

Title: The Jurassic mollusc faunas of the Venetian Southern Alps (northern Italy): biostratigraphic context and palaeobiogeographic significance

Summary: The Early Jurassic time span is marked in the Tethyan realm by palaeogeographic and palaeoenvironmental changes driven by the Neotethyan rifting that had a profound impact on the marine biodiversity. Carbonate platforms and other shallow water areas of the central region of the western Tethys were progressively split up producing a complex geographical configuration. Conversely, the central and western European areas, corresponding to a wide epicontinental region, remained relatively stable. Along the southern boundary of this region, the northern margin of the Saharan craton, and in a number of areas of the central part of western Tethys the carbonate platform deposition remained active. Other areas drowned at different times, and the carbonate platform systems were replaced by a pelagic deposition locally mixed with gravity-flow deposits. Previous studies demonstrated that such events clearly imprinted the biogeographic and evolutionary history of the invertebrate benthic faunas, especially the gastropods. The establishment and diffusion of environments with pelagic sedimentation were accompanied by the appearance of a new faunal stock characterized by several endemic species and differing from the communities that populated the carbonate platforms and the epicontinental seas. This is well documented in a number of palaeogeographic units, such as the Bakony Mountains (Hungary), Northern Calcareous Alps (Austria), western Pontides (Turkey), Umbria-Marche (central Italy) and Peloritani Mountains (Calabrian Arc, southern Italy). Faunas from other areas are poorly known and insufficiently constrained biostratigraphically, therefore their significance in the context depicted above remains difficult to evaluate. This is the case for the Venetian Southern Alps (northern Italy) and its Jurassic invertebrate faunas. The primary goal of the project is to fill this knowledge gap by pinpointing stratigraphically the gastropods beds of the Jurassic successions of the Venetian Alps based on an updated ammonite zonation, and correlating them with analogous levels of areas located in the central region of western Tethys (mainly Transdanubian Central Range in Hungary, central Apennines and Sicily in Italy) and the European epicontinental shelf (Paris and Rhone Basins, England, Hannover Basin, Swabia and Franconia). A database of ammonites time-space distributions will be compiled and the data collected will be used to carry out a combined gastropods/ammonites palaeobiogeographic analysis with quantitative methods, such as hierarchical clustering (UPGMA) using similarity coefficients and parsimony analysis of endemism (PAE).

Main outcome of the project is the production of a knowledge base useful to reconstruct in detail the changes in biodiversity of these groups through the Jurassic, looking in particular at mass extinction events, their dynamics and possible relationship with global environmental disturbances, such as oceanic anoxic events, climatic oscillations and disruption in geochemical cycles.

The project would benefit from the ongoing collaboration with research groups of the Musée National d'Histoire Naturelle (Luxembourg), the Laboratoire Biogéosciences, Université de Bourgogne, Dijon (France) and the Bayerische Staatssammlung für Paläontologie und Geologie, Munich (Germany).

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