Overall scientific findings:

(1) Good findings have been reported with thorough referencing and description of methodology.
(2) Although there seems to be minor rooms of elaboration in some sections, overall tightness of the thought progression was good.

Rooms of further clarification and elaboration:

(A) Since GOES-CHEM has been ungraded with major features since version 4.0, this qualification of the model should be clear and upfront. It may be worthwhile even mention this version qualification in the "Introductory" section. For the diligent reader, a correct reference to the features of this older version maybe given.

(B) A reference to Mathur on the subject of over estimation of surface O3 concentration is a compounded effect of over detrainment of stratospheric ozone and inadequate representation of free tropo-spheric mixing and coarse vertical resolution of the CMAQ model used in their study. This is a scientific area needs more elaboration as why deep convection often poses challenge to the modeler.

(C) In Fig. 1 and its subsequent reference of the ozone-sondes, the elevated site of Boulder clearly represents a peculiarity of its own distinguish itself from the other two profiles illustrated. Maybe Table-mountain, CA or another mountain site needs to be illustrated in addition to Boulder to give an analysis of the elevated sondes – they have characteristics of their own.

(D) It is obvious that CTM has limitations. However, it can be informative to a diligent reader to get a glimpse of what the authors meant by "detailed surface flux condition" on page 3.

(E) There are quite a few references to the schematics of the "newly developed" downscaling methodology. It is nicer to have it in a flow-chart form – giving details on climatology input,…, etc.

(F) Abstract was well written except the concluding statements should be stronger and more specific in terms of problem areas resolved.