

Determination of Expected TIGERISS Observations

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- Method used to estimate the cosmic-ray observations expected for TIGERISS on the ISS.
- TIGERISS designed to measure the abundances of the rare Ultra-Heavy Galactic Cosmic Rays (UHCR) $_{30}\text{Zn}$ and heavier.
- Silicon strip detectors for dE/dx and trajectory determination and acrylic and aerogel Cherenkov detectors for velocity and charge determination.
- Instruments modeled in three attachment point configurations:
 - Japanese Experiment Module "Kibo" Exposed Facility $\sim 1.66 \text{ m}^2 \text{ sr}$.
 - European Space Agency Columbus Laboratory payload $\sim 1.16 \text{ m}^2 \text{ sr}$.
 - ExPRESS Logistics Carrier (ELC) experiment $\sim 1.10 \text{ m}^2 \text{ sr}$.
- Differential geometry factors determined for detector orientations within the geomagnetic field over the ISS 51.6° inclination orbit are used to determine geomagnetic screening.
- Energy spectra are integrated using the higher of the energies needed to trigger the instrument or penetrate the geomagnetic field for time-weighted bins of geomagnetic latitude, instrument orientation, and incidence angle.
- Abundances reduced by the fraction fragmenting in the instrument.

