

MS13-P123 - LATE | HALOGENESIS AND BIOMINERALIZATION IN THE RESIDUAL BASINS OF THE ARAL SEA

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Catastrophic desiccation transformed the Aral Sea into a system of residual basins with different hydrophysical and hydrochemical characteristics. Extremely high gradients of salinity values and concentrations of hydrogen sulfide and methane observed previously in the Western Large Aral Sea and Lake Tshchebas provoke unique conditions for processes of halogenesis and biomineralization.

Here we present the results of field survey to the Aral Sea taken place in October, 2018. Biogenic opal was actively formed in the well-mixed water column of Lake Tshchebas with salinity values of 47 g/kg by the blooming euryhaline diatom *Cyclotella meneghiniana*, and was located in the diatom frustules *Pleurosigma sp.*, *Proschkinia complanata*, *Navicula sp.*, *Tryblionella apiculata*. The coastal surface crusts consist of the microcrystalline aggregates of thenardite, halite, eugsterite, blödite with inclusions of the opal frustules of diatoms *Mastogloia pumila*. Crusts contain microzones of hydrotroilite and filaments of green alga *Cladophora*, often encrusted with crystals of chemogenic minerals.

In the Chernyshev Bay of the Western Large Aral Sea, the measured salinity was 72 g/kg in the surface layer and 235 g/kg in the bottom layer. The opal frustules of diatoms *Tabularia tabulata*, *Halamphora cymbifera*, *Cocconeis placentula var. euglipta*, *Cyclotella meneghiniana* were found in the water column. Coastal dense crusts from microcrystalline aggregates of eugsterite, blödite, konyaite, and thenardite were studied.

These results can be used as indicators of changes in the ecological situation in the Aral region.

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