

Direct Determination of a Bare Neutron Counter Yield Function

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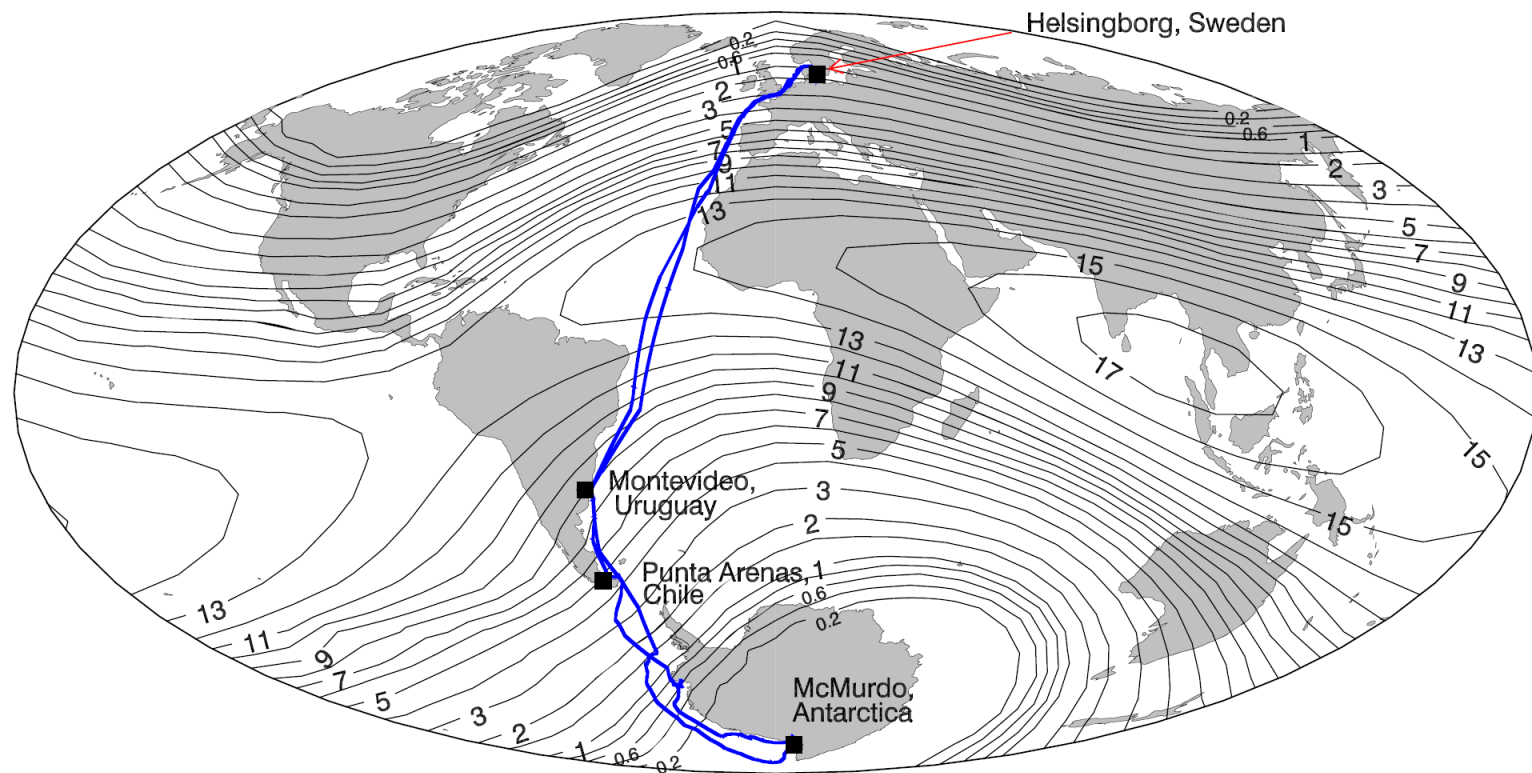
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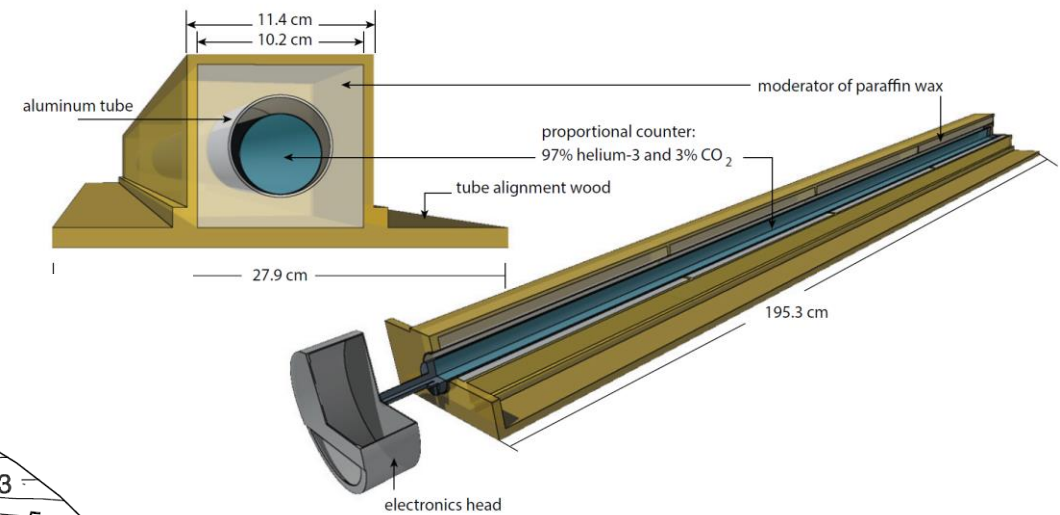
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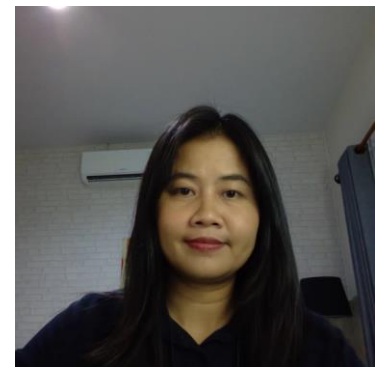




