

**INFLUENCE OF THE ANNUAL ARCTIC OSCILLATION ON THE NEGATIVE
CORRELATION BETWEEN OKHOTSK SEA ICE AND AMUR RIVER DISCHARGE**

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Freshwater discharging from Amur River is an important factor controlling the formation of sea ice because it causes a large stratification that suppresses deep convection and promotes freezing. Newly obtained observational discharge data reveal the cause of a significant negative correlation between Amur River discharge and Okhotsk Sea ice at multiyear timescales. The annually integrated Arctic Oscillation (AO) influences both summer discharge and winter ice. Summer discharge is larger and winter ice is reduced during positive AO years. Annual AO also influences the annual horizontal moisture flux convergence in the river basin. When the annual AO is positive, the annual mean air temperatures are warm over Eurasia, particularly over the Amur River basin and the Okhotsk. Consequently, autumn SSTs are warmer in the Okhotsk Sea. The warmer autumn SSTs suppress ice formation during the following winter. Freshwater from the river is not the main control of multiyear ice variability. Consideration of the annual AO provides a new look at climate system persistence at multiseasonal scales. This work is partially based on a paper by Ogi and Tachibana (2006) in *Geophysical Research Letters*.