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HLEA and THIMON: Strengthening Neutron Monitor Observations from Haleakalā

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The installation of two new neutron monitors, HLEA and THIMON, at the summit of Haleakalā, Hawai‘i, marks a significant advancement in cosmic ray and solar neutron studies. Situated at 3,055 meters above sea level, these monitors benefit from minimal atmospheric interference, enabling high-precision measurements of galactic cosmic rays (GCRs) and solar neutron flux. Operational since December 2024, HLEA and THIMON address a critical geographical gap in the Pacific region, providing valuable data for space weather studies and cosmic ray research. Their strategic location allows for cross-comparisons with other neutron monitors, enhancing global network calibration and reliability.

This presentation will outline the technical specifications of HLEA and THIMON, their initial performance metrics, and early scientific insights. Additionally, we will discuss their integration of these stations, part of the Simpson Neutron Monitor network, into the neutron monitor database (NMDB) and their role in strengthening international collaboration. Their inclusion reinforces the necessity of investing in new stations and maintaining robust data infrastructures for long-term space weather monitoring.

Furthermore, we have established a Space Weather and Mission Control Center in Hawai‘i, which will remotely operate the neutron monitors while also serving as a hub for space weather alerts and critical space situational awareness information. This center will play a key role in student recruitment, providing a hands-on learning environment for STEM students and showcasing the importance of space weather studies to the next generation of scientists and engineers.

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