



## **Holocene estuary development in the Algarve Region (Southern Portugal)**

Heike Schneider (1), Dana Höfer (2), Carmen Trog (2), Rita Hempel (2), Gerhard Daut (2), and Roland Mäusbacher (2)

(1) Philipps-University Marburg, Marburg, Germany (heike.schneider@uni-jena.de), (2) Friedrich-Schiller-University Jena, Jena, Germany

Former coastal estuaries in the Algarve region of South Portugal are used for reconstruction coastal evolution since first marine transgression processes at about 8.000 years before. The sediments of these archives allow high resolution analyses of geochemical and palynological signals. Drillings in different lagoons of the Algarve region contain the sequences from the fluvial sediments during the early Holocene, marine transgression facies during the middle Holocene and the marine/fluvial sediment deposits until present.

The results of the sedimentological, geochemical and palynological analyses show that each estuary developed differently, depending on the morphology of the paleovalley, environmental conditions and especially the influence of the sea and the formation of barrier systems. The estuaries were flooded between 7500 and 5500 cal a BP by sea level rise and were almost completely filled by sediment by the beginning of the Roman occupation (226 y BC / 2176 cal a BP). A clear change in sedimentological processes is evident in the estuaries between 5500 and 3000 cal a BP and is interpreted as a result of high energy events such as storms or tsunamis (Schneider et al. 2009, Hilbich et al. 2008 ). Palynological as well as archaeological investigations show distinct anthropogenic influences since 3500 cal. BP by increasing values in maquies, cereals and open land communities.

### References

Hilbich, C., Mügler, I., Daut, G., Frenzel, P., van der Borg, K., Mäusbacher, R. (2008): Reconstruction of the depositional history of the former coastal lagoon of Vilamoura (Algarve, Portugal): A sedimentological, microfaunal and geophysical approach.- *Journal of Coastal Research* 24(2B), 83-91.

Schneider, H., Höfer, D., Trog, C., Busch, S., Schneider, M., Baade, J., Daut, G. & R. Mäusbacher (2009): Holocene estuary development in the Algarve Region (Southern Portugal) - A reconstruction of sedimentological and ecological evolution. - *Quaternary International* (In Press, Accepted Manuscript, Available online 24 October 2009).