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Solar activity in connection with a 2.5 years period cycle in air temperature time series using the Morlet wavelet method

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The Morlet wavelet is applied to air temperature time series obtained from several weather stations and reveals the existence of