

# ***Interactive comment on “Parametric resonance in the dynamics of an elliptic vortex in a periodically strained environment” by Konstantin V. Koshel and Eugene A. Ryzhov***

## **Anonymous Referee #3**

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## **Referee report for “Parametric resonance in the dynamics of an elliptic vortex in a periodically strained environment”**

This work considers the stability for an elliptic vortex subjected to an external straining flow, examining different dynamic regimes depending on the external flow parameters. This is a novel work, very much of interest to and worthy of publication in this journal. I find no problem technically with the paper, only minor typos, as well as some sentences which should be changed to provide more clarity.

## **Minor Comments**

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- (1) page 1, Abstract, line 2: missing full stop after the word “regimes”.
- (2) page 1, line 15: Suggest changing wording to “Such models are usually highly nonlinear making it possible to gain insight into many phenomena that are difficult to predict within a geophysical setting”
- (3) page 1, line 24: Suggest changing wording to “In the case of a stationary deformation, the elliptical vortex is able to perform...”
- (4) page 2, line 3: Suggest to remove redundant phrase “not performing any motion”, or else add comma ‘,’ before the word not.
- (5) page 3, line 9: Change to “these equations allow for parametric instability.”
- (6) page 3, line 11: Remove words “type of the”
- (7) page 3, line 14: Unclear what is the intended meaning of the line “provident time-dependent strain and rotation rates...”, please clarify
- (8) page 3, line 25: Typo, remove repeated line “The homoclinic separatrix....”
- (9) page 4, line 13: change word “on” to “of”

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(10) page 5, line 17: Typo, change “parametrcki” to “parametric”

(11) page 6, line 6: add word “over” after prevail

(12) page 6, line 7: change “realizes” to “is realized”

(13) page 6, line 7: change “very” to “immediate”

(14) page 8, line 8: Typo, change “stead” to “steady”

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