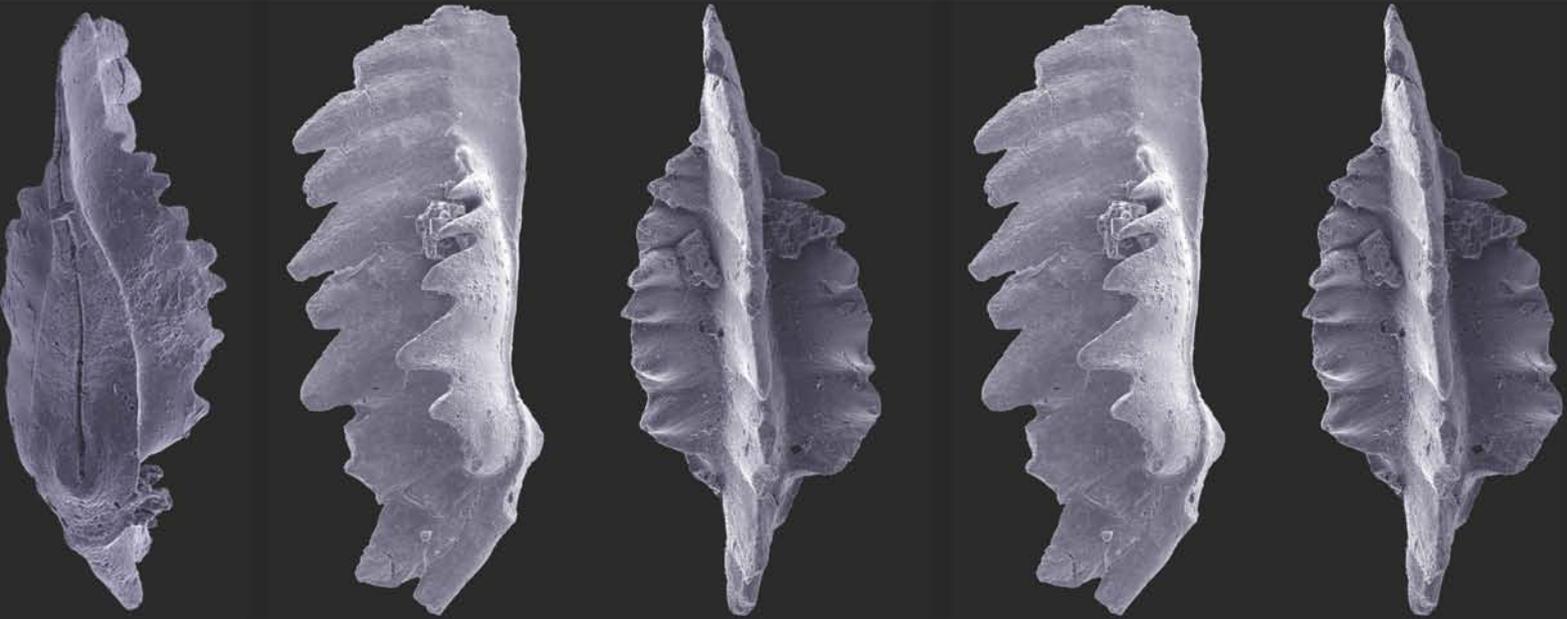


# Newsletter of Micropaleontology

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## Specialist Group News

### ***Nanno News - updates from the TMS Nannofossil Group and the International Nannoplankton Association***

Cherry Newsam & Mike McKnight & Jeremy Young

We would like to start by noting a change of office in the TMS Nannofossil Group with Simon Cole stepping down from his role of Chair after serving on the committee for four years and we would like to thank him for everything he has done as a committee member. Cherry has taken over the role of Group Chair from Simon and we would like to welcome Mike to the committee as the new Nannofossil Group Secretary.

#### Recent Meetings

##### **TMS AGM – November 2016**

In November the two day TMS AGM was held at the University of Lille, France, hosted by Taniel Danelian, with the theme of 'Integrating micropalaeontology and molecular biology: Insights into evolution and geobiology'. The meeting was well attended with a number of industry and academic nannofossil workers and nannofossil presentations including a talk from Rosie Sheward on 'Paleogene climate drives shifts in coccolithophore community cell size structure' and a handful of nannofossil posters.

#### Future Meetings

We are looking forward to the upcoming nannofossil meetings this year with the TMS Foraminiferal and Nannofossil Meeting in June, INA16 in late September and the nannofossil session at EGU17.

