The syn- and post-obduction history of the offshore north Oman margin

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The offshore north Oman margin, located north of the Hajar Mountains in the Gulf of Oman, remains a key area for understanding the evolution of the obduction Emails Ophiolite. With the help of a grid of 2D-multichannel seismic lines linked to well data, we present a new view of the obduction and post-obduction history of the Oman margin. Offshore deposits, overlying on what we interpret as being the offshore extension of the ophiolites, can be divided into two mega-sequences. The older one is comprised of late Cretaceous to Paleogene deposits mainly located in the Sohar basin and offshore of the Abat trough. In the Sohar basin, the latest stages of obduction are recorded by the deposition of the erosional products of the Autochthonous Arabian sediments and the ophiolite, in a flexural basin induced by a volcanic high. Offshore of the Abat trough, a Maastrichtian-Paleocene basin develops above a detachment fault system linked to the extension phase associated to the exhumation/expulsion of the subducted continental margin. Both sectors are divided by a structured high located offshore of the Semail Gap transfer fault. We propose that this transfer fault, likely a major Pan-African structure, impacted both the architecture of the passive margin following the rifting of the Neotethys and later ophiolite emplacement, during (continental) subduction and obduction.