Impacts of the Atmospheric Interannual Variability on the West Antarctic Cryosphere

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In the Antarctic, the sea ice extent tends to increase on a global warming trend. However, sea ice over the west Antarctic shows a rapidly decreasing trend, which seems to be related to large melting of a glacier on the West Antarctic. Besides of melting trend, the interannual variability of sea ice also becomes larger in the recent decade, which indicates that understanding interannual variability of sea ice is important as well.

This study focused on the impact of the atmospheric interannual variability on the variability of the Antarctic sea ice. There are two dominant atmosphere modes over the Antarctic known as Southern Annular Mode (SAM) and Pacific-South America pattern (PSA). These two patterns are a clear relationship with the sea ice in the austral spring. Presumably, sea ice is modulated by temperature advection associated with these patterns. Also, the ice shelf in West Antarctic shows a strong positive correlation with the PSA. Further, this study examined the impact of teleconnection associated with El Nino-Southern Oscillation (ENSO).

**Key words:** West Antarctic, Atmospheric circulation, Sea ice, Glacier, Interannual Variability

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