

Interactive comment on “Quasi-hydrostatic equations for climate models and the study on linear instability” by Robert Nigmatulin and Xiulin Xu

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Dear Ilias Sibgatullin,

According to your two comments, we have the following answers:

1. We get the linearized equation of the quasi-hydrostatic equation directly from the sixth equation of (2.23) by giving a perturbation to the basic solution (see eq. (3.7)). Thus, different from (13) in RC2, we have no bouncy term $-b'$ in the linearized equation. However, it is not shown how (13) is obtained in RC2.

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2. Sorry for the error of the "independent" variable. As a dependent variable in our set of equations, \bar{M} is defined by (2.11). This variable also appears in the continuity equation and the equation for vertical velocity. If the denotation is strange to you, we can use another symbol for the convenience of the readers. We have only 3 diagnostic equations, and it seems to you not appropriate to conduct linear analysis even though all the derivations are mathematically strict. Please refer to RC2, not all the five equations (11)-(15) are diagnostic.

Best regards,

Xiulin Xu

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