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An exceptional diverse trilobite ichnofauna from the uppermost Devonian of Anti-Atlas, Morocco

Wahiba Bel Haouz, Abdelouahed Lagnaoui, Christian Klug, Mehdi Maanan, and Lahssen Baidder
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We present a highly diverse ichnoassemblage of latest Devonian (Famennian) age from the eastern Anti-Atlas of Morocco, dominated by trilobite and other arthropod trace fossils. It consists of invertebrate and vertebrate ichnotaxa, including *Cruziana lobosa, Diplichnites gouldi, Rusophycus antiatlasensis* isp. nov., *Rusophycus* cf. *carleyi*, associated with *Arenicolites* isp., *Fustiglyphus* isp., *Lockeia* isp., *Mammillichnis* isp., *Planolites* isp., *Paracanthorhaphe* isp., *Treptichnus* isp., and *Undichna* isp. These ichnoassemblages are ascribed to the archetypal *Cruziana* ichnofacies, indicating a shallow-marine environment within low hydrodynamic-energy settings, stable substrate conditions and regular organic matter sources. The results of this ichnological study are remarkable in the following aspects: (i) the report of the youngest occurrence of *C. lobosa*, (ii) introduction of *R. antiatlasensis* isp. nov., as a new ichnospecies and (iii) the evidence of collective behaviour and predation as well as protection strategies of trilobites. Judging from the diversity of the invertebrate and vertebrate trace fossils and previously described fish and cephalopod remains, a shallow marine ecosystem was present during the latest Devonian in the eastern Anti-Atlas.

Key words: Trilobita, invertebrate ichnoassemblages, ichnodiversity, palaeoethology, new ichnotaxa, Famennian, Devonian, Morocco.

Wahiba Bel Haouz [wahiba.belhaouz@gmail.com; ORCID: https://orcid.org/0000-0002-4799-9697], Mehdi Maanan [mehdi.maanan@gmail.com; ORCID: https://orcid.org/0000-0003-3019-6860], and Lahssen Baidder [lbaidder@_gmail.com; ORCID: https://orcid.org/0000-0001-5318-7102], Géosciences, Géomatique, Planétologie and Environnement Laboratory, Department of Geology, Faculty of Sciences Ain Chock, Hassan II University, km 8 Route d'El Jadida, 20100, Casablanca, Morocco. Abdelouahed Lagnaoui [abdelouaed.lagnaoui@uhp.ac.ma ; ORCID: https://orcid.org/0000-0002-4176-1987], Laboratory of Education, Sciences and Techniques, Higher School of Education and Training Berrechid, Hassan First University, Route de Casablanca km 3.5, BP 539, 26100, Berrechid, Casablanca-Settat, Morocco. Christian Klug [chklug@pim.uzh.ch ; ORCID: https://orcid.org/0000-0002-4099-7453], Paläontologisches Institut, Universität Zürich, Karl-Schmid-Strasse 4, 8006, Zürich, Switzerland.


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