



Impact of raised bogs on export of carbon and river water chemical composition in Western Siberia

Elena Voistinova

Siberian Research Institute of Agriculture and Peat, Tomsk, Russian Federation (elenavoistinova@yandex.ru)

Bogs play an important role in functioning of the biosphere. Specific geochemical environment of the bogs results in formation of the special biogeochemical cycle of the elements. Processes of decay and transformation of organic material define the reductive conditions of bog water, form and migratory mobility of the chemical elements. Particular interest in recent years is aroused by the question of content and dynamics of the carbon in bog and river water according to indicated natural and climatic changes on the territory. The most important parts of the carbon balance in bog ecosystems together with processes of exhalation from deposit surface in the form of CO₂ is its export with river water.

The results of research carried out in scientific station "Vasyugansky" in south taiga subzone of Western Siberia showed that chemical composition of raised bog water includes high amounts of total iron (2,13 mg/l), ammonium ions (5,33 mg/l), humic and fulvic acids (5,21 mg/l and 45,8 mg/l), dissolved organic carbon (69,1 mg/l), COD (236,93 mgO/l), there are low mineralization and indicators of pH. Carbon comes in bog water in organic compounds: carboxylic acids, phenols, aromatic and paraffin hydrocarbons, organic phosphates, phthalates and other compounds. Formation of river waters composition in the Western Siberia takes place in the following context: high level of bogged river catchments (sometimes up to 70%), excess humidification and low heat provision. Basing on the results of study of hydrochemical runoff in small and medium rivers with different levels of bogged in river catchments (Chaya, Bakchar, Klyuch, Gavrilovka) it was noted that raised bog influence on river waters chemical composition shows in ion runoff decrease, organic substances runoff increase, increase of amounts of total iron, ammonium irons and water pH indicators decrease. Study of humic matters migration is very important in the context of formation of flexible complexes of humic and fulvic acids and heavy metals, which should be taken into account when in waterlogged regions constructing large industrial projects and in formation of water removing.