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Small-scale distribution of plankton and marine snow in the North Atlantic

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Marine aggregates of biogenic origin, known as marine snow, are considered to play a major role in the oceans particle flux and may represent a concentrated food source for zooplankton. However, observing the marine snow–zooplankton interaction in the field is difficult, since conventional net sampling does not collect the vertical distribution of marine snow quantitatively. Hence, field evidence for the importance of the marine snow–zooplankton link is scarce. Here we employed a Video Plankton Recorder (VPR) to quantify small-scale vertical distribution patterns of fragile marine snow aggregates and zooplankton in the North Atlantic. We present data on zooplankton and particle small-scale distribution patterns during the transition from the convective winter regime to spring bloom conditions and provide indirect evidence of copepods feeding on marine snow aggregates by images suggesting a trophic interaction. Furthermore, we observed a potential impact of sinking marine snow aggregates on the diapause timing of *Calanus finmarchicus* and its ascend back to the surface. Finally, general changes in the taxonomic composition, abundance, and size structure of the zooplankton community have been observed. Our observations highlight the potential significance of marine snow in marine ecosystems and its potential as a food resource for various trophic levels from bacteria up to fish.

Keywords: Marine snow, Zooplankton, North Atlantic, Video Plankton Recorder (VPR), *Calanus finmarchicus*

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