



Global M_2 Simulations for the Early Miocene delivering boundary conditions for a shallow water model of the Burdigalian Seaway

U. Bieg (1,2), M. Thomas (2) and M.P. Süß (1,3)

(1) Technical University of Darmstadt, Institute for Applied Geosciences, Germany (2)
Technical University of Dresden, Institute for Planetary Geodesy, Germany (3) University of
Tübingen, Institute for Geosciences, Germany (bieg@geo.tu-darmstadt.de / Fax:
+49-6151-16-6539 Phone: +49-6151-16-2271)

Tidal waves show a high sensitivity to the geometry and depth of ocean basins. Hence ancient marginal seas are expected to have experienced rapid changes of their tidal environment in earth history. The aim of this study is to evaluate changes in the propagation of tidal waves in the circum-Mediterranean for the Early Miocene. For this we compute a global M_2 tidal model, which is based on a global reconstruction of palaeogeography and palaeobathymetry for the Early Miocene. To analyse the sensitivity of the tidal systems, alternative palaeogeographic scenarios were tested for the circum-Mediterranean. Beside a deepened seaway towards the Atlantic, different seaway configurations in the eastern Mediterranean realm have been evaluated. The results of this study are used to define boundary conditions of a high resolution shallow-water tidal circulation model of the Burdigalian Seaway, which links the active oceans of the western Mediterranean with the Paratethys.