

# Mid-Eocene Thermals record in Istrian Paleogene Basin (Outer Dinarides, Croatia), Neotethys

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Nannofossils samples following standard preparation procedure described by Perch-Nielsen (1985). All slides were investigated using light microscope LEICA DMLP with 1000x magnification (applied cross and parallel nicols). From each slide at least 300 specimens were counted to get data for quantitative analyses. To define the stratigraphic position Paleogene biozonations of Agnini et al (2014) and Martini (1971) were applied.

List of identified calcareous nannofossil species from Jakomići locality and number of species. Also see Lukić, R., 2022, Biostratigraphy of the Flysch deposits in the Pazin basin based on calcareous nannoplankton. Diploma Thesis, 71 p., Faculty of Science, Zagreb (supervised by V. Ćosović and I. Galović). [urn:nbn:hr:217:237000](https://urn.nbn.hr/urn:nbn:hr:217:237000)

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JAK3			
JAK1	+ + <i>Pontosphaera exilis</i>	+ + <i>Blackites glaciatus</i>	
J3	+ + + <i>P. multipora</i>	+ + + <i>B. inversus</i>	
J2	+ + <i>P. plana</i>	+ + <i>B. spiculiformis</i>	
	+ + <i>P. pulchra</i>	<i>B. spinosus</i>	
	+ + <i>P. versa</i>	+ + <i>B. tenuis</i>	
	+ + <i>Pontosphaera</i> sp.	+ + <i>B. tortilis</i>	
	+ + + <i>R. bisecta</i>	+ + <i>Braarudosphaera bigelovii</i>	
	+ + <i>R. daviesii</i>	+ + <i>Br. peramplia</i>	
	+ + + + <i>R. dicynoda</i>	+ + <i>Campylospiraera dela</i>	
	+ + + <i>R. erbae</i>	+ + <i>Chiasmolithus eoalnus</i>	
	+ + <i>R. filovictii</i>	+ + <i>Ch. grandis</i>	
	+ + + <i>R. hilliae</i>	+ + <i>Ch. modestus</i>	
	+ + + + <i>R. lockeri</i>	+ + <i>Ch. nitidus</i>	
	+ + + + <i>R. minuta</i>	+ + <i>Chiasmolithus</i> spp.	
	+ + <i>R. perplexa</i>	+ + <i>Chausiococcus senestratus</i>	
	+ + + + <i>R. producta</i>	+ + <i>Cl. vanheekiae</i>	
	+ + <i>R. reticulata</i>	+ + <i>Coccolithus braarudii</i>	
	+ + + <i>R. stavenensis</i>	+ + <i>Coccolithus cashaoi</i>	
	+ + + <i>R. umbilicus</i>	+ + <i>Coccolithus cf. crassus</i>	
	+ + <i>Reticulofenestra wagae</i>	+ + <i>C. eopelagicus</i>	
	+ + <i>R. westerholdii</i>	+ + + + <i>C. formosus</i>	
	+ + <i>R. sp.</i>	+ + + + <i>C. teniforans</i>	
	+ + + <i>Rhabdosphaera</i> spp.	+ + + + <i>C. miopelagicus</i>	
	+ + + <i>S. conicus</i>	+ + + + <i>Cruciplacolithus klausii</i>	
	+ + + + <i>S. furcatolithoides</i>	+ + + + <i>Cr. filigranus</i>	
	+ + <i>S. milanetti</i>	+ + + + <i>Cyclicargolithus floridanus</i>	
	+ + <i>S. moriformis</i>	+ + + + <i>D. multiradiatus</i>	
	+ + <i>S. pseudoradians</i>	+ + + + <i>D. nodifer</i>	
	+ + + <i>S. radians</i>	+ + + + <i>D. spinescens</i>	
	+ + + <i>S. spiniger</i>	+ + + + <i>Discoaster</i> spp.	
	+ + <i>Sph. Strigosus</i>	+ + <i>Furcatolithus celsus</i>	
	+ + <i>S. tanzanensis</i>	+ + + + <i>Furcatolithus cuniculus</i>	
	+ + <i>Sphenolithus</i> spp.	+ + + + <i>Furcatolithus obtusus</i>	
	+ + <i>Syracosphaera tanzanensis</i>	+ + + + <i>F. predictensus</i>	
	+ + <i>Syracosphaera</i> sp.	+ + + + <i>Helicosphaera bramlettei</i>	
	+ + <i>Triguetorhabdolithus challengeri</i>	+ + + + <i>H. compacta</i>	
	+ + <i>Towerius gemmation</i>	+ + + + <i>H. lophota</i>	
	+ + + + <i>Umbilicosphaera bramlettei</i> (larger)	+ + + + <i>Helicosphaera</i> sp.	
	+ + <i>U. detecta</i>	+ + + + <i>Lanternithus minutus</i>	
	+ + + <i>U. protammulus</i>	+ + + + <i>Micrantholithus floes</i>	
	+ + + <i>Zigrhabilithus bijugatus</i>	+ + + + <i>Pemma</i> sp.	
	+ + <i>protaloženi</i>	+ + + + <i>Planolithus mihajlovici</i>	
	+ 6	52	52
		49	49
		43	43
		55	55
		bogatstvo vrsta	bogatstvo vrsta

List of identified calcareous nannofossil species from Racani locality (listed by alphabetic order) and their abundances in samples. Additionally all smear slides were investigated for rare specimens that could be important for the biostratigraphy (x in Table ).

