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Dissolved organic carbon transport in the Qilian mountainous areas of China

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Abstract

The dissolved organic carbon(DOC) content of rivers is the most active part of the carbon cycle migration in the basin under consideration, and it is the basis for a comprehensive understanding of the regional carbon cycle. In this study, we periodically took samples from four monitoring stations in the Xiying River Basin of the Qilian Mountains in the northern Qinghai-Tibet Plateau. We calculated the fluxes of organic carbon in the rivers within the study area and will discuss the influencing factors of Dissolved Organic Carbon concentration in these rivers in this paper. Our results showed that: (1) The DOC concentration and output flux in the inland river runoff area are basically the same as those in the Heihe River Basin, but far lower than those in the low-latitude monsoon climate zone and most of the basins in the Eurasian Arctic region. This is mainly due to the small river runoff and low DOC concentration in the area. (2) The Dissolved Organic Carbon concentration and transport flux of the rivers show significant seasonal changes, with the Dissolved Organic Carbon content in summer and autumn being higher than in winter and spring. (3) The larger runoff causes higher concentrations of dissolved organic carbon in rivers. Runoff is the primary means of carbon migration in the Inland River Basin. There are significant carbon migrations from the upstream to the middle and downstream sections of the Inland River Basin.

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