



Table T12. Radiolarian datum events, Holes U1341A, U1341B, and U1341C. ([See table note.](#))

Zone	Marker species	Age (Ma)	Hole U1341A				Hole U1341B				Hole U1341C			
			Core, section		Depth (mbsf)		Core, section		Depth (mbsf)		Core, section		Depth (mbsf)	
			Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom	Top	Bottom
<i>Botryostrobus aquilonaris</i>	T <i>Lychnocanoma nipponica sakaii</i>	0.05	1H-CC	2H-CC	3.02	12.64		1H-CC	0.00	8.72	1H-CC	2H-CC	5.5	15.4
	T <i>Amphimelissa setosa</i>	0.08–0.10	1H-CC	2H-CC	3.02	12.64	1H-CC	2H-CC	8.72	18.58	2H-CC	3H-CC	15.4	24.9
	T <i>Spongodiscus</i> sp.	0.28–0.32	4H-CC	5H-CC	31.77	41.32			37.70	47.18	6H-CC	7H-CC	53.6	62.2
<i>Stylatractus universus</i>	T <i>Axoprunum acquilonium</i>	0.25–0.43	6H-CC	7H-CC	50.95	60.51			56.68	66.18	7H-CC	8H-CC	62.2	71.1
	T <i>Stylatractus universus</i>	0.41–0.51	13H-CC	14H-CC	117.70	127.10		Not found			6H-CC	7H-CC	53.6	62.2
<i>Eucyrtidium matuyamai</i>	T <i>Eucyrtidium matuyamai</i>	0.9–1.5	13H-CC	14H-CC	117.70	127.10	11H-CC	12H-CC	104.25	113.59	16H-CC	17H-CC	139.7	147.2
	B <i>Eucyrtidium matuyamai</i>	1.7–1.9	15H-CC	16H-CC	136.26	146.07	15H-CC	16H-CC	142.36	151.68	19H-CC	20H-CC	166.6	176.1
<i>Cycladophora sakaii</i>	T <i>Thecosphaera akitaensis</i>	2.4–2.7						46H-CC	47H-CC	413.70	414.53			
<i>Dictyophimus bullatus</i>	T <i>Dictyophimus bullatus</i>	3.8–4.0						70X-CC	71X-CC	592.25	601.87			

Note: T = top, B = bottom.

Table T13. Radiolarian range chart, Holes U1341A, U1341B, and U1341C. ([See table notes.](#)) (Continued on next three pages.)

Core, section	Abundance	Preservation	<i>Actinomma boreale</i>	<i>Actinomma medium</i>	<i>Amphimelissa setosa</i>	<i>Axoprunum acquilonium</i>	<i>Botryostrobus aquilonaris</i>	<i>Ceratopyris borealis</i>	<i>Collosphaera pyloma</i>	<i>Cycladophora cornutooides</i>	<i>Cycladophora cosma</i>	<i>Cycladophora davisiana</i>	<i>Cycladophora sakaii</i>	<i>Cyrtocapsella japonica</i>	<i>Dendrosyrpis sakaii</i>	<i>Dictyophimus bullatus</i>	<i>Dictyophimus hirundo</i>	<i>Eucyrtidium asanoi</i>	<i>Eucyrtidium inflatum</i>	<i>Eucyrtidium matuyamai</i>	<i>Lamprocyrtis heteroporos</i>	<i>Larcopyle butschlii</i>	<i>Lipmanella redondoensis</i>	<i>Lithelius barbatus</i>	<i>Lychnocanoma magnacornuta</i>	<i>Lychnocanoma nipponica sakaii</i>	<i>Lychnocanoma parallelipis</i>	<i>Phormostichoartus fistula</i>	<i>Porodiscus circularis</i>	<i>Sphaeropyle langii-robusta</i> group	<i>Spongodiscus</i> sp.	<i>Spongopyle osculosa</i>	<i>Spongotrochus glacialis</i>	<i>Spongurus pylomiticus</i>	<i>Stichocorys delmontensis</i>	<i>Stichocorys peregrina</i>	<i>Stylatractus universus</i>	<i>Stylochlamydidium venustum</i>	<i>Stylodictya validispina</i>	<i>Thecosphaera akitaensis</i>					
323-U1341A-																																													
1H-CC	C	G	F					F	F			C					F																									F	F		
2H-CC	C	G		F				F	F			C										F				F																	F	F	
3H-CC	C	G	F	C	F			C	F			C														F																	F	F	
4H-CC	C	G	F	F				C	F			C														F																		F	
5H-CC	C	G						C	F			C															F																	C	C
6H-CC	C	G	F					F	F			A																	F														F		
7H-CC	F	G			F			F	F			F					F																												
8H-CC	C	G	F					C	F			F																	F																
9H-CC	F	G	F		F			F	F			F					F																												
10H-CC	C	G		F	F			C	F			C					F																												
11H-CC	C	G			F	F		C	F			C	F																																
12H-CC	F	G			F	F		F	F			F																																	
13H-CC	F	G			F	F		F	F			F																																	
14H-CC	F	M			F	F		F	F			F																																	
15H-CC	F	G			F	F		F	F			C																																	
16H-CC	F	M			F	F		F													F																								
17H-CC	F	M			F	F		F																																					
18H-CC	F	M			C							F																																	



