Isabel
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Poster
This study proposes a method for estimating the uncertainty of thermospheric mass density derived from satellites, which is a crucial parameter that characterizes the upper atmosphere. The accuracy of satellite trajectory calculations is heavily influenced by the accuracy of this parameter, and uncertainty in neutral density can lead to significant errors in such calculations, particularly in situations that require collision avoidance measures. The proposed method combines measurements of thermospheric neutral density with a physics-based Coupled Thermosphere Ionosphere Plasmasphere with Electrodynamics (CTIPe) model. We analyze data from two different satellite missions, CHAMP and Swarm, during periods of quiet geomagnetic conditions. By analyzing the effect of different uncertainties on the assimilation result, we can estimate the uncertainty in the neutral density measurements. The results for both satellites are presented.




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