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Journal of Atmospheric and Oceanic Technology

Response to the Reviewer # 3

Dear Reviewer #3,

Thank you for prompt reviewing of this manuscript.

We hired Ms. Mary Golden (was chief editorial assistant of MWR) to help to improve the manuscript.

I changed the title a little bit from “Development of the Upgraded Tangent Linear and Adjoint of the Weather Research and Forecasting (WRF) Modeling System” to “Development of the Upgraded Tangent Linear and Adjoint of the Weather Research and Forecasting (WRF) Model” as this manuscript focus on WRF model, instead of the WRF modeling system, which includes WPS, REAL, WRF, WRFDA etc.

Best Regards,

Xin Zhang

Below is the point –by-point response:

*In this manuscript, the authors present the technical aspects of the re-development of the tangent linear and adjoint models for the Weather Research and Forecasting (WRF) Model with its Advanced Research WRF dynamic core (WRFPLUS). It is especially interesting to see a new approach to deal with the parallel computation of the tangent linear and adjoint codes described in the manuscript. The approach is easier for code-development and is also quite efficient. The manuscript is generally well written. The text is about the right length and the number of diagrams is also about right. I consider the manuscript suitable for publication in the Journal of Atmospheric and Oceanic Technology once the authors make the following minor corrections.*

*Minor Comments:*

1. *Line 23: "the adjoint technique ?" should be "the use of adjoint technique ?"*

Authors: We change to “ the use of adjoint technique”, see line 24 page 2.

1. *Line 336: "1381-1393" should be "1433-1446"*

Authors: We correct this error, see line 355 page 18.