

2013-2015年に持続した北太平洋東部の表層昇温に伴う水温偏差の温度躍層への潜り込み  
Subduction of temperature anomalies of the 2013-2015 North Eastern Pacific warm "blob"

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Northeastern Pacific sea surface temperature (SST) off the west coast of North America has been extremely warm since late 2013, a record SST warming sometimes called "blob". This study investigates subsurface oceanic changes associated with the blob using a gridded objective analysis dataset based on Argo profiling floats (MOAA-GPV) for the period 2005-2015. The MOAA-GPV data show that the warming is not confined at the surface mixed layer (ML) but penetrates into thermocline around the depth of 100-200m since the development of the blob. Decomposition of the temperature anomalies into parts associated with density anomalies and parts that are density-compensated with salinity reveals that the subsurface penetration of the temperature anomalies into the thermocline takes place in the form of density-compensated anomalies (a.k.a. spiciness) while the density-associated anomalies are only confined in the ML. A possible explanation of this subsurface spiciness generation is a previously proposed mechanism where a temperature anomaly at the surface shifts isopycnal outcrops across mean temperature and salinity gradients and thereby alters the temperature-salinity properties on isopycnal surfaces. We will discuss how this local spiciness generation process as well as large-scale spiciness advection in the thermocline contribute to the subsurface heat penetration beneath the blob. Even after the surface blob decays, it is likely going to leave a longer-lived signature in the subsurface thermocline.

キーワード：表層昇温、warm blob、密度補償した水温偏差、熱吸収

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