

Ms 189SR-107, Table T1. Stratigraphic ranges, in millions of years, for selected Late Cretaceous–Cenozoic dinocyst species in the Northern and Southern Hemispheres.

Dinocyst species	Northern Hemisphere																Southern Hemisphere							
	High latitude				Mid-latitude				Low latitude				Mid-latitude				High latitude							
	FO	Reference	LO	Reference	FO	Reference	LO	Reference	FO	Reference	LO	Reference	FO	Reference	LO	Reference	FO	Reference	LO	Reference				
<i>Achilleodinium bifurcoides</i> (Eisenack 1954b) Eaton 1976					54	37	30.57	45	33.7	48	33.5	48												
<i>Achomospaera alcornu</i> (Eisenack 1954b) Davey and Williams 1966a					57.65	37	13	35	33.76	48	277	38					35.7	59						
<i>Achomospaera andalusensis</i> Jan du Chêne 1977					11.3	36	0		12	38														
<i>Adnatospaeridium tutulosum</i> (Cookson and Eisenack 1960) Morgan 1980					94.4	12	94.06	12																
<i>Alisocysta circumtabulata</i> (Drugg 1967) Stover and Evitt 1978					65	52, 53	58.53	37	65	52, 53							677	51			68.5	59		
<i>Alisocysta margarita</i> (Harland 1979a) Harland 1979a					61.68	35	57.35	37													68.5	59		
<i>Alisocysta reticulata</i> Damassa 1979b					65	28	61.37	24									677	34			68.5	59		
<i>Alisogymnum elearense</i> (Cookson and Eisenack 1970a) Lentini and Vozzhennikova 1990					87.72	23	65.00	34													FCO 35.7	59		
<i>Altebodinium distinctum</i> (Wilson 1967a) Lentini and Williams 1985																								
<i>Amiculusphaera umbraculum</i> Harland 1979b					12.5	38	2.65	34	12.5	38	2.55	34												
<i>Apectodinium augustum</i> (Harland 1979c) Lentini and Williams 1981					55.6	40, 41	55	40, 41																
<i>Apectodinium deflandrei</i> (Clarke and Verdier 1967) Lucas-Clark 1987					98.33	23	68.80	34									54.8	54	37	34	51.4	59		
<i>Arachnodinium antarcticum</i> Wilson and Clowes 1982																								
<i>Arealigera gippingensis</i> Jolley 1992					58	35	57	35																
<i>Arealigera semicirculata</i> (Morgenroth 1966b) Stover and Evitt 1978					33.73	45	28.5	45	33.5	48	28.3	58	29.45	58	28.3	58								
<i>Areosphaeridium diktyoplokum</i> (Klumpff 1953) Eaton 1971					50.5	56	33.3	40			33.3	48												
<i>Ataxiodinium choane</i> Reid 1974					6.45	34	0	34																
<i>Ataxiodinium confusum</i> Versteegh and Zevenboom in Versteegh 1995									4.95	34	2.55	34												
<i>Barsidinium evangelinae</i> Lentini et al. 1994					8.6	34	5.32	34																
<i>Bicoidinium longissimum</i> Islam 1983c					54.31	35	50.71	35																
<i>Caliosphaeridium asymmetricum</i> (Deflandre and Courteville 1939) Davey and Williams 1966b					132.47	19	78.15	17																
<i>Cannosphaeropsis passio</i> de Verteuil and Norris 1996a					12.8	36	11.3	36	12.25	34	11.27	34												
<i>Cannosphaeropsis utinensis</i> O. Wetzel 1933b					83.63	23	65.70	29																
<i>Carpatella cornuta</i> Grigorovich 1969a					64.75	50	59.95	35	64.75	52, 53	607	34												
<i>Carpodinium obliquicostatum</i> Cookson and Hughes 1964					103.18	24	93.77	23																
<i>Cassulosphaeridia reticulata</i> Davey 1969							72.69	34																
<i>Cerebrocysta bartonensis</i> Bujak in Bujak et al. 1980					41	39	38	39													41?	34		
<i>Cerebrocysta poulsenii</i> de Verteuil and Norris 1996a					18	36	10.9	36	16.02	38	11.2	38										34		
<i>Cerodinium diebelii</i> (Alberti 1959b) Lentini and Williams 1987					77.97	34	59.95	35			61.2	34				78.5?	20, 51							
<i>Cerodinium wardenense</i> (Williams and Downie 1966c) Lentini and Williams 1987					56	35	53.1	40																
<i>Charlesdownia columna</i> (Michoux 1988) Lentini and Vozzhennikova 1990					51.73	40, 34	49.88	40	51?	34											52	59		
<i>Charlesdownia crassiramosa</i> (Williams and Downie 1966b) Lentini and Vozzhennikova 1989					53.75	34, 40	52.85	34, 40	54?	34												59		
<i>Charlesdownia edwardsii</i> (Wilson 1967c) Lentini and Vozzhennikova 1989					51.32	34, 40	47.9	34, 40													52	59		
<i>Chatangella verrucosa</i> (Manum 1963) Lentini and Williams 1976					93.50	34	72.50	34														59		
<i>Chichouadinium vestitum</i> (Brideaux 1971) Bujak and Davies 1983					105.00	34	98.90	34																
<i>Chiropteridium galea</i> (Maier 1959) Sarjeant 1983					33.5	45	22.36	34	31	55	23.98	38												
<i>Conosphaeridium striatocoonum</i> (Deflandre and Cookson 1955) Cookson and Eisenack 1969							88.56	23																
<i>Cordosphaeridium cantharellus</i> (Brosius 1963) Gocht 1969					40.8	39	19.5	34			17.95	38												
<i>Cordosphaeridium funiculatum</i> Morgenroth 1966a					51.16	43	35?	34			35.1	48												
<i>Corudinium harlandii</i> Matsuoka 1983b					87	34			4.5	34						87	34	2.65?	34					
<i>Corudinium incompositum</i> (Drugg 1970b) Stover and Evitt 1978					40.8	39	31.34	45			31	48								29.4	58			
<i>Cousteaudinium aubryae</i> de Verteuil and Norris 1996a					22.1	36	15	36	16.95	38	11.8	38												
<i>Cyclapophysis monmouthensis</i> Benson 1976					67	34	59.5	42	67	34	60?	34												
<i>Cyclonephellium filoretularum</i> (Slimani 1994) Prince et al. 1999					89.51	23	85.91	23																
<i>Cyclonephellium membraniphorum</i> Cookson and Eisenack 1962b					101.06	31	88.52	23																
<i>Damassodinium californicum</i> (Drugg 1967) Fensome et al. 1993b					64.75	34	60.33	42	64.75	50, 53	60?	34												
<i>Deflandrea antarctica</i> Wilson 1967a																								
<i>Deflandrea convexa</i> Wilson 1988																								
<i>Deflandrea cygniformis</i> Pöthe de Baldi 1966																					55?	44		
<i>Deflandrea oebisfeldensis</i> Alberti 1959b					57.8	37	52.85	40			35.8	58								35.8	58	59		
<i>Deflandrea phosphorica</i> Eisenack 1938b					54	37	21.9	34	54?	34	21.9	38								54?	34			
<i>Dinogymnum</i> spp.					91.69	23	65.00	34																
<i>Dinopterygium cladoides</i> Deflandre 1935					106.88	2, 12	72.88	34																
<i>Diphyes colligerum</i> (Deflandre and Cookson 1955) Cookson 1965a					58.88	24	37	40			33.27	48									57	59		
<i>Diphyes fuscoides</i> Islam 1983b					50.24	34	45.16	40																
<i>Distatodinium apenninicum</i> Brinkhuis et al. 1992									22.57	34	21.73	38												
<i>Distatodinium bifidum</i> Brinkhuis et al. 1992					28.57	34			28.5	55	24.26	57												
<i>Dracodinium? cordylus</i> (Williams and Downie 1966b) Costa and Downie 1979					52.5	35	51.5	40																
<i>Dracodinium polium</i> Bujak et al. 1980					52.1	39	51.5	40																
<i>Dracodinium variegatum</i> (Williams and Downie 1966b) Costa and Downie 1979					53	35	51.5	40																
<i>Dracodinium waipawaense</i> (Wilson 1967c) Costa and Downie 1979																					52.75?	59		
<i>Eatonicysta lorenensis</i> (Heilmann-Clausen in Heilmann-Clausen and Costa 1989) Stover and Williams 1995					51.3	34, 47	50.2	40														59		
<i>Eatonicysta pterocoides</i> (O. Wetzel 1933b) Sarjeant 1985b					77.04	34	?																	
<i>Eatonicysta ursulae</i> (Morgenroth 1966a) Stover and Evitt 1978					53.61	34	48.5	40																
<i>Ectosphaeropsis burdigalensis</i> Londeix and Jan du Chêne 1988									23.7	38, 57	13.8	38				26.4	58	24.5	58					
<i>Edwardsiella sexispinosa</i> Versteegh and Zevenboom in Versteegh 1995									27?	34	3.07	38				26.4	58	24.5	58					
<i>Ellipsodinium rugulosum</i> Clarke and Verdier 1967					142.60	11	83.37	23																
<i>Endoscrinium campanula</i> (Gocht 1959) Vozzhennikova 1967							83.90	61																
<i>Enneadocysta partridgei</i> Stover and Williams 1995					36.5	56	29.3	56			30.8	58								30.8	58	49.0		
<i>Enneadocysta pectiniformis</i> (Zerlach 1961) Stover and Williams 1995																								
<i>Epidiosphaeridia spinosa</i> Cookson and Hughes 1964 ex Davey 1969a					100.50	12	93.81	23																
<i>Filipsphaera filifera</i> Bujak 1984					24.62	34	0																	
<i>Florentinia mayii</i> Kirsch 1991					79.01	34	71.86	34																
<i>Galeacysta etrusca</i> Corradini and Biffi 1988									6.6	38	5.6	38												
<i>Gerdicysta conopeum</i> Liengjaren et al. 1980					33.7	45	29.3	45																
<i>Glaphrocysta semitecta</i> (Bujak in Bujak et al. 1980) Lentini and Williams 1981					41.4	39	32	34	33.64	48	31.82	48												
<i>Gramocysta verrucosa</i> (Piascecki 1980) Lund and Lund-Christensen in Daniels et al. 1990					13.05	34	10.9	34																
<i>Habibacysta tectata</i> Head et al. 1989b					14	36	0																	
<i>Hemiplacophora semilunifera</i> Cookson and Eisenack 1965a									36.4?	48	35.2	58	36?	34	35.2	58	41.3	59	35.4	59				

Table T1. Stratigraphic ranges, in millions of years, for selected Late Cretaceous–Cenozoic dinocyst species in the Northern and Southern Hemispheres

