

MIS004-P06

Room: Convention Hall

Time: May 27 17:15-18:45

Entrainment and intermittency in a Q-G oceanic double gyre under seasonal external forcing

Shinya Shimokawa^{1*}, Tomonori Matsuura²

¹NIED, ²Toyama University

In an oceanic double-gyre system, nonlinear oscillations of the ocean under seasonally changing external forcing are investigated using a 1.5 layer quasigeostrophic model and a simple model related to energy balance of the oceanic double gyre. In the experiments, the variable parameter is the amplitude of external seasonal forcing, and the Reynolds number is fixed as 39, at which periodic shedding of inertial subgyres occurs. We found that entrainment (at two times the period of the forcing) and intermittency (on/off type), phenomena often seen in nonlinear systems, emerge with increasing amplitude of the forcing. They seem to be related to the generation mechanism and characteristics of long-term (from interannual to decadal) variations in the strong current region of subtropical gyres such as the Kuroshio and its extension region.

Keywords: non-linear, entrainment, intermittency, quasi-geostrophic, oceanic general circulation, Kuroshio