##### **EGU17 – 23<sup>rd</sup> – 28<sup>th</sup> April 2017**

At EGU17 in Vienna this April Claudia Agnini and Nicolas Thibault have organised a nannofossil session 'Calcareous nannofossils and their use in stratigraphy and paleoceanography' which will include all aspects of nannopalaeontology including biostratigraphy, biodiversity, palaeoecology, geochemistry and taxonomy throughout the Mesozoic and Cenozoic.

##### **TMS Joint Foraminifera and Nannofossil meeting – 19<sup>th</sup>-22<sup>nd</sup> June 2017**

Kirsty Edgar and Tom Dunkley Jones are hosting the next joint Foraminiferal and Nannofossil meeting at the University of Birmingham in June. The meeting will begin with a couple of days for workshops (17<sup>th</sup>-19<sup>th</sup> June), followed by the icebreaker on the evening of the 19<sup>th</sup> June, two

days of oral and poster presentations (20<sup>th</sup>-21<sup>st</sup> June) and a fieldtrip on the 22<sup>nd</sup> June. We encourage all nannofossil workers to consider submitting an abstract for a presentation (oral or poster) at this meeting.

We are proposing to hold a nannofossil

workshop on Monday 19<sup>th</sup> June, which would hope to bring together academic and industrial nanno workers. As the University of Birmingham offers ~20 light transmitted microscopes to be used in the workshop this will be an excellent chance to bring your own slides to further discussions. If anyone has a particular theme they would like this workshop to take please get in contact with Cherry Newsam ([cherry.newsam.11@ucl.ac.uk](mailto:cherry.newsam.11@ucl.ac.uk)) or Mike McKnight ([mikejmcknight@gmail.com](mailto:mikejmcknight@gmail.com)) as soon as possible. The typical structure we have followed for workshops in previous years involved a number of short oral presentations by invited or voluntary speakers with open discussions proceeding each. The success of the reticulofenestrid workshop previously held by the TMS and INA at the University of Birmingham in 2014 highlights the potential for a workshop

##### **INA16, Athens – 24<sup>th</sup>-28<sup>th</sup> September 2017**

The long awaited biannual INA16 conference is approaching, to be held in Athens by Maria Triantaphyllou on the 24<sup>th</sup>-28<sup>th</sup> September. The first circular is available and the website is up and running (<http://www.ina16athens.com> or follow the link on the INA website). The technical sessions and workshops will be held at the Divani Palace Acropolis in the centre of Athens with a post meeting fieldtrip running from the 29<sup>th</sup> September to the 2<sup>nd</sup> October – a transverse along the Corinth Gulf Rift to Zakynthos Island. The conference will encompass both palaeontological and biological research on coccolithophores with focus on ocean acidification and beyond; nannofossil biostratigraphy; coccolithophores and environmental change; coccolithophore ecology and palaeoceanography. Keep an eye out for the second circular and details on the INA website.



## Nannotax on the move

As mentioned in previous newsletter articles we have been working on a parallel site to Nannotax, for planktonic foraminifera. After a considerable amount of work this should finally be online by the time you read the newsletter - at [www.mikrotax.org/pforams](http://www.mikrotax.org/pforams). Indeed there will also a separate article about it somewhere else in the newsletter. The forum site is separate from Nannotax but uses the same software, and hopefully having data for both groups on the same platform will aid collaboration between nannofossil and planktonic foraminifera specialists (I am also open to suggestions for working on other groups). As part of making this possible a new domain name [mikrotax.org](http://mikrotax.org) has been opened for both sites and Nannotax is moving there - although with redirects in operation you should have barely noticed the change. So Nannotax will now be at [www.mikrotax.org/Nannotax3](http://www.mikrotax.org/Nannotax3).

The main developments on the site over the last few months have been behind the scenes, making the system easy for multiple user-editors to work with. One useful new front-end development has been adding an *advanced search* form. This allows you to generate lists of taxa based on taxonomic group and geological age. For example you can easily make a list of all Oxfordian nannofossils or of all Neogene discoasters. For the future I hope to add morphological criteria but it is not so easy to define consistent search terms, if anyone has produced vocabularies they would like to share then please contact me. Finally I should thank Letizia Reggiani for work on preparing images from different publications for incorporation on the website.