Table T13 (continued). (Continued on next page.)

Core, section	Abundance	Preservation	<i>Actinomma boreale</i>	<i>Actinomma medianum</i>	<i>Amphimelissa setosa</i>	<i>Axoprium acquilonium</i>	<i>Batyrostobus aquilonaris</i>	<i>Ceratospiris borealis</i>	<i>Collosphaera pyloma</i>	<i>Cycladophora cornuroides</i>	<i>Cycladophora cosma</i>	<i>Cycladophora davisiana</i>	<i>Cycladophora sakaii</i>	<i>Cyrtocapsella japonica</i>	<i>Dendrospiris sakaii</i>	<i>Dictyophimus bullatus</i>	<i>Dictyophimus hirundo</i>	<i>Eucyrtidium asanoi</i>	<i>Eucyrtidium inflatum</i>	<i>Eucyrtidium matuyamai</i>	<i>Lamprocyrtis heteroporus</i>	<i>Larcopele butschlii</i>	<i>Lipmanella redondoensis</i>	<i>Lithelius barbatus</i>	<i>Lychnocanoma magnacornuta</i>	<i>Lychnocanoma nipponica sakaii</i>	<i>Lychnocanoma paralleipes</i>	<i>Phormostichoartus fistula</i>	<i>Porodiscus circularis</i>	<i>Sphaeropyle langii-robusta</i> group	<i>Spongodiscus</i> sp.	<i>Spongopyle osculosa</i>	<i>Spongotrochus glacialis</i>	<i>Spongurus pylomaticus</i>	<i>Stichococys delmontensis</i>	<i>Stichococys peregrina</i>	<i>Stylatractus univerversus</i>	<i>Stylochlamydidium venustum</i>	<i>Stylocitya validispina</i>	<i>Thecosphaera akitensis</i>					
19H-CC	F	M			F								F									F										F	F	F											
20H-CC	F	M			F																											F	F	F											
21H-CC	F	G			F		F	F	F				F																					F	F	F									
22H-CC	F	G																																	F	F	F								
23H-CC	F	M																																											
24H-CC	F	G						F	F																																				
25H-CC	F	M						F	F	F																F						F		F	F							F			
26H-CC	F	G						F	F	F																																F	F		
27H-CC	F	M																																											
28H-CC	F	G						F	F	F																																			
29H-CC	F	M						F	F	F																																			
30H-CC	F	G				F		F	F	F																																			
31H-CC	F	G						F	F	F																																			
32H-CC	F	M						F	F	F																				F															
33H-CC	F	G						F	F	F																																			
34H-CC	C	G	F			F		C	F	F																																			
35H-CC	F	M				F		C	F	F			F					F																											
36H-CC	F	M						F	F	F																																			
37H-CC	F	M				F		F	F	F						F																													
38H-CC	F	M				F		F	F	F																																			
39H-CC	F	M				F		F	F	F			F																																
40H-CC	F	M				F		F	F	F			F																																
41H-CC	F	M				F		F	F	F			F																																
323-U1341B-																																													
1H-CC	F	G						F					F													F										F	F					F	F		
2H-CC	C	G			F		F	F				A					F								F										F	F					F	F			
3H-CC	C	G	F		F		F	C		F		A													C																		F	F	
4H-CC	C	G	F		F		F	F		F		C													F																		F	F	
5H-CC	C	G	C				F	F		F		A					F								F																				
6H-CC	C	G	C				F	F		F		C													F																				
7H-CC	F	G	F			F		F		F		F																																	
8H-CC	F	G				F		F		F		F																																	
9H-CC	C	M	F		F	F		F		F		A																																	
10H-CC	F	G	F			F		F		F		F					F																												
11H-CC	F	G						F		F		F																																	
12H-CC	C	G	F			F		C		F		C																																	
13H-CC	F	M						F		F		F																																	
14H-CC	F	G						F		F		F																																	
15H-CC	F	G				F		F		F		F																																	
16H-CC	F	M						F		F		F																																	
17H-CC	F	G						F		F		F																																	



