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North Pacific Intermediate Water from two NOAA/GFDL coupled models, CM2G and CM2M

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North Pacific Intermediate Waters, a subsurface salinity minimum layer found in the subtropical North Pacific, from two NOAA/GFDL coupled climate models are compared. The two coupled models, CM2G and CM2M, share the same components except the oceans, which are an isopycnal model GOLD in CM2G, and MOM4 in CM2M. Both models produce salinity minimum layers and able to reproduce the North Pacific Intermediate Waters. Their properties, however, are rather different. The density and salinity of the intermediate water from CM2G is comparable to that of the observed ones, but those from CM2M are saltier and heavier. The distributions of an age tracer show that in CM2M the low salinity water originates from western part of the Kamchatka Sea and flows anticyclonically along the boundary of the Kamchatka Peninsula. The water, however, is located too deep and cannot flow into the Okhotsk Sea. Instead it flows southward along the eastern edge of the Kuril Islands to join the Kuroshio Oyashio extension. The water then penetrates below the subtropical model water while moving eastward. In CM2G, the salinity minimum layer starts from the Okhotsk Sea to flow southward along the east coast of Sakhalin. The water is located at a shallow level so it could flow southward through the Kuril Islands until encountering the Kuroshio Oyashio extension. While flowing eastward along the extension the water is mixed with the Kuroshio waters and becomes saltier just before penetrating below the subtropical mode water.