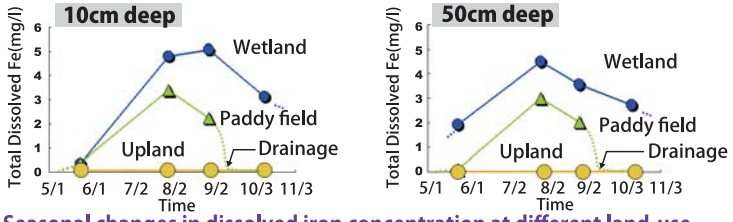
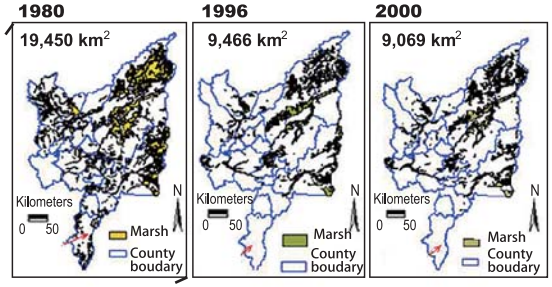
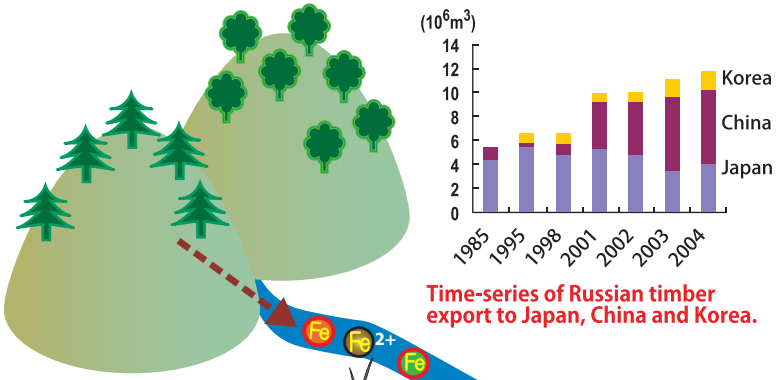
Giant Fish-Breeding Forest Hypothesis

The Amur-Okhotsk system provides a test bed for understanding the functioning of continental forests in the Amur River basin on marine primary productivity in the northern North Pacific. In this project we investigate how the Amur River transports dissolved iron from forests to the Sea of Okhotsk and the Oyashio and supports the marine biota, and clarify to what extent the human activities on the Amur basin may disturb this eco-linkage. Hence, an ideal relationship between land and ocean ecosystems including humankind will be explored.

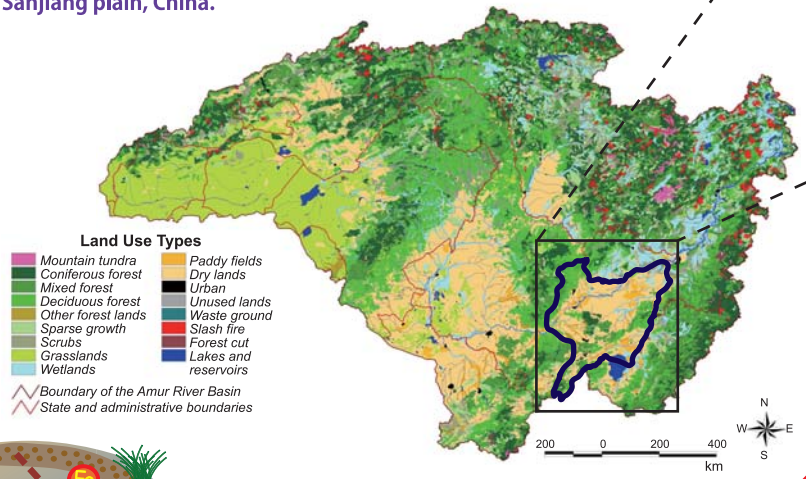


Seasonal changes in dissolved iron concentration at different land-use types at Sanjiang plain, China.





Time-series of Russian timber export to Japan, China and Korea.



Present-day land-uses in the whole Amur River basin

Atomospheric Fe transport

Kamchatka Glacier

Wetland

Fulvic acid

Fulvic Fe transport

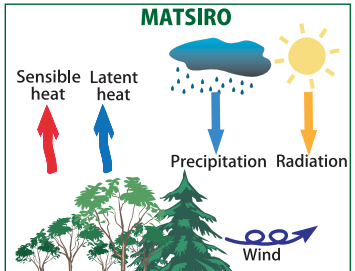
Amur River

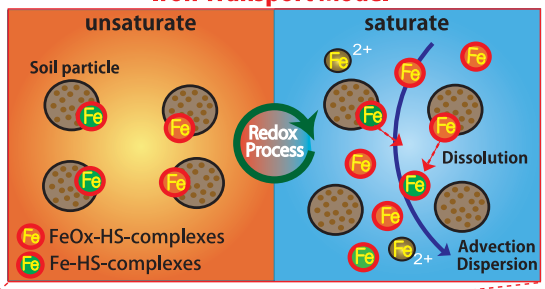
Primary Production

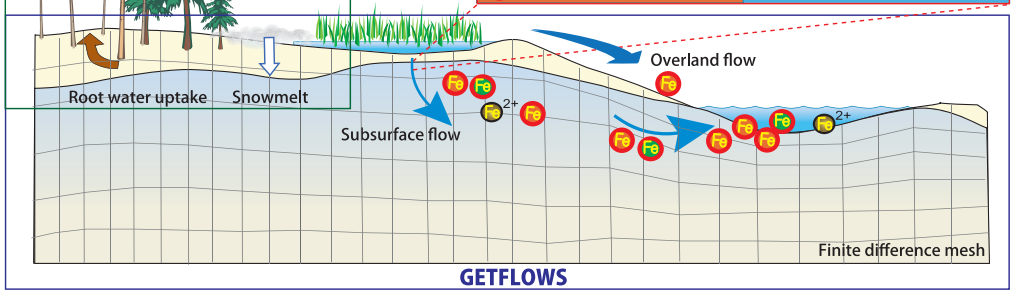
$Fe^{2+} \rightarrow Fe^{3+}$

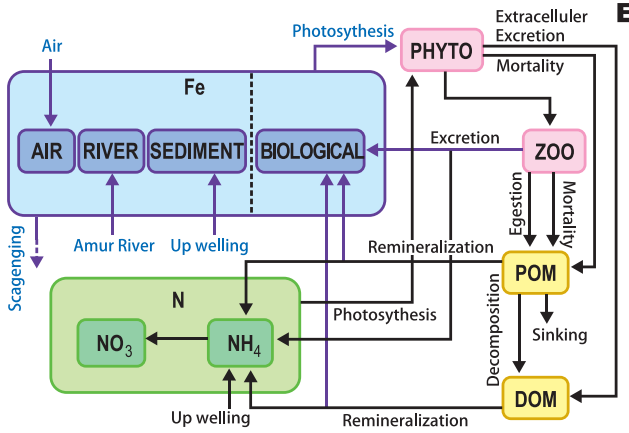
Estuary

Sea of Okhotsk & Northern North Pacific









Scheme of numerical marine biological model in the Sea of Okhotsk