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Poster
Predicting the solar EUV irradiance is a key element of thermospheric density modeling used in Low Earth Orbit satellite navigation and collision avoidance planning. Current methods rely only on solar near-side observations or flux transport approximations for far-side estimations of magnetic activity (the underlying cause of EUV irradiance variability). Here we outline our plan for using machine learning (ML) models trained on SDO/HMI far-side helioseismic phase maps along with SDO/AIA EUV images to infer global solar EUV irradiance. This global irradiance approximation can then be virtually rotated to give more accurate 1--7 day forecasts of solar EUV inputs to the thermosphere. We demonstrate the first stage of our ML models which regresses SDO/AIA images to the radio F10.7 index that is commonly used in current thermospheric density models, capturing the nonlinear relationship between EUV irradiance and the F10.7 index.

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