Dinocyst species	Northern Hemisphere			
	High latitude			
	FO	Reference	LO	Reference
<i>Achilleodinium biformoides</i> (Eisenack 1954b) Eaton 1976				
<i>Achomospaera alcornu</i> (Eisenack 1954b) Davey and Williams 1966a				
<i>Achomospaera andalusiensis</i> Jan du Chêne 1977				
<i>Adnatospaeridium tutulosum</i> (Cookson and Eisenack 1960) Morgan 1980				
<i>Alisocysta circumtabulata</i> (Drugg 1967) Stover and Evitt 1978				
<i>Alisocysta margarita</i> (Harland 1979a) Harland 1979a				
<i>Alisocysta reticulata</i> Damassa 1979b				
<i>Alisogymnium euclaense</i> (Cookson and Eisenack 1970a) Lentin and Vozzhennikova 1990				
<i>Alterbidinium? distinctum</i> (Wilson 1967a) Lentin and Williams 1985				
<i>Amiculosphaera umbraculum</i> Harland 1979b				
<i>Apectodinium augustum</i> (Harland 1979c) Lentin and Williams 1981				
<i>Apteodinium deflandrei</i> (Clarke and Verdier 1967) Lucas-Clark 1987				
<i>Arachnodinium antarcticum</i> Wilson and Clowes 1982				
<i>Areoligera gippingensis</i> Jolley 1992				
<i>Areoligera semicircularata</i> (Morgenroth 1966b) Stover and Evitt 1978				
<i>Areosphaeridium diktyoplokum</i> (Klumpp 1953) Eaton 1971				
<i>Ataxiodinium choane</i> Reid 1974				
<i>Ataxiodinium confusum</i> Versteegh and Zevenboom in Versteegh 1995				
<i>Barsidinium evangelinae</i> Lentin et al. 1994				
<i>Biconidinium longissimum</i> Islam 1983c				
<i>Callaiosphaeridium asymmetricum</i> (Deflandre and Courteville 1939) Davey and Williams 1966b				
<i>Cannosphaeropsis passio</i> de Verteuil and Norris 1996a				
<i>Cannosphaeropsis utinensis</i> O. Wetzel 1933b				
<i>Carpatella cornuta</i> Grigorovich 1969a				
<i>Carpodinium obliquicostatum</i> Cookson and Hughes 1964				
<i>Cassiculosphaeridia reticulata</i> Davey 1969				
<i>Cerebrocysta bartonensis</i> Bujak in Bujak et al. 1980				
<i>Cerebrocysta poulsenii</i> de Verteuil and Norris 1996a				
<i>Cerodinium diebelii</i> (Alberti 1959b) Lentin and Williams 1987				
<i>Cerodinium wardenense</i> (Williams and Downie 1966c) Lentin and Williams 1987				
<i>Charlesdowniea columna</i> (Michoux 1988) Lentin and Vozzhennikova 1990				
<i>Charlesdowniea crassiramosa</i> (Williams and Downie 1966b) Lentin and Vozzhennikova 1989				
<i>Charlesdowniea edwardsii</i> (Wilson 1967c) Lentin and Vozzhennikova 1989				
<i>Chatangiella verrucosa</i> (Manum 1963) Lentin and Williams 1976				
<i>Chichauadinium vestitum</i> (Brideaux 1971) Bujak and Davies 1983				
<i>Chiropteridium galea</i> (Maier 1959) Sarjeant 1983				
<i>Conosphaeridium striatoconum</i> (Deflandre and Cookson 1955) Cookson and Eisenack 1969				
<i>Cordosphaeridium cantharellus</i> (Brosius 1963) Gocht 1969				
<i>Cordosphaeridium funiculatum</i> Morgenroth 1966a				
<i>Corrudinium harlandii</i> Matsuoka 1983b				
<i>Corrudinium incompositum</i> (Drugg 1970b) Stover and Evitt 1978				
<i>Cousteaudinium aubryae</i> de Verteuil and Norris 1996a				
<i>Cyclapophysis monmouthensis</i> Benson 1976				
<i>Cyclonephelium filoreticulatum</i> (Slimani 1994) Prince et al. 1999				
<i>Cyclonephelium membraniphorum</i> Cookson and Eisenack 1962b				
<i>Damassadinium californicum</i> (Drugg 1967) Fensome et al. 1993b				
<i>Deflandrea antarctica</i> Wilson 1967a				
<i>Deflandrea convexa</i> Wilson 1988				
<i>Deflandrea cygniformis</i> Pöthe de Baldis 1966				
<i>Deflandrea oebisfeldensis</i> Alberti 1959b				
<i>Deflandrea phosphoritica</i> Eisenack 1938b				
<i>Dinogymnium</i> spp.				
<i>Dinopterygium cladoides</i> Deflandre 1935				
<i>Diphyes colligerum</i> (Deflandre and Cookson 1955) Cookson 1965a				
<i>Diphyes ficusoides</i> Islam 1983b				
<i>Distatodinium apenninicum</i> Brinkhuis et al. 1992				
<i>Distatodinium biffii</i> Brinkhuis et al. 1992				
<i>Dracodinium? condylos</i> (Williams and Downie 1966b) Costa and Downie 1979				
<i>Dracodinium politum</i> Bujak et al. 1980				
<i>Dracodinium varielongitudum</i> (Williams and Downie 1966b) Costa and Downie 1979				
<i>Dracodinium waipawaense</i> (Wilson 1967c) Costa and Downie 1979				
<i>Eatonicysta furensis</i> (Heilmann-Clausen in Heilmann-Clausen and Costa 1989) Stover and Williams 1995				
<i>Eatonicysta pterococcoides</i> (O. Wetzel 1933b) Sarjeant 1985b				
<i>Eatonicysta ursulae</i> (Morgenroth 1966a) Stover and Evitt 1978				
<i>Ectosphaeropsis burdigalensis</i> Londeix and Jan du Chêne 1988				

Table T1 (continued).

Dinocyst species	Mid-latitude			
	FO	Reference	LO	Reference
<i>Achilleodinium biformoides</i> (Eisenack 1954b) Eaton 1976	54	37	30.5?	45
<i>Achomospaera alcornu</i> (Eisenack 1954b) Davey and Williams 1966a	57.65	37	13	35
<i>Achomospaera andalousiensis</i> Jan du Chêne 1977	11.3	36	0	
<i>Adnatospaeridium tutulosum</i> (Cookson and Eisenack 1960) Morgan 1980	94.4	12	94.06	12
<i>Alisocysta circumtabulata</i> (Drugg 1967) Stover and Evitt 1978	65	52, 53	58.53	37
<i>Alisocysta margarita</i> (Harland 1979a) Harland 1979a	61.68	35	57.35	37
<i>Alisocysta reticulata</i> Damassa 1979b	65	28	61.37	24
<i>Alisogymnium euclaense</i> (Cookson and Eisenack 1970a) Lentin and Vozzhennikova 1990	87.72	23	65.00	34
<i>Alterbidinium? distinctum</i> (Wilson 1967a) Lentin and Williams 1985				
<i>Amiculospaera umbraculum</i> Harland 1979b	12.5	38	2.65	34
<i>Apectodinium augustum</i> (Harland 1979c) Lentin and Williams 1981	55.6	40, 41	55	40, 41
<i>Apteodinium deflandrei</i> (Clarke and Verdier 1967) Lucas-Clark 1987	98.33	23	68.80	34
<i>Arachnodinium antarcticum</i> Wilson and Clowes 1982				
<i>Areoligera gippingensis</i> Jolley 1992	58	35	57	35
<i>Areoligera semicircularata</i> (Morgenroth 1966b) Stover and Evitt 1978	33.73	45	28.5	45
<i>Areosphaeridium diktyoplokum</i> (Klumpp 1953) Eaton 1971	50.5	56	33.3	40
<i>Ataxiodinium choane</i> Reid 1974	6.45	34	0	34
<i>Ataxiodinium confusum</i> Versteegh and Zevenboom in Versteegh 1995				
<i>Barssidinium evangelinae</i> Lentin et al. 1994	8.6	34	5.32	34
<i>Biconidinium longissimum</i> Islam 1983c	54.31	35	50.71	35
<i>Callaiosphaeridium asymmetricum</i> (Deflandre and Courteville 1939) Davey and Williams 1966b	132.47	19	78.15	17
<i>Cannospaeropsis passio</i> de Verteuil and Norris 1996a	12.8	36	11.3	36
<i>Cannospaeropsis utinensis</i> O. Wetzel 1933b	83.63	23	65.70	29
<i>Carpatella cornuta</i> Grigorovich 1969a	64.75	50	59.95	35
<i>Carpodinium obliquicostatum</i> Cookson and Hughes 1964	103.18	24	93.77	23
<i>Cassiculosphaeridia reticulata</i> Davey 1969			72.69	34
<i>Cerebrocysta bartonensis</i> Bujak in Bujak et al. 1980	41	39	38	39
<i>Cerebrocysta poulsenii</i> de Verteuil and Norris 1996a	18	36	10.9	36
<i>Cerodinium diebelii</i> (Alberti 1959b) Lentin and Williams 1987	77.97	34	59.95	35
<i>Cerodinium wardenense</i> (Williams and Downie 1966c) Lentin and Williams 1987	56	35	53.1	40
<i>Charlesdownia columna</i> (Michoux 1988) Lentin and Vozzhennikova 1990	51.73	40, 34	49.88	40
<i>Charlesdownia crassiramosa</i> (Williams and Downie 1966b) Lentin and Vozzhennikova 1989	53.75	34, 40	52.85	34, 40
<i>Charlesdownia edwardsii</i> (Wilson 1967c) Lentin and Vozzhennikova 1989	51.32	34, 40	47.9	34, 40
<i>Chatangiella verrucosa</i> (Manum 1963) Lentin and Williams 1976	93.50	34	72.50	34
<i>Chichouadinium vestitum</i> (Brideaux 1971) Bujak and Davies 1983	105.00	34	98.90	34
<i>Chiropteridium galea</i> (Maier 1959) Sarjeant 1983	33.5	45	22.36	34
<i>Conosphaeridium striatoconum</i> (Deflandre and Cookson 1955) Cookson and Eisenack 1969			88.56	23
<i>Cordosphaeridium cantharellus</i> (Brosius 1963) Gocht 1969	40.8	39	19.5	34
<i>Cordosphaeridium funiculatum</i> Morgenroth 1966a	51.16	43	35?	34
<i>Corrudinium harlandii</i> Matsuoka 1983b	8?	34		
<i>Corrudinium incompositum</i> (Drugg 1970b) Stover and Evitt 1978	40.8	39	31.34	45
<i>Cousteaudinium aubryae</i> de Verteuil and Norris 1996a	22.1	36	15	36
<i>Cyclapophysis monmouthensis</i> Benson 1976	67	34	59.5	42
<i>Cyclonephelium filoreticulatum</i> (Slimani 1994) Prince et al. 1999	89.51	23	85.91	23
<i>Cyclonephelium membraniphorum</i> Cookson and Eisenack 1962b	101.06	31	88.52	23
<i>Damassadinium californicum</i> (Drugg 1967) Fensome et al. 1993b	64.75	34	60.33	42
<i>Deflandrea antarctica</i> Wilson 1967a				
<i>Deflandrea convexa</i> Wilson 1988				
<i>Deflandrea cygniformis</i> Pöthe de Baldis 1966				
<i>Deflandrea oebisfeldensis</i> Alberti 1959b	57.8	37	52.85	40
<i>Deflandrea phosphorica</i> Eisenack 1938b	54	37	21.9	34
<i>Dinogymnium</i> spp.	91.69	23	65.00	34
<i>Dinopterygium cladoides</i> Deflandre 1935	106.88	2, 12	72.88	34
<i>Diphyes colligerum</i> (Deflandre and Cookson 1955) Cookson 1965a	58.88	24	37	40
<i>Diphyes ficusoides</i> Islam 1983b	50.24	34	45.16	40
<i>Distatodinium apenninicum</i> Brinkhuis et al. 1992				
<i>Distatodinium biffii</i> Brinkhuis et al. 1992	28.5?	34		
<i>Dracodinium? condylos</i> (Williams and Downie 1966b) Costa and Downie 1979	52.5	35	51.5	40
<i>Dracodinium politum</i> Bujak et al. 1980	52.1	39	51.5	40
<i>Dracodinium varielongitudum</i> (Williams and Downie 1966b) Costa and Downie 1979	53	35	51.5	40
<i>Dracodinium waipawaense</i> (Wilson 1967c) Costa and Downie 1979				
<i>Eatonicysta furensis</i> (Heilmann-Clausen in Heilmann-Clausen and Costa 1989) Stover and Williams 1995	51.3	34, 47	50.2	40
<i>Eatonicysta pterococcoides</i> (O. Wetzel 1933b) Sarjeant 1985b	77.04	34	?	
<i>Eatonicysta ursulae</i> (Morgenroth 1966a) Stover and Evitt 1978	53.61	34	48.5	40
<i>Ectosphaeropsis burdigalensis</i> Londeix and Jan du Chêne 1988				

Table T1 (continued).

