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# Possible link the tropical SST anomalies and Arctic Oscillation on the low-frequency timescales during the boreal winter

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To examine possible mechanism on the low-frequency changes in Arctic Oscillation (AO) we investigate the relationship between Aleutian low (AL) and AO during the boreal winter (November-December-January-February-March, NDJFM) using NCEP/NCAR reanalysis1 dataset for the period of 1950-2011. It is found that an increase of warm pool sea surface temperature (SST) in the western tropical Pacific is associated with a northward shift of a center of AL on the low-frequency timescales via tropics-midlatitude atmospheric teleconnections. A composite analysis indicates that a shift of AL in the meridional direction is associated with the North Pacific Oscillation in the North Pacific. Furthermore, the spatial structure of sea level pressure anomaly when a center of AL is shifted to the north is a reminiscent of a positive phase of AO in the high latitude. Detail analysis indicates that a shift of AL center in the meridional direction is associated with the change of AO index with a lagged time on the low-frequency timescales. We discuss how the northward shift of AL center is associated with a positive AO-like sea level structure in the high latitudes, and recent phase change of AO index in spite of gradual warming of warm pool SST.