



Review

of the *member* of the dissertation council Danling Tang for the dissertation of Malysheva Alina Anatolevna on the topic: «Mesoscale vortex dynamics of the South Atlantic Ocean based on altimetry, in situ and model data», submitted for the degree of *candidate* of geographical sciences (*candidate* of sciences in geography) in scientific speciality 1.6.17. Oceanology.

The relevance of Malysheva's dissertation work is undeniable. The relevance of the work stems from an extremely important role that mesoscale eddies play in ocean circulation. They have their own dynamics characterized by the dominance of nonlinear effects. Eddies transfer heat, mass, kinetic energy and biochemical properties from their formation zones over large distances, thereby influencing the climate.

The main objective of the dissertation is to identify specific features of the mesoscale eddy dynamics of the South Atlantic Ocean based on satellite altimetry, the global ocean reanalysis dataset GLORYS12V1 and drifting Argo floats.

Within the scope of this dissertation research, a comprehensive analysis of mesoscale variability in the South Atlantic has been conducted. The theoretical significance of these work lies in the depth of understanding new insights into the mesoscale eddy dynamics of South Atlantic waters on the basis of a comprehensive analysis of altimetry, model and in situ data. The practical significance of the dissertation resides in the expansion of the methods and approaches developed by the author, that can be applied to research in other regions of the World Ocean. This will enable addressing fundamental and applied ocean research questions at a significantly enhanced level.

The dissertation is a scientific qualification work that resolves a scientific problem important for the development of the relevant field of science.

Considering the above, I believe that *Malysheva Alina Anatolevna's* dissertation on the topic: «Mesoscale vortex dynamics of the South Atlantic Ocean based on altimetry, in situ and model data» meets the requirements of speciality 1.6.17. Oceanology.

A few comments can be noted:

- 1) There are a number of grammatical mistakes in the English text.
- 2) In Chapter 4, other causes of meridional displacement of eddies are not sufficiently considered. It would be beneficial to see a greater diversity of displacement causes being considered.

No violations of paragraphs 9 and 11 of the Order No.11181/1 as of November 19, 2021 "On the Procedure for Awarding Academic Degrees at St. Petersburg State University" have been detected.

The dissertation meets the criteria of dissertations for the academic degree of candidate of sciences, established by the specified Order. The dissertation is recommended for the defense at St. Petersburg State University.

Member of the dissertation council

PhD, Professor, PI, Director of Guangdong Remote Sensing Center for Marine Ecology and Environment (GDRS), Southern Marine Science and Engineering Guangdong Laboratory (Guangzhou)



Tang Danling

3rd, September, 2024, Guangzhou, China