

Geosci. Model Dev. Discuss., referee comment RC1  
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## **Review of “Development and evaluation of an advanced National Air Quality Forecast Capability using the NOAA Global Forecast System version 16” by Campbell et al.**

Anonymous Referee #1

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Referee comment on "Development and evaluation of an advanced National Air Quality Forecasting Capability using the NOAA Global Forecast System version 16" by Patrick C. Campbell et al., Geosci. Model Dev. Discuss.,  
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This paper presents a newly developed GFS-CMAQ model that is being used for operational air quality forecasts over the United States. The new developments and the statistical performance of the system are described in detail. Current deficiencies and plans to address those deficiencies are also discussed. The paper is well written and easy to follow. I just have a few minor concerns listed below. After these concerns are addressed, I recommend the paper for publication in GMD.

Figure 2: It will be helpful to show a box for chemical initial conditions and the source of those initial conditions.

Line 528: I think NAQFC should be replaced with NMMB or prior NAQFC here.

Lines 722-723: can you summarize the findings of Tang et al. (2021b) on the wildfire impacts in a couple of sentences here?

Conclusions and path forward: I did not find a discussion on the dynamic lateral boundary conditions for trace gases in the path forward section. Could you please add that in the paper?