

Inversion of the ocean vertical diffusivity from climatological distribution of temperature and salinity

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The ocean vertical diffusivity is important for controlling the global ocean circulation and water mass transformation. Recent studies clarified that its spatial distribution is very inhomogeneous but the global coverage of its direct measurements from turbulent mixing observations is not enough and its quantification remains difficult. On the other hand, recent observational data about the ocean tracer including temperature and salinity are increasing significantly and dataset covering the global ocean is available. Some studies tried the inversion of the ocean vertical diffusivity from temperature and salinity observations but there are few studies which discuss its 3-dimensional distribution of the global ocean. By combining an steady-state ocean tracer model and an ocean general circulation model, I have tried the inversion of the ocean vertical diffusivity from temperature and salinity observations. In this presentation, I will report my attempt and discuss the importance of high-quality climatological dataset of various ocean tracers including temperature and salinity.

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