



High resolution evolution of post-rift terrigenous sediment yields in the Provence Basin (Western Mediterranean): relation with climate and tectonics

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The correlation of stratigraphic markers between the shelf, the slope and the deep basin have enabled us to provide a complete and quantitative view of sediments fluxes for the last 6 Ma on the entire Gulf of Lions margin. Messinian units and Pliocene and Pleistocene chronostratigraphic markers have been correlated from the shelf to the deep basin and the total sediment thickness from the basement (20 Ma) to the present-day seafloor has also been mapped. After Time/Depth conversion and decompaction of each stratigraphic interval, sedimentary volumes were calculated. Sediment flux evolution shows that a dramatic terrigenous peak occurred during the Messinian Salinity Crisis. The Pliocene-Pleistocene average flux appears to have been three times higher than that of the Miocene, which seems in agreement with published measurements from the World's ocean. This study also highlights the Mid-Pleistocene Revolution around 0.9 Ma, which resulted in an almost doubling of sedimentary detrital fluxes in the Provencal Basin. These results are discussed in relation with world-wide climate and alpine tectonics.