Heritage and Innovation), Sevilla, Spanien.
STÖLLNER, T. (2008): Bronzezeitliche Massenproduktion von Kupfer am Mitterberg. - Archäologie in Deutschland, **4**: 32-33.

A distinct cooling predates the Mid-Miocene Climate Optimum in Central Europe

HARZHAUSER, M.[1], GRUNERT, P.[2] & PILLER, W.E.[2]

[1] Natural History Museum Vienna, Geological-Paleontological Department, Burgring 7, 1014 Vienna, Austria; mathias.harzhauser@nhm-wien.ac.at;
[2] Institute for Earth Sciences, Graz University, Heinrichstraße 26, 8010 Graz, Austria; patrick.grunert@uni-graz.at; werner.piller@uni-graz.at

Epicontinental seas with their vast climate-sensitive shelf areas comprise a valuable archive for paleoclimatology. In many cases, their sedimentary records document the impact of global climate patterns as well as regional aberrations thereof with higher accuracy than records of the open ocean.

Based on an evaluation of more than 170 localities, a review of the paleoclimatic record of the mid-Burdigalian (late Eggenburgian-late Ottnangian; c. 17.2-19.2 Ma) Central Paratethys Sea and its adjacent continental hinterland reveals a quick deterioration of climate from subtropical to temperate conditions around 18.1 Ma. The signal is present in marine and terrestrial proxies: a temperature drop of c. 2-3 °C is estimated for surface and bottom waters of the Central Paratethys and a less pronounced drop of c. 1.5 °C for terrestrial climate. Based on the regional stratigraphic frame-work temperate conditions lasted for approximately 300 ka. Climate recovery towards subtropical conditions started not before c. 17.8 Ma heralding the Miocene Climatic Optimum.

Synchronous tectonic and paleogeographic events suggest a two-step model to explain this pattern: (1) The closure of the Tethyan Seaway towards the Indo-Pacific Ocean and a renewed connection of the westernmost branch of the Western Tethys with the Central Paratethys via the North Alpine Foreland Basin resulted in a major change of circulation patterns. The inflow of warm surface waters from the Indo-Pacific ceased resulting in cooling of the Mediterranean and Paratethys seas. (2) Subsequently, the trend towards temperate conditions was amplified by an Antarctic glaciation (isotopic event Mi1b, c. 17.8-17.9 Ma) resulting in a short-term drop in global temperatures causing subsequent cooling of the marine water and the terrestrial climate.

More studies on continuous sedimentary records from drill sites are in progress and will further help to document and understand regional paleoclimate. The present study shows exemplary the importance of epicontinental seas as high-resolution recorders of past climate on a local and global scale.

A new Early Miocene barnacle lineage and the roots of sea-turtle fouling Chelonibiidae (Cirripedia, Balanomorpha)

HARZHAUSER, M.[1], NEWMAN, W.A.[2] & GRUNERT, P.[3]

[1] Natural History Museum Vienna, Geological-Paleontological Department, Burgring 7, 1014 Vienna, Austria; mathias.harzhauser@nhm-wien.ac.at;
[2] Scripps Institution of Oceanography, California, USA; wnewman@ucsd.edu;
[3] Institute for Earth Sciences, University of Graz, Heinrichstraße 26, 8010 Graz, Austria; patrick.grunert@uni-graz.at

The origin of the mainly sea-turtle fouling balanomorph family Chelonibiidae is still poorly documented. Aside from an erratic Eocene occurrence, assigned to an extinct subfamily, the extant subfamily Chelonobiinae did not appear in the fossil record before the Late Miocene. Now, a new lineage is recorded as an extinct sister-group of the Chelonibiinae. The new subfamily is known so far only from the proto-Mediterranean and the Paratethys seas and ranged from Early Miocene to Late Pliocene times. Members of the subfamily are characterised by large walls with tripartite rostra which display distinct sutures on the external surface. The tripartite rostrum, however, has evolved independently several times in the evolution of the balanomorphs and cannot be treated as synapomorphy. The subfamily comprises one new genus and two species. The sculpture of the host substratum is preserved as imprints along the carino laterals of one specimen. Although the pattern of ridges and furrows cannot be identified with certainty, the similarities with the sculpture of the carapax of modern *Caretta* suggests the new genus as earliest record of sea-turtle fouling in balanids. The co-existence of members of both subfamilies during the Miocene and Pliocene documents a higher diversity of chelonibiids in pre-Pleistocene times and indicates that Chelonibiinae were able to out compete their supposed sister-group with the onset of the glacial cycles.

Lepadiform and scalpelliform barnacles from the Oligocene and Miocene of the Paratethys Sea

HARZHAUSER, M.[1] & SCHLÖGL, J.[2]

[1] Natural History Museum Vienna, Burgring 7, 1010 Vienna, Austria; mathias.harzhauser@nhm-wien.ac.at;
[2] Department of Geology and Palaeontology, Faculty of Sciences, Comenius University, Mlynska dolina, 842 15, Bratislava, Slovakia; schlogl@nic.fns.uniba.sk

Oligocene and Miocene lepadiform and scalpelliform barnacles are still poorly known. The records are isolated and spotty. Ten species of stalked barnacles are known from the Oligocene and Miocene of the Paratethys Sea. These comprise 2 lepadiform and 8 scalpelliform species. Only 2 species are recorded from the Oligocene, whereas 4 are documented from the Early Miocene and another 4 from the Middle Miocene. Only one Oligocene and one Miocene