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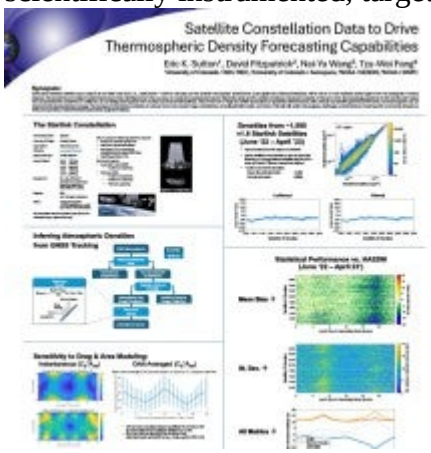
Poster
Interactions between resident space objects in low-Earth orbit (LEO, i.e., orbits below ~1,000 km altitude) and the ambient atmospheric environment cause significant orbital perturbations. While LEO is a most desirable orbital regime from the standpoint of debris disposal, the uncertainty of an object's orbital trajectory is often a limiting factor in the accuracy of conjunction assessments used to determine when and if a collision-avoidance maneuver is needed. At the same time, the increasing population of LEO over the last 5 years has compounded the overall risk of collisions. By combining tracking data from recently launched small satellites, often in the form of high-rate GNSS observables or quantities derived thereof, with attitude and satellite geometry information, the thermosphere can be observed with unprecedented coverage. The necessary information is available, in various forms, from several mega constellations, including Starlink, Spire, and others. This talk will outline the progress, challenges, and limitations of working with commercial datasets as well as the promise of scientifically instrumented, targeted missions.


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