

## **Sedimentary record of the obduction of the Samail ophiolite in northern Oman: the Muti Formation in the Sail Hatat window**

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The obduction of the Samail Ophiolite in Oman took place during the Upper Cretaceous. Since then, the northern part of Oman has been relatively preserved from deformation and is therefore one of the best places to study obduction processes. In addition, radiometric data provide good constraints on the timing of obduction from the formation of the metamorphic sole until the exhumation of the high-pressure / low-temperature metamorphic rocks involved in the subduction zone below the oceanic lithosphere. However, the response of the continental margin during the obduction is still poorly constrained. If most of the models suggest the development of a flexural basin and an associated forebulge such as in continental collision, their recognition within the syn-tectonic deposits led to different interpretations. The geometry of the youngest syn-tectonic deposits (Fiqa Formation) is relatively well constrained by sub-surface data that suggest a southward migration of the depocenter and progressive onlaps on the southern margin of the basin. The context of sedimentation of the oldest syn-tectonic deposits (Muti Formation) preserved below the nappes in the Oman Mountains is, however, still poorly understood. The location of the sedimentation area with respect of the forebulge, for instance, remains unclear.

In order to acquire better constraints on the record, on the Arabian platform, of first steps of the obduction, the analysis of several sections of the Muti Formation has been performed. We present here our main results for the north-eastern part of the Oman Mountains, in the Sail Hatat window, where the thickest successions have been described in Quryat and Bidbid area, respectively located in the eastern and western part of the Sail Hatat window. Sedimentological and structural analysis have been combined to reconstitute the evolution of depositional environments in areas strongly affected by deformation. In addition, systematic measurements and restoration of palaeocurrents, petrological determinations and geochronological analyses (LA-ICPMS) on detrital zircons have been performed in order to identify the source areas.

In both studied areas, the sedimentary series are characterised by mainly carbonated slope to basin deposits. The more distal deposits identified are in the easternmost part (Quryat area). Episodes of terrigenous input are recorded in both areas and palaeocurrents indicate a source area located toward the south, in agreement with the dating obtained on detrital zircons, yielding a dominant population at ca. 800 Ma. These results suggest that the Proterozoic basement was being eroded during the sedimentation of the Muti Formation in the Sail Hatat window and an episode of uplift of the Huqf High is therefore inferred. These results allow to discuss the evolution of the north-easternmost part of the Arabian platform during the first steps of the obduction.