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The upgraded neutron monitor-based alert system for Ground-Level Enhancements (GLEs) is designed to provide rapid and reliable detection of relativistic solar particle events using real-time measurements from the Simpson Neutron Monitor Network. Its primary objective is to strengthen operational space-weather capabilities by improving the timeliness of radiation-hazard warnings relevant to aviation, satellite operations, and other affected technologies. In this contribution, we present the updated system and assess its performance using GLE ?77 (11 November 2025) as a representative test case. During this event, the alert algorithm issued a trigger 16 minutes before the corresponding SWPC alert based on the GOES >100 MeV proton flux, demonstrating the value of neutron monitor observations for earlier identification of extreme solar energetic particle (SEP) events. This result highlights the complementarity between ground-based and space-based monitoring in operational radiation-alert frameworks. An alpha version of the upgraded system is now available online, and users may subscribe to receive warning and alert notifications, enabling broader community access and operational evaluation. The results demonstrate the system’s potential as an effective component of future space-weather alert services for extreme SEP events.

Poster session day
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Poster location
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