



Architecture of the Late Cenomanian OAE2 record in the Central Dagestan, Eastern Caucasus

Yu. Gavrilov, **E. Shcherbinina**, O. Golovanova, B. Pokrovsky, G. Aleksandrova
Geological Institute of the Russian Academy of Sciences (gavrilov@ginras.ru,
shcherbinina@ginras.ru/Fax +7 495 9510443)

Black shale (BS) horizon related to Bonarelli Level (OAE2) is documented in several sections of Dagestan, E Caucasus. Aimaki section, Central Dagestan, is the most thoroughly studied by now. BS sediment (0.6 m, upper CC10a nannofossil zone) is built up of frequent alteration of black calcareous claystone and dark grey marlstone with intercalations of sulfide concretion layers. It onlaps greenish-gray silty marlstone (0.45 m) superposed the 10 m thick sequence of layered limestones with few bentonite intercalations. BS horizon is covered by limestone/marlstone alteration with black chert concretions. TOC concentration shows two peaks (5.2 and 8.3 per mille) separated by lower value (min. 0.68) in the middle of BS. They correspond to two wide negative $\delta^{18}\text{O}$ excursions (~ 2.6 and 6.6 per mille respectively). Positive $\delta^{13}\text{C}$ excursion (~ 2 per mille) corresponds to the BS bottom and declines in the lower part of overlying limestones showing weak oscillations. Many of trace elements (V, Ni, Zn, Mo, Ba, etc.) are highly concentrated within BS. Pyrolysis data indicate large increase of basinal organic matter within the BS (HI 694) evidently caused by wide algae and picoplankton productivity outburst due to intensive fertilization during the rapid transgression while BS accumulated. Rare *Odontochitina* and *Spiriferites* dinocysts are found at the base of BS indicating occurrence of lower salinity environment. Organic matter of the most part of BS is made up of highly disintegrated amorphous organic matter, especially destructed at the level of highest TOC. This more likely corresponds to strongest basin stagnation. Nannofossils display short cool water *Eprolithus floralis* increase, decline of warm water *Rhagodiscus* spp. and highest $\delta^{18}\text{O}$ value prior to BS accumulation evidently corresponded to coolest episode in the record. It is fol-

lowed by inverted ratio within the BS, where nannofossil assemblage became low diverse and rare survived taxa are presented by very small sized specimens. Scarcity of nannofossil assemblage in the BS due to both environmental impact and calcium carbonate dissolution does not allow the reliable estimation of paleoecological changes during BS accumulation. Nannofossils show significant increase of the most resistant *Watznaueria* spp. and *Rhagodiscus* spp. only persist to be relatively frequent (3-10%) implying warm conditions. However, microfossil results can not explain such a large negative $\delta^{18}\text{O}$ excursion in the upper part of BS: was it caused by only extremal warming or combination by warming and salinity decrease? The nature of this phenomenon is still enigmatic. RFBR Project no. 06-05-65282.