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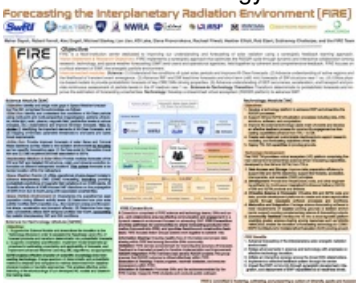
The FIRE team
Poster
Overview: FIRE is a Space Weather Center of Excellence (SWxC) aimed at advancing Space Weather Forecasting (SWF) capabilities through interdisciplinary cutting-edge science and technology. It integrates ten institutions and ensures trackable flow of information, decision implementation, and coordination among FIRE science and technology factions. FIRE continuous innovative research and infusion of technology ushers in a new era of probabilistic SWF and streamlines Research-to-Operations-to-Research (R2O2R) process. A dedicated FIRE Consortium facilitates continuous collaboration and development through regular feedback and implementation from all members involved.

Science Objectives: (1) Understand the conditions of quiet solar periods to improve All-Clear forecasts. (2) Advance the understanding of active region evolution and the likelihood of transient events emergence. (3) Advance interplanetary magnetic field and solar wind lead-time forecasts and short term (< 60 min) forecasts of solar wind structures near 1 au. (4) Utilize operational physics-based models to provide probabilistic predictions of key SWx driving properties of coronal mass ejections. (5) Understand acceleration and transport of solar energetic particles over broad energies and provide continuous assessment of energetic particle levels near 1 au.

Technology Objectives: (1) Transform deterministic into probabilistic forecasts and improve the estimation of forecast uncertainties using tailored machine learning algorithms. (2) Develop an R2O2R platform to streamline SWF. (3) Assess the science-technology-users chain and develop an effective feedback process for community engagement.



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