Tests of a model framework for interpreting heliospheric particle events

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Several model frameworks are under development toward interpreting the diverse observations of space weather events currently available. In particular STEREO, ACE and WIND have recently observed an increase in the occurrence and intensity of solar energetic particle (SEP) events associated with an increase in fast CMEs observed by SOHO LASCO and STEREO SECCHI. We show examples of retrospective event studies using a specific framework that includes cone models of interplanetary coronal mass ejection initiation, WSA/ENLIL heliospheric modeling of solar wind structure with ICME propagation and shock generation, and gradual SEP event modeling with SEPMOD. These examples provide an update on one option with potential applications to both future event studies and space weather forecasting.