

Proposal of Comprehensive Sea Water Utilization and Its Evaluation for
Countermeasures against the Global Warming
- Oceanic Mixing Model Based on Global Simulation of Ocean Circulation -

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Summary

An oceanic mixing model of the Indian Ocean was proposed based on the global simulation of ocean circulation, which is so reliable as to be able to reproduce El Nino. The main purpose of this work is to represent the mixing characteristics of the Indian Ocean with the smallest possible number of boxes. In simplifying huge number of numerical values given at 444,080 points in Indian Ocean, special attention was paid to obtain the average velocity with high accuracy, which assure the mass balance at each box.

It was revealed that time courses of ocean circulation was not so fluctuating at the point lower than 50m, even if a surface current drastically changed its direction and an absolute value due to the monsoon. The 8 boxes model was finally proposed, each of them has its speculated function. Box 1, for example, which is composed of a surface layer with 10 m thickness, is a distributor of fertilizer. Once the fertilizer is fed to a certain point at certain season, it is distributed to boxes 2 to 7 after some delay times. The distribution ratio and the delay time are functions of position and time of the fertilization.