Dinocyst species	Equatorial			
	Low latitude			
	FO	Reference	LO	Reference
<i>Achilleodinium biformoides</i> (Eisenack 1954b) Eaton 1976	33.7	48	33.5	48
<i>Achomospaera alaicornu</i> (Eisenack 1954b) Davey and Williams 1966a	33.76	48	27?	38
<i>Achomospaera andalousiensis</i> Jan du Chêne 1977	12	38		
<i>Adnatosphaeridium tutulosum</i> (Cookson and Eisenack 1960) Morgan 1980				
<i>Alisocysta circumtabulata</i> (Drugg 1967) Stover and Evitt 1978	65	52, 53		
<i>Alisocysta margarita</i> (Harland 1979a) Harland 1979a				
<i>Alisocysta reticulata</i> Damassa 1979b				
<i>Alisogymnium euclaense</i> (Cookson and Eisenack 1970a) Lentin and Vozzhennikova 1990				
<i>Alterbidinium? distinctum</i> (Wilson 1967a) Lentin and Williams 1985				
<i>Amiculosphaera umbraculum</i> Harland 1979b	12.5	38	2.55	34
<i>Apectodinium augustum</i> (Harland 1979c) Lentin and Williams 1981				
<i>Apteodinium deflandrei</i> (Clarke and Verdier 1967) Lucas-Clark 1987				
<i>Arachnodinium antarcticum</i> Wilson and Clowes 1982				
<i>Areoligera gippingensis</i> Jolley 1992				
<i>Areoligera semicirculata</i> (Morgenroth 1966b) Stover and Evitt 1978	33.5	48	28.3	58
<i>Areosphaeridium diktyoplokum</i> (Klumpp 1953) Eaton 1971			33.3	48
<i>Ataxiodinium choane</i> Reid 1974				
<i>Ataxiodinium confusum</i> Versteegh and Zevenboom in Versteegh 1995	4.95	34	2.55	34
<i>Barsssidinium evangelinae</i> Lentin et al. 1994				
<i>Biconidinium longissimum</i> Islam 1983c				
<i>Callaiosphaeridium asymmetricum</i> (Deflandre and Courteville 1939) Davey and Williams 1966b				
<i>Cannosphaeropsis passio</i> de Verteuil and Norris 1996a	12.25	34	11.27	34
<i>Cannosphaeropsis utinensis</i> O. Wetzel 1933b				
<i>Carpatella cornuta</i> Grigorovich 1969a	64.75	52, 53	60?	34
<i>Carpodinium obliquicostatum</i> Cookson and Hughes 1964				
<i>Cassiculosphaeridia reticulata</i> Davey 1969				
<i>Cerebrocysta bartonensis</i> Bujak in Bujak et al. 1980				
<i>Cerebrocysta poulsenii</i> de Verteuil and Norris 1996a	16.02	38	11.2	38
<i>Cerodinium diebelii</i> (Alberti 1959b) Lentin and Williams 1987			61.2	34
<i>Cerodinium wardenense</i> (Williams and Downie 1966c) Lentin and Williams 1987				
<i>Charlesdowniea columna</i> (Michoux 1988) Lentin and Vozzhennikova 1990	51?	34		
<i>Charlesdowniea crassiramosa</i> (Williams and Downie 1966b) Lentin and Vozzhennikova 1989	54?	34		
<i>Charlesdowniea edwardsii</i> (Wilson 1967c) Lentin and Vozzhennikova 1989				
<i>Chatangiella verrucosa</i> (Manum 1963) Lentin and Williams 1976				
<i>Chichauadinium vestitum</i> (Brideaux 1971) Bujak and Davies 1983				
<i>Chiropteridium galea</i> (Maier 1959) Sarjeant 1983	31	55	23.98	38
<i>Conosphaeridium striatoconum</i> (Deflandre and Cookson 1955) Cookson and Eisenack 1969				
<i>Cordosphaeridium cantharellus</i> (Brosius 1963) Gocht 1969			17.95	38
<i>Cordosphaeridium funiculatum</i> Morgenroth 1966a			35.1	48
<i>Corrudinium harlandii</i> Matsuoka 1983b	4.5	34		
<i>Corrudinium incompositum</i> (Drugg 1970b) Stover and Evitt 1978			31	48
<i>Cousteaudinium aubryae</i> de Verteuil and Norris 1996a	16.95	38	11.8	38
<i>Cyclapophysis monmouthensis</i> Benson 1976	67	34	60?	34
<i>Cyclonephelium filoreticulatum</i> (Slimani 1994) Prince et al. 1999				
<i>Cyclonephelium membraniphorum</i> Cookson and Eisenack 1962b				
<i>Damassadinium californicum</i> (Drugg 1967) Fensome et al. 1993b	64.75	50, 53	60?	34
<i>Deflandrea antarctica</i> Wilson 1967a				
<i>Deflandrea convexa</i> Wilson 1988			35.8	58
<i>Deflandrea cygniformis</i> Pöthe de Baldis 1966				
<i>Deflandrea oebisfeldensis</i> Alberti 1959b				
<i>Deflandrea phosphoritica</i> Eisenack 1938b	54?	34	21.9	38
<i>Dinogymnium</i> spp.				
<i>Dinopterygium cladoides</i> Deflandre 1935				
<i>Diphyes colligerum</i> (Deflandre and Cookson 1955) Cookson 1965a			33.27	48
<i>Diphyes ficusoides</i> Islam 1983b				
<i>Distatodinium apenninicum</i> Brinkhuis et al. 1992	22.57	34	21.73	38
<i>Distatodinium biffii</i> Brinkhuis et al. 1992	28.5	55	24.26	57
<i>Dracodinium? condylus</i> (Williams and Downie 1966b) Costa and Downie 1979				
<i>Dracodinium politum</i> Bujak et al. 1980				
<i>Dracodinium varielongitudum</i> (Williams and Downie 1966b) Costa and Downie 1979				
<i>Dracodinium waipawaense</i> (Wilson 1967c) Costa and Downie 1979				
<i>Eatonicysta furensis</i> (Heilmann-Clausen in Heilmann-Clausen and Costa 1989) Stover and Williams 1995				
<i>Eatonicysta pterococcoides</i> (O. Wetzel 1933b) Sarjeant 1985b				
<i>Eatonicysta ursulae</i> (Morgenroth 1966a) Stover and Evitt 1978				
<i>Ectosphaeropsis burdigalensis</i> Londeix and Jan du Chêne 1988	23.7	38,57	13.8	38

Table T1 (continued).

Dinocyst species	Southern Hemisphere			
	Mid-latitude			
	FO	Reference	LO	Reference
<i>Achilleodinium biformoides</i> (Eisenack 1954b) Eaton 1976				
<i>Achomospaera alvicornu</i> (Eisenack 1954b) Davey and Williams 1966a				
<i>Achomospaera andalusiensis</i> Jan du Chêne 1977				
<i>Adnatosphaeridium tutulosum</i> (Cookson and Eisenack 1960) Morgan 1980				
<i>Alisocysta circumtabulata</i> (Drugg 1967) Stover and Evitt 1978	67?	51		
<i>Alisocysta margarita</i> (Harland 1979a) Harland 1979a				
<i>Alisocysta reticulata</i> Damassa 1979b	67?	34		
<i>Alisogymnium euclaense</i> (Cookson and Eisenack 1970a) Lentin and Vozzhennikova 1990				
<i>Alterbidinium? distinctum</i> (Wilson 1967a) Lentin and Williams 1985	37	54	34	54
<i>Amiculospaera umbraculum</i> Harland 1979b			1.6	58
<i>Apectodinium augustum</i> (Harland 1979c) Lentin and Williams 1981				
<i>Apteodinium deflandrei</i> (Clarke and Verdier 1967) Lucas-Clark 1987				
<i>Arachnodinium antarcticum</i> Wilson and Clowes 1982	54.8	54	37	34
<i>Areoligera gippingensis</i> Jolley 1992				
<i>Areoligera semicirculata</i> (Morgenroth 1966b) Stover and Evitt 1978	29.45	58	28.3	58
<i>Areosphaeridium diktyoplokum</i> (Klumpp 1953) Eaton 1971				
<i>Ataxiodinium choane</i> Reid 1974				
<i>Ataxiodinium confusum</i> Versteegh and Zevenboom in Versteegh 1995				
<i>Barssidinium evangelinae</i> Lentin et al. 1994				
<i>Biconidinium longissimum</i> Islam 1983c				
<i>Callaiosphaeridium asymmetricum</i> (Deflandre and Courteville 1939) Davey and Williams 1966b				
<i>Cannosphaeropsis passio</i> de Verteuil and Norris 1996a				
<i>Cannosphaeropsis utinensis</i> O. Wetzel 1933b				
<i>Carpatella cornuta</i> Grigorovich 1969a				
<i>Carpodinium obliquicostatum</i> Cookson and Hughes 1964				
<i>Cassiculosphaeridia reticulata</i> Davey 1969				
<i>Cerebrocysta bartonensis</i> Bujak in Bujak et al. 1980				
<i>Cerebrocysta poulsenii</i> de Verteuil and Norris 1996a				
<i>Cerodinium diebelii</i> (Alberti 1959b) Lentin and Williams 1987	78.5?	20, 51		
<i>Cerodinium wardenense</i> (Williams and Downie 1966c) Lentin and Williams 1987				
<i>Charlesdowniea columna</i> (Michoux 1988) Lentin and Vozzhennikova 1990				
<i>Charlesdowniea crassiramosa</i> (Williams and Downie 1966b) Lentin and Vozzhennikova 1989				
<i>Charlesdowniea edwardsii</i> (Wilson 1967c) Lentin and Vozzhennikova 1989				
<i>Chatangiella verrucosa</i> (Manum 1963) Lentin and Williams 1976				
<i>Chichauadinium vestitum</i> (Brideaux 1971) Bujak and Davies 1983				
<i>Chiropteridium galea</i> (Maier 1959) Sarjeant 1983				
<i>Conosphaeridium striatoconum</i> (Deflandre and Cookson 1955) Cookson and Eisenack 1969				
<i>Cordosphaeridium cantharellus</i> (Brosius 1963) Gocht 1969				
<i>Cordosphaeridium funiculatum</i> Morgenroth 1966a				
<i>Corrudinium harlandii</i> Matsuoka 1983b	8?	34	2.65?	34
<i>Corrudinium incompositum</i> (Drugg 1970b) Stover and Evitt 1978			29.4	58
<i>Cousteaudinium aubryae</i> de Verteuil and Norris 1996a				
<i>Cyclapophysis monmouthensis</i> Benson 1976				
<i>Cyclonephelium filoreticulatum</i> (Slimani 1994) Prince et al. 1999				
<i>Cyclonephelium membraniphorum</i> Cookson and Eisenack 1962b				
<i>Damassadinium californicum</i> (Drugg 1967) Fensome et al. 1993b				
<i>Deflandrea antarctica</i> Wilson 1967a				
<i>Deflandrea convexa</i> Wilson 1988			35.8	58
<i>Deflandrea cygniformis</i> Pöthe de Baldis 1966				
<i>Deflandrea oebisfeldensis</i> Alberti 1959b				
<i>Deflandrea phosphoritica</i> Eisenack 1938b				
<i>Dinogymnium</i> spp.	87.5?	51	67?	51
<i>Dinopterygium cladoides</i> Deflandre 1935				
<i>Diphyes colligerum</i> (Deflandre and Cookson 1955) Cookson 1965a				
<i>Diphyes ficusoides</i> Islam 1983b				
<i>Distatodinium apenninicum</i> Brinkhuis et al. 1992				
<i>Distatodinium biffii</i> Brinkhuis et al. 1992	27.8	58	26.8	58
<i>Dracodinium? condylos</i> (Williams and Downie 1966b) Costa and Downie 1979				
<i>Dracodinium politum</i> Bujak et al. 1980				
<i>Dracodinium varielongitudum</i> (Williams and Downie 1966b) Costa and Downie 1979				
<i>Dracodinium waipawaense</i> (Wilson 1967c) Costa and Downie 1979				
<i>Eatonicysta furensis</i> (Heilmann-Clausen in Heilmann-Clausen and Costa 1989) Stover and Williams 1995				
<i>Eatonicysta pterococcoides</i> (O. Wetzel 1933b) Sarjeant 1985b				
<i>Eatonicysta ursulae</i> (Morgenroth 1966a) Stover and Evitt 1978				
<i>Ectosphaeropsis burdigalensis</i> Londeix and Jan du Chêne 1988	26.4	58	24.5	58

Table T1 (continued).

