



Contribution ID : 1263

Type : **Poster**

The 120-yrs solar cycle of the cosmogenic isotopes

Monday, 9 July 2007 14:45 (0:00)

Abstract content

The solar periodicities of 80-88 yrs (Gleissberg cycle) and 205 yrs (de Vries cycle or Suess cycle) using different time series of proxies of cosmogenic isotopes have been reported in a great number of papers. In this work we present a more objective and general cycle-length determination applying the wavelet transformation based on the Morlet wavelet to the cosmogenic isotopes. We use the INTERCAL98 for C14 time series and Be10 time series for both the South and North Poles. The results obtained from the wavelet transformation show that there are no periodicities of 80-88 yrs or 205 yrs. This suggests that these periodicities may be the result of applying transformations to time series that do not fulfill the condition of stationary.

The estimated periodicities obtained from the Morlet wavelet are of 60 yrs (Yoshimura-Gleissberg cycle), 120 yrs and 240 yrs (de Vries cycle or Suess Cycle). The 120-periodicity could possibly be one of the principal periodicities of magnetic solar activity.

If this paper is presented for a collaboration, please specify the collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 1 (SH), pages 553-556

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Session Classification : Posters 3 + Coffee

Track Classification : SH.3.2