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Alternative analysis of the temperature distribution in the interior ocean[1] SHENG-QI ZHOU, KAI LI, LING QU, South China Sea Institute of Oceanology, CAS, China, DEEP-SEA DYNAMICS TEAM — In the interior ocean(below the thermocline), temperature variation is less influenced by the wind Ekman upwelling and the surface heating, and it is mainly dominated by the balance between the downward mixing of heat by turbulence and the upward transport of heat by the vertical current. In 1966, Munk proposed one-dimension advective-diffusive model, and he found that the temperature and the depth has an exponential relationship when the upward velocity and the the vertical eddy diffusivity are assumed to be constant. We have analyzed the global ocean potential temperature in 2008 from the ARGO delay model temperature dataset. It has been found that the exponential relationship between potential temperature and depth can be found only in some regions, such as in the Indian Ocean. The power law relationship has been found in other regions, such as in the North Pacific Ocean. The different relationships may suggest that the vertical eddy diffusivity has different dependencies on the depth, which may be useful to the global ocean models.

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