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Correlation of distribution and frequency of selected nannofossil taxa with paleoenvironment variability in late Miocene sediments of the Equatorial Pacific.

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We studied calcareous nannofossil assemblages in upper Miocene sediments from Site U1338A, recovered during IODP Expedition 320/321 in the eastern Equatorial Pacific. This site is part of Pacific Equatorial Age Transect (PEAT), that cored eight sites (U1331 to U1338) which represents the "PEAT equatorial megasplice", a continuous Cenozoic sediment record of the paleoequatorial Pacific Ocean. Middle and upper Miocene sediments consist of nannofossil ooze and chalk with varying concentrations (often relatively high abundances) of biosiliceous components, and show decimeter to meter lithological cycles that reflect changes in production, dissolution, and photic zone paleoecology. Analysis on nannofossil assemblages provided distribution and abundance data on selected taxa that are compared with geochemical proxies. Moreover, biometric and quantitative abundance analysis are used for providing a clear taxonomy of an important Neogene component of the nannofossil assemblages, the genus Discoaster, and for delineating in detail the evolutionary trends within the taxon. We tried to relate the evolutionary signal observed in the Discoaster lineage to environmental evolution, namely to deposition of diatom enriched intervals (Kemp and Baldauf, 1993). The final aim is to unravel the response of these nannofossil taxa to different climatic and oceanographic conditions, thus providing new insights on what are the proper paleoecologic meanings of calcareous nannofossils.

References: Kemp, A.E.S., and Baldauf, J.G., 1993. Vast Neogene lami- nated diatom mat deposits from the eastern equatorial Pacific Ocean. Nature (London, U. K.), 362(6416):141– 144. doi:10.1038/362141a0