Geophysical Research Abstracts
Vol. 14, EGU2012-6416, 2012
EGU General Assembly 2012

Turbidite system architecture and recent sedimentary processes along the Nothern margin of the eastern Gulf of Aden

C. Baurion (1,2), S. Zaragosi (3), C. Gorini (1,2), S. Leroy (1,2), F. Lucazeau (4), and S. Migeon (5)

(1) UPMC Univ. Paris 06, UMR 7193, ISTEP, Paris, France (celine.baurion@upmc.fr), (2) CNRS, UMR 7193, ISTEP, Paris, France, (3) Université de Bordeaux, UMR CNRS 5805 EPOC, Talence, France, (4) Dynamique des Fluides Géologiques, IPGP, UMR CNRS 7154, Paris, France , (5) Géoazur, Observatoire Océanologique, Villefranche/Mer, France

The depositional architecture across a stretched and segmented margin is composed of several turbidite systems and mass-transport deposits, which constitute the record of tectonic, climate and high-resolution eustatic events. The characterisation of turbidite system architecture is a main challenge in order to clarify which of these parameters controls the margin dynamics. In the Eastern part of the Northern margin of the Gulf of Aden, the main turbidite systems are localised in the western part of the basin and the mass-transport deposits are mainly concentrated along the part of the margin affected by a late post-rift uplift. Using bathymetric data, backscatter imagery, Chirp profiles, and sediment cores, we show that these deep-water turbidite systems highlight the importance of flooding of wadis (streambed that remains dry except during the rainy season), under the influence of the Asian monsoon-climate, on the sediment transfer from onshore to the deep basin. Although previous studies revealed the importance of coarse-grained carbonate turbidites on the sedimentation of the basin, our cores underline the predominance of fine-grained turbidites in our study area. This second type of turbidites seems to be related to the onshore sedimentary cover, which is mainly composed of carbonate rocks. These rocks are incised by a drainage system, which is characterised by a watershed localised only a few kilometres from the coastline. This morphology implies that the drainage network is not mature on this starved margin, affected by post-rift uplift. To conclude, the recent sediment architecture of the northern margin of the Gulf of Aden appears to be primarily controlled by the strong climatic and tectonic forcing parameters.