

# Tracing NE Aegean water masses using phytoplankton (coccolithophore and silicoflagellate) assemblages

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This study presents the species composition of living coccolithophore and silicoflagellate communities in the NE Aegean Sea and investigates their spatial and temporal variations. Samples were collected along a transect with stations located where low-salinity Black Sea surface water (BSW) inflows over the deeper, Levantine Water (LW) layer. Coccolithophores in the area were collected during three sampling periods (October, March, and July) and studied with the SEM. R-mode hierarchical cluster analysis distinguished four coccolithophore groups (I, IIa, IIb, and IIc) with different ecological preferences (Karatsolis *et al.*, in press).

In the winter period, biometric analysis of the relative tube width of *Emiliana huxleyi* clearly distinguished between specimens of Black Sea origin, with characteristically low relative tube widths, and typical overcalcified LW winter morphotypes (Triantaphyllou *et al.*, 2010). This enabled us to trace the BSW influence on winter and autumn coccolithophore assemblages. In the summer period, BSW mass inflow had the effect that typical LW holococcolithophore species (Groups IIa and IIb) had low values in their normal surface water ecological niche and higher numbers at greater depths, indicating that the LW was flowing under the less saline BSW, which acted like a surface lid (Karatsolis *et al.*, in press). During the spring sampling period, the vertical distribution and morphology of the silicoflagellate species was also studied (Malinverno *et al.*, 2016). The silicoflagellate assemblage was dominated by

*Dictyocha stapedia* and *Stephanocha speculum*. While specimens of *D. stapedia* had typical morphologies that have been described in other areas of the Mediterranean Sea, populations of *S. speculum* displayed peculiar, predominantly 7-sided morphologies. Some of these features have been described for *S. speculum* at high latitudes, but the combined characters make these specimens slightly different from the high-latitude populations. Similar morphologies have been observed in the western Black Sea, and we infer that the peculiar specimens in the NE Aegean represent an additional indicator of the BSW impact in the area.

## References

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