Water Mass Analysis and End-Member Mixing Contribution Using Coupled Radiogenic Nd Isotopes and Nd Concentrations: Interaction Between Marginal Seas and the Northwestern Pacific

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We analyzed neodymium (Nd) concentrations and isotopic compositions (εNd) in seawater of the Northwestern Pacific marginal seas and adjacent waters. The values of εNd in the surface water increase from the Changjiang River Estuary (CRE) to the outer shelf. This increase in εNd from -12.8 to -7.7 is mainly influenced by the terrestrial source and water mixing. Changjiang Diluted Water (CDW) contributes more than 20% of the volumetric flux in most regions' surface waters during our investigation. The contribution of Kuroshio subsurface water to the CRE is more than 80% in the southern study area. Estimated water contributions from the East China Sea (ECS) to the Northwestern Pacific and the Sea of Japan are approximately 6% and 10%, respectively. These results imply that the ECS is a significant source of material to the Northwestern Pacific.