Dinocyst species	High latitude			
	FO	Reference	LO	Reference
<i>Achilleodinium biformoides</i> (Eisenack 1954b) Eaton 1976	35.7	59		
<i>Achomosphaera alcornu</i> (Eisenack 1954b) Davey and Williams 1966a				
<i>Achomosphaera andalousiensis</i> Jan du Chêne 1977				
<i>Adnatosphaeridium tutulosum</i> (Cookson and Eisenack 1960) Morgan 1980				
<i>Alisocysta circumtabulata</i> (Drugg 1967) Stover and Evitt 1978	68.5	59	LCO 57	59
<i>Alisocysta margarita</i> (Harland 1979a) Harland 1979a	68.5	59	LCO 53.5	59
<i>Alisocysta reticulata</i> Damassa 1979b			LCO 54.5	59
<i>Alisogymnium euclaense</i> (Cookson and Eisenack 1970a) Lentin and Vozzhennikova 1990				
<i>Alterbidinium? distinctum</i> (Wilson 1967a) Lentin and Williams 1985	FCO 35.7	59	33.5?	59
<i>Amiculosphaera umbraculum</i> Harland 1979b				
<i>Apectodinium augustum</i> (Harland 1979c) Lentin and Williams 1981	51.4	59	38.8	59
<i>Apteodinium deflandrei</i> (Clarke and Verdier 1967) Lucas-Clark 1987				
<i>Arachnodinium antarcticum</i> Wilson and Clowes 1982				
<i>Areoligera gippingensis</i> Jolley 1992				
<i>Areoligera semicircularata</i> (Morgenroth 1966b) Stover and Evitt 1978				
<i>Areosphaeridium diktyoplokum</i> (Klumpp 1953) Eaton 1971				
<i>Ataxiodinium choane</i> Reid 1974				
<i>Ataxiodinium confusum</i> Versteegh and Zevenboom in Versteegh 1995				
<i>Barssidinium evangelinae</i> Lentin et al. 1994				
<i>Biconidinium longissimum</i> Islam 1983c				
<i>Callaiosphaeridium asymmetricum</i> (Deflandre and Courteville 1939) Davey and Williams 1966b				
<i>Cannosphaeropsis passio</i> de Verteuil and Norris 1996a				
<i>Cannosphaeropsis utinensis</i> O. Wetzel 1933b				
<i>Carpatella cornuta</i> Grigorovich 1969a				
<i>Carpodinium obliquicostatum</i> Cookson and Hughes 1964				
<i>Cassiculosphaeridia reticulata</i> Davey 1969				
<i>Cerebrocysta bartonensis</i> Bujak in Bujak et al. 1980	41?	34	38?	34
<i>Cerebrocysta poulsenii</i> de Verteuil and Norris 1996a				
<i>Cerodinium diebelii</i> (Alberti 1959b) Lentin and Williams 1987				
<i>Cerodinium wardenense</i> (Williams and Downie 1966c) Lentin and Williams 1987				
<i>Charlesdowniea columna</i> (Michoux 1988) Lentin and Vozzhennikova 1990	52	59	50	59
<i>Charlesdowniea crassiramosa</i> (Williams and Downie 1966b) Lentin and Vozzhennikova 1989				
<i>Charlesdowniea edwardsii</i> (Wilson 1967c) Lentin and Vozzhennikova 1989	52	59	50	59
<i>Chatangiella verrucosa</i> (Manum 1963) Lentin and Williams 1976				
<i>Chichaouadinium vestitum</i> (Brideaux 1971) Bujak and Davies 1983				
<i>Chiropteridium galea</i> (Maier 1959) Sarjeant 1983				
<i>Conosphaeridium striatoconum</i> (Deflandre and Cookson 1955) Cookson and Eisenack 1969				
<i>Cordosphaeridium cantharellus</i> (Brosius 1963) Gocht 1969				
<i>Cordosphaeridium funiculatum</i> Morgenroth 1966a				
<i>Corrudinium harlandii</i> Matsuoka 1983b				
<i>Corrudinium incompositum</i> (Drugg 1970b) Stover and Evitt 1978				
<i>Coosteaudinium aubryae</i> de Verteuil and Norris 1996a				
<i>Cyclapophysis monmouthensis</i> Benson 1976				
<i>Cyclonephelium filoreticulatum</i> (Slimani 1994) Prince et al. 1999				
<i>Cyclonephelium membraniphorum</i> Cookson and Eisenack 1962b				
<i>Damassadinium californicum</i> (Drugg 1967) Fensome et al. 1993b				
<i>Deflandrea antarctica</i> Wilson 1967a	55?	44	28.5?	44
<i>Deflandrea convexa</i> Wilson 1988	53.5	59	40?	34
<i>Deflandrea cygniformis</i> Pöthe de Baldis 1966	55?	44	28.5?	44
<i>Deflandrea oebisfeldensis</i> Alberti 1959b				
<i>Deflandrea phosphoritica</i> Eisenack 1938b	54?	34		
<i>Dinogymnium</i> spp.				
<i>Dinopterygium cladoides</i> Deflandre 1935				
<i>Diphyes colligerum</i> (Deflandre and Cookson 1955) Cookson 1965a	57	59		
<i>Diphyes ficusoides</i> Islam 1983b				
<i>Distatodinium apenninicum</i> Brinkhuis et al. 1992				
<i>Distatodinium biffii</i> Brinkhuis et al. 1992				
<i>Dracodinium? condylos</i> (Williams and Downie 1966b) Costa and Downie 1979				
<i>Dracodinium politum</i> Bujak et al. 1980				
<i>Dracodinium varielongitudum</i> (Williams and Downie 1966b) Costa and Downie 1979				
<i>Dracodinium waipawaense</i> (Wilson 1967c) Costa and Downie 1979	52.757	59	52	59
<i>Eatonicysta furensis</i> (Heilmann-Clausen in Heilmann-Clausen and Costa 1989) Stover and Williams 1995				
<i>Eatonicysta pterococcoides</i> (O. Wetzel 1933b) Sarjeant 1985b				
<i>Eatonicysta ursulae</i> (Morgenroth 1966a) Stover and Evitt 1978				
<i>Ectosphaeropsis burdigalensis</i> Londeix and Jan du Chêne 1988				

Table T1 (continued).

Dinocyst species	Northern Hemisphere			
	High latitude			
	FO	Reference	LO	Reference
<i>Edwardsiella sexispinosa</i> Versteegh and Zevenboom in Versteegh 1995				
<i>Ellipsodinium rugulosum</i> Clarke and Verdier 1967				
<i>Endoscrinium campanula</i> (Gocht 1959) Vozzhennikova 1967				
<i>Enneadocysta partridgei</i> Stover and Williams 1995				
<i>Enneadocysta pectiniformis</i> (Gerlach 1961) Stover and Williams 1995				
<i>Epelidosphaeridia spinosa</i> Cookson and Hughes 1964 ex Davey 1969a				
<i>Filipsphaera filifera</i> Bujak 1984				
<i>Florentinia mayii</i> Kirsch 1991				
<i>Galeacysta etrusca</i> Corradini and Biffi 1988				
<i>Gerdiocysta conopeum</i> Liengjarern et al. 1980				
<i>Glaphyrocysta semitecta</i> (Bujak in Bujak et al. 1980) Lentin and Williams 1981				
<i>Gramocysta verricula</i> (Piasecki 1980) Lund and Lund-Christensen in Daniels et al. 1990				
<i>Habibacysta tectata</i> Head et al. 1989b				
<i>Hemiplacophora semilunifera</i> Cookson and Eisenack 1965a				
<i>Heteraulacacysta porosa</i> Bujak in Bujak et al. 1980				
<i>Heterosphaeridium difficile</i> (Manum and Cookson 1964) Ioannides 1986				
<i>Homotryblium floripes</i> (Deflandre and Cookson 1955) Stover 1975				
<i>Homotryblium tenuispinosum</i> Davey and Williams 1966b				
<i>Hystrichokolpoma bulbosum</i> (Ehrenberg 1838) Morgenroth 1968				
<i>Hystrichokolpoma cinctum</i> Klumpp 1953				
<i>Hystrichokolpoma pseudoceanicum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Hystrichokolpoma pusillum</i> Biffi and Manum 1988				
<i>Hystrichokolpoma reductum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Hystrichosphaeridium truswelliae</i> Wrenn and Hart 1988				
<i>Hystrichosphaeridium tubiferum</i> (Ehrenberg 1838) Deflandre 1937b				
<i>Hystrichosphaeropsis quasibrata</i> (O. Wetzel 1961) Gocht 1976				
<i>Impagidinium patulum</i> (Wall 1967) Stover and Evitt 1978				
<i>Invertocysta tabulata</i> Edwards 1984				
<i>Isabelidinium viborgense</i> Heilmann-Clausen 1985				
<i>Kleithriasphaeridium loffrense</i> Davey and Verdier 1976				
<i>Kleithriasphaeridium readii</i> (Davey and Williams 1966b) Davey and Verdier 1976				
<i>Labyrinthodinium truncatum</i> Piasecki 1980	21?	9		
<i>Laciniadinium biconiculum</i> McIntyre 1975				
<i>Lentinia serrata</i> Bujak in Bujak et al. 1980				
<i>Leptodinium italicum</i> Biffi and Manum 1988				
<i>Litosphaeridium siphonophorum</i> (Cookson and Eisenack 1958) Davey and Williams 1966b				
<i>Manumiella seelandica</i> (Lange 1969) Bujak and Davies 1983				
<i>Mellitasphaeridium pseudorecurvatum</i> (Morgenroth 1966a) Bujak et al. 1980				
<i>Membranilarnacia? picena</i> Biffi and Manum 1988				
<i>Membranophoridium perforatum</i> Wilson 1988				
<i>Mendicodinium robustum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Nematosphaeropsis downiei</i> Brown 1986				
<i>Octodinium askiniae</i> Wrenn and Hart 1988				
<i>Odontochitina costata</i> Alberti 1961				
<i>Odontochitina diversa</i> Pearce 2000 unpublished thesis name				
<i>Odontochitina operculata</i> (O. Wetzel 1933a) Deflandre and Cookson 1955				
<i>Odontochitina porifera</i> Cookson 1956				
<i>Oligosphaeridium poculum</i> Jain 1977b				
<i>Oligosphaeridium pulcherrimum</i> (Deflandre and Cookson 1955) Davey and Williams 1966b				
<i>Oligosphaeridium</i> spp.				
<i>Operculodinium divergens</i> (Eisenack 1954b) Stover and Evitt 1978				
<i>Operculodinium echigoense</i> Matsuoka 1983b				
<i>Operculodinium? eirkianum</i> Head et al. 1989b				
<i>Ovoidinium verrucosum</i> (Cookson and Hughes 1964) Davey 1970				
<i>Palaeocystodinium bulliforme</i> Ioannides 1986				
<i>Palaeocystodinium striatogranulosum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Palaeohystrichophora infusorioides</i> Deflandre 1935				
<i>Palaeoperidinium pyrophorum</i> (Ehrenberg 1838 ex O. Wetzel 1933a) Sarjeant 1967b				
<i>Palaeotetradinium sillicorum</i> Deflandre 1936b				
<i>Palynodinium grillator</i> Gocht 1970a				
<i>Phthanoperidinium amoenum</i> Drugg and Loeblich Jr. 1967				
<i>Phthanoperidinium distinctum</i> Bujak 1994				
<i>Pyxidiniopsis fairhavenensis</i> de Verteuil and Norris 1996a				
<i>Raetiaedinium truncigerum</i> (Deflandre 1937b) Kirsch 1991				
<i>Raphidodinium fucatum</i> Deflandre 1936b				

Table T1 (continued).

