



ID de Contribution: 54

Type: Non spécifié

On thermodynamics of irreversible transitions in the oceanic general circulation

In this study, we investigate a transition process among multiple steady states of oceanic circulation under the same set of boundary conditions, and clarify the relationship between entropy production and the strength and direction of fresh water perturbations. Our results are found to be consistent with “the principle of maximum entropy production (MEP)” in non-equilibrium thermodynamics, and can be understood in a consistent manner by a concept of “dynamic potential” that regards the rate of entropy production as a kind of thermodynamic potential. MEP could be a general thermodynamic principle that determines the behavior of oceanic circulation in response to external perturbations, leading to a better understanding of abrupt climate changes such as the Younger Dryas event and Dansgaard–Oeschger oscillations.

Auteur principal: Dr SHIMOKAWA, Shinya (National Research Institute for Earth Science and Disaster Prevention)

Co-auteur: Prof. OZAWA, Hisashi (Hiroshima University)

Orateur: Dr SHIMOKAWA, Shinya (National Research Institute for Earth Science and Disaster Prevention)