

THE MIDDLE PLEISTOCENE SEDIMENTS OF CASPIAN SEA: THE FIRST ABSOLUTE DATES

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During the Quaternary Caspian Sea level changed several times. Researchers have been exploring the Caspian Sea for two centuries. However, there is still no consensus on the number of transgressive-regressive events, their scale, chronology, and causes. The most controversial question is about the chronology of paleogeographic events, since absolute dates were obtained only for the last two transgressions: the New-Caspian (the Holocene) and the Khvalynian (the late late Pleistocene). The most interesting transgression is Khvalynian, which had a catastrophic character in the opinion of some researchers.

Estimated age of the last huge transgression (Khvalynian; max. highstand +50 m a.s.l.) by different researchers varied from 70,000 years to 11,000 years, i.e. from the first half of the Würm to the beginning of the Holocene. Estimated age are based on thermoluminescence dating (Shakhovets, 1987, Rychagov, 1997), electron paramagnetic resonance spectroscopy (ESR) (Molodkov, 1992), uranium-ionium (Kuznetsov, 2008; Arslanov et al., 2016), radiocarbon dating (Arslanov et al, 2016; Tudryn et al., 2013). However, there hasn't been dating of sediments that correspond to the maximum level of the Khvalynian basin.

Along the valley of the Volga River and the inflowing valleys of small rivers, the Caspian Sea created a network of ingressions bays during the largest transgressions. In the 20th century, the Middle Volga region was studied and described in details. But for all this time only two absolute dates have been obtained by the radiocarbon method, which are probably irrelevant. Determining the stratigraphic position of the sediments is difficult due to the almost complete absence of the macrofauna.

We sampled sediments for OSL-dating in one of the most studied sites - Maliy Karaman (Mosk-vitin, 1962), which reveals coastal sediments (described as deposits of the last major transgression - Khvalynian) and underlying loess with soil horizon.

We conducted the dating in the OSL-laboratory in All-Russian Geological Institute (VSEGEI), Saint-Petersburg. We expected dates as the first decades thousands years and therefore used quartz grains. Purity test and recovery test were conducted. However, it was found that the equivalent dose is significantly higher than we thought, and the quartz is saturated. Therefore, the sediment was analyzed by feldspar according to the post-IR IRSL protocol (Thiel et al., 2011).

For coastal sediments dates were obtained that correspond to the end of MIS 8 — the beginning of MIS 10, and for loess with soil horizon — MIS 13.

Thus, coastal sediments can be correlated with a much more ancient Caspian transgression (early-Khazarian; max. highstand +35 m). Thus, these are the first dates for the middle

Pleistocene deposits of the Caspian Sea and the first absolute dates in the Middle Volga region.

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