



NASA SBIR 2011 Phase I Solicitation

X11.02 Integrated Advanced Alert/Warning Systems for Solar Proton Events

Lead Center: JSC

Advances are needed in alerts/warnings and risk assessment models that give mission planners, flight control teams and crews sufficient advanced warning of impending Solar Proton Event impact. Research and development should be targeted which leverages modeling techniques used throughout terrestrial weather for extreme event assessment. There is particular interest in development of models capable of delivering the probability of no SPE occurrence in a 24-hour time period, i.e., an "All-Clear" forecast.

Forecast techniques should utilize the historical record of archived SPEs to characterize model forecast validity in terms accepted metrics, i.e., skill score, false alarm rates, etc. Specific areas in which SBIR-developed technologies can contribute to NASA's overall mission requirements include the following:

Innovative forecasting solutions that leverage model development in other areas such as ensemble forecasting of hurricane tracks, flooding, financial market behavior, and earthquake prediction.

Innovative methods that integrate historical trending, real-time data, and fundamental physics-based models into advance warning and detection systems.