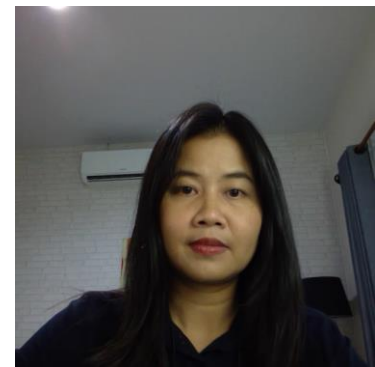
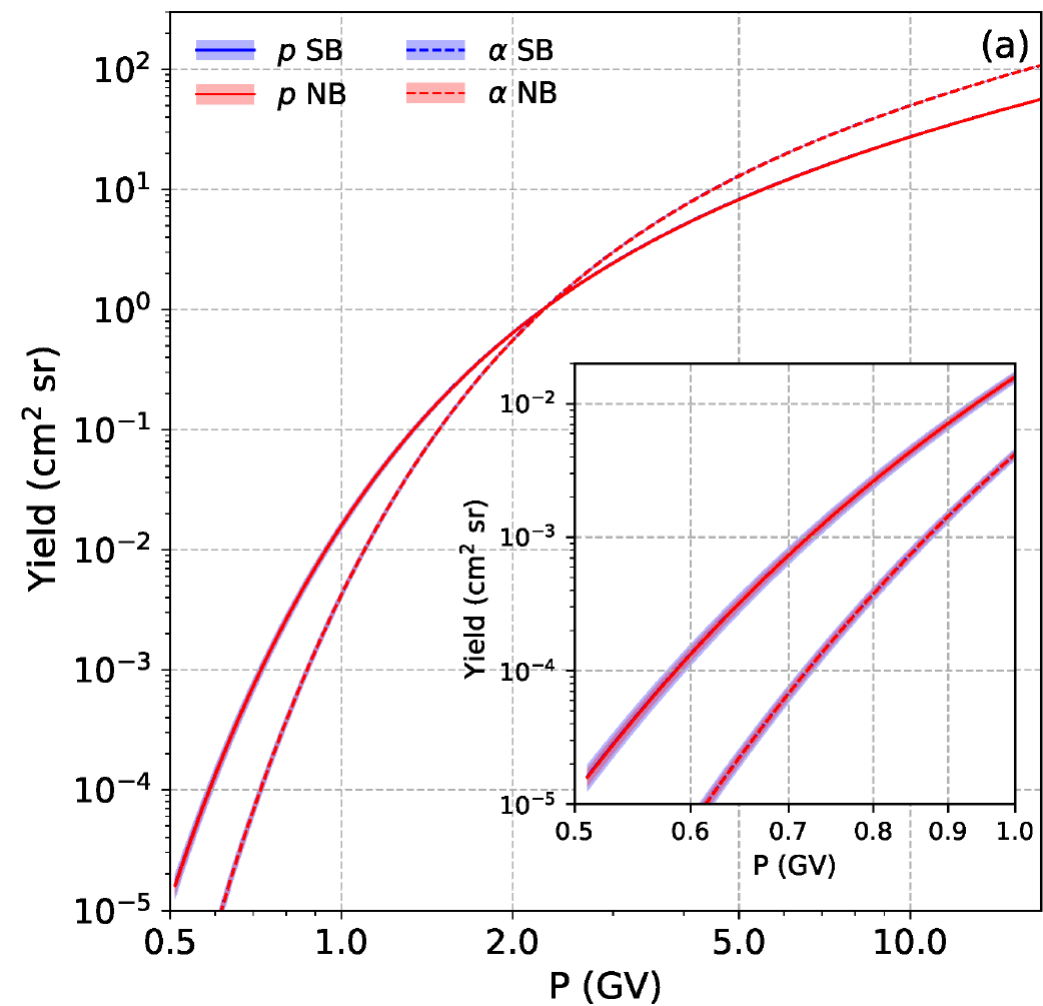
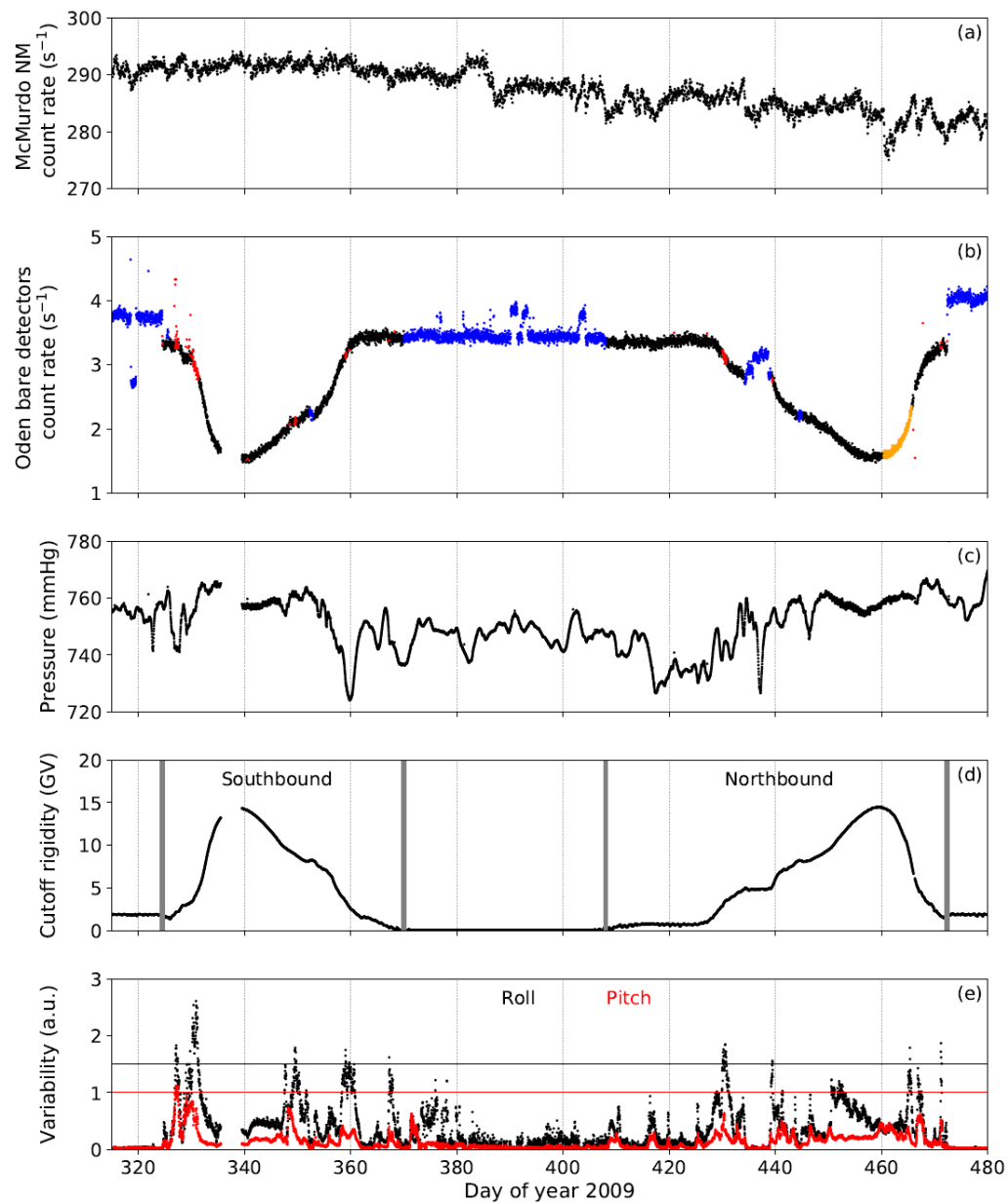
Route of the Oden for the 2009-2010 latitude survey, superimposed on contours of the 2010 effective vertical cutoff rigidity (GV).



