thanks for your efforts to improve the quality of the manuscript. From my point of view, I have some concerns. 1) I suggest that results of forecasts should be more rigorously discussed. As already done in the recent revision, results have been verified against the AVISO and the drifter buoys, therefore, it is natural to show results for verification against KEO buoy as well. Otherwise, it is not only less content but also abrupt in the context.

We have added the results of the forecast RMSDs relative to the KEO buoy to Fig. 9 in the revised manuscript. The results from the forecast RMSDs are qualitatively the same as those from the analysis RMSDs. We have added the related description to the first and last paragraph in subsection 4.2.2.

2) In Fig. 7, the RMSD for SSH of RTPP09+IAU is considerably larger, is there any explanation for this?

As consistent with the forecast SSH RMSDs, the analysis SSH RMSD in the RTPP09+IAU experiment is larger than the NO INFL experiment. The differences between SSH and SSHA RMSDs are caused by the mean dynamical ocean topography (MDOT) between the AVISO and data assimilation system. Here, the MDOT of the AVISO is estimated from a geoid model, satellite altimetry, and in-situ drifter buoy data, whereas that of the system is assumed to be the simulated SSH averaged in 2012–14. We have added the description to subsection 2.4.3 and the first paragraph in subsection 4.2.1.

3) As shown by other work (e.g., Zeng et al 2018, JAMES and Bowler et al. 2017, QJRMS), the RTTP tends to result over-balanced or too smooth analyzed fields, I wonder why the IAU still exhibits considerable advantage while applying the RTPP. Intuitively, I would have thought that the RTPS combined with the IAU should be more beneficial. I hope that authors could have some discussion on this.

The ocean acts as “memory” and tends to conserve effects from the initial shocks, and therefore ocean data assimilation systems are sensitive to initial shocks. In this system, the assimilation interval is short of 1 day, and therefore it is better to suppress the initial shocks as much as possible.
As consistent with the discussion in Whitaker and Hamill (2012), the results in this study show that the analyses are more balanced in the RTPP experiment than in the RTPS experiment (Fig. 1). More balanced analysis increments result in smaller initial shocks, and consequently the RTPP+IAU experiment would have better accuracy than the

RTPS+IAU experiment. We have added the description to the second paragraph in Section 6.

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