Search database  clear form

112 Matches found for your search in Coccolithophores

1. *Biantholithus astralis* Steinmetz & Stradner, 1984
2. *Biantholithus hughesii* Varol, 1989
3. *Biantholithus sparsus* Bramlette & Martini, 1964
4. *Biscutum castrorum* Black, in Black and Barnes, 1959
5. *Biscutum harrisonii* Varol, 1989
6. *Bomolithus elegans* Roth, 1973
7. *Braarudosphaera bigelowii* (Gran & Braarud 1935) Deflandre, 1947
8. *Braarudosphaera pentagonica* Mai et al. 1997
9. *Calciosolenia aperta* (Hay & Mohler, 1967) Bown, 2005
10. *Calciosolenia murrayi* Gran, 1912
11. *Centugemina scissurata* (Mai 2001) Mai & Aubry 2005
12. *Centugemina simplex* (Mai 2001) Mai & Aubry 2005
13. *Chiasmolithus consuetus* (Bramlette & Sullivan, 1961) Hay & Mohler, 1967
14. *Chiasmolithus danicus* (Brotzen, 1959) Hay & Mohler, 1967
15. *Chiasmolithus edentulus* van Heck and Prins, 1987
16. *Coccolithus pelagicus* (Wallich 1877) Schiller, 1930
17. *Coccolithus tenuiforatus* (Clocchiatti and Jerkovic, 1970) Wise, 1983
18. *Cruciplacolithus asymmetricus* van Heck & Prins, 1987
19. *Cruciplacolithus edwardsii* Romein, 1979
20. *Cruciplacolithus filigranus* Mai, 2001

Using the advanced search page to create a checklist of Danian nannofossils

## Ostracod Group Report

Anna March

### Ostracod Group Meeting Friday 7 October 2016

A very successful Ostracod Group meeting was held at Queen Mary University of London on 7 October, involving three hours jam-packed with ten talks and attended by 15 ostracod workers. Talks, as usual, were wide-ranging and spanned the Devonian to the Recent, covering issues such as the use of ostracods to infer past temperatures (both faunal assemblage and geochemical techniques), salinity gradients and deep ocean ventilation.

Starting in deep time, Dave Horne kicked off with his work with Sylvie Crasquin on the Devonian palaeopsychrosphere. Evidence that shallow water and psychrospheric ostracod fauna survived a mass extinction event that wiped out most pelagic fauna has led to the model of surface water and ventilated bottom waters separated by an expanding oxygen minimum zone. This suggests that deep water circulation and upwelling existed in the Devonian and that well-ventilated bottom waters functioned as refugia for benthic fauna.

Moving forward in time, Alan Lord presented his work in western Portugal on Middle Jurassic ostracods. Expecting to see familiar species from other sites of this age in NW Europe or the western Tethys, Alan (with Cristina Cabral) in fact found five new species (including three morphotypes of the same species), six species comparable to described species, five species of open nomenclature and only one species previously described. Not only does this suggest a poor link with NW Europe, but it raises questions about the quality of description and records of ostracod fauna of this age and emphasizes the importance of looking at type material.

Further on in time, Ian Wilkinson described Miocene ostracods from the Ras Khumeis Formation and overlying Dam Formation in Abu Dhabi (UAE). The lower sections contain an Early Miocene marine fauna (often poorly preserved) that gives way to a freshwater or low salinity Early to Mid-Miocene fauna in the uppermost section, including *Cyprideis* sp. nov., *Ilyocypris bradyi*, *Heterocypris salina* and *Leucocythere* sp. nov. Sieve pore analysis on *Cyprideis torosa* suggests low or only slightly raised salinity. This suggests a possible saltmarsh environment with freshwater fluctuations.

Ringing the changes with geochemical analyses of ostracods, but demonstrating a further research

application of *Cyprideis torosa*, Jonathan Holmes discussed the potential of Mg/Ca in *Cyprideis torosa* shells as a palaeothermometer. Although temperature influences Mg levels in ostracod shells, this value is also affected by the concentration of Mg in the water, which makes detection of a temperature signal difficult. Application of De Deckker et al.'s (1999) Mg/Ca temperature equation to modern settings with different Mg water values suggests that the equation is reliable only when Mg/Ca of water is known or can be assumed and independent estimates of water composition and/or temperature should be used to validate results.

Continuing with the geochemical theme, Lucy Roberts described results from her investigation of cleaning protocols. In trace element analysis, contamination can result in serious errors so effective removal is essential. Using (once again) *Cyprideis torosa*, Lucy compared the effects of physical cleaning with a paintbrush with sonication and chemical oxidation by subjecting two geochemically identical valves to different treatments. Results suggest that manual cleaning is adequate but further work on fossil material and different sedimentary matrices is required.

