

Supporting Information for ”Weather Prediction in SHiELD: Effect from GFDL Cloud Microphysics Scheme Upgrade”

Linjiong Zhou^{1,2}, Lucas Harris², Jan-Huey Chen^{2,3}, Kun Gao^{1,2}, Huan Guo²,

Baoqiang Xiang^{2,3}, Mingjing Tong², James Huff^{2,3}, and Matthew Morin^{2,3}

¹Program in Atmospheric and Oceanic Sciences, Princeton University, Princeton, New Jersey, USA.

²National Oceanic and Atmospheric Administration / Geophysical Fluid Dynamics Laboratory, Princeton, New Jersey, USA.

³University Corporation for Atmospheric Research, Boulder, Colorado, USA.

Contents of this file

1. Figure S1. 10-day anomaly correlation coefficient (ACC) and bias evolution of (1st and 2nd columns) geopotential height (units: m), (3rd and 4th columns) temperature (units: K), and (5th and 6th columns) specific humidity (units: $g\ kg^{-1}$) at (from top row to bottom row) 100, 200, 250, 500, 700, 850, and 1000 hPa pressure levels. Blue line is OLD (original GFDL MP), orange line is CTRL (new GFDL MP).

2. Figure S2. 10-day averaged geographical distribution of the biases of (1st to 3rd columns) geopotential height (units: m), (4th to 6th columns) temperature (units: K), and (7th to 9th columns) specific humidity (units: $g\ kg^{-1}$) at (from top row to bottom row) 100, 200, 250, 500, 700, 850, and 1000 hPa pressure levels. For each variables, from the first to the third panels are OLD (original GFDL MP), CTRL (new GFDL MP), and

CTRL minus OLD. The numbers in the title of each panel are the bias and root mean square error.

3. Figure S3. Similar to Figure S1, but for (blue) CTRL, (orange) CPSD, (green) AERO, and (red) CPSD_AERO.

Introduction This supporting document includes additional figures to support the weather prediction evaluation in the main paper.

