



## Miocene to Pliocene osmium isotopic records of Mediterranean sediments

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In the late Miocene the Mediterranean Sea experienced a salinity crisis and thick sequences of evaporites precipitated across the basin. In this study we report Os isotopic records from drilled cores in the Mediterranean; the Balearic Sea, the Tyrrhenian Sea, the Ionian Basin and the Florence Rise. Pliocene sediments at all sites show  $^{187}\text{Os}/^{188}\text{Os}$  values close to that of the coeval ocean water, indicating that the Mediterranean was connected to the North Atlantic. Evaporitic sediments deposited during the late Miocene however, have  $^{187}\text{Os}/^{188}\text{Os}$  values lower than coeval ocean water values and samples from the eastern Mediterranean and Ionian basins are particularly low. Os isotopic ratios of the pre-evaporite sediments in the western Mediterranean are almost identical to that of the coeval ocean water. In contrast, equivalent sediments from the Florence Rise have significantly lower  $^{187}\text{Os}/^{188}\text{Os}$  values. The offset of Mediterranean evaporite  $^{187}\text{Os}/^{188}\text{Os}$  is attributed to limited exchange with the North Atlantic during the Messinian Salinity Crisis (MSC). The source of unradiogenic Os is likely to be weathering of ultramafic rocks (ophiolites) cropping out in the Mediterranean's drainage basins. The offset in the Os ratio on the Florence Rise is attributed either to limited water exchange between eastern and western Mediterranean, or to local effects associated with exhumation of ophiolites around the eastern Mediterranean Sea.