*Blackites inversus* (Bukry & Bramlette, 1969) Bown & Newsam 2017

*Blackites tenuis* (Bramlette & Sullivan, 1961) Sherwood, 1974

*Blackites tortilis* Bown & Dunkley Jones, 2006

*Blackites* sp.

*Braarudosphaera bigelowii* (Gran & Braarud, 1935) Deflandre, 1947

*Bramletteius serraculoides* Gartner, 1969

*Calcidiscus pacificanus* (Bukry, 1971) Varol, 1989

*Calcidsiscus?* sp.

*Campylosphaera dela* (Bramlette & Sullivan, 1961) Hay & Mohler, 1967

*Chiasmolithus grandis* (Bramlette & Riedel, 1954) Radomski, 1968

*Chiasmolithus nitidus* Perch-Nielsen, 1971

*Chiasmolithus solitus* (Bramlette and Sullivan, 1961) Locker, 1968

*Clausicoccus fenestratus* (Deflandre and Fert, 1954) Prins, 1979

*Clausicoccus subdistichus* (Roth & Hay in Hay et al., 1967) Prins, 1979

*Clausicoccus vanheckiae* (Perch-Nielsen, 1986)

*Coccolithus cachaoi* Bown, 2005

*Coccolithus crucis* Bown, 2005

*Coccolithus eopelagicus* (Bramlette & Riedel, 1954) Hay, Mohler & Wade 1966

*Coccolithus formosus* (Kamptner, 1963) Wise, 1973

*Coccolithus pelagicus* (Wallich, 1877) Schiller, 1930

*Coronocyclus* sp.

*Cribrocentrum reticulatum* (Gartner & Smith, 1967) Perch-Nielsen, 1971

*Cyclicargolithus floridanus* (Roth & Hay, in Hay et al., 1967) Bukry, 1971

*Dictyococcites hesslandii* Haq, 1971

*Discoaster barbadiensis* Tan Sin Hok, 1927

*Discoaster binodosus* Martini, 1958

*Discoaster deflandrei* Bramlette & Riedel, 1954

*Discoaster distinctus* Martini, 1958

*Discoaster nodifer* (Bramlette & Riedel, 1954) Bukry, 1973

*Discoaster saipanensis* Bramlette & Riedel, 1954

*Discoaster* spp.

*Helicosphaera bramlettei* (Müller, 1970) Jafar & Martini, 1975

*Helicosphaera lophota* (Bramlette & Sullivan, 1961) Locker, 1973

*Helicosphaera prolixa* Bown & Newsam, 2017

*Helicosphaera reticulata* Bramlette & Wilcoxon, 1967

*Helicosphaera seminulum* Bramlette & Sullivan, 1961

*Helicosphaera* sp.

*Laternithus minutus* Stradner, 1962

*Laternithus procerus* Bown, 2005

*Pedinocyclus larvalis* (Bukry & Bramlette, 1969) Loeblich & Tappan, 1973

*Pontosphaera exilis* (Bramlette & Sullivan, 1961) Romein, 1979

*Pontosphaera multipora* (Kamptner, 1948 ex Deflandre in Deflandre & Fert, 1954) Roth, 1970

*Pontosphaera* sp.

*Reticulofenestra dictyoda* (Deflandre in Deflandre & Fert, 1954) Stradner in Stradner & Edwards, 1968

*Reticulofenestra hillae* Bukry & Percival, 1971

*Reticulofenestra minuta* Roth, 1970

*Reticulofenestra umbilicus* (Levin, 1965) Martini & Ritzkowski, 1968

*Reticulofenestra wadeae* Bown, 2005

*Reticulofenestra* sp.

*Sphenolithus furcatolithoides* Locker, 1967

*Sphenolithus moriformis* (Brönnimann & Stradner, 1960) Bramlette & Wilcoxon, 1967

*Sphenolithus pseudoradians* Bramlette & Wilcoxon, 1967

*Sphenolithus radians* Deflandre in Grassé, 1952

*Sphenolithus spiniger* Bukry, 1971

*Sphenolithus strigosus* Bown & Dunkley Jones, 2006

*Sphenolithus* sp.

*Thoracosphaera* sp.

*Umbilicosphaera bramlettei* (Hay & Towe, 1962) Bown *et al.*, 2007

*Umbilicosphaera protoannulus* (Gartner, 1971) Young & Bown 2014

*Youngilithus* sp.

*Zygrhablithus bijugatus* (Deflandre in Deflandre and Fert, 1954) Deflandre, 1959

Reworked Paleocene/lowere Eocene

*Discoaster multiradiatus* Bramlette & Riedel, 1954

Prinsius sp.

## Reworked Cretaceous

*Micula staurophora* (Gardet, 1955) Stradner, 1963

*Watznaueria barnesiae* (Black in Black & Barnes, 1959) Perch-Nielsen, 1968