Geophysical Research Abstracts,
Vol. 10, EGU2008-A-00045, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-00045
EGU General Assembly 2008

Full depositional cycles and oxygen 18 isotopes in marine upper Baku regiostage succession in the Western flank of the South Caspian depression

E. Amirov

Institute of Geology of Azerbaijan National Academy of Sciences, Baku, Azerbaijan
(amirovelnur@yahoo.com / Phone: +994503055058)

The results of the field works on exposures of the Lower Pleistocene deposits located in the Western flank of the South Caspian depression (Shikhov outcrop) demonstrated the high-frequency cyclicity in sedimentation accompanied by rapid lateral and vertical depositional environmental change. It is possible to observe several full depositional sequences developed from low stand system tract to transgressive system tract and high stand system tract. Return to sedimentation under conditions of sea level low stand marks beginning of the next depositional cycle. The depositional setting during accumulation of this succession has changed within shore face-shelf environment.

On the background of these cycles, the depositional series of higher order containing sediments formed during very small-scale sea level fall and rise occur. Below I give the lithofacial characteristics of one full depositional cycle, the value of O18 isotopes and our interpretation of depositional environment during its sedimentation.

Bedset I is subdivided into 10 interbeds with total thickness 2m70cm. Lithologically represented by alternation of sand, sandstone, sandy organogenic limestone, organogenic limestone and shelly sandstone. We consider these series as high stand system tract. In this bedset the measurement of O18 isotopes was made from interbed 4: δO^{18}= -4,274.

Bedset II is lithologically represented by organogenic limestones, thickness 1m10cm. We consider these sediments as low stand system tract.

Bedset III is subdivided into 7 interbeds with total thickness 1m5cm. Lithologically represented by alternation of sand, sandstone, sandy organogenic limestone, organogenic limestone and shelly sandstone. We consider these series as high stand system tract. In this bedset the measurement of O18 isotopes was made from interbed 4:δO^{18}= -4,083.

Bedset IV is lithologically represented by organogenic limestones with total thickness 2m. We consider these series as low stand system tract.

Bedset V is subdivided into 13 interbeds with total thickness 4m30cm. Lithologically represented by alternation of sand, sandstone, sandy organogenic limestone and shelly sandstone. We consider these series as transgressive system tract. In this bedset the measurement of O18 isotopes was made from interbed 12: δO^{18}= -5,389.

Bedset VI is subdivided into 12 interbeds with total thickness 2m78cm. Lithologically represented by alternation of muddy sandstones, sands, sandstones, sandy organogenic limestone and shelly sandstone. We consider these series as high stand system tract. In this bedset the measurement of O18 isotopes was made from 2 interbeds: δO^{18}= -4,468 (Interbed 9); δO^{18}= -5,074 (Interbed 11).

We also carried out the faunal analysis, which displays an insignificant presence of mollusk fauna mainly represented by Didacna and Dreissensia and mostly developed in the organogenic limestones. However our studies demonstrated the abundance of Ostracoda shells represented by genera Tracheleberis, Loxoconcha, Leptocythere, Cyprideis, Cythereis, Xestoleberis, Candona, Caspiocypris, Mediocytherideis, Caspiella and e.t.c.

The quantitative changes of ostracoda composition for each interbed depending on paleotemperature fluctuation in detail point out the tendency of increasing and decreasing of O18 isotopes in shells as indicator of paleotemperature. As results of our research we can say that O18 isotopes increase in high stand system tract and decrease in transgressive system tract, which means decreasing of temperature in high stand system tract and increasing of temperature in transgressive system tract.