Review on "The impact of microphysical uncertainty conditional on initial and boundary condition uncertainty during different synoptic control" by T. Matsunobu *et al.*

This revised manuscript has been significantly re-written and the authors properly answered my remarks. I still have some minor comments detailed below, after what I will consider the manuscript suitable for publication in Weather and Climate Dynamics.

Specific comments

• 1. L16 : Cloud and rain water contents.

• 2. L135-139 : this paragraph would be easier to understand if moved at the end of section 2.2 after the presentation of IBC and microphysics uncertainties.

• 3. L140 : The initial conditions of the IBC uncertainty : awkward, please reformulate.

• 4. L158 : emulates.

• 5. L182 : recall that τ_c is the convective adjustment time scale.

• 6. Legend of Table 1 - daily precipitation of IBC sub-ensemble mean of control : what do you mean by "mean of control" ?

• 7. L215-216 : there are three 60-member CCN and CDSD sub-ensembles. These sub-ensembles also take into account IBC uncertainty, hence it is not appropriate to call them CCN and CDSD. I would rather consider sixty 3-member CCN and CDSD sub-ensembles to properly evaluate the individual impact of microphysics perturbations. L380 you say that there are 180 combinations of ensemble members for CCN and CDSD sub-ensembles, which would mean that you considered sixty 3-member sub-ensembles instead of three 60-member sub-ensembles (in that case the number of combinations would be 5310). Can you clarify this point ?

• 8. L219-220 - the 24-hr accumulated area-averaged precipitation of all 180 ensemble members is shown in Fig 3 : please reformulate because precipitation differences are shown.

• 9. Legend of Fig.3 - coloured lines show average relative differences of them : awkward, please reformulate.

• 10. L245 : impacts.

• 11. L311 : CNN $\rightarrow$ CCN.

• 12. L536 : The impact of combined microphysical perturbations ... show a relative impact. Double use of "impact" is awkward, please reformulate.

• 13. L548-549 - Forecast variability is again increased by +31% when taking microphysical uncertainties into account : increased compared to what ? (same comment L555).

• 14. L569 : add these values are for the weak synoptic control.

• 15. L569-570 - the role of IBC uncertainty systematically increases from TQC, over TQR to precipitation : this is true only for strong synoptic control.

• 16. L604-605 : daily precipitation cannot take values between +38% and -32%, these values refer to relative differences, please reformulate.

• 17. At several places the term "90% confidence interval" is wrongly used. What you are looking to is not a confidence interval but the central 90 % inter-percentile range of the distribution of precipitation differences.