# Biodiversity of extant coccolithophores in Macaronesia (northeast Atlantic Ocean)

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Our study aimed to characterise the extant coccolithophore communities around the islands and seamounts of Macaronesia. The results reflect the analysis of 393 sea-water samples, using polarising-light microscopy, that were collected during four oceanographic campaigns – POS466 around the Madeira Archipelago (March 2014), MSM49 around Cape Verde (November–December 2015) and BIOMETORE 7 and 8 around several seamounts between the Madeira Archipelago and the Portugal mainland (Madeira-Tore complex; August–September 2016).

Around the Madeira Archipelago, two biogeographic domains, with distinct physicochemical and calcareous nannoplankton characteristics, were identified that are separated by a transient frontal zone. The more productive northeastern sector, with maximum coccolithophore densities of $112x10^3$ cells $L^{-1}$, was linked to the injection of a westerly flow with its origin in the Azores frontal system. *Emiliania huxleyi*, along with small *Gephyrocapsa* spp., dominated the assemblages. *Gephyrocapsa oceanica*, *Michaelsarsia* spp., *Syracosphaera* spp., *Umbilicosphaera* spp. and *Algirosphaera robusta* were relevant subordinate taxa. No vertical succession of coccolithophore species was found due to the occurrence of a homogeneous and well-mixed surface layer (Narciso et al., 2019). Around the Cape Verde Archipelago, including the Senghor Seamount, densities reached up to $30x10^3$ cells $L^{-1}$, whereas in the Madeira-Tore complex (Gorringe, Josephine and Seine seamounts), they reached up to $43x10^3$ cells $L^{-1}$. In these two regions, a strong stratification of the water column during the sampling period was inferred from coccolithophore depth distributions. At Cape Verde, *E. huxleyi* was the dominant species, followed by *G. oceanica*. *Florisphaera profunda*, small *Gephyrocapsa*, *A. robusta*, *Helicosphaera* spp., *Syracosphaera* spp. and *Umbellosphaera* sp. were the subordinate taxa. In the Madeira-Tore complex, small *Gephyrocapsa* exceeded *E. huxleyi*, and *Umbellosphaera* sp., *G. muellerae*, *F. profunda*, *Syracosphaera* spp. and *Rhabdosphaera* spp. were the subordinate taxa.

## References

Narciso, Á., Caldeira, R., Reis, J., Hoppenrath, M., Cachão, M. & Kaufmann, M. 2019. The effect of a transient frontal zone on the spatial distribution of extant coccolithophores around the Madeira archipelago (Northeast Atlantic). *Estuarine, Coastal and Shelf Science*, **223**: 25–38.