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Building Cyberinfrastructure for Operational Space Weather Analytics

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Extreme space weather events are capable of disrupting our societal fabric by causing detrimental effects to the electric grid, satellites, avionics, navigation systems, and more. Building sustainable and reliable cyberinfrastructure services for analyzing and operationally forecasting these events is of utmost importance, especially considering the devastation it can cause to the world economy. Creation and deployment of such a cyberinfrastructure is a challenging and truly interdisciplinary effort. These cyberinfrastructure services have many different aspects requiring expertise from multiple domains, which include but are not limited to feature engineering, data generation and integration services, predictive model generation and persistence, system building and deployment, and software sustainability. This talk aims to explore the issues involved with both establishing robust space weather prediction methods and sustaining them in the face of evolving requirements and data opportunities. An overview of the current challenges will be presented first, followed by a discussion on remedies and how to address these issues.