

Calcareous nannofossils as paleoproductivity indicators in sediments from the southeastern Sulu Sea

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This study investigates calcareous nannofossils from two sediment cores collected from the Sulu Sea in the southwestern Philippines during Philex cruise Leg 2 onboard R/V *Melville* in December 2007. These two core sites from the southeastern Sulu Sea sub-basin were chosen for their difference in productivity, based on present-day chlorophyll data. The high productivity site, Core MC10, is located closer to the coast of Zamboanga Peninsula at 8°23.10'N, 122°09.15'E and 4022m water depth, while Core MC8 is located in the central portion of the sub-basin at 8°38.97'N, 121°31.83'E and 4492m water depth.

Sulu Sea is a marginal, enclosed oceanic basin that is unique in its warm and oxygen-deficient bottom waters. It exchanges waters with the South China Sea, Sulawesi Sea via the Sibutu Strait, and with the Pacific through the Bohol Sea. Today, it is one of the most productive fishery areas of the Philippines that is increasingly exposed to anthropogenic activities. High chlorophyll-*a* maxima have been observed during the northeast monsoon in recent times in Sulu Sea waters off the coast of Zamboanga. Studying the sediment core in this area is a good opportunity to trace the upwelling history through time and compare it with the other study site.

Previous nannofossil studies show that some species can be used as paleoproductivity indicators. This research utilizes the lower photic-zone dweller, *Florisphaera profunda* as a proxy for non-upwelling or low-productivity events. Higher abundances of upper photic zone species, such as *Gephyrocapsa oceanica*, common in marginal sea sediments, are used as upwelling or higher-productivity indicators.