Dinocyst species	Mid-latitude			
	FO	Reference	LO	Reference
<i>Edwardsiella sexispinosa</i> Versteegh and Zevenboom in Versteegh 1995				
<i>Ellipsodinium rugulosum</i> Clarke and Verdier 1967			83.37	23
<i>Endoscrinium campanula</i> (Gocht 1959) Vozzhennikova 1967	142.60	11	83.90	61
<i>Enneadocysta partridgei</i> Stover and Williams 1995				
<i>Enneadocysta pectiniiformis</i> (Gerlach 1961) Stover and Williams 1995	36.5	56	29.3	56
<i>Epelidosphaeridia spinosa</i> Cookson and Hughes 1964 ex Davey 1969a	100.50	12	93.81	23
<i>Filisphaera filifera</i> Bujak 1984	24.62	34	0	
<i>Florentinia mayii</i> Kirsch 1991	79.01	34	71.86	34
<i>Galeacysta etrusca</i> Corradini and Biffi 1988				
<i>Gerdiocysta conopeum</i> Liengjarearn et al. 1980	33.7	45	29.3	45
<i>Glaphyrocysta semitecta</i> (Bujak in Bujak et al. 1980) Lentin and Williams 1981	41.4	39	32	34
<i>Gramocysta verrucula</i> (Piasecki 1980) Lund and Lund-Christensen in Daniels et al. 1990	13.05	34	10.9	34
<i>Habibacysta tectata</i> Head et al. 1989b	14	36	0	
<i>Hemiplacophora semilunifera</i> Cookson and Eisenack 1965a				
<i>Heteraulacacysta porosa</i> Bujak in Bujak et al. 1980	41	39	36.4	40
<i>Heterosphaeridium difficile</i> (Manum and Cookson 1964) Ioannides 1986	92.15	23	86.78	61
<i>Homotryblium floripes</i> (Deflandre and Cookson 1955) Stover 1975				
<i>Homotryblium tenuispinosum</i> Davey and Williams 1966b	56	37	14.5	34
<i>Hystrichokolpoma bulbosum</i> (Ehrenberg 1838) Morgenroth 1968	67	34	61.58	34
<i>Hystrichokolpoma cinctum</i> Klumpp 1953	53.51	35	17	35
<i>Hystrichokolpoma pseudoceanicum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Hystrichokolpoma pusillum</i> Biffi and Manum 1988				
<i>Hystrichokolpoma reductum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Hystrichosphaeridium truswelliae</i> Wrenn and Hart 1988				
<i>Hystrichosphaeridium tubiferum</i> (Ehrenberg 1838) Deflandre 1937b	119.02	31	46.33	40
<i>Hystrichosphaeropsis quasicrobrata</i> (O. Wetzel 1961) Gocht 1976	82.33	23	?	
<i>Impagidinium patulum</i> (Wall 1967) Stover and Evitt 1978	16?	34	0	
<i>Invertocysta tabulata</i> Edwards 1984	23?	34	2.65	34
<i>Isabelidium viborgense</i> Heilmann-Clausen 1985	61?	42	58.79	41
<i>Kleithriasphaeridium loffrense</i> Davey and Verdier 1976	112.18	12	76.34	34
<i>Kleithriasphaeridium readii</i> (Davey and Williams 1966b) Davey and Verdier 1976	100.27	34	85.8	34
<i>Labyrinthodinium truncatum</i> Piasecki 1980	16.5	36	7.85	36
<i>Laciniadinium biconiculum</i> McIntyre 1975	77.56	34	?	
<i>Lentinia serrata</i> Bujak in Bujak et al. 1980	40	39	33.5	34
<i>Leptodinium italicum</i> Biffi and Manum 1988				
<i>Litosphaeridium siphonophorum</i> (Cookson and Eisenack 1958) Davey and Williams 1966b	101.06	24, 31	93.81	23
<i>Manumiella seelandica</i> (Lange 1969) Bujak and Davies 1983	67.1?	34	60.9?	34
<i>Melitasphaeridium pseudorecurvatum</i> (Morgenroth 1966a) Bujak et al. 1980	54.2	35	33?	35
<i>Membranilarnacia? picena</i> Biffi and Manum 1988				
<i>Membranophoridium perforatum</i> Wilson 1988				
<i>Mendicodinium robustum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Nematosphaeropsis downiei</i> Brown 1986				
<i>Octodinium askiniae</i> Wrenn and Hart 1988				
<i>Odontochitina costata</i> Alberti 1961	99.65	12	70.43	12
<i>Odontochitina diversa</i> Pearce 2000 unpublished thesis name	88.96?	23	69.42?	23
<i>Odontochitina operculata</i> (O. Wetzel 1933a) Deflandre and Cookson 1955	126.95	12	70.43	12
<i>Odontochitina porifera</i> Cookson 1956	84.21	23	71.29	34
<i>Oligosphaeridium poculum</i> Jain 1977b	?		91.88	23
<i>Oligosphaeridium pulcherrimum</i> (Deflandre and Cookson 1955) Davey and Williams 1966b	129.17	6	63?	34
<i>Oligosphaeridium</i> spp.	152.1	12	48.5	34, 40
<i>Operculodinium divergens</i> (Eisenack 1954b) Stover and Evitt 1978	41.3	35	31.97	35
<i>Operculodinium echigoense</i> Matsuoka 1983b				
<i>Operculodinium? eirikianum</i> Head et al. 1989b	8.3	36	2.55	36
<i>Ovoidinium verrucosum</i> (Cookson and Hughes 1964) Davey 1970	100	31	95.84	34
<i>Palaeocystodinium bulliforme</i> Ioannides 1986	61.6	34	57.9	34
<i>Palaeocystodinium striatogranulosum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Palaeohystrichophora infusorioides</i> Deflandre 1935	99.85	3	69.42	34
<i>Palaeoperidinium pyrophorum</i> (Ehrenberg 1838 ex O. Wetzel 1933a) Sarjeant 1967b	73.7	34	58.04	41
<i>Palaeotetradinium sillicorum</i> Deflandre 1936b	81.54?	23	73.28	34
<i>Palynodinium grallator</i> Gocht 1970a	66.77	12	64.75	50
<i>Phthanoperidinium amoenum</i> Drugg and Loeblich Jr. 1967	34	35	29	35
<i>Phthanoperidinium distinctum</i> Bujak 1994	44.6	34	42	40
<i>Pyxidinospis fairhavenensis</i> de Verteuil and Norris 1996a	21.9	36	15.2	36
<i>Raetiaedinium truncigerum</i> (Deflandre 1937b) Kirsch 1991	89.87	23	75.35	34
<i>Raphidodinium fucatum</i> Deflandre 1936b	87.07	23	72.39	34

Table T1 (continued).

Dinocyst species	Equatorial			
	Low latitude			
	FO	Reference	LO	Reference
<i>Edwardsiella sexispinosa</i> Versteegh and Zevenboom in Versteegh 1995	27?	34	3.07	38
<i>Ellipsoidinium rugulosum</i> Clarke and Verdier 1967				
<i>Endoscrinium campanula</i> (Gocht 1959) Vozzhennikova 1967				
<i>Enneadocysta partridgei</i> Stover and Williams 1995			30.8	58
<i>Enneadocysta pectiniformis</i> (Gerlach 1961) Stover and Williams 1995				
<i>Epelidosphaeridia spinosa</i> Cookson and Hughes 1964 ex Davey 1969a				
<i>Filispheera filifera</i> Bujak 1984				
<i>Florentinia mayii</i> Kirsch 1991				
<i>Galeacysta etrusca</i> Corradini and Biffi 1988	6.6	38	5.6	38
<i>Gerdiocysta conopeum</i> Liengjareern et al. 1980				
<i>Glaphyrocysta semitecta</i> (Bujak in Bujak et al. 1980) Lentin and Williams 1981	33.64	48	31.82	48
<i>Gramocysta verricula</i> (Piasecki 1980) Lund and Lund-Christensen in Daniels et al. 1990				
<i>Habibacysta tectata</i> Head et al. 1989b				
<i>Hemiplacophora semilunifera</i> Cookson and Eisenack 1965a	36.47	48	35.2	58
<i>Heteraulacacysta porosa</i> Bujak in Bujak et al. 1980				
<i>Heterosphaeridium difficile</i> (Manum and Cookson 1964) Ioannides 1986				
<i>Homotryblium floripes</i> (Deflandre and Cookson 1955) Stover 1975	48.5	34	5.9	38
<i>Homotryblium tenuispinosum</i> Davey and Williams 1966b	57?	34	5.9	38
<i>Hystrichokolpoma bulbosum</i> (Ehrenberg 1838) Morgenroth 1968				
<i>Hystrichokolpoma cinctum</i> Klumpp 1953				
<i>Hystrichokolpoma pseudoceanicum</i> Zevenboom and Santarelli in Zevenboom 1995	32.5	55	24.2	57
<i>Hystrichokolpoma pusillum</i> Biffi and Manum 1988	32.43	55	23.78	57
<i>Hystrichokolpoma reductum</i> Zevenboom and Santarelli in Zevenboom 1995	18.24	38	17.95	38
<i>Hystrichosphaeridium truswelliae</i> Wrenn and Hart 1988				
<i>Hystrichosphaeridium tubiferum</i> (Ehrenberg 1838) Deflandre 1937b				
<i>Hystrichosphaeropsis quasicibrata</i> (O. Wetzel 1961) Gocht 1976				
<i>Impagidinium patulum</i> (Wall 1967) Stover and Evitt 1978	16.28	38	0	
<i>Invertocysta tabulata</i> Edwards 1984	27?	34	2.55	34
<i>Isabelidinium viborgense</i> Heilmann-Clausen 1985				
<i>Kleithriasphaeridium loffreense</i> Davey and Verdier 1976				
<i>Kleithriasphaeridium readii</i> (Davey and Williams 1966b) Davey and Verdier 1976				
<i>Labyrinthinium truncatum</i> Piasecki 1980	15.58	38	9	38
<i>Laciniadinium biconiculum</i> McIntyre 1975				
<i>Lentinia serrata</i> Bujak in Bujak et al. 1980	33.64	48	31	34
<i>Leptodinium italicum</i> Biffi and Manum 1988	31.82	34	20	34
<i>Litosphaeridium siphonophorum</i> (Cookson and Eisenack 1958) Davey and Williams 1966b				
<i>Manumiella seelandica</i> (Lange 1969) Bujak and Davies 1983	66.8	34	60.95	34
<i>Mellitasphaeridium pseudorecurvatum</i> (Morgenroth 1966a) Bujak et al. 1980	50.24	34	35	48
<i>Membranilarnacia? picena</i> Biffi and Manum 1988	21.7	38	18.23	38
<i>Membranophoridium perforatum</i> Wilson 1988				
<i>Mendicodinium robustum</i> Zevenboom and Santarelli in Zevenboom 1995	13.25	38	8.25	38
<i>Nematosphaeropsis downiei</i> Brown 1986	21.15	38	11	38
<i>Octodinium askiniae</i> Wrenn and Hart 1988				
<i>Odontochitina costata</i> Alberti 1961				
<i>Odontochitina diversa</i> Pearce 2000 unpublished thesis name				
<i>Odontochitina operculata</i> (O. Wetzel 1933a) Deflandre and Cookson 1955				
<i>Odontochitina porifera</i> Cookson 1956				
<i>Oligosphaeridium poculum</i> Jain 1977b				
<i>Oligosphaeridium pulcherrimum</i> (Deflandre and Cookson 1955) Davey and Williams 1966b				
<i>Oligosphaeridium</i> spp.				
<i>Operculodinium divergens</i> (Eisenack 1954b) Stover and Evitt 1978			25?	34
<i>Operculodinium echigoense</i> Matsuoka 1983b				
<i>Operculodinium? eirikianum</i> Head et al. 1989b	13.9	38	2.65	34
<i>Ovoidinium verrucosum</i> (Cookson and Hughes 1964) Davey 1970				
<i>Palaeocystodinium bulliforme</i> Ioannides 1986				
<i>Palaeocystodinium striatogranulosum</i> Zevenboom and Santarelli in Zevenboom 1995	21.9	38	10.5	38
<i>Palaeohystrichophora infusorioides</i> Deflandre 1935				
<i>Palaeoperidinium pyrophorum</i> (Ehrenberg 1838 ex O. Wetzel 1933a) Sarjeant 1967b				
<i>Palaeotetradinium sillicorum</i> Deflandre 1936b				
<i>Palynodinium grillator</i> Gocht 1970a	65	50	64.75	50
<i>Phthanoperidinium amoenum</i> Drugg and Loeblich Jr. 1967				
<i>Phthanoperidinium distinctum</i> Bujak 1994				
<i>Pyxidionopsis fairhavenensis</i> de Verteuil and Norris 1996a				
<i>Raetiaedinium truncigerum</i> (Deflandre 1937b) Kirsch 1991				
<i>Raphidodinium fucatum</i> Deflandre 1936b				