In the Quaternary now, Alan Lord presented Cristina Cabral's work on the Neolithic environment of the Rio Sizandro, Portugal. Ostracod fauna from three boreholes did not confirm the expected lagoonal conditions but instead demonstrated fluctuating salinity levels including fluvial, brackish-marine and lagoonal environments. Eustatic sea level change and silting up of valleys, possibly due to deforestation or agriculture, are thought to account for these changing conditions.

Next up, Ginny Benardout outlined her research using modern ostracod distribution databases to reconstruct Quaternary palaeotemperatures. Calibrating occurrences of species in European, American and Canadian databases produces a combined temperature range, improves accuracy and aids taxonomic

harmonisation. However, this exercise highlights difficulties, including misidentifications, which can give anomalous results. Ginny stressed the need to access original collections and to illustrate species in publications.

Anna March spoke next, describing her palaeoenvironmental reconstruction at the Middle Pleistocene site, Marks Tey, Essex. She described work at the site to link stratigraphically the current exposures to each other and to previous research on sediment cores from the underlying Hoxnian interglacial. She presented provisional faunal assemblage results that record two distinct assemblages, separated by a sedimentary hiatus. Indications are that the lower assemblage reflects cold/Arctic conditions, whereas the upper assemblage suggests a more continental climate.

The final two talks were from QMUL undergraduates, describing their research projects. Koh Yi Thong and Lloyd Milner also worked at Marks Tey. Koh compared the difference between the assemblages produced by coarse and fine-

resolution sampling of the same section and found that the two sampling techniques told a different story and that *Cyprideis torosa* and *Limnocythere inopinata* appear to co-exist. In contrast, Lloyd is examining six samples throughout >20m of exposure, including the uppermost sections that have not previously been sampled. Panagiotis Koullouros and Matthew MacMillan then described their work constructing salinity gradients on the Norfolk Broads. Both found *Cyprideis torosa* and intend to conduct sieve pore analysis and construct mutual salinity ranges.

Despite the wide-ranging nature of talks in terms of techniques, location and time, two themes recurred. The first is the importance of examining original collections to aid identification and the second is that interest in the brackish species *Cyprideis torosa* shows no sign of abating, with 7/12 speakers discussing it!

### **Foraminifera Group Report**

Jeremy Young, Bridget Wade, Paul Bown, Brian Huber

## **pforams@mikrotax - a new online resource**

As reported in previous TMS Newsletters the Nannotax system has evolved rapidly over the last few years to provide a rather comprehensive online taxonomic database of nannofossils and extant coccolithophores. Fortunately the system has also been very well used and on the basis of that we were awarded an NERC grant to develop a sister site covering planktonic foraminifera - pforams@mikrotax.

This site has been under development for nearly a year but we are pleased to announce that it is now online and can be found at [mikrotax.org/pforams](http://mikrotax.org/pforams). The content of the site is founded on the work of the planktonic foraminiferal taxonomy working groups and especially the taxonomic databases developed online by Brian Huber as part of the Chronos project. All the content from the Chronos taxonomic databases has now been migrated into the new system, together with a large amount of additional data and images, from a range of sources.

As with the Nannotax website, the Neptune database, compiled from DSDP and ODP sources by Dave Lazarus and colleagues is also used as

an important data source. Specifically it is used to provide plots of occurrence frequency of species through time.

We are grateful to a number of colleagues for providing extra advice, for testing the system and for encouraging us - notably John Gregory, Andy Fraas, Kirsty Edgar, Tracy Aze, Haydon Bailey, Michal Kucera, Maria Rose Petrizzo, Rob Campbell, Mark Leckie and Paul Pearson. Nonetheless, a lot of content has been assembled, with fairly limited review, mistakes are certainly not their fault, and there is a lot of scope for improvement. We would be very appreciative of any feedback, corrections and suggestions. To help this it is possible to add comments at the bottom of any page. - or you can send us an email.

Finally please note that Oligocene species are currently almost entirely missing from the system - this is because the content for them will come from the new Atlas of Oligocene Planktonic Foraminifera (ed B. Wade et al.) - but that is not published yet.

