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A real time forecast of the electron fluxes measured by GOES 16

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A real time system is developed to forecast the electron fluxes measured by GOES R spacecraft. Forecast models are developed using the system identification/machine learning methodology based on Nonlinear Autoregressive Moving Average exogenous (NARMAX) models. NARMAX algorithms use past input-output data to automatically deduce a model of the system. Here, the solar wind parameters are used as inputs and the electron fluxes measured by GOES 16 are used as the outputs to deduce the models. The models are then implemented in a real time forecasting system. The forecasting system uses real time solar wind data from ACE, DSCOVR, and ENLIL, which are then processed into the correct format for the NARMAX models to provide a forecast of the electron fluxes at geostationary orbit.