

Long-term variations in the geomagnetic activity level Part II: Ascending phases of sunspot cycles

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Received: 28 January 1994/Revised: 15 March 1994/Accepted: 31 March 1994

Abstract. Monthly averages of the Helsinki Ak-values have been reduced to the equivalent aa-indices to extend the aa-data set back to 1844. A periodicity of about five cycles was found for the correlation coefficient (r) between geomagnetic indices and sunspot numbers for the ascending phases of sunspot cycles 9 to 22, confirming previous findings based on a minor number of sunspot cycles. The result is useful to researchers in topics related to solar-terrestrial physics, particularly for the interpretation of long-term trends in geomagnetic activity during the past, and to forecast geomagnetic activity levels in the future.

Article not available online

Last change: October 3, 1997

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