[pforams@microtax](#) | [Neogene](#) | [Paleogene](#) | [Mesozoic](#) | [Catalog](#) | [Comments](#) | [Tools](#) | [Links](#)

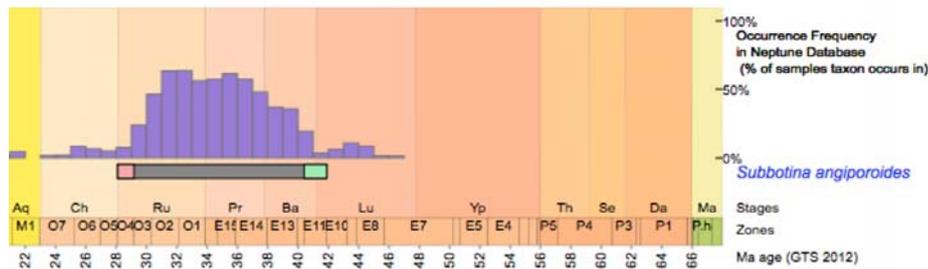
### Globorotalia

NR TAXA WHICH ORIGINATE IN THE OLIGOCENE ARE NOT INCLUDED YET  
**Classification:** [pf\\_neogene](#) -> [Globorotalidae](#) -> [Globorotalia](#)  
**Sister taxa:** [Berggrenia](#), [Dentigloborotalia](#), [Dentoglobigerina](#), [Globoconella](#), [Globoquadrina](#), [Globorotalia](#), [Globorotaloides](#), [Neogloboquadrina](#), [Pulleniatina](#).

Daughter taxa (blue => in age window 0-300Ma)

Lineage	Representative Images	Granddaughter taxa
fohsi lineage		<a href="#">G. fohsi</a> <a href="#">G. lenguaensis</a> <a href="#">G. lobata</a> <a href="#">G. paralenguaensis</a> <a href="#">G. peripherocuta</a> <a href="#">G. peripheroronda</a> <a href="#">G. praefohsi</a> <a href="#">G. robusta</a>
hirsuta lineage		<a href="#">G. challengeri</a> <a href="#">G. cibaensis</a> <a href="#">G. evoluta</a> <a href="#">G. gigantea</a> <a href="#">G. hirsuta</a> <a href="#">G. Juanai</a> <a href="#">G. margaritae</a> <a href="#">G. praemargaritae</a> <a href="#">G. praescitula</a> <a href="#">G. primiva</a> <a href="#">G. scitula</a> <a href="#">G. theyeri</a>

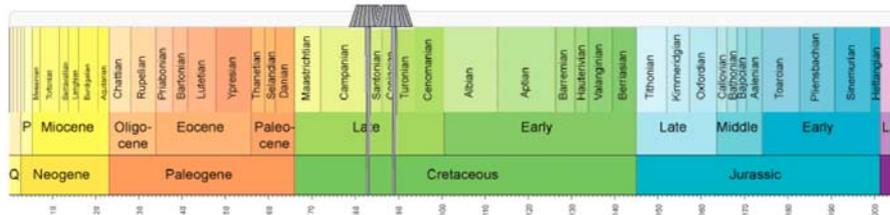
The top of a typical higher taxon page showing extensive links and representative images



Occurrence data from the Neptune database, compared with a literature-based range

### 2. AGE WINDOW TO SEARCH WITHIN

Current window 83Ma - 89Ma



### 3. CHARACTER MATRIX

|  |

|  |

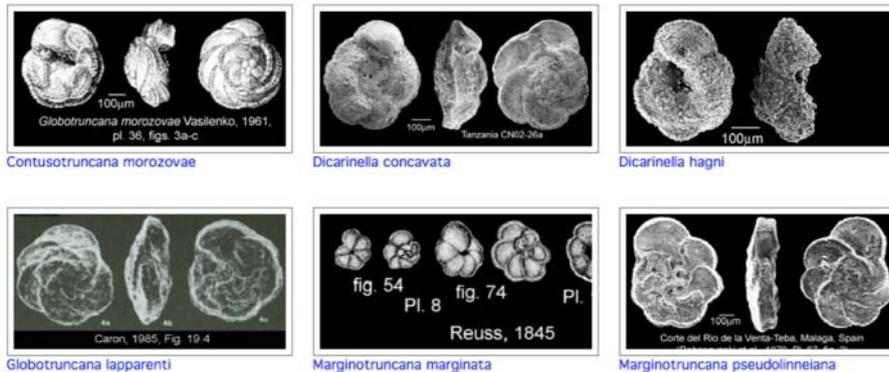
|  |

|  |

|

|  |

8 Matches found for your search in all



Advanced search page showing result of search for Santonian-Coniacian species with a double keel, raised sutures and 7 chambers in the final whorl