



Satellite monitoring of the processes in the Aral and Caspian Seas

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Regular observation from AVHRR, SeaWiFS, MODIS and ASTER sensors were used for investigation Aral sea disaster.

Thermal regime of the Sea was investigated on the base of AVHRR data. Yearly amplitude of the surface temperature variation exceeds 37 °C, with lowest winter temperature ~ -7°C due to the high salinity. Paradox phenomena “ice warmer than water” occurred in such situations. Ice regime for the last years were studied. Strong variations of the temperature (up to 5° C) in temporal scale of few days observed in April –August were related with high evaporation and instability of the upper layer. Wind driven tides and upwellings were investigated on the base of IR and optical data.

Dam building (summer 2005) between Large and Small seas induced desiccation of extensive areas in the Northern part of the Large sea. Thermal inertia and multichannel optical data were used for the regions of ground waters sources detection. Main sources were found in former bottom area between 18 and 21 meters level drop in Eastern part of the Large Sea.

Anomalous blue – green algae bloom was observed in Southern part of the Caspian Sea in August – September 2005. AVHRR and MODIS data were used for study of the bloom occurrence and development. Bloom area covered more than 20 000 km². Main reasons of the intensive cyanobacteria growth were high temperature and low wind conditions in the first decade of the August. Floating algae strongly changed thermal and optical properties of the sea upper layer. Day-night SST difference exceeded 5°C. Spectral features of the WLR allow to detect blue – green algae bloom.

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