

## Reconstructing paleo-monsoon changes and variability from marine sediment records: State-of-the-art and perspectives

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Many marine records deal with past changes of monsoon wind intensity based on the study of eolian material and/or changes in the development of seasonal upwelling systems. Far less marine records are available for the study of past changes in the intensity of monsoonal precipitations and changes in river runoffs. Over the last 10 years, we have seen the rapid development of Mg/Ca-thermometry on planktonic foraminiferal shells as a tool to reconstruct past surface water temperatures. This technique makes it possible to derive  $\delta^{18}\text{O}_{\text{sw}}$  of seawater from the coupled analysis of  $\delta^{18}\text{O}$  and Mg/Ca performed on the same foraminifer species. This potentially eliminates several biases (depth, seasonality) associated to coupling planktonic  $\delta^{18}\text{O}$  measurements with temperature reconstructions obtained from statistical analyses of foraminifer assemblages or based on the chemical analyses of bio-material produced by other organisms (*i.e.*, U<sub>K</sub>-37 from coccoliths). However, recent developments in Mg/Ca-thermometry have suggested several potential biases (eg dissolution effects, salinity dependency), which may significantly alter our capacity to derive accurate  $\delta^{18}\text{O}_{\text{sw}}$  of seawater. In this presentation, I will make a rapid review of past changes in monsoon intensity that can be derived from marine sedimentary records and will address the interest of Mg/Ca- $\delta^{18}\text{O}$  coupled analyses performed on foraminifer shells, the potential drawbacks and prospective of this approach.