Geoscientific
Model Development

Supplement of

Incremental analysis update (IAU) in the Model for Prediction Across Scales coupled with the Joint Effort for Data assimilation Integration (MPAS–JEDI 2.0.0)

Soyoung Ha et al.

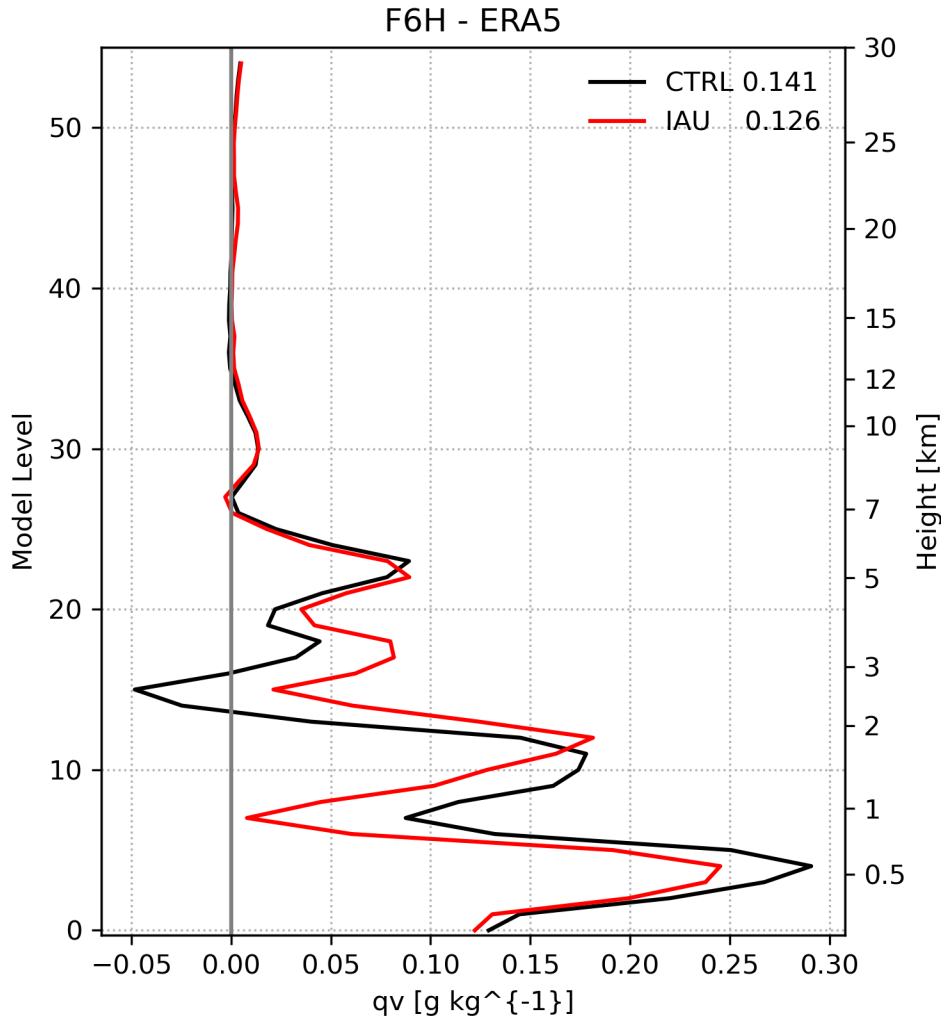*Correspondence to:* Soyoung Ha (syha@ucar.edu)

Supplement Figures S1 – S4:

Figure S1. Vertical profile of water vapor mixing ratio (Qv [g/kg]) in 6-h forecasts from CTRL (black) and IAU (red), compared to the ERA-5 analysis, averaged over the cycles from April 21 to May 13, 2018. The mean error below 3 km is indicated next to each experiment name.
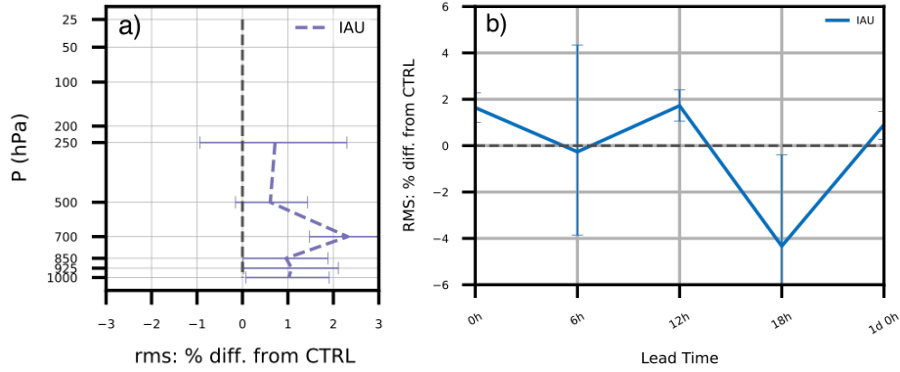
Figure S2. The Qv rms differences from the CTRL in percentages in IAU verified against radiosonde observations in a) the vertical profile at the analysis time and b) the time series of subsequent 24h forecasts of the corresponding metrics between 250 and 1000 hPa.
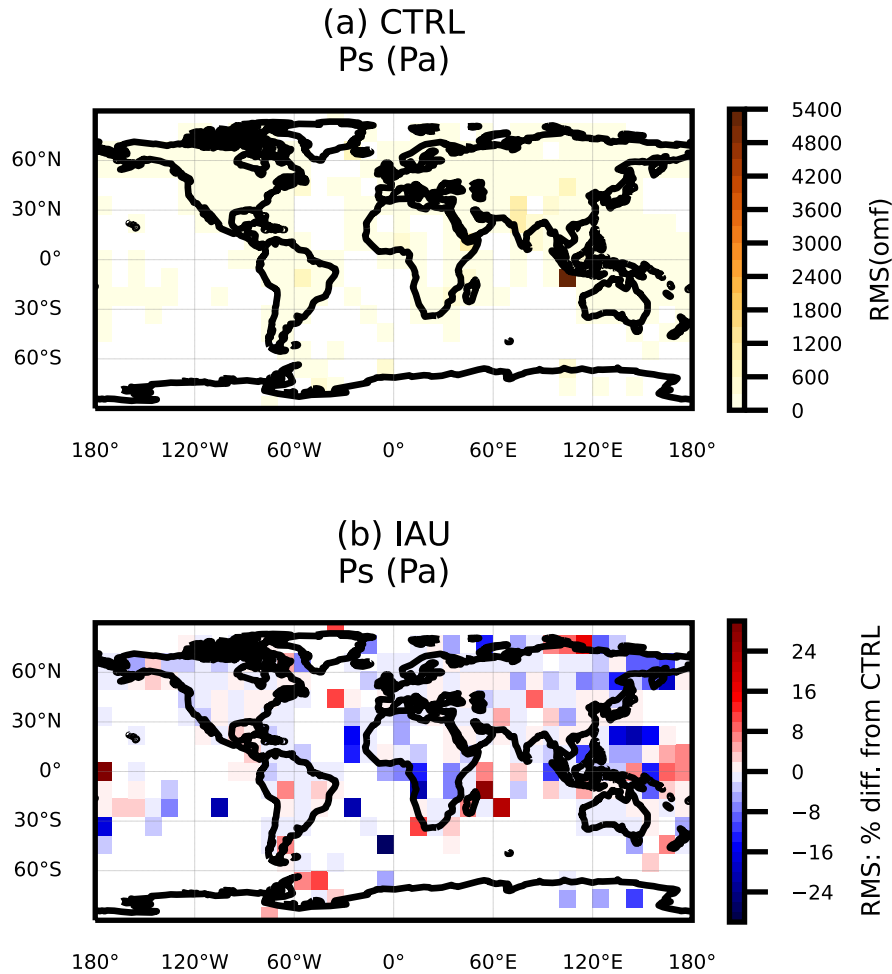

Figure S3. The global distribution of (a) the RMS errors of the CTRL run in 6-h background forecasts for surface pressure ([Pa]), verified against surface observations and (b) the RMS differences from the CTRL run in IAU.
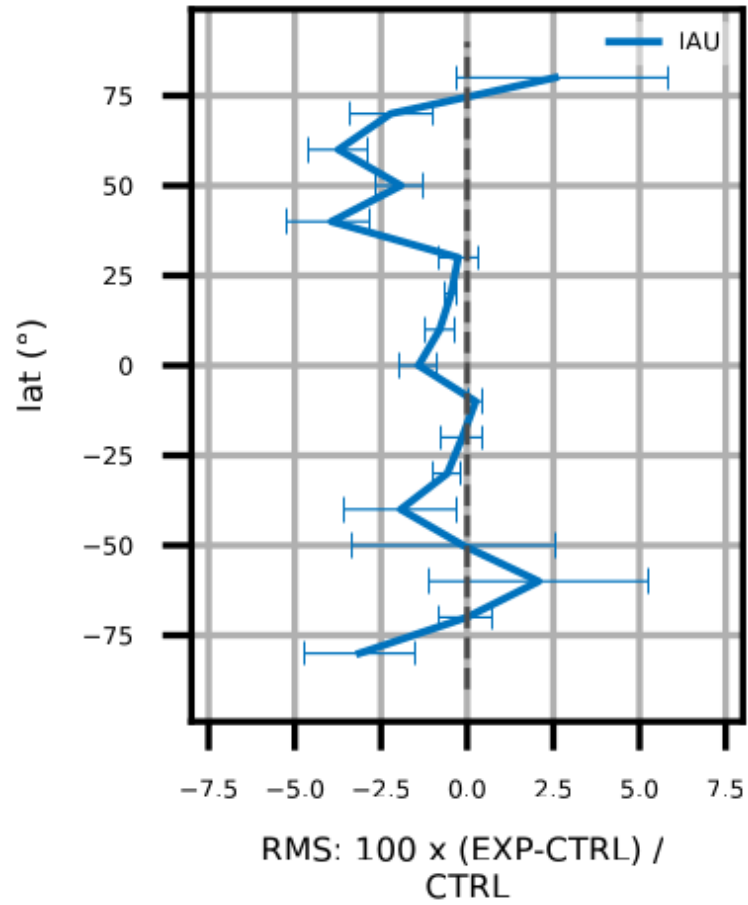
Figure S4. The rms percentage differences from the CTRL in IAU for 6-h background forecasts in surface pressure across latitudes. The error bars denote the standard deviation, corresponding to a 95% confidence level.