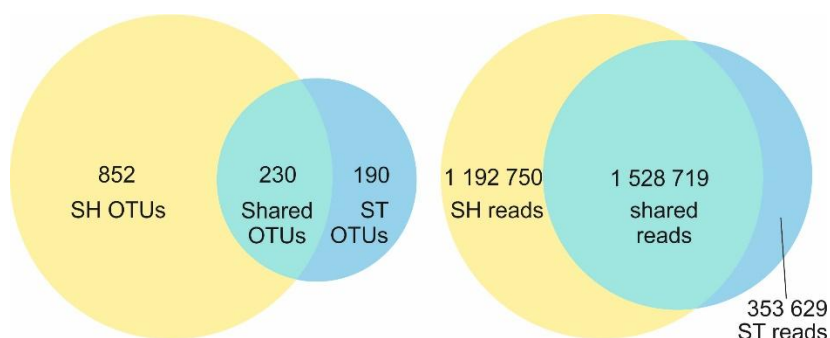


Figure S1. Venn diagram of shared and non-shared OTUs based on the standard (ST) and short (SH) pairs of primers. Comparison of the OTUs composition among two datasets based on the same region (37F).

Table S1. Source data based on OTUs with ≥ 10 reads in a single sample, available at <https://doi.org/10.18150/9ABUGS>.

Table S2. Average OTUs and reads percentages (%) for different taxonomic groups and sediment types, shown for standard (ST) and short (SH) primer pairs, n – number of samples. Counted on OTUs with ≥ 10 reads in a single sample.

Sediment type	n	Planktonics		Rotaliida		Textulariida		Tubothalamea		Monothalamea		Unassigned	
		OTUs	Reads	OTUs	Reads	OTUs	Reads	OTUs	Reads	OTUs	Reads	OTUs	Reads
ST													
All positive	17	4,56	3,61	9,70	5,27	1,79	2,25	4,25	1,85	58,55	67,24	21,16	19,78
Surface open-marine	5	1,87	0,75	5,54	1,34	3,03	7,24	1,93	0,70	53,93	72,29	33,69	17,69
Subsurface open-marine	6	3,02	1,82	8,97	2,54	2,55	0,35	4,87	2,51	62,61	72,51	17,98	20,27
Glacier proximal	6	8,33	7,77	13,89	11,27	0,00	0,00	5,56	2,15	58,33	57,77	13,89	21,04
Subglacial till	9	0	0	0	0	0	0	0	0	0	0	0	0
SH													
All positive	20	12,92	13,35	2,21	1,24	2,65	1,93	12,14	8,60	58,35	69,25	11,73	5,63
Surface open-marine	5	2,21	2,56	5,31	2,71	5,12	5,10	6,71	10,14	68,32	71,97	12,35	7,52
Subsurface open-marine	6	6,97	17,90	2,55	1,87	3,27	2,04	7,53	6,23	66,82	63,23	12,85	8,74
Glacier proximal	9	22,85	16,32	0,26	0,00	0,85	0,11	18,24	9,32	47,17	71,75	10,64	2,51
Subglacial till	9	0	0	0	0	0	0	0	0	0	0	0	0

Table S3. List of foraminiferal taxa identified in different environmental settings by the standard (ST) and short (SH) molecular barcodes, and by micropaleontological analysis according to Majewski et al. (2020). Bolded pluses in ST and SH columns indicate species assigned to database with $\leq 99\%$ of similarity. OTUs with less than 10 reads in a single sample are removed.

* Doubtfull taxonomic interpretation. Taxa not present in the Ross Sea.

