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Near-real time forecasts of MeV protons based on sub-relativistic electrons: communicating the outputs to the end users

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Solar Energetic Particle (SEP) events are one of the most important elements of space weather. Given that the complexity of the underlying physical processes of the acceleration and propagation of SEP events is still a very active research area, the prognosis of SEP event occurrence and their corresponding characteristics remains challenging. In order to provide up to an hour warning time before these particles arrive at Earth, relativistic electron and below 50 MeV proton data from the Electron Proton Helium Instrument (EPHIN) on SOHO were used to implement the 'Relativistic Electron Alert System for Exploration (REleASE)'. The REleASE forecasting scheme was recently rewritten in the open access programming language PYTHON and will be made publicly available. As a next step, along with relativistic electrons (v > 0.9 c) provided by SOHO, near-relativistic (v <0.8 c) electron measurements from other instruments like the Electron Proton Alpha Monitor (EPAM) aboard the Advanced Composition Explorer (ACE) have been utilized. In this work, we demonstrate the real-time outputs derived by the end user from the REleASE using both SOHO/EPHIN and ACE/EPAM. We further, show a user friendly illustration of the outputs that make use of a "traffic light" to monitor the different warning stages: quiet, warning, alert offering a simple guidance to the end users. Finally, the capabilities offered by this new system, accessing both the pictorial and textural outputs REleASE are being presented.

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