Rendering of an end view and cutaway oblique view of a **paraffin moderated bare neutron counter** to detect cosmic ray showers.



Poster ID 250|SH



Solar Magnetic Polarity Effects on Neutron Monitor Count Rates from Latitude Stations Versus Anticenter Stations

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Introduction

Geographic stations on Earth are high energy data from outside the solar system arriving at Earth. After 100 years of observation, they have been used to study the solar wind and the solar magnetic field. The GCR spectra varies with the magnetic field and the magnetic activity. In a recent paper (Figure 1) the solar magnetic polarity effect was studied.

A notable feature of the solar magnetic field is the rapid flux of geomagnetic activity. It is characterized by the 27-day solar rotation period (S27). Every 27 days the solar magnetic field rotates. The "rotation" of the solar magnetic field is the cause of the variation of the solar magnetic field. The variation of the solar magnetic field is the cause of the variation of the solar magnetic field. The variation of the solar magnetic field is the cause of the variation of the solar magnetic field.

Figure 1: A line graph showing the variation of the solar magnetic field over time. The x-axis is labeled 'Time' and the y-axis is labeled 'Solar Magnetic Field'. The graph shows a periodic variation with a period of approximately 27 days.

Mobile neutron monitors

- Historical data, 1958-2007** We use the data set compiled by the International Geophysics Year (IGY) 1958-2007. We use the data set compiled by the International Geophysics Year (IGY) 1958-2007. We use the data set compiled by the International Geophysics Year (IGY) 1958-2007.
- New survey years, 2010-2020** We use the data set compiled by the International Geophysics Year (IGY) 2010-2020. We use the data set compiled by the International Geophysics Year (IGY) 2010-2020. We use the data set compiled by the International Geophysics Year (IGY) 2010-2020.

