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HIGH PRIMARY PRODUCTIVITY IN THE NORTHEAST PACIFIC DURING THE LAST GLACIAL MAXIMUM INDICATED BY DIATOM TRANSFER FUNCTIONS

Maximum Likelihood transfer functions applied to modern calibrations from NE Pacific reveals significant relations between diatoms and oceanic annual productivity. The existence of no-analog lead us to test this transfer function not only with independent methods such as Artificial Neural Networks but also by comparing the no-analogs removal. The reconstructions using both approaches and the removal of no-analogs show similar results and have the same trends. Results show that during the Last Glacial Maximum, annual productivity was higher by 1.5 to 2 times than modern days, despite the suppression of coastal upwelling. Comparison of our results with previous data of organic carbon and carbonate mass accumulation rates and percentages, shows that although the ecosystem was productive, it was less efficient in exporting organic carbon. The results presented here are the first approach considering quantitative reconstructions of oceanic productivity in this area. Possible sources for the nutrients needed to support such system can be the recycling in the water column, the freshwater inputs, the increase of open ocean upwelling, enhancement of southern currents and/or a mixture of all the previous.

Poster presentation

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