of global stressful conditions related to the aftermath of the end-Permian mass extinction event, as suggested by earlier studies.

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New remains of an atoposaurid neosuchian (Archosauria: Crocodyliformes) from the Upper Jurassic (Kimmeridgian) of the Langenberg Quarry, Oker (Lower Saxony, northwestern Germany)

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Bone material of atoposaurid crocodiles is very rare in the fossil record of the Upper Jurassic. The recently discovered remains of two atoposaurid neosuchians from the Langenberg quarry near Oker (Lower Saxony, Germany) comprise: an almost complete skull with a mandible and various postcranial remains; a juvenile skull with mandible; and different isolated postcranial bones. Both skulls are three dimensionally preserved and brevirostrine, with the maxillary rostrum forming 50 % of the total length of the skull. The juvenile cranium possesses a small antorbital fenestra, whereas the adult skull is missing an antorbital fenestra. The jugal is proportionately long. The dorsal surface of the squamosal bears a rounded, longitudinal crest that separates the dorsal part from a bevelled lateral part. The caudolateral corner of the squamosal forms a short, rounded caudolaterally-directed process. The supraoccipital forms the medial third of the caudal margin of the cranial table. The secondary choanae are mostly bounded by the palatines. The dentition comprises teeth that are conical and slightly curved lingually; and lanceolate teeth. There are no clearly identifiable external mandibular fenestrae. The biserial dorsal shield comprises strongly sculptured parasagittal osteoderms. The frontal of the juvenile skull is partially unfused. Specific observed characters indicate that the Langenberg material is closely related to *Theriosuchus*. Being Upper Jurassic the new remains are approximately of the same age as the oldest known atoposaurid *Theriosuchus guimarotae* and represent the first evidence of atoposaurid bone material from Germany. Previously only teeth were known.

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Modern holothurian calcareous ring morphology (Echinodermata) – the need for more detailed studies

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The defining feature of all members of the Holothuroidea is the calcareous ring, which is possessed by nearly all modern sea cucumbers. The calcareous ring supports the pharynx, the anterior section of the water vascular system and provides points of attachment for the longitudinal and (if present) retractor muscles; furthermore, it is known that in some groups, a notch or a perforation in radial elements is present for the passage of radial nerves. However, almost nothing is known about the 3D-morphology and the stereom structure of the holothurian calcareous ring; similarly, the evolutionary origin of this structure is also uncertain.
According to taxonomical studies on modern holothurians, the calcareous ring is considered to be highly important because of major differences in this structure within various orders and/or families. There are a few reports on fossil calcareous ring elements, but this structure was nearly completely neglected by palaeontologists. Isolated fossil calcareous ring elements were mostly misinterpreted as aberrant ossicles or 'fused side shields' of ophiuroids.
However, this structure offers more information, but this can only be deduced through a better '3-D' understanding of the calcareous ring of modern sea cucumbers, which is still largely missing.
Here we offer preliminary results from detailed studies of hard parts using X-ray computed tomography and scanning electron microscopy of members (> 15 species) of the Apodida (Chiridotidae, Myriotrochidae), Aspidochirotida (Holothuriidae, Synallactidae), Dactylochirotida (Ypsilothuriidae), Dendrochirotida (Cucumariidae, Psolidae), Elasipoda (Elpidiidae, Laetmogonidae), and Molpadiida (Caudinidae, Eupyrgidae, Molpadiidae).

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