

The paleoclimatic significance of Eurasian Giant Salamanders (Cryptobranchidae) – indications for elevated humidity in the Eastern Paratethys area during global warm periods (Late Oligocene warming, Miocene Climatic Optimum, Early Pliocene warming)

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Cryptobranchids represent a group of large sized (up to 1.8 m) tailed amphibians known since the Middle Jurassic (Gao & Shubin 2003). Two species are living today in eastern Eurasia: *Andrias davidianus* (China) and *A. japonicus* (Japan). Cenozoic Eurasian fossil giant salamanders are known with four genera and five or six species from over 60 localities, ranging from the Late Paleocene to the Early Pliocene (Böhme & Ilg 2003). In the Eastern Paratethys fossil Cryptobranchids are distributed in the Late Oligocene (Altyn Shokisu, Western Kazakhstan), the Early-Middle Miocene transition (Tri Bogatyria, Vympel, Poltinik, Eastern Kazakhstan, Paratethys sensu lato), the Middle/ -Late Miocene transition (Gritsev, Ukraine), and the Early Pliocene (Maramena, Greece; Kuchurgan, Ukraine; Antipovka, Russia and Pavlodar 2A, Northern Kazakhstan).

To investigate the paleoclimatic significance of giant salamanders we analyzed the climate within the present-day distribution area and at selected fossil localities from the Central Europe, where the fossil form are known, with independent paleoclimate record. Our results indicate that fossil and recent Cryptobranchids occur in humid areas where the mean annual precipitation reaches over 900 mm (900 – 1.900 mm).

As a working hypothesis (assuming a similar ecology of *Andrias*) we interpret occurrences of fossil giant salamanders from the Eastern Paratethys region as indicative for humid paleoclimatic conditions. Based on this assumption the latest Oligocene (Late Oligocene warming), the Early to Middle Miocene transition (Miocene Climatic Optimum), the Middle to Late Miocene transition, as well as the Early Pliocene (Early Pliocene warming) in the Eastern Paratethys are periods of elevated humidity, suggesting a direct (positive) relationship between global climate and Eastern Paratethys humidity evolution.

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