

20 世紀前半の北極圏温暖化に対する熱帯からの遠隔強制

Tropical Forcing of the Early Twentieth Century Warming over the Arctic

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Land air temperature over the Arctic had warmed by about 1.5C during the early twentieth century (20C). We examine a remote forcing of tropical oceans on the early 20C warming over the Arctic, analyzing new sea surface temperature (SST) products and comparing SST-forced atmospheric general circulation model (AGCM) simulations. The new SST products feature a significant warming in the equatorial Pacific during the early 20C while conventional ones exhibit a broad warming over the tropics and subtropics. Only AGCM simulation forced with the new SST product successfully reproduces the observed Arctic warming and atmospheric teleconnection patterns triggered by the equatorial Pacific warming. They effectively transport heat from the subtropics to the higher latitude, contributing to the Arctic warming during the early 20C.

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