Table T13 (continued). (Continued on next page.)

Core, section	Abundance		<i>Actinomma boreale</i>	<i>Actinomma medianum</i>	<i>Amphimelissa setosa</i>	<i>Axonurum acquilonium</i>	<i>Batystrobus aquilonaris</i>	<i>Ceratospiris borealis</i>	<i>Collosphaera pyloma</i>	<i>Cycladophora comutoides</i>	<i>Cycladophora cosma</i>	<i>Cycladophora davisiana</i>	<i>Cycladophora sakaii</i>	<i>Cyrtocapsella japonica</i>	<i>Dendrospiris sakaii</i>	<i>Dictyophimus bullatus</i>	<i>Dictyophimus hirundo</i>	<i>Eucyrtidium asanoi</i>	<i>Eucyrtidium inflatum</i>	<i>Eucyrtidium matuyamai</i>	<i>Lamprocyrtis heteroporus</i>	<i>Larcopele butschlii</i>	<i>Lipmanella redondoensis</i>	<i>Lithelus barbatus</i>	<i>Lychnocanoma magnacornuta</i>	<i>Lychnocanoma nipponica sakaii</i>	<i>Lychnocanoma parallelipes</i>	<i>Phormostichoartus fistula</i>	<i>Porodiscus circularis</i>	<i>Sphaeropyle langii-robusta</i> group	<i>Spongodiscus</i> sp.	<i>Spongopyle osculosa</i>	<i>Spongotrochus glacialis</i>	<i>Spongurus pylomaticus</i>	<i>Stichococys delmontensis</i>	<i>Stichococys peregrina</i>	<i>Stylatractus universus</i>	<i>Stylochlamydiscum venustum</i>	<i>Stylodictya validispina</i>	<i>Thecosphaera akitensis</i>											
	F	M																																																	
	P																																																		
18H-CC	F	M										C																	F																						
19H-CC	F	M						F	F																								F																		
20H-CC	F	M				F		F	F																							C				F															
21H-CC	F	G				F		F	F				F																			F				F															
22H-CC	F	G				F																										F				F															
23H-CC	F	M						F				C	F				F																																		
24H-CC	F	M										F																																	F						
25H-CC	F	G																																			F			F											
26H-CC	F	M								F		F	F																																						
27H-CC	F	M				F																							F	F																					
28H-CC	F	M										F	F																																						
29H-CC	F	M						F					F	F																																					
30H-CC	F	G	F			F		F	F			F																																	F						
31H-CC	F	M						F	F																																										
32H-CC	F	P						F	F			F																																							
33H-CC	F	M	F			F		F	F	F		F	F																																						
34H-CC	F	M										F	F																																						
35H-CC	F	M	F		F			F	C	F		F	F																																						
36H-CC	C	M						F	F	F		C	F																																						
37H-CC	F	M	F					F	F			F																																							
38H-CC	F	M	F					F	F			F																																							
39H-CC	F	G	F					F	F	F		F																																							
40H-CC	F	G						F	F			F																																							
41H-CC	F	G						F	F			F																																							
42H-CC	F	M		F		F		C	F			F																																							
43H-CC	F	M				F																																													
44H-CC	C	M				F			F			F																																							
45H-CC	F	M						F																																											
46H-CC	F	M				F				F																																									
47H-CC	F	M		F		F																																													
48H-CC	F	G				F		F					F																																						
49H-CC	F	M				F																																													
50H-CC	F	M						F					F																																						
51H-CC	F	M				F		F					F																																						
52H-CC	F	M				F						F																																							
53H-CC	F	M				F		F		F		F																																							
55H-CC	F	M						F				F																																							
56H-CC	F	M						F				F																																							
54H-CC	F	M				F						F																																							
57X-CC	F	M						F					F																																						
58X-CC	F	M						F					F																																						
59X-CC	F	P						F					F																																						



Table T13 (continued).