Class			Order	Genus	Species	Surface open-marine		Subsurface open-marine		Glacier proximal			
						ST	SH	ST	SH	ST	SH		
Globothalamea	calcareous	benthic	Robertinida	<i>Pseudobulimina</i>	<i>P. chapmani</i>	+	-	-	-	-	-		
				<i>Astrononion</i>	<i>A. antarcticum</i>	-	+	-	-	-	-	+	
					<i>A. echolsi</i>	-	-	-	-	-	-	+	
				<i>Bolivina</i>	<i>B. bolivina</i> sp.	+	+	-	-	-	-	-	
					<i>B. subaenariensis</i>	-	+	-	-	-	-	-	
					<i>B. variabilis</i>	-	-	-	-	-	-	-	
				<i>Bolivinellina</i>	<i>B. pseudopunctata</i>	-	-	+	-	+	-	+	
				<i>Cassidulina</i>	<i>Cassidulina</i> cf. <i>neoteretis</i>	-	-	-	-	-	-	-	
				<i>Cassidulinoides</i>	<i>Cassidulinoides</i> sp.	-	-	-	-	-	-	+	
					<i>C. parkerianus</i>	-	-	-	-	-	-	+	
		<i>Ehrenbergina</i>		<i>E. glabra</i>	-	-	-	-	-	-	-		
		<i>Glabratella</i>		<i>Glabratella</i> sp.*	+	-	-	-	-	-	-		
		<i>Globocassidulina</i>		<i>G. bora</i>	-	+	-	-	-	-	+		
				<i>G. subglobosa</i>	+	+	-	+	+	+	+		
		<i>Cibicides</i>		<i>Cibicides</i> sp.	-	-	-	-	-	-	-		
				<i>C. antarcticus</i>	+	+	-	-	-	-	-		
		<i>Cibicoides</i>		<i>C. wuellerstorfi</i>	+	-	-	+	-	+	-		
		<i>Elphidium</i>		<i>Elphidium</i> sp.	-	+	-	-	-	-	-		
				<i>E. excavatum</i>	-	+	-	-	-	-	-		
				<i>E. vellai</i>	-	+	-	-	-	-	-		
	<i>Epistominella</i>	<i>Epistominella</i> sp.		+	+	-	+	-	-	+			
		<i>E. vitrea</i>		+	+	-	-	+	-	-			
	<i>Fursenkoina</i>	<i>F. fusiformis</i>		-	-	-	-	-	-	+			
	<i>Ioanella</i>	<i>I. tumidula</i>		-	-	-	-	-	-	+			
	<i>Murrayinella</i>	<i>M. globosa</i> *		-	+	-	-	-	-	-			
	<i>Nonionella</i>	<i>N. auris</i>		+	+	-	+	+	-	+			
		<i>N. bradyi</i>		-	+	-	-	+	-	+			
		<i>N. iridea</i>		-	-	-	-	-	-	+			
	<i>Planoperculina</i>	<i>P. heterosteginoides</i> *		-	+	-	-	-	-	-			
	<i>Nuttallides</i>	<i>Nuttallides</i> sp.		-	+	-	-	-	-	-			
	<i>Pullenia</i>	<i>P. subcarinata</i>		-	+	-	-	-	-	+			
	<i>Rosalina</i>	<i>R. globularis</i>		-	-	-	-	-	-	+			
	<i>Stainforthia</i>	<i>Stainforthia</i> sp.		+	+	-	+	-	-	-			
		<i>S. concava</i>		-	-	-	-	-	-	+			
	<i>Trifarina</i>	<i>T. earlandi</i>		-	-	-	-	-	+	-			
	<i>Globigerina</i>	<i>G. glutinata</i>		+	-	-	-	-	-	-			
	<i>Globorotalia</i>	<i>G. scitula</i>		-	+	-	-	-	-	-			
	<i>Neoglobobulimina</i>	<i>N. pachyderma</i>		+	+	-	+	+	+	+			
	agglutinated	Textularida	<i>Arenoparrella</i>	<i>A. mexicana</i>	-	-	-	+	-	-			
			<i>Labrospira</i>	<i>L. wiesneri</i>	-	-	+	-	-	-			
			<i>Paratrochammina</i>	<i>P. bartrami</i>	-	-	+	-	+	-			
			<i>Portatrochammina</i>	<i>Portatrochammina</i> sp.	-	-	+	-	+	-			
			<i>Recurvirodes</i>	<i>R. contortus</i>	-	-	+	-	+	-			
			<i>Spiroplectammina</i>	<i>S. bifurcata</i>	-	-	+	-	-	-			
			<i>Cribrostomoides</i>	<i>Cribrostomoides</i> sp.	+	+	-	-	-	-			
<i>Caterina</i>			<i>C. spiculotesta</i> *	-	+	-	+	-	-				
<i>Eggerella</i>			<i>Eggerella</i> sp.	-	+	-	-	-	-				
<i>Reophax</i>			<i>Reophax</i> sp.	+	+	+	-	-	-				
			<i>R. piluliferarenulata</i>	-	+	-	-	-	-				
			<i>R. spiculifer</i>	-	+	-	+	-	-				
			<i>R. subfusiformis</i>	-	-	-	+	+	-				
<i>Textularia</i>			<i>Textularia</i> sp.	-	-	+	-	-	+				
			<i>T. agglutinans</i>	-	+	-	-	-	-				
			<i>T. antarctica</i>	-	+	-	-	-	-				
			<i>T. sagittula</i>	+	-	-	-	-	-				
Nodosariata						-	+	-	+	-	-		
Tubothalamea			Miliolida	<i>Hormosinella</i>	<i>Hormosinella</i> sp.	-	-	+	-	-	-	-	
