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Abstract Title:

Reducing Barriers in Space Weather Research and Operations with Next-Generation Simulation Services at the Community Coordinated Modeling Center (CCMC)

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ABSTRACT

Space weather forecasting capabilities are becoming increasingly important to the health of advanced technological infrastructure. The Community Coordinated Modeling Center (CCMC, <https://ccmc.gsfc.nasa.gov>) serves as a key liaison in the US space weather program between the research and operations communities by providing a wide range of tools and capabilities that help to evaluate, compare, exercise, and archive the results of simulations of a growing list of space weather models. With its unique toolset, CCMC supports space weather research and model development that advances our understanding of space weather phenomena and improves forecasting skill, while also facilitating development of space weather applications and deployment of operational capabilities.

Guided by experience from over 20 years of providing simulation services, feedback from its research, operational and educational users world-wide, recommendations from CCMC Advisory Group and Programmatic Review Panel, the CCMC has begun work on

the next generation system for its simulation services and model output archives. The new system has been envisioned to employ state-of-the-art technologies and standards to provide a user-oriented experience while improving ease of access, transparency, interoperability with partner systems, and enhancing reliability by incorporating advanced automation for performance monitoring and intelligent failover.

In the presentation, we will give an overview of the current CCMC ecosystem and discuss updates to some of the key services of the system, including Runs-on-Request, Instant Runs, and Continuous Runs. We will also describe how a planned expansion and standardization of data archival activities will enhance the role of CCMC as a world-class provider of heliophysics information for the research and analysis of space weather. It is our hope that this evolution of the services can further reduce the barriers and burdens on researchers, forecasters and decision makers who rely on CCMC for their daily research and operations.