

Interactive comment on “Propagation to the upper atmosphere of acoustic-gravity waves from atmospheric fronts in the Moscow region” by Yuliya Kurdyeva et al.

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Review Title: PROPAGATION TO THE UPPER ATMOSPHERE OF ACOUSTIC-GRAVITY WAVES FROM ATMOSPHERIC FRONTS IN THE MOSCOW REGION
Authors: Yuliya Kurdyeva, Sergey Kulichkov, Sergey Kshevetskii, Olga Borchevkina, and Elena Golikova

In this paper numerical simulation of acoustic-gravity wave (AGW) propagation up to the upper atmosphere is considered. The authors use their experimental data (4 microbarographs) in order to construct a source for the AGW generation. As a result of the simulations they were able to estimate the amplitude of temperature distur-

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bances caused by the wave propagation at different altitudes, and to show that individual sources, measured by microbarographs, manifests itself at far distance as a single point source.

This paper appears to be suitable for publication with minor modifications which have to be done before the final acceptance. The reviewer has NOT done a detail check of all the math but it appears reasonable, while many grammar and typing errors were detected.

Major comment

The authors wrote that “A numerical model of wave propagation from pressure variations on the Earth’s surface was developed in Kurdyeva et al. (2018)”, and that “The study showed that the variable pressure on the Earth’s surface uniquely determines the wave pattern, but this wave picture does not depend on the details of the temperature and density behavior on the Earth’s surface (Kurdyeva et al. (2018)).” Therefore there is need to formulate the difference between the earlier works and present work in order to understand which points are new in the manuscript.

Minor comments

Line 29, page 2: 10^{-4} must be replaced by 10^4

Line 31, page 2: there must be reference to the site with data utilized by the authors

Line 6, page 3 What does this mean “various other wave sources”

Lines 10, 11, page 5 Is it justified to include Coriolis force here for AGW?

Line 28, page 7 What is T there?

Line 4, page 7 Is this a really big difference taking $1020 \text{ km} \times 1020 \text{ km}$ and $1320 \text{ km} \times 1320 \text{ km}$. for computational regions?

Capture of fig.4 and fig.5 What does this mean “The plane $x = 0$ of cross section. . .” if

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one uses horizontal x axis and vertical z axis?

Line 10, page 9 Better to change “for the smaller region” by “for the region 1020 km x 1020 km”

Line 15, page 9 What is “domain” here? If it is 1020 km × 1020 km and 1320 km × 1320 km then should be mentioned.

Also I strongly recommend to the authors somehow to improve English before publication (may be to show the text to any professional translator).

Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2019-16>, 2019.