Expanding JEDI for Space Weather Applications: First Steps and Use Cases

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As part of the UCAR initiative, we are working to extend the capabilities of the Joint Effort for Data assimilation Integration (JEDI) to support emerging needs in space weather prediction and data assimilation. This presentation introduces recent efforts to adapt JEDI for upper atmospheric and ionospheric applications, focusing on the integration of new observation types and model backgrounds. We highlight two initial use cases: (1) implementation of a UFO ionosonde operator using model backgrounds from WACCM-X, and (2) an experimental setup using PYIRI to explore assimilation performance and observation impact. These examples demonstrate the flexibility of the JEDI framework while also pointing to the unique challenges of space weather data assimilation. We will close by outlining future directions and opportunities for collaboration within the broader space weather and JEDI communities.