				<i>Borelis</i>	<i>Borelis</i> sp.*	-	+	-	-	-	-	-	
	<i>Cornuspira</i>			<i>C. antarctica</i>	-	-	-	+	-	+	-		
				<i>Cornuspira</i> sp.	-	-	-	+	-	-	-		
	<i>Cyclogyra</i>			<i>Cyclogyra</i> sp.	+	-	-	+	-	-	-		
	<i>Siphonaperta</i>			<i>Siphonaperta</i> sp.	-	+	-	-	-	-	-		
	<i>Miliammina</i>			<i>Miliammina</i> sp.	+	+	-	+	-	-	-		
				<i>M. arenacea</i>	-	-	+	-	-	-	+		
	<i>Cornuspiramia</i>			<i>Cornuspiramia</i> sp.	+	+	-	+	+	-	+		
	<i>Spirophthalmidium</i>			<i>Spirophthalmidium</i> sp.	-	+	-	-	-	-	-		
Monothalamea	Allogromiida		<i>Spiroloculina</i>	<i>Spiroloculina</i> sp.	-	+	-	-	-	-	-		
			<i>Haplomyxa</i>	<i>Haplomyxa</i> sp.*	-	+	-	-	-	-	-		
			<i>Reticulomyxa</i>	<i>R. hanna</i> *	-	+	-	-	-	-	-		
			<i>Allogromina</i>	<i>Allogromina</i> sp.	-	+	-	-	-	-	-		
			<i>Bathyallogromia</i>	<i>Bathyallogromia</i> sp.	-	+	-	-	+	-	+		
			<i>Bowseria</i>	<i>Bowseria</i> sp.	+	-	-	+	-	+	-		
			<i>Gloioquillia</i>	<i>Gloioquillia</i> sp.	+	+	-	+	-	+	+		
			<i>Micrometula</i>	<i>Micrometula</i> sp.	+	+	-	+	-	+	+		
			<i>Nemogullmia</i> incl.	<i>Nemogullmia</i> sp.	+	+	-	+	-	+	-		
				<i>N. longevivabilis</i>	-	+	-	-	-	-	-		
		<i>Phainogullmia</i>	<i>Phainogullmia</i> sp.	-	+	-	+	-	-	-			
		<i>Shepherdella</i>	<i>Shepherdella</i> sp.	+	+	-	+	-	-	-			
		<i>Tinogullmia</i> incl.	<i>Tinogullmia</i> sp.	+	+	-	+	+	-	-			
			<i>T. antarctica</i>	+	+	-	-	-	-	-			
	Astrorhizida	<i>Vellaria</i>	<i>Vellaria</i> sp.	-	+	-	-	-	-	-			
		<i>Arnoldiellina</i>	<i>A. fluorescens</i>	-	+	-	-	-	-	-			
		<i>Astrammina</i>	<i>A. rara</i>	-	+	-	-	-	-	-			
			<i>A. triangularis</i>	-	+	-	-	-	-	-			
		<i>Bathysiphon</i>	<i>Bathysiphon</i> sp.	-	+	-	+	-	-	-			
			<i>B. argenteus</i>	-	+	-	-	-	-	-			
			<i>B. flexilis</i>	-	-	-	-	-	-	+			
		<i>Conqueria</i>	<i>Conqueria</i> sp.	-	+	-	+	-	-	-			
			<i>C. laevis</i>	-	-	-	-	-	-	+			
		<i>Crithionina</i>	<i>Crithionina</i> sp.	-	+	-	-	-	-	-			
			<i>C. granum</i>	-	-	-	+	-	-	-			
		<i>Hemisphaerammina</i>	<i>Hemisphaerammina</i> sp.	-	+	-	-	-	-	-			
		<i>Hippocrepina</i>	<i>H. indivisa</i>	-	+	-	+	-	-	-			
		<i>Hippocrepinella</i>	<i>Hippocrepinella</i> sp.	+	+	-	+	+	+	+			
			<i>H. alba</i>	-	+	-	+	-	-	-			
			<i>H. hirudinea</i>	+	+	-	+	-	-	-			
		<i>Lagenammina</i>	<i>Lagenammina</i> sp.	-	+	-	+	-	-	-			
			<i>L. arenulata</i>	-	+	-	-	-	-	-			
		<i>Pelosina</i>	<i>P. fusiformis</i>	-	+	-	-	-	-	-			
		<i>Pilulina</i>	<i>Pilulina</i> sp.	-	+	-	+	-	-	-			
			<i>P. argentea</i>	-	-	-	+	-	-	-			
		<i>Psammophaga</i>	<i>Psammophaga</i> sp.	+	+	-	-	+	-	-			
			<i>P. crystallifera</i>	-	+	-	-	+	-	-			
			<i>P. fuegia</i>	+	+	-	-	-	-	-			
			<i>P. magnetica</i>	+	+	-	+	-	-	-			
		<i>Psammospaera</i>	<i>Psammospaera</i> sp.	+	+	-	+	-	+	+			
		<i>Rhabdammina</i>	<i>Rhabdammina</i> sp.	-	-	+	-	-	-	-			
			<i>R. discreta</i>	-	-	-	-	+	-	-			
		<i>Saccammina</i>	<i>Saccammina</i> sp.	+	+	-	+	+	-	+			
		<i>Vanhoeffenella</i>	<i>V. dilatata</i>	-	-	-	+	-	-	-			
<i>Toxisarcon</i>	<i>T. synsulcidica</i>	+	-	-	-	-	-	-					
Xenophophorea		<i>Moanamina</i>	<i>M. semicircularis</i>	+	+	-	+	-	-	-			
		<i>Galathea</i>	<i>Galathea</i> sp.	+	+	-	-	-	-	-			
		<i>Syringammina</i>	<i>S. limosa</i>	+	+	-	+	+	-	-			
		<i>Aschemonella</i>	<i>A. monile</i>	-	-	-	+	-	-	-			
		<i>Nellya</i>	<i>N. rugosa</i>	+	-	-	-	-	-	-			