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Medium Si and Diatom Preservation Potential in Sediments

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Diatom abundance in the sediments has long been used as a proxy for primary production, in particular the one generated by upwelling of nutient rich waters. However, other aspects, such as terrigenous sediment particles flux and bottom waters Si content, have always been considered to play an important contribution to the final diatom preservation potential in the sediments.
At the moment, the existence of diatom abundance data from the sediments covering the ocean bottom of all five important modern coastal upwelling areas of the ocean, as well as satellite derived primary productivity estimations, water column physical properties and nutrients content, allows a simple statistical study of the relative contribution of the above mentionned parameters for the final sediment diatom record.
Preliminary results indicate the upwelled waters Si content as the determinant factor for diatom abundance in the sediments and reveals that the diatom preservation potential increases exponentially relatively to medium Si content. This relationship follows the hyperbolic distribution defined by the “Michaelis-Menteu” equation.