



Analysis of variations of trace gases in atmosphere of southern coast and water area of Lake Baikal

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Atmosphere pollution is one of primary factors of anthropogenous loading on Lake Baikal. Formation of chemical composition of atmosphere and distribution of gaseous impurities in Baikal hollow are connected with specific character of air circulation and presence of persistent inversion stratification of atmosphere above water area of Lake during a greater part of year. Domination of anticyclone and small gradient isobaric fields conduces to long preservation in water area of aerosol and gaseous pollution coming from hinter and hither sources. Regular supervision of surface concentrations of ozone (O₃), nitrogen oxides (NO, NO₂), carbon oxide (CO), sulfur dioxide (SO₂) and aerosols in atmosphere of a coastal zone of Lake Baikal have been begun in 1998 and they are carried out on present time. Measurements of concentrations of gaseous impurities were carried out by means of the automated monitoring system and data processing. Simultaneously supervision of meteorological parameters of ground layer of atmosphere (speed and direction of wind, temperature, pressure, relative humidity) by means two-level acoustic meteorological complex AMK-02B.

Long-term supervision of concentrations of gaseous impurities at southeast coast of Lake Baikal have shown low values of ozone concentration. Sensible rise of concentrations of nitrogen oxides during some moments of time came out of transport of these impurities from anthropogenous sources of pollution. The analysis of supervision data has shown that increase of concentrations of nitrogen oxides in supervision point is caused by advective air transport o from industrial centers of region (industrial zone Irkutsk-Cheremkhovo, Baikalsk). Conducted investigations of concentrations of nitrogen oxides and ozone at western coast have confirmed results of the analysis of

supervision at southeast coast. High concentrations of nitrogen dioxide (more than 50 $\mu\text{g}/\text{m}^3$) have been caused by southwest air transport from Listvyanka and Baikalsk. Development of local circulation of air masses conduces to transport of gaseous impurities on water area of the lake on significant distances and under certain weather conditions (calm with surface and raised temperature inversions) is created favorable meteorological conditions for accumulation and transformations of photo oxidizers (ozone, nitrogen oxides) in atmosphere of water area.

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