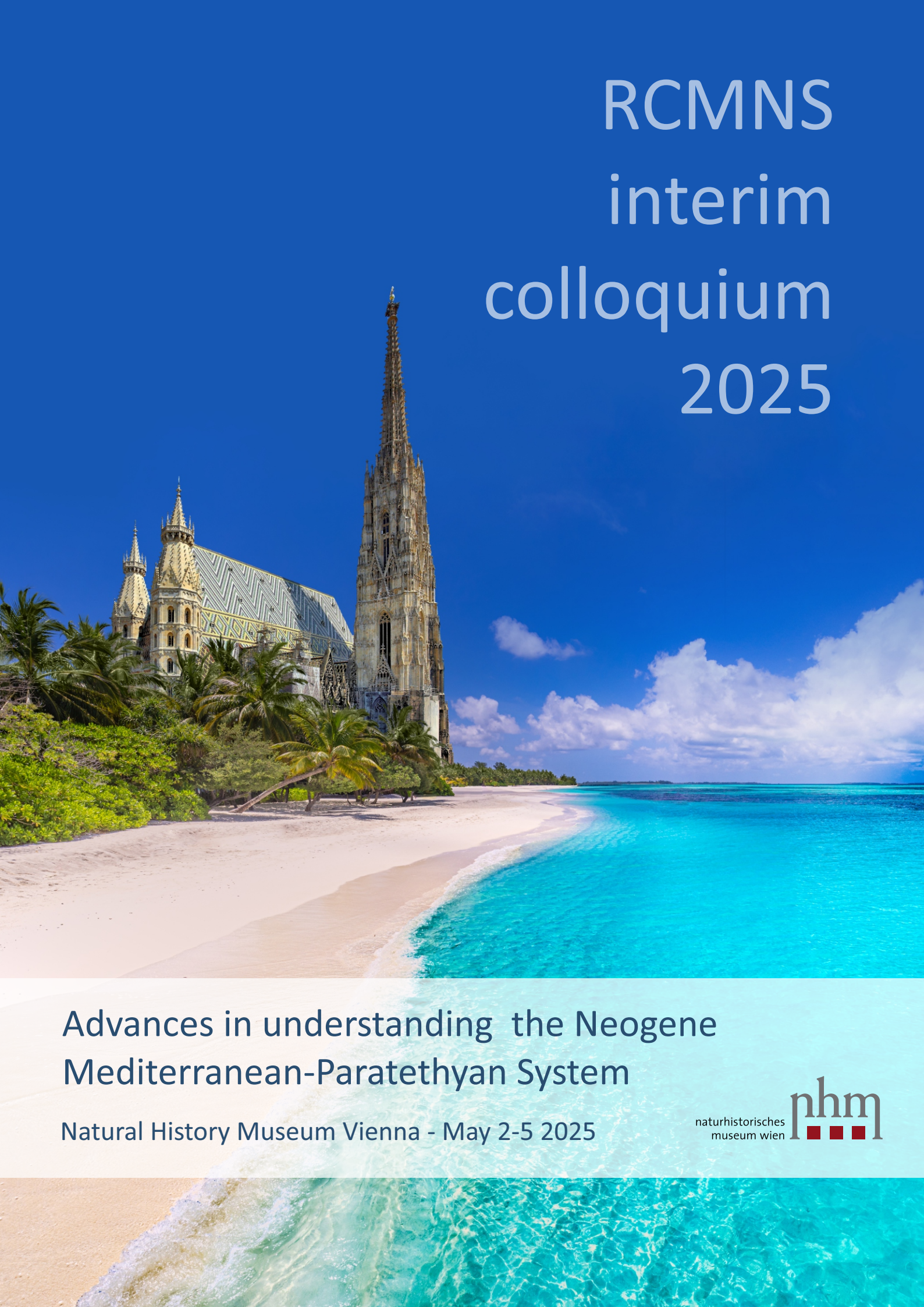




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New insight on the upper Miocene vertebrate fauna of Tizi N'Taddert (Ouarzazate Basin, Morocco): Biochronology, Biogeography and Ecology

Samir Zouhri¹, Lorenzo Rook², Saverio Bartolini-Lucenti², and Hassan Rhinane¹

¹Geosciences Laboratory, Faculty of Sciences Ain Chock, Hassan II University of Casablanca, BP 5366 Maârif, 20100 Casablanca, Morocco

²Earth Sciences Department, Paleo[Fab]Lab, Università degli Studi di Firenze, Via G. La Pira 4, Firenze 50121, Italy

The Upper Miocene site of Tizi N'Taddert near Skoura in the Ouarzazate basin, southern slope of the Central High Atlas in Morocco, is interesting for several reasons. First of all, it is by far the only real upper Miocene site to yielded significant samples of large mammals. It then constitutes, with the middle Miocene site of Beni Mellal and the late/terminal Pliocene site of Ahl al Oughlam, one of the three benchmarks of the Neogene large mammals biochronology in Morocco.

The first two field missions, carried out in 2012 and 2013, led to the discovery of ostrich shell fragments and remains of crocodiles, turtles and mammals in Tizi N'Tadderht, which helped to fill a gap in the faunal documentation of the Neogene of North Africa. A late Miocene age, corresponding more precisely to the Turolian of Europe, was then proposed for this fauna. The two latest missions, carried out in 2018 and 2023, were mainly focused on the search for Miocene and Pliocene hominid fossils in the Ouarzazate basin. They led to the discovery of more mammalian material, including more interesting specimens which made it possible to better document taxa that had previously been poorly identified, such as a skull of *Tetralophodon*, or to identify new taxa, such as the case of *Eoazara xerrii*, the first representative of the subfamily Elasmotheriinae in North Africa or the discovery of the first remains of carnivorans from the basin.

The paleobiogeographic interest of Tizi N'Taddert lies in the presence in the area of numerous taxa that support strong biogeographic relationships between the Maghreb and localities of Central and Eastern Asia from similar latitudes. Moreover, the absence of taxa documenting faunal exchanges with the northern shore of the western Tethys during the first part of the Late Miocene testify to the distinction between these areas. Ecologically, the updated faunal list suggests a savannah-type faunal association consistent with increased aridification in North Africa at the end of the Miocene.