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Sedimentary model for Eocene exotic blocks of carbonates and turbiditic carbonate deposits in the South Sistan Basin, SE Iran

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The N–S-trending Sistan Suture Zone in east Iran results from collision of the Lut Block to the west with the Afghan Block to the east. Extensive Eocene turbiditic sequences with numerous exotic carbonate olistholiths and carbonate debris flows in the southern part of the Sistan Basin (so-called Neh Accretionary Wedge) were deposited in a deep-marine environment. Litho-biostratigraphy of the exotic carbonate blocks and carbonate debris flows with surrounding sandstones aims to develop a paleoenvironmental model for the South Sistan sedimentary basin. The olistholiths, of Early to Middle Eocene age, are derived from one or more carbonate platforms including inner shelf (protected platform), shelf margin (coral reefs, skeletal sand bars) and upper slope deposits. In addition, the terrigenous turbidites that form the background sediments of the basinal deposits are interlayered with carbonate mass-flow deposits, lime turbidites and scarcer pelagic limestones with planktonic foraminifera of Eocene age showing that the mass-flow events contemporaneous with platform evolution. The absence of terrigenous detritus and of volcanic material in the platform limestones and related mass-flow deposits suggests that the carbonate platform was presumably located on the Kuh-e-Birk passive margin, to the southwest of the Sistan Basin.
Key words: South Sistan Basin, sedimentary model, Eocene, olistostrome, carbonate platform