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[Deep Sea Research Part I: Oceanographic Research Papers](#)

[Volume 44, Issue 3](#), March 1997, Pages 385-398

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[doi:10.1016/S0967-0637\(96\)00104-5](https://doi.org/10.1016/S0967-0637(96)00104-5) | [How to Cite or Link Using DOI](#)

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*In situ* settling speeds of marine snow aggregates below the mixed layer: Black Sea and Gulf of Mexico

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Received 31 July 1995; revised 16 April 1996; Accepted 29 October 1996. Available online 5 June 1998.

## Abstract

*In situ* settling speeds of marine snow aggregates were determined with the Marine Aggregate Settling Collector and Observation Tower (MASCOT) in the central Black Sea and in the northern Gulf of Mexico. The Black Sea data showed a wide distribution in size and settling speeds of marine snow aggregates (0.5–5.5 mm diameter and 1.3–280 m/d) with an average settling speed of 11.7 m/d over all size classes. However, these settling speeds might have been influenced by the addition of salt (0.9% above the background seawater) plus formalin to the water in one side of the acrylic chamber of the MASCOT. Data from the Gulf of Mexico had a smaller range in terms of size and speed (0.5–3.5 mm diameter and 10–89 m/d). The average settling speed over all size classes was approximately three times higher (33.8 m/d) than for aggregates measured in the Black Sea. Stokes' Law predicts that settling speeds are determined by both density and volume of an aggregate. For both study sites no statistically significant correlation of settling speed with the equivalent spherical diameter (ESD) of the aggregates was found. It was therefore concluded that variations in density controlled the aggregate settling speeds measured in these two study areas.

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