

Integrated stratigraphy of the Vienna Basin – data, concepts, paradigms

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During the last years, several projects have been initiated by OMV to improve the stratigraphic resolution of the Neogene deposits in the Vienna Basin. So far, all attempts to propose an integrated stratigraphy of the basin were hampered by the limited information from few surface outcrops and by the lack of cross-correlations between the major hydrocarbon fields. Within our projects, numerous lithostratigraphic units were validated or newly defined based on well-log and seismic information coupled with new biostratigraphic data from hundreds of core samples. The resulting information was put into an updated chronostratigraphic frame, which is now synthesized in the “Cenozoic Lithostratigraphic Units of Austria (sedimentary successions)”. The new data allowed not only to clearly define sediment thicknesses and to trace major unconformities but revealed also gaps in sedimentation, which so far have been overlooked. In addition, for all lithostratigraphic units, the prevailing paleoenvironments have been evaluated and the paleobathymetry of different parts of the basin was calculated through time by applying a new transfer-function, based on foraminifers. The adapted chronostratigraphy is a major anchor for any calculations of sedimentation rates and thus for interpretations of the subsidence history of the Vienna Basin. Many paradigms, such as the Eggenburgian onset of piggy-back tectonics, the absence of anhydrites of the Badenian Salinity Crisis in the Vienna Basin, and the presence of Pontian strata, have been questioned by the new results. The refined regional chronostratigraphy leads to a critical evaluation of fits and misfits in correlating major stratigraphic boundaries in the Vienna Basin (which in some cases might act as pars pro toto for Central Paratethys stratigraphy) with global climatic events and global sea-level changes. Hence, the newly established scheme will be an important step for distinguishing the influence of global events from regional tectonics.