

Construction of the large scale hydrological model incorporating dissolved iron transport

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The Amur River is one of the largest trans-boundary river which runs through the boundary between China and Russia. The catchment area of the river is 2,050,057km² which is the ninth largest river in the world and the total length of the river is 4,350km. Thus, huge amount of fresh water is supplied by the Amur river to the Sea of Okhotsk. The Sea of Okhotsk is one of the most biologically productive regions in the world, and it supports high fisheries production. Recent studies show that dissolved iron plays an important role to maintain the biological productivity of the Sea of Okhotsk, and we suppose that one of the possible sources of dissolved iron is fresh water from the Amur river. Iron is an essential nutrient not only for the biological productivity of the Sea of Okhotsk but also for most biota. However, it is not well understood that how dissolved iron is produced and transported through the terrestrial ecosystem. One of our goals in the project is to clarify the mechanism of producing dissolved iron in the terrestrial ecosystem and to construct a hydrological model which incorporate the mechanism of dissolved iron production. In this report, I discuss some hydrological properties of the Amur river basin, and figure out the basic structure of the hydrological model incorporating dissolved iron production.