

## Calcareous nannoplankton composition and flux in response to the passage of Hurricanes Ignacio and Marty in the SW Gulf of California

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Calcareous nannoplankton comprise a group of organisms that play an important role in the global carbon cycle. Although several studies concerning the vertical flux of coccolithophores to the sediment have been carried out in recent years, little is known about their distribution and response to short-term events.

As part of a multidisciplinary program, a time-series sediment trap has been deployed in Cuenca Alfonso, located in Bahía de La Paz, Gulf of California, since January 2002. This area is often influenced by hurricanes during late summer – early autumn. This has provided a unique opportunity to study the seasonal variation of calcareous nannoplankton and their response to such short-term environmental events.

During 2003, two hurricanes occurred within one month of each other. Hurricane Ignacio and Hurricane Marty, followed similar tracks from south to north across the bay, and brought high winds, intense precipitation, heavy runoff and, for the two weeks including and following the day of each hurricane, high bulk sedimentation rates were observed (Silverberg *et al.*, 2007). Very high coccolith fluxes were also registered in all 6 samples recovered during the entire 6-week period. During Hurricane Ignacio, values of  $15 \times 10^8$  coccoliths/m<sup>2</sup>/d were encountered. In the 2 weeks following the impact of Ignacio, fluxes remained higher than non-hurricane years. Fluxes then peaked again, to even higher values ( $129 \times 10^8$  coccoliths/m<sup>2</sup>/d), for the 2 weeks following the passage of Marty. Furthermore, the species composition of the nannoplankton changed from a dominance of *G. oceanica* and *E. huxleyi* under normal conditions, to a dominance of *F. profunda* during the hurricane-influenced period. Some species encountered rarely or in low abundance during non-hurricane seasons were more common or abundant during the hurricane period, while some minor species were apparently unaffected.

### Reference

Silverberg, N., Shumilin, E., Aguirre-Bahena, F., Rodríguez-Castañeda, A.P. & Sapozhnikov, D. 2007. The impact of hurricanes on sedimenting particulate matter in the semi-arid Bahía de La Paz, Gulf of California. *Continental Shelf Research*, **27**: 2513–2522.