

## Simulation of the Seto Inland Sea by using a nested-grid OGCM

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A nested-grid OGCM based on an ice-ocean coupled model, named COCO is used to investigate the flow field in the Seto Inland Sea. The model is composed of interactively coupled four models from a global model to the finest (about 500 m mesh) regional model covering the Seto Inland Sea. The model is integrated for one year during 2012 with potential temperature and salinity around Japan (outside the Seto Inland Sea) restored to reanalysis data. According to Zhang et al. (2016) who measured the net transport through the Seto Inland Sea by using reciprocal sound transmission, the net transport is westward ( $-1.3 \times 10^4 \text{ m}^3 \text{ s}^{-1}$ ) on average in six months of 2012. The simulated net transport near the observational section during February-December 2012 is eastward ( $0.35 \times 10^4 \text{ m}^3 \text{ s}^{-1}$ ) on average. Difference in direction of net transport between the observations and simulation may be partly due to assumption of northeast flow direction used in the observations. In the simulation, the time-averaged velocity field shows complicated structure. The net transport is estimated in a similar manner as in the observations: after calculating the velocity component along the observational section, the transport is estimated with the assumption of northeast flow direction. The resultant net transport is westward ( $-0.036 \times 10^4 \text{ m}^3 \text{ s}^{-1}$ ) on average as in the observations though its magnitude is smaller.

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