Final neutron monitor station

- Long Range Station** The 18 stations listed in the table are the final stations. The data are available from the 1958-2007 period. The data are available from the 1958-2007 period. The data are available from the 1958-2007 period.
- Medium Range Station** The 18 stations listed in the table are the final stations. The data are available from the 1958-2007 period. The data are available from the 1958-2007 period. The data are available from the 1958-2007 period.
- Short Range Station** The 18 stations listed in the table are the final stations. The data are available from the 1958-2007 period. The data are available from the 1958-2007 period. The data are available from the 1958-2007 period.

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Result and Discussion

The results of the analysis are shown in the figure. The figure shows the variation of the solar magnetic field over time. The figure shows the variation of the solar magnetic field over time. The figure shows the variation of the solar magnetic field over time.

Figure 2: A series of line graphs showing the variation of the solar magnetic field over time for different stations. The graphs show a periodic variation with a period of approximately 27 days.

Conclusion

The results of the analysis are shown in the figure. The figure shows the variation of the solar magnetic field over time. The figure shows the variation of the solar magnetic field over time. The figure shows the variation of the solar magnetic field over time.

Bibliography

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7. [Reference 7]
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9. [Reference 9]

ACKNOWLEDGMENTS

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CONTACT INFORMATION

For more information, please contact: [Contact Information]

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1. [Reference 1]
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8. [Reference 8]
9. [Reference 9]

RESPONSE FUNCTIONS OF SEMI-LEADED NEUTRON MONITOR COUNT RATE TRENDS AND LEADER RATIOS FROM LATITUDE SURVEYS DURING 2019-2020

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Introduction

We have developed a portable neutron monitor ("Changpan") with three sections to investigate cosmic-ray spectral variations via latitude surveys. The Changpan was the NM64 design for two sections, but the first half was the lead problem, so we call this a "semi-leaded" neutron monitor. The Changpan was operated on two latitudes on the Chinese stratospheric floating balloon experiment during 2019 and 2020. Repeated measurements with the same detector show different trends of the solar cycle (since precise information about cosmic-ray spectral variation, this report summarizes the response functions of the count rates and leader ratios of the integrated and water-cooled counts during these two latitude surveys).

Figures 1. Drawing of the Changpan monitor. Table 1 and Table 2 show the 2019 and 2020 measured neutron count rates and leader ratios.

Observations

We used the Changeling monitor during the 2019-2020 research mission conducted by the P40 Research

(CN20) between 2 and 2 November 2019 to 11 March 2019, and survey near 2020 (CN20) between the survey of 21 October 2019 to 22 April 2020.

Figure 2. Scatter plot of the neutron count rates for 2019 and 2020.

Data cleaning

The Changpan records time-delayed histograms from all two half-core new pressure transducers. The time delay is due to the pressure transducer pressure by neutron time delay in the histogram.

Analysis of neutron time-delay histograms

We analyze hourly neutron time-delay histograms collected from the 2019 and 2020 survey near 2020. Figure 3 shows the time delay of the Changpan collected from neutron time delay. Figure 4 shows a prior neutron count at the same count rate as the same atmospheric particle (see Fig. 3).

Figure 3. Scatter plot of the neutron count rates for 2019 and 2020.

allowing us to derive what we called "leader rate" (Fig. 3). If we separate the count rates that remove a channel of contamination, we use the same secondary cosmic-ray particles in the neutron monitor to avoid problems with variations in a fixed time window. Reliability is expected to be approved by the comparison of secondary atmospheric particles and their energy.

Figure 4. Scatter function for the 2019 and 2020 survey near 2020. (a) Integral and differential leader response functions. (b) Integral and differential leader response functions.

Conclusion

We have analyzed data and determined the response functions as a function of apparent cosmic-ray rigidity of the count rates and leader ratios of the uncalibrated T2 and water-cooled (averaged T18 T2) of 2019 and 2020 count rate surveys. In Figure 4, we can see the count rate and leader rate ratio of uncalibrated vs. leader count rates linear trend with geomagnetic cutoff rigidity, indicating accuracy by the geomagnetic location.

Acknowledgments

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