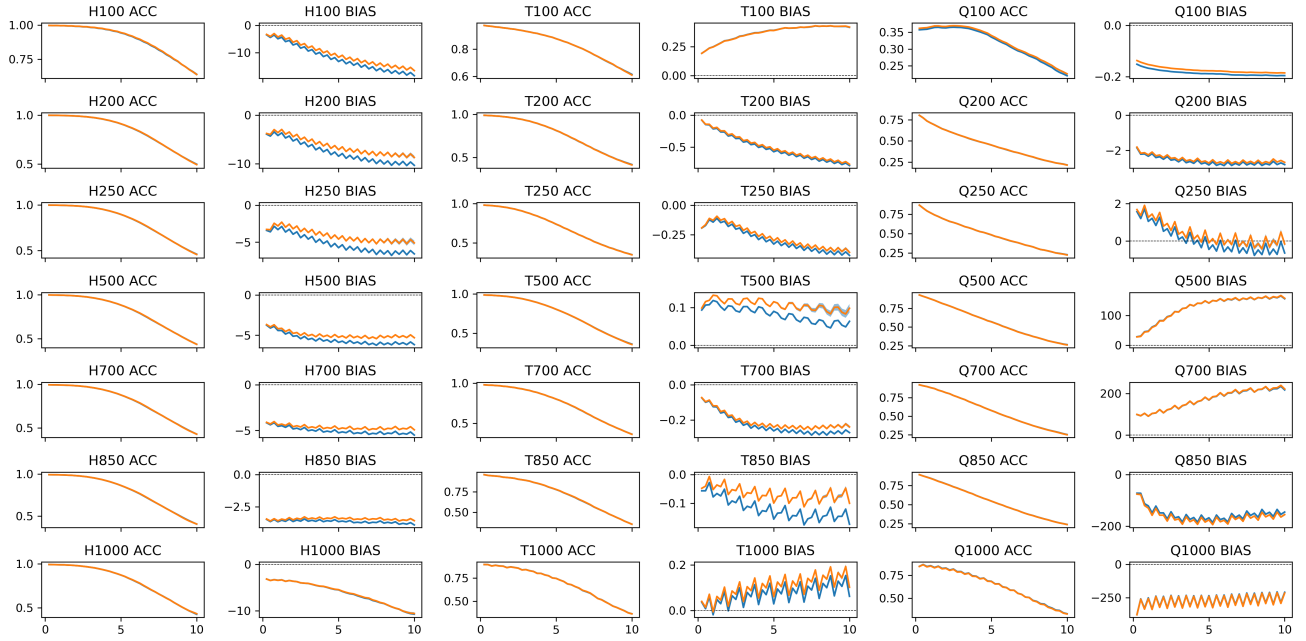


Figure S1. 10-day anomaly correlation coefficient (ACC) and bias evolution of (1st and 2nd columns) geopotential height (units: m), (3rd and 4th columns) temperature (units: K), and (5th and 6th columns) specific humidity (units: $g\ kg^{-1}$) at (from top row to bottom row) 100, 200, 250, 500, 700, 850, and 1000 hPa pressure levels. Blue line is OLD (original GFDL MP), orange line is CTRL (new GFDL MP).