Core, section	Abundance		Preservation		<i>Actinomma boreale</i>	<i>Actinomma medianum</i>	<i>Amphimelissa setosa</i>	<i>Axoprimum acquilonium</i>	<i>Botryostrobus aquilonaris</i>	<i>Ceratopyxis borealis</i>	<i>Collosphaera pyloma</i>	<i>Cycladophora comutoides</i>	<i>Cycladophora cosma</i>	<i>Cycladophora davisiana</i>	<i>Cycladophora sakaii</i>	<i>Cyrtocapsella japonica</i>	<i>Dendrospyrus sakaii</i>	<i>Dictyophimus bullatus</i>	<i>Dictyophimus hirundo</i>	<i>Eucyrtidium asanoi</i>	<i>Eucyrtidium inflatum</i>	<i>Eucyrtidium matuyamai</i>	<i>Lamprocyrtis heteroporus</i>	<i>Larcopele butschlii</i>	<i>Lipmanella redondoensis</i>	<i>Lithelius barbatus</i>	<i>Lychnocanoma magnacornuta</i>	<i>Lychnocanoma nipponica sakaii</i>	<i>Lychnocanoma paralleipes</i>	<i>Phormostichoartus fistula</i>	<i>Parodiscus circularis</i>	<i>Sphaeropyle langii-robusta</i> group	<i>Spongodiscus</i> sp.	<i>Spongopyle osculosa</i>	<i>Spongotrochus glacialis</i>	<i>Spongurus pylomaticus</i>	<i>Stichococys delmontensis</i>	<i>Stichococys peregrina</i>	<i>Stylatractus univertus</i>	<i>Stylochlamyidium venustum</i>	<i>Stylocictya validispina</i>	<i>Thecosphaera akitensis</i>										
	F	M	F	M																																																
61X-CC	F	M								F	F																																				F					
60X-CC	F	M								F	F													F																										F		
62X-CC	F	M								F	F	F												F																									F			
63X-CC	F	P										F												F																									F			
64X-CC	F	M								F									F																													F				
65X-CC	F	M																																														F				
66X-CC	F	P																																														F				
67X-CC	F	M						F		F														F													F		F							F						
68X-CC	F	M						F		F	F	F												F													F		F							F						
69X-CC	F	M						F		F	F													F																								F				
70X-CC	F	M						F		F														F																								F				
71X-CC	F	M					F			F					F									F																								F				
323-U1341C-																																																				
1H-CC	C	G	F							C		F		C											F																									C		
2H-CC	C	G								C		F		C										F																										C		
3H-CC	C	G				F				C		F		A										F																										C		
4H-CC	A	G				F		F		C		F		C										F																										A		
5H-CC	C	M								C		F		A										F																										F		
6H-CC	F	M	F							F		C		C										F																										F		
7H-CC	C	G	C	F				F		F				C										F																										F		
8H-CC	F	G	F	F	F					F				C										F																										F		
9H-CC	C	G	F	F		F				C		F		C										F																										F		
10H-CC	C	G	F					F		C		F		C										F																										F		
11H-CC	C	M	F	F				F		C		F		A										F																										F		
12H-CC	C	G								C		F		C										F																										F		
13H-CC	F	M	F							F				F										F																											F	
14H-CC	F	G								F				F										F																											F	
15H-CC	F	G								F				F										F																											F	
16H-CC	F	G						F		F				F										F																											F	
17H-CC	F	G						F		F				F										F																											F	
18H-CC	F	G						F		F				F										F																											F	
19H-CC	F	G						F		F				F										F																											F	
20H-CC	F	G						F	F	F				F										F																										F		
21H-CC	F	G								F				F										F																										F		
23H-CC	F	M								F				F										F																											F	
24H-CC	F	M						F		F				F										F																											F	
25H-CC	F	G						F		F				F										F																											F	
26H-CC	F	M						F		F				F										F																											F	
27H-CC	F	G						F		F				F										F																											F	

Notes: Abundance: A = abundant, C = common, F = few. Preservation: G = good, M = moderate, P = poor.