Supplementary Material



Seasonal variation of the lower thermospheric CO and CO2 densities and CO/CO2 ratio from the Mars Climate Database (MCD, González‐Galindo et al., 2009; Millour et al., 2010). The latitude is 52.5° S and the planetary longitude is fixed to 180°. The altitude ranges from 100 to 150 km.



Same for the GEM-Mars model (Neary and Daerden, 2018; Daerden et al., 2019). Note the difference in the CO density and seasonal variation between the two models and the higher CO/CO2 variability in the Mars Climate Database.

**References**

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