Table T1 (continued).

Dinocyst species	Southern Hemisphere			
	Mid-latitude			
	FO	Reference	LO	Reference
<i>Edwardsiella sexispinosa</i> Versteegh and Zevenboom in Versteegh 1995	26.4	58	24.5	58
<i>Ellipsodinium rugulosum</i> Clarke and Verdier 1967				
<i>Endoscrinium campanula</i> (Gocht 1959) Vozzhennikova 1967				
<i>Enneadocysta partridgei</i> Stover and Williams 1995			30.8	58
<i>Enneadocysta pectiniformis</i> (Gerlach 1961) Stover and Williams 1995				
<i>Epelidosphaeridia spinosa</i> Cookson and Hughes 1964 ex Davey 1969a				
<i>Filispheera filifera</i> Bujak 1984				
<i>Florentinia mayii</i> Kirsch 1991				
<i>Galeacysta etrusca</i> Corradini and Biffi 1988				
<i>Gerdiocysta conopeum</i> Liengjareern et al. 1980				
<i>Glaphyrocysta semitecta</i> (Bujak in Bujak et al. 1980) Lentin and Williams 1981				
<i>Gramocysta verrucula</i> (Piasecki 1980) Lund and Lund-Christensen in Daniels et al. 1990				
<i>Habibacysta tectata</i> Head et al. 1989b				
<i>Hemiplacophora semilunifera</i> Cookson and Eisenack 1965a	36?	34	35.2	58
<i>Heteraulacacysta porosa</i> Bujak in Bujak et al. 1980				
<i>Heterosphaeridium difficile</i> (Manum and Cookson 1964) Ioannides 1986				
<i>Homotryblium floripes</i> (Deflandre and Cookson 1955) Stover 1975	48?	34		
<i>Homotryblium tenuispinosum</i> Davey and Williams 1966b				
<i>Hystrichokolpoma bulbosum</i> (Ehrenberg 1838) Morgenroth 1968				
<i>Hystrichokolpoma cinctum</i> Klumpp 1953				
<i>Hystrichokolpoma pseudoceanicum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Hystrichokolpoma pusillum</i> Biffi and Manum 1988	28.8	58	28.2	58
<i>Hystrichokolpoma reductum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Hystrichosphaeridium truswelliae</i> Wrenn and Hart 1988				
<i>Hystrichosphaeridium tubiferum</i> (Ehrenberg 1838) Deflandre 1937b				
<i>Hystrichosphaeropsis quasibrata</i> (O. Wetzel 1961) Gocht 1976				
<i>Impagidinium patulum</i> (Wall 1967) Stover and Evitt 1978				
<i>Invertocysta tabulata</i> Edwards 1984			2.55	34
<i>Isabelidinium viborgense</i> Heilmann-Clausen 1985				
<i>Kleithriasphaeridium loffrense</i> Davey and Verdier 1976				
<i>Kleithriasphaeridium readii</i> (Davey and Williams 1966b) Davey and Verdier 1976				
<i>Labyrinthodinium truncatum</i> Piasecki 1980				
<i>Laciniadinium biconiculum</i> McIntyre 1975				
<i>Lentinia serrata</i> Bujak in Bujak et al. 1980				
<i>Leptodinium italicum</i> Biffi and Manum 1988				
<i>Litosphaeridium siphonophorum</i> (Cookson and Eisenack 1958) Davey and Williams 1966b	100?	51	95?	51
<i>Manumiella seelandica</i> (Lange 1969) Bujak and Davies 1983	71.29	20		
<i>Mellitasphaeridium pseudorecurvatum</i> (Morgenroth 1966a) Bujak et al. 1980				
<i>Membranilarnacia? picena</i> Biffi and Manum 1988				
<i>Membranophoridium perforatum</i> Wilson 1988				
<i>Mendicodinium robustum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Nematosphaeropsis downiei</i> Brown 1986				
<i>Octodinium askiniae</i> Wrenn and Hart 1988				
<i>Odontochitina costata</i> Alberti 1961				
<i>Odontochitina diversa</i> Pearce 2000 unpublished thesis name				
<i>Odontochitina operculata</i> (O. Wetzel 1933a) Deflandre and Cookson 1955	84?	20	71?	20
<i>Odontochitina porifera</i> Cookson 1956	85?	20, 51	70.5?	20
<i>Oligosphaeridium poculum</i> Jain 1977b				
<i>Oligosphaeridium pulcherrimum</i> (Deflandre and Cookson 1955) Davey and Williams 1966b				
<i>Oligosphaeridium</i> spp.				
<i>Operculodinium divergens</i> (Eisenack 1954b) Stover and Evitt 1978				
<i>Operculodinium echigoense</i> Matsuoka 1983b				
<i>Operculodinium? eirikianum</i> Head et al. 1989b	15	46	0	46
<i>Ovoidinium verrucosum</i> (Cookson and Hughes 1964) Davey 1970				
<i>Palaeocystodinium bulliforme</i> Ioannides 1986				
<i>Palaeocystodinium striatogranulosum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Palaeohystrichophora infusorioides</i> Deflandre 1935	100?	51	71?	51
<i>Palaeoperidinium pyrophorum</i> (Ehrenberg 1838 ex O. Wetzel 1933a) Sarjeant 1967b				
<i>Palaeotetradinium sillicorum</i> Deflandre 1936b				
<i>Palynodinium grallator</i> Gocht 1970a				
<i>Phthanoperidinium amoenum</i> Drugg and Loeblich Jr. 1967				
<i>Phthanoperidinium distinctum</i> Bujak 1994				
<i>Pyxidiniopsis fairhavenensis</i> de Verteuil and Norris 1996a				
<i>Raetiaedinium truncigerum</i> (Deflandre 1937b) Kirsch 1991				
<i>Raphidodinium fucatum</i> Deflandre 1936b				

Table T1 (continued).

Dinocyst species	High latitude			
	FO	Reference	LO	Reference
<i>Edwardsiella sexispinosa</i> Versteegh and Zevenboom in Versteegh 1995				
<i>Ellipsodinium rugulosum</i> Clarke and Verdier 1967				
<i>Endoscrinium campanula</i> (Gocht 1959) Vozzhennikova 1967				
<i>Enneadocysta partridgei</i> Stover and Williams 1995	49.0	59	31?	54
<i>Enneadocysta pectiniiformis</i> (Gerlach 1961) Stover and Williams 1995				
<i>Epelidosphaeridia spinosa</i> Cookson and Hughes 1964 ex Davey 1969a				
<i>Filisphaera filifera</i> Bujak 1984				
<i>Florentinia mayii</i> Kirsch 1991				
<i>Galeacysta etrusca</i> Corradini and Biffi 1988				
<i>Gerdiocysta conopeum</i> Liengjarern et al. 1980				
<i>Glaphyrocysta semitecta</i> (Bujak in Bujak et al. 1980) Lentin and Williams 1981				
<i>Gramocysta verrucula</i> (Piasecki 1980) Lund and Lund-Christensen in Daniels et al. 1990				
<i>Habibacysta tectata</i> Head et al. 1989b				
<i>Hemiplacophora semilunifera</i> Cookson and Eisenack 1965a	41.3	59	35.4	59
<i>Heteraulacacysta porosa</i> Bujak in Bujak et al. 1980				
<i>Heterosphaeridium difficile</i> (Manum and Cookson 1964) Ioannides 1986				
<i>Homotryblium floripes</i> (Deflandre and Cookson 1955) Stover 1975				
<i>Homotryblium tenuispinosum</i> Davey and Williams 1966b				
<i>Hystrichokolpoma bulbosum</i> (Ehrenberg 1838) Morgenroth 1968				
<i>Hystrichokolpoma cinctum</i> Klumpp 1953				
<i>Hystrichokolpoma pseudoceanicum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Hystrichokolpoma pusillum</i> Biffi and Manum 1988				
<i>Hystrichokolpoma reductum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Hystrichosphaeridium truswelliae</i> Wrenn and Hart 1988	57	59	38.8	59
<i>Hystrichosphaeridium tubiferum</i> (Ehrenberg 1838) Deflandre 1937b				
<i>Hystrichosphaeropsis quasibrata</i> (O. Wetzel 1961) Gocht 1976				
<i>Impagidinium patulum</i> (Wall 1967) Stover and Evitt 1978				
<i>Invertocysta tabulata</i> Edwards 1984				
<i>Isabelidium viborgense</i> Heilmann-Clausen 1985				
<i>Kleithriasphaeridium loffrense</i> Davey and Verdier 1976				
<i>Kleithriasphaeridium readii</i> (Davey and Williams 1966b) Davey and Verdier 1976				
<i>Labyrinthodinium truncatum</i> Piasecki 1980				
<i>Laciniadinium biconiculum</i> McIntyre 1975				
<i>Lentinia serrata</i> Bujak in Bujak et al. 1980				
<i>Leptodinium italicum</i> Biffi and Manum 1988				
<i>Litosphaeridium siphonophorum</i> (Cookson and Eisenack 1958) Davey and Williams 1966b	67.5	34	60	34
<i>Manumiella seelandica</i> (Lange 1969) Bujak and Davies 1983	53.5	59	51.4	59
<i>Melittasphaeridium pseudorecurvatum</i> (Morgenroth 1966a) Bujak et al. 1980				
<i>Membranilarnacia? picena</i> Biffi and Manum 1988	52.4	59	48.5	59
<i>Membranophoridium perforatum</i> Wilson 1988				
<i>Mendicodinium robustum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Nematosphaeropsis downiei</i> Brown 1986				
<i>Octodinium askiniae</i> Wrenn and Hart 1988	53.5	59	35.5?	59
<i>Odontochitina costata</i> Alberti 1961				
<i>Odontochitina diversa</i> Pearce 2000 unpublished thesis name				
<i>Odontochitina operculata</i> (O. Wetzel 1933a) Deflandre and Cookson 1955			68.5	59
<i>Odontochitina porifera</i> Cookson 1956				
<i>Oligosphaeridium poculum</i> Jain 1977b				
<i>Oligosphaeridium pulcherrimum</i> (Deflandre and Cookson 1955) Davey and Williams 1966b			63?	34
<i>Oligosphaeridium</i> spp.			57	59
<i>Operculodinium divergens</i> (Eisenack 1954b) Stover and Evitt 1978				
<i>Operculodinium echigoense</i> Matsuoka 1983b				
<i>Operculodinium? eirikianum</i> Head et al. 1989b				
<i>Ovoidinium verrucosum</i> (Cookson and Hughes 1964) Davey 1970				
<i>Palaeocystodinium bulliforme</i> Ioannides 1986				
<i>Palaeocystodinium striatogranulosum</i> Zevenboom and Santarelli in Zevenboom 1995				
<i>Palaeohystrichophora infusorioides</i> Deflandre 1935				
<i>Palaeoperidinium pyrophorum</i> (Ehrenberg 1838 ex O. Wetzel 1933a) Sarjeant 1967b			58?	34
<i>Palaeotetradinium sillicorum</i> Deflandre 1936b				
<i>Palynodinium grallator</i> Gocht 1970a	65	34	64.75	34
<i>Phthanoperidinium amoenum</i> Drugg and Loeblich Jr. 1967				
<i>Phthanoperidinium distinctum</i> Bujak 1994				
<i>Pyxidinospis fairhavenensis</i> de Verteuil and Norris 1996a	21?	34	15?	34
<i>Raetiaedinium truncigerum</i> (Deflandre 1937b) Kirsch 1991				
<i>Raphidodinium fucatum</i> Deflandre 1936b				

