

**RECENT DECREASE IN THE INTERMEDIATE WATER TEMPERATURE IN THE WESTERN NORTH PACIFIC: THE EFFECT OF CROSS GYRE TRANSPORT**

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We investigate the influence of atmospheric forcing on the recent decrease in the intermediate water temperature in the western North Pacific during the past 50-yr using the hind cast data of the Meteorological Research Institute's eddy resolving OGCM. To accurately simulate the convection associated with sea ice formation in the Sea of Okhotsk, a sea ice model is incorporated on the basis of Mellor and Kantha [1989]. In addition, tidally enhanced vertical mixing effect is indirectly included in a form of vertical diffusivity coefficient. The model quantitatively represents the recent decrease in the intermediate water temperature: the decrease in the intermediate temperature is significant at  $26.8\sigma_\theta$  isopycnal surface in the western North Pacific with maximum in the Oyashio region which is the western boundary current of the subarctic gyre. The decrease in the intermediate water temperature is accompanied by the decrease in potential vorticity. Since the Oyashio has significantly strengthened during the past 50-yr, it is suggested that the recent decrease in the intermediate water temperature is due to the increase in the cross gyre transport from the subarctic to subtropical gyre.