The SWx TREC Integrative Space Weather Data Portal and Model/Algorithm Testbed Environment

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The Space Weather Technology, Research and Education Center (SWx TREC) is a center of excellence in cross-disciplinary research, technology, innovation, and education, intended to facilitate evolving space weather research and forecasting needs. SWx TREC facilitates research advances, innovative missions, and data and computing technologies that directly support the needs of the SWx community to advance understanding and support closure of the Research to Operations (R2O) and Operations to Research (O2R) loop. Improving our understanding and prediction of space weather requires coupled Research and Operations. SWx-TREC is working to provide new research models, applications and data for use in operational environments, improving the Research-to-Operations (R2O) pipeline. Advancement in the fundamental scientific understanding of space weather processes is also vital, requiring that researchers have convenient and effective access to a wide variety of data sets and models from multiple sources. The space weather research community, as with many scientific communities, must access data from dispersed and often uncoordinated data repositories to acquire the data necessary for the analysis and modeling efforts that advance our understanding of solar influences and space physics in the Earth’s environment. The University of Colorado (CU) is a leading institution in both producing data products and advancing the state of scientific understanding of space weather processes, and we are now hosting both an interoperable data portal providing streamlined, centralized, and event-based access to a wide variety of disparate data sets and also a community-accessible, Cloud-based testbed environment to support development, testing, transition, and use of new models, visualizations, algorithms, and forecast products. In this presentation, we will describe our community-accessible testbed environment and demonstrate the Space Weather Data Portal.