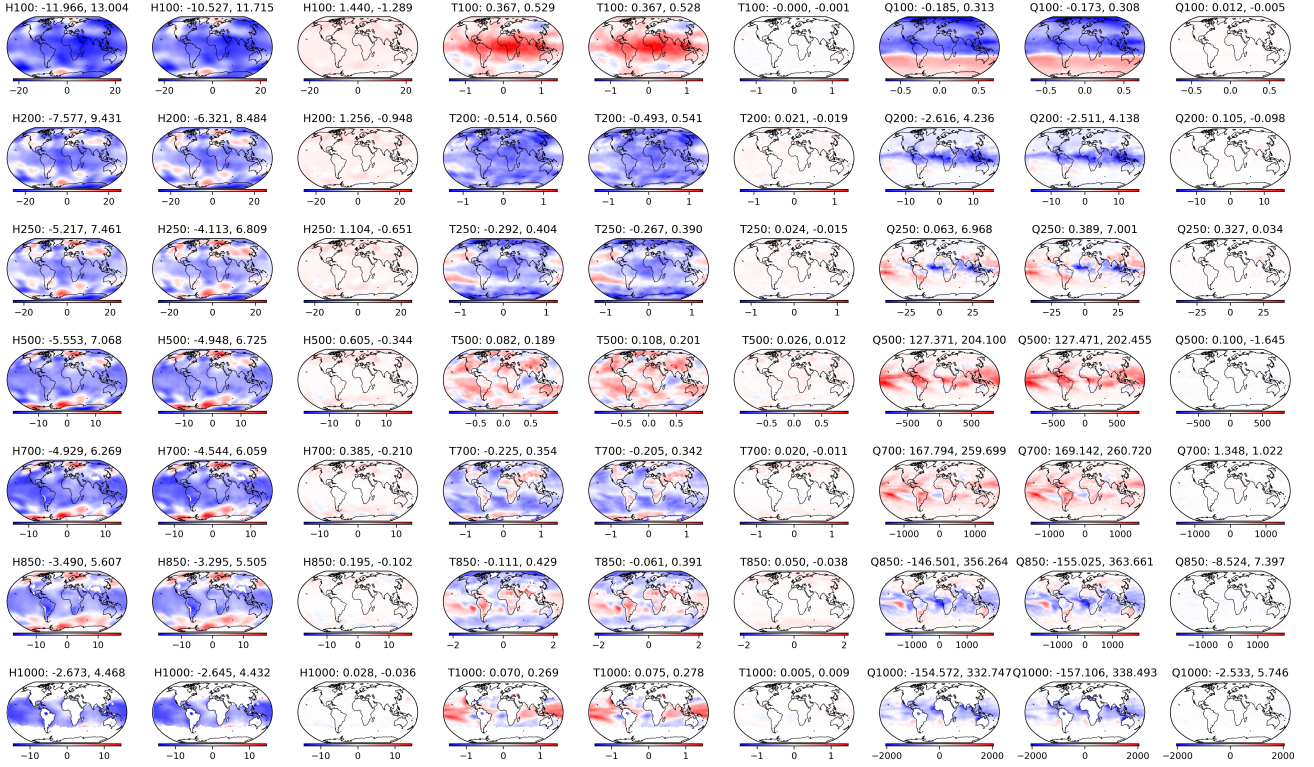


Figure S2. 10-day averaged geographical distribution of the biases of (1st to 3rd columns) geopotential height (units: m), (4th to 6th columns) temperature (units: K), and (7th to 9th columns) specific humidity (units: $g\ kg^{-1}$) at (from top row to bottom row) 100, 200, 250, 500, 700, 850, and 1000 hPa pressure levels. For each variables, from the first to the third panels are OLD (original GFDL MP), CTRL (new GFDL MP), and CTRL minus OLD. The numbers in the title of each panel are the bias and root mean square error.

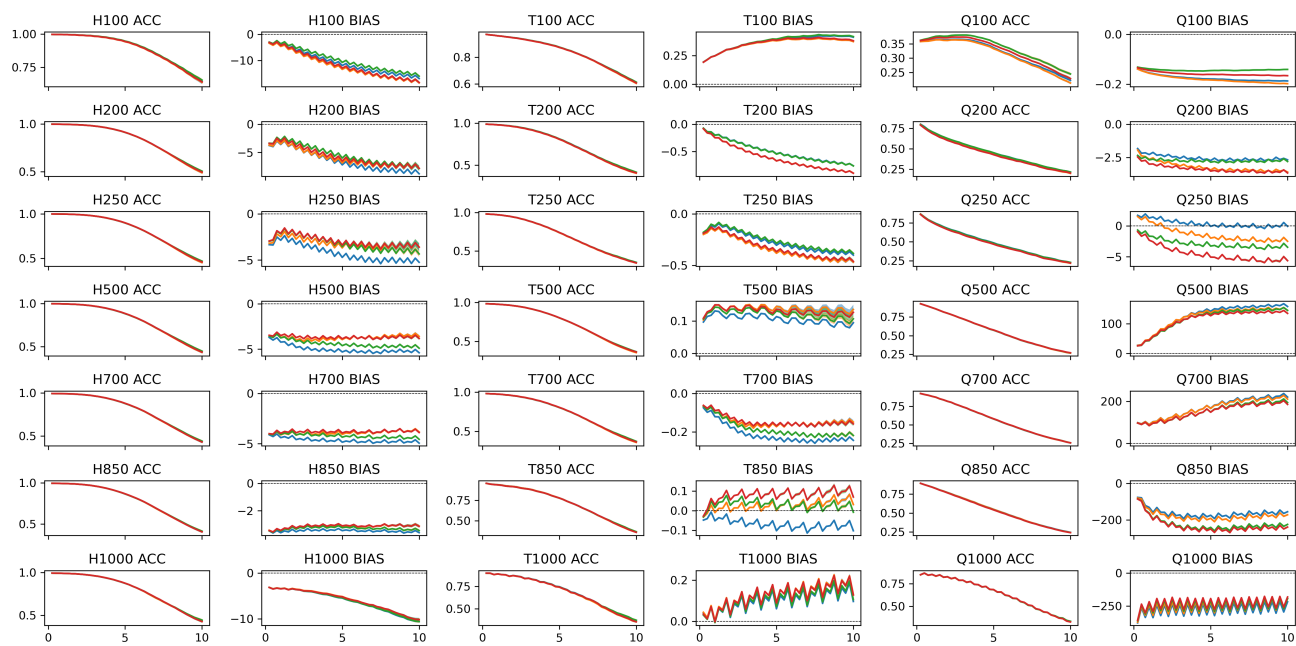


Figure S3. Similar to Figure S1, but for (blue) CTRL, (orange) CPSD, (green) AERO, and (red) CPSD_AERO.