



Contribution ID: 793

Type: **Talk**

Response Functions of a Neutron Monitor from the 2023-24 Latitude Survey Aboard the Araon Icebreaker

Tuesday 15 July 2025 14:35 (15 minutes)

A latitude survey using the Changvan neutron monitor, a ship-borne detector, was conducted aboard the South Korean Icebreaker “Araon” in 2023–24, spanning from Antarctic and Arctic regions to study cosmic ray modulation. The monitor features a 3NM64-like configuration with three proportional counters: a leaded BF₃ tube from LND Inc. at one edge, an unleaded BP28 tube in the middle, and a leaded BP28 tube at the other edge. Unlike standard models, the absence of lead rings around the middle tube classifies it as a semi-leaded neutron monitor. This study presents observed detector response functions, with geomagnetic cutoff rigidity along the voyage calculated using the IGRF-14 model. The results provide insights into the performance of these proportional counters under varying geomagnetic conditions, and a comparison of results from successive years will allow precise measurement of the rigidity dependence of solar modulation. Partially supported by the National Science and Technology Development Agency (NSTDA) and National Research Council (NRCT): High-Potential Research Team Grant Program (N42A650868).

Collaboration(s)

Author: Prof. NUNTIYAKUL, Waraporn (Chiang Mai University (TH))

Co-authors: Dr PROMFU, Tatphicha (Mahidol University); Dr SERIPIENLERT, Achara (Chiang Mai University (TH)); KHAMPHAKDEE, Sidarat (Chiang Mai University); PAGWHAN, Audcharapon (Mahidol University); Dr SOHN, Jongdae (Korea Astronomy and Space Science Institute); Prof. OH, Suyeon (Chonnam National University); Prof. EVENSON, Paul (University of Delaware); Prof. RUFFOLO, David (Mahidol University); Dr SÁIZ, Alejandro (Mahidol University); Prof. KOMONJINDA, Siramas (Chiang Mai University)

Presenter: Prof. NUNTIYAKUL, Waraporn (Chiang Mai University (TH))

Session Classification: SH

Track Classification: Solar & Heliospheric Physics