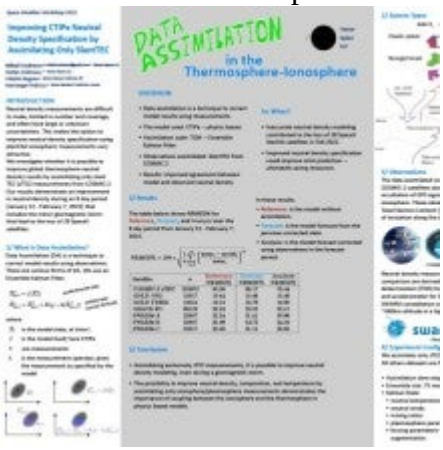
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Poster
Neutral density measurements are difficult to make, limited in number and coverage and suffer from large biases and uncertainties. This makes the option to improve neutral density specification using the plentiful ionospheric measurements, very attractive for satellite collision avoidance applications. Better neutral density specification and forecast can reduce the uncertainty in satellite and debris positioning, lower satellite fuel consumption, and help prevent the Kessler Syndrome. The main question we answer here using the Thermosphere Ionosphere Data Assimilation (TIDA) model is as follows: Is it possible to improve the global thermosphere neutral density model results by assimilating only ionospheric measurements? To illustrate the case we assimilate only slant TEC (sTEC) measurements from COSMIC-2 and show improvement in neutral density during an 8 day period (January 31 - February 7, 2022) that includes the minor geomagnetic storm that lead to the loss of 48 SpaceX satellites.



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