Coccolithophorid distribution in Palauan lagoons

Atsuko Kijima, Richard W. Jordan

The Republic of Palau consists of a group of islands in the NW equatorial Pacific characterized by reefal lagoons and marine lakes. The environmental conditions are relatively stable throughout the year, but with a rainy (June-October) and dry (November-May) season associated with the Asian monsoon. Since 2001, we have conducted expeditions to Palau at least once a year, although the sampling season has varied. Using May-July samples from three different years, Konno & Jordan (2006) provided the first account of a coccolithophorid community from Palau, with a low species diversity in the lagoons, but a higher diversity in the open sea. Abundance was also low, reaching up to 1 x 10^4 cells/litre, and they were always outnumbered by the diatoms. *Gephyrocapsa oceanica* dominated all of their 21 samples, which were collected from two marine lakes as well as very shallow (<1 m), shallow (<5 m) and deep (up to 40 m) lagoon sites. Of the 23 spp. recorded by them, surprisingly none were holococcolithophorids. However, they did find some rarely reported species such as *Cruciplacolithus neohelis* and *Anacanthoica cidaris*.

New observations on 65 samples collected during the dry season (November 2006 and late October 2007) were compared with those of Konno & Jordan (2006). *Gephyrocapsa oceanica* dominated almost all of the samples, with its highest absolute abundances closely correlated to low Simpson's Index of Diversity scores, whereas species diversity was generally highest in the more offshore waters. However, abundances (up to 5 x 10^3 cells/litre) in 2006 were somewhat lower than those of Konno & Jordan (2006). Of the 21 species observed in the 2006 samples, 6 of them were recorded for the first time, including the holococcolithophorid *Calicasphaera blokii*. Of the 11 species recorded in 2007, only two were new to Palau, *Syracosphaera rotula* and the holococcolithophorid *Helladosphaera cornifera*. So in total, 31 species have been found, but clearly further work is needed to fully document the total floral composition. Expeditions to other coral reef islands within Micronesia are now being planned.

Reference

Konno, S. & Jordan, R.W. 2006. Lagoon coccolithophorids from the Republic of Palau, NW Equatorial Pacific. *Journal of Nannoplankton Research*, **28**(2): 95-110.