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Abstract

This study aims to presents the species composition of living coccolithophore communities in the NE Aegean Sea, investigating their spatial and temporal variations along a north-south transect in the area receiving the inflowing surface Black Sea Water (BSW) over the deeper Levantine Water (LW) layer. Coccolithophores in the area were relatively diverse and a total of 95 species over 3 sampling periods studied were recognized using Scanning Electron Microscope (SEM) techniques. R-mode hierarchical cluster analysis distinguished two coccolithophore Groups (I, IIa, IIb, IIc) with different ecological preferences. *Emiliania huxleyi* was the most abundant species of Group I, whereas *Syracosphaera* spp., *Rhabdosphaera* spp. and holococcolithophores were prevailing in the highly diversified Group II assemblages. Biometric analysis conducted on *E. huxleyi* coccoliths from Aegean water column and Black Sea sediment trap samples, indicated that during autumn, NE Aegean specimens in samples under BSW influence were featured by unimodal distribution concerning the coccolith relative tube width, with values similar to those provided by the Black Sea specimens. In early spring, coccoliths in the stations with increased BSW influx displayed a bimodal pattern of relative tube width with smaller values found mostly in the surface layers, while the distribution became again unimodal and dominated by larger values within the deeper LW layers. In the summer period, the typical LW holococcolithophore species (Group II) presented low cell numbers in the surface layer (<20 m), which is their usual ecological niche in the Aegean Sea, compared to greater depths, therefore marking LW mass flowing beneath the less saline