Table T1 (continued).

Dinocyst species	Northern Hemisphere			
	High latitude			
	FO	Reference	LO	Reference
<i>Renidinium rigidum</i> Prince et al. 1999				
<i>Reticulosphaera actinocoronata</i> (Benedek 1972) Bujak and Matsuoka 1986				
<i>Rhombodinium draco</i> Gocht 1955				
<i>Rhombodinium perforatum</i> (Jan du Chêne and Châteauneuf 1975) Lentin and Williams 1977b				
<i>Rhombodinium porosum</i> Bujak 1979				
<i>Saturnodinium pansum</i> (Stover 1977) Brinkhuis et al. 1992				
<i>Saturnodinium perforatum</i> Brinkhuis et al. 1992				
<i>Schematophora speciosa</i> Deflandre and Cookson 1955				
<i>Selenopemphix armageddonensis</i> de Verteuil and Norris 1992				
<i>Selenopemphix armata</i> Bujak in Bujak et al. 1980				
<i>Selenopemphix dionaeacysta</i> Head et al. 1989b				
<i>Senoniasphaera inornata</i> (Drugg 1970b) Stover and Evitt 1978				
<i>Senoniasphaera protrusa</i> Clarke and Verdier 1967				
<i>Senoniasphaera rotundata</i> Clarke and Verdier 1967				
<i>Senoniasphaera rotundata</i> subsp. <i>alveolata</i> Pearce et al. 2003				
<i>Spinidinium echinoideum</i> (Cookson and Eisenack 1960a) Lentin and Williams 1976				
<i>Spinidinium macmurdoense</i> (Wilson 1967a) Lentin and Williams 1976				
<i>Spiniferites porosus</i> (Manum and Cookson 1964) Harland 1973				
<i>Spiniferites ramosus</i> subsp. <i>meandriformis</i> (Corradini 1973) Lentin and Williams 1975				
<i>Spiniferites? velatus</i> (Clarke and Verdier 1967) Stover and Evitt 1978				
<i>Spongodinium delitiense</i> (Ehrenberg 1838) Deflandre 1936b				
<i>Stephodinium coronatum</i> Deflandre 1936a				
<i>Stoveracysta kakanuiensis</i> Clowes 1985				
<i>Stoveracysta ornata</i> (Cookson and Eisenack 1965a) Clowes 1985				
<i>Sumatradinium druggii</i> Lentin et al. 1994				
<i>Sumatradinium soucouyantiae</i> de Verteuil and Norris 1992				
<i>Surculosphaeridium? longifurcatum</i> (Firtion 1952) Davey et al. 1966				
<i>Thalassiphora delicata</i> Williams and Downie 1966c				
<i>Thalassiphora spinosa?</i> (Clarke and Verdier 1967) Foucher 1975				
<i>Triblastula utinensis</i> O. Wetzel 1933b				
<i>Trichodinium castanea</i> Deflandre 1935 ex Clarke and Verdier 1967				
<i>Trigonopyxidina ginella</i> (Cookson and Eisenack 1960a) Downie and Sarjeant 1965				
<i>Trinovantedinium applanatum</i> (Bradford 1977) Bujak and Davies 1983				
<i>Trinovantedinium glorianum</i> (Head et al. 1989b) de Verteuil and Norris 1992				
<i>Trithyrodinium evittii</i> Drugg 1967	65	34		
<i>Trithyrodinium suspectum</i> (Manum and Cookson 1964) Davey 1969b				
<i>Unipontidinium aquaeductum</i> (Piasecki 1980) Wrenn 1988				
<i>Wetziella gochtii</i> Costa and Downie 1976				
<i>Wetziella meckelfeldensis</i> Gocht 1969				
<i>Wilsonidium echinosuturatum</i> (Wilson 1967c) Lentin and Williams 1976				
<i>Xenascus ceratioides</i> (Deflandre 1937b) Lentin and Williams 1973				
<i>Xiphophoridium alatum</i> (Cookson and Eisenack 1962b) Sarjeant 1966b				

Notes: FO = first occurrence, LO = last occurrence, LCO = last common occurrence. References are listed in Tables T2, p. 44, and T3, p. 45.

Table T1 (continued).

Dinocyst species	Mid-latitude			
	FO	Reference	LO	Reference
<i>Renidinium rigidum</i> Prince et al. 1999	85.61	23	85.00	23
<i>Reticulosphaera actinocoronata</i> (Benedek 1972) Bujak and Matsuoka 1986	35.1	34	4.18	34
<i>Rhombodinium draco</i> Gocht 1955	40.5	35	30.5	35
<i>Rhombodinium perforatum</i> (Jan du Chêne and Châteauneuf 1975) Lentin and Williams 1977b	37	39	33.4?	34
<i>Rhombodinium porosum</i> Bujak 1979	40	39	33?	34
<i>Saturnodinium pansum</i> (Stover 1977) Brinkhuis et al. 1992	29.4	34	24.5	34
<i>Saturnodinium perforatum</i> Brinkhuis et al. 1992				
<i>Schematophora speciosa</i> Deflandre and Cookson 1955				
<i>Selenopemphix armageddonensis</i> de Verteuil and Norris 1992	7.45	36		
<i>Selenopemphix armata</i> Bujak in Bujak et al. 1980	41.8	39	25.2	34
<i>Selenopemphix dionaeacysta</i> Head et al. 1989b	17.22	34	1.92	34
<i>Senoniasphaera inornata</i> (Drugg 1970b) Stover and Evitt 1978	64.95	50	62.6	35
<i>Senoniasphaera protrusa</i> Clarke and Verdier 1967	85.49	12	81.49	23
<i>Senoniasphaera rotundata</i> Clarke and Verdier 1967	92.13	23	73.17	34
<i>Senoniasphaera rotundata</i> subsp. <i>alveolata</i> Pearce et al. 2003	93.07	23	88.3	60
<i>Spinidinium echinoideum</i> (Cookson and Eisenack 1960a) Lentin and Williams 1976	87.11	23	72.49	59
<i>Spinidinium macmurdoense</i> (Wilson 1967a) Lentin and Williams 1976				
<i>Spiniferites porosus</i> (Manum and Cookson 1964) Harland 1973			85.14	23
<i>Spiniferites ramosus</i> subsp. <i>meandriiformis</i> (Corradini 1973) Lentin and Williams 1975	86.05	23	74.07	34
<i>Spiniferites? velatus</i> (Clarke and Verdier 1967) Stover and Evitt 1978	83.98	23	71.86	34
<i>Spongodinium delitiense</i> (Ehrenberg 1838) Deflandre 1936b	82.57	23	63.72	35
<i>Stephodinium coronatum</i> Deflandre 1936a	112.18	12	87.81	61
<i>Stoveracysta kakanuiensis</i> Clowes 1985				
<i>Stoveracysta ornata</i> (Cookson and Eisenack 1965a) Clowes 1985				
<i>Sumatradinium druggii</i> Lentin et al. 1994	19	36	2.55	36
<i>Sumatradinium soucouyantiae</i> de Verteuil and Norris 1992	22.15	34	8.4	36
<i>Surculosphaeridium? longifurcatum</i> (Firtion 1952) Davey et al. 1966	111.16	8	81.68	23
<i>Thalassiphora delicata</i> Williams and Downie 1966c	61	43	39	39
<i>Thalassiphora spinosa?</i> (Clarke and Verdier 1967) Foucher 1975	82.77	23	76.89	34
<i>Triblastula utinensis</i> O. Wetzel 1933b	70.36	12	68.00	28
<i>Trichodinium castanea</i> Deflandre 1935 ex Clarke and Verdier 1967	138.60	18	70.43	12
<i>Trigonopyxidia ginella</i> (Cookson and Eisenack 1960a) Downie and Sarjeant 1965	89.10	23	72.34	34
<i>Trinovantedinium applanatum</i> (Bradford 1977) Bujak and Davies 1983	23.8	34	0	
<i>Trinovantedinium glorianum</i> (Head et al. 1989b) de Verteuil and Norris 1992	11.43	34	1.97	34
<i>Trithyrodinium evittii</i> Drugg 1967	65	34	60?	34
<i>Trithyrodinium suspectum</i> (Manum and Cookson 1964) Davey 1969b	94.00	34	71.18?	34
<i>Unipontidinium aquaeductum</i> (Piasecki 1980) Wrenn 1988	15	36	13.2	36
<i>Wetzeliella gochtii</i> Costa and Downie 1976	32.8	34	26.6	34
<i>Wetzeliella meckelfeldensis</i> Gocht 1969	53.8	34	49.4	40
<i>Wilsonidium echinosuturatum</i> (Wilson 1967c) Lentin and Williams 1976				
<i>Xenascus ceratioides</i> (Deflandre 1937b) Lentin and Williams 1973	112.18	31	72.34	34
<i>Xiphophoridium alatum</i> (Cookson and Eisenack 1962b) Sarjeant 1966b	98.02?	23	82.47	61

Table T1 (continued).

Dinocyst species	Equatorial			
	Low latitude			
	FO	Reference	LO	Reference
<i>Renidinium rigidum</i> Prince et al. 1999				
<i>Reticulosphaera actinocoronata</i> (Benedek 1972) Bujak and Matsuoka 1986	35.3	58	5.2	38
<i>Rhombodinium draco</i> Gocht 1955				
<i>Rhombodinium perforatum</i> (Jan du Chêne and Châteauneuf 1975) Lentin and Williams 1977b				
<i>Rhombodinium porosum</i> Bujak 1979	37	34	33.7	34
<i>Saturnodinium pansum</i> (Stover 1977) Brinkhuis et al. 1992				
<i>Saturnodinium perforatum</i> Brinkhuis et al. 1992	25.25	57	23.2	57
<i>Schematophora speciosa</i> Deflandre and Cookson 1955	36	58	35.35	58
<i>Selenopemphix armageddonensis</i> de Verteuil and Norris 1992	9	38	5.32	38
<i>Selenopemphix armata</i> Bujak in Bujak et al. 1980				
<i>Selenopemphix dionaeacysta</i> Head et al. 1989b				
<i>Senoniasphaera inornata</i> (Drugg 1970b) Stover and Evitt 1978	64.95	50	62?	34
<i>Senoniasphaera protrusa</i> Clarke and Verdier 1967				
<i>Senoniasphaera rotundata</i> Clarke and Verdier 1967				
<i>Senoniasphaera rotundata</i> subsp. <i>alveolata</i> Pearce et al. 2003				
<i>Spinidinium echinoideum</i> (Cookson and Eisenack 1960a) Lentin and Williams 1976				
<i>Spinidinium macmurdoense</i> (Wilson 1967a) Lentin and Williams 1976				
<i>Spiniferites porosus</i> (Manum and Cookson 1964) Harland 1973				
<i>Spiniferites ramosus</i> subsp. <i>meandriformis</i> (Corradini 1973) Lentin and Williams 1975				
<i>Spiniferites? velatus</i> (Clarke and Verdier 1967) Stover and Evitt 1978				
<i>Spongodinium delitiense</i> (Ehrenberg 1838) Deflandre 1936b				
<i>Stephodinium coronatum</i> Deflandre 1936a				
<i>Stoveracysta kakanuiensis</i> Clowes 1985	34.2	58	31.3	58
<i>Stoveracysta ornata</i> (Cookson and Eisenack 1965a) Clowes 1985	35.2	58	31.3	58
<i>Sumatradinium druggii</i> Lentin et al. 1994				
<i>Sumatradinium soucouyantiae</i> de Verteuil and Norris 1992				
<i>Surculosphaeridium? longifurcatum</i> (Firtion 1952) Davey et al. 1966				
<i>Thalassiphora delicata</i> Williams and Downie 1966c				
<i>Thalassiphora spinosa?</i> (Clarke and Verdier 1967) Foucher 1975				
<i>Triblastula utinensis</i> O. Wetzel 1933b				
<i>Trichodinium castanea</i> Deflandre 1935 ex Clarke and Verdier 1967				
<i>Trigonopyxidia ginella</i> (Cookson and Eisenack 1960a) Downie and Sarjeant 1965				
<i>Trinovantedinium applanatum</i> (Bradford 1977) Bujak and Davies 1983				
<i>Trinovantedinium glorianum</i> (Head et al. 1989b) de Verteuil and Norris 1992				
<i>Trithyrodinium evittii</i> Drugg 1967	71.3	34	59.7	34
<i>Trithyrodinium suspectum</i> (Manum and Cookson 1964) Davey 1969b				
<i>Unipontidinium aquaeductum</i> (Piasecki 1980) Wrenn 1988	15.4	38	12.16	38
<i>Wetzeliella gochtii</i> Costa and Downie 1976	29.5	58	28.15	58
<i>Wetzeliella meckelfeldensis</i> Gocht 1969	53.8	34		
<i>Wilsonidium echinosuturatum</i> (Wilson 1967c) Lentin and Williams 1976				
<i>Xenascus ceratioides</i> (Deflandre 1937b) Lentin and Williams 1973				
<i>Xiphophoridium alatum</i> (Cookson and Eisenack 1962b) Sarjeant 1966b				

Table T1 (continued).

Dinocyst species	Southern Hemisphere			
	Mid-latitude			
	FO	Reference	LO	Reference
<i>Renidinium rigidum</i> Prince et al. 1999				
<i>Reticulosphaera actinocoronata</i> (Benedek 1972) Bujak and Matsuoka 1986	35.3	58		
<i>Rhombodinium draco</i> Gocht 1955				
<i>Rhombodinium perforatum</i> (Jan du Chêne and Châteauneuf 1975) Lentin and Williams 1977b				
<i>Rhombodinium porosum</i> Bujak 1979				
<i>Saturnodinium pansum</i> (Stover 1977) Brinkhuis et al. 1992	37?	34		
<i>Saturnodinium perforatum</i> Brinkhuis et al. 1992				
<i>Schematophora speciosa</i> Deflandre and Cookson 1955	36	58	35.35	58
<i>Selenopemphix armageddonensis</i> de Verteuil and Norris 1992				
<i>Selenopemphix armata</i> Bujak in Bujak et al. 1980				
<i>Selenopemphix dionaeacysta</i> Head et al. 1989b				
<i>Senoniasphaera inornata</i> (Drugg 1970b) Stover and Evitt 1978				
<i>Senoniasphaera protrusa</i> Clarke and Verdier 1967				
<i>Senoniasphaera rotundata</i> Clarke and Verdier 1967				
<i>Senoniasphaera rotundata</i> subsp. <i>alveolata</i> Pearce et al. 2003				
<i>Spinidinium echinoideum</i> (Cookson and Eisenack 1960a) Lentin and Williams 1976				
<i>Spinidinium macmurdoense</i> (Wilson 1967a) Lentin and Williams 1976				
<i>Spiniferites porosus</i> (Manum and Cookson 1964) Harland 1973				
<i>Spiniferites ramosus</i> subsp. <i>meandriformis</i> (Corradini 1973) Lentin and Williams 1975				
<i>Spiniferites? velatus</i> (Clarke and Verdier 1967) Stover and Evitt 1978				
<i>Spongodinium delitiense</i> (Ehrenberg 1838) Deflandre 1936b				
<i>Stephodinium coronatum</i> Deflandre 1936a				
<i>Stoveracysta kakanuiensis</i> Clowes 1985	34.2	58	31.3	58
<i>Stoveracysta ornata</i> (Cookson and Eisenack 1965a) Clowes 1985	35.2	58	31.3	58
<i>Sumatradinium druggii</i> Lentin et al. 1994				
<i>Sumatradinium soucouyantiae</i> de Verteuil and Norris 1992				
<i>Surculosphaeridium? longifurcatum</i> (Firtion 1952) Davey et al. 1966				
<i>Thalassiphora delicata</i> Williams and Downie 1966c				
<i>Thalassiphora spinosa?</i> (Clarke and Verdier 1967) Foucher 1975				
<i>Triblastula utinensis</i> O. Wetzel 1933b				
<i>Trichodinium castanea</i> Deflandre 1935 ex Clarke and Verdier 1967				
<i>Trigonopyxidia ginella</i> (Cookson and Eisenack 1960a) Downie and Sarjeant 1965				
<i>Trinovantedinium applanatum</i> (Bradford 1977) Bujak and Davies 1983				
<i>Trinovantedinium glorianum</i> (Head et al. 1989b) de Verteuil and Norris 1992				
<i>Trithyrodinium evittii</i> Drugg 1967	65	34		
<i>Trithyrodinium suspectum</i> (Manum and Cookson 1964) Davey 1969b	84?	20	74?	20
<i>Unipontidinium aquaeductum</i> (Piasecki 1980) Wrenn 1988				
<i>Wetzeliella gochtii</i> Costa and Downie 1976	29.5	58	28.15	58
<i>Wetzeliella meckelfeldensis</i> Gocht 1969				
<i>Wilsonidium echinosuturatum</i> (Wilson 1967c) Lentin and Williams 1976				
<i>Xenascus ceratioides</i> (Deflandre 1937b) Lentin and Williams 1973				
<i>Xiphophoridium alatum</i> (Cookson and Eisenack 1962b) Sarjeant 1966b				

Table T1 (continued).

Dinocyst species	High latitude			
	FO	Reference	LO	Reference
<i>Renidinium rigidum</i> Prince et al. 1999				
<i>Reticulatosphaera actinocoronata</i> (Benedek 1972) Bujak and Matsuoka 1986	33.5	59		
<i>Rhombodinium draco</i> Gocht 1955				
<i>Rhombodinium perforatum</i> (Jan du Chêne and Châteauneuf 1975) Lentini and Williams 1977b				
<i>Rhombodinium porosum</i> Bujak 1979				
<i>Saturnodinium pansum</i> (Stover 1977) Brinkhuis et al. 1992				
<i>Saturnodinium perforatum</i> Brinkhuis et al. 1992				
<i>Schematophora speciosa</i> Deflandre and Cookson 1955	35.7	59	35.4	59
<i>Selenopemphix armageddonensis</i> de Verteuil and Norris 1992				
<i>Selenopemphix armata</i> Bujak in Bujak et al. 1980				
<i>Selenopemphix dionaeacysta</i> Head et al. 1989b				
<i>Senoniasphaera inornata</i> (Drugg 1970b) Stover and Evitt 1978	64.7	59	63?	59
<i>Senoniasphaera protrusa</i> Clarke and Verdier 1967				
<i>Senoniasphaera rotundata</i> Clarke and Verdier 1967				
<i>Senoniasphaera rotundata</i> subsp. <i>alveolata</i> Pearce et al. 2003				
<i>Spinidinium echinoideum</i> (Cookson and Eisenack 1960a) Lentini and Williams 1976				
<i>Spinidinium macmurdoense</i> (Wilson 1967a) Lentini and Williams 1976	57	59	33.5?	59
<i>Spiniferites porosus</i> (Manum and Cookson 1964) Harland 1973				
<i>Spiniferites ramosus</i> subsp. <i>meandriiformis</i> (Corradini 1973) Lentini and Williams 1975				
<i>Spiniferites? velatus</i> (Clarke and Verdier 1967) Stover and Evitt 1978				
<i>Spongodinium delitiense</i> (Ehrenberg 1838) Deflandre 1936b				
<i>Stephodinium coronatum</i> Deflandre 1936a				
<i>Stoveracysta kakanuiensis</i> Clowes 1985	33.5	59	33.5	59
<i>Stoveracysta ornata</i> (Cookson and Eisenack 1965a) Clowes 1985	36.4	59		
<i>Sumatradinium druggii</i> Lentini et al. 1994				
<i>Sumatradinium soucouyantiae</i> de Verteuil and Norris 1992				
<i>Surculosphaeridium? longifurcatum</i> (Firtion 1952) Davey et al. 1966				
<i>Thalassiphora delicata</i> Williams and Downie 1966c	57.3	59	52	59
<i>Thalassiphora spinosa?</i> (Clarke and Verdier 1967) Foucher 1975				
<i>Triblastula utinensis</i> O. Wetzel 1933b				
<i>Trichodinium castanea</i> Deflandre 1935 ex Clarke and Verdier 1967				
<i>Trigonopyxidina ginella</i> (Cookson and Eisenack 1960a) Downie and Sarjeant 1965				
<i>Trinovantedinium applanatum</i> (Bradford 1977) Bujak and Davies 1983				
<i>Trinovantedinium glorianum</i> (Head et al. 1989b) de Verteuil and Norris 1992				
<i>Trithyrodinium evittii</i> Drugg 1967	64.7-65.5	59	57.3	59
<i>Trithyrodinium suspectum</i> (Manum and Cookson 1964) Davey 1969b				
<i>Unipontidinium aquaeductum</i> (Piasecki 1980) Wrenn 1988				
<i>Wetzeliella gochtii</i> Costa and Downie 1976	33?	34		
<i>Wetzeliella meckelfeldensis</i> Gocht 1969				
<i>Wilsonidium echinosuturatum</i> (Wilson 1967c) Lentini and Williams 1976	46.6	59	42	59
<i>Xenascus ceratioides</i> (Deflandre 1937b) Lentini and Williams 1973				
<i>Xiphophoridium alatum</i> (Cookson and Eisenack 1962b) Sarjeant 1966b				