

The potential impact of the 2014-2016 marine heat wave over the North Pacific on the atmosphere

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Anomalously warm anomalies of sea surface temperatures (SSTs) had been observed over the North Pacific, which is called the marine heat wave or the “blob”. One of the causes of the blob was weaker than normal wind associated with the anticyclonic circulation anomaly over the eastern North Pacific. We have conducted a series of ensemble experiments by using an atmospheric general circulation model (AGCM) to assess impacts of the blob on the atmospheric circulation. In the AGCM experiments forced by observed SSTs only over the extratropical North Pacific, a tropospheric anticyclonic circulation response is observed in the winter 2013-2014 over the Bering Strait, where an anticyclonic anomaly was actually observed. In the winter 2014-2015, a tropospheric anticyclonic circulation response is observed over western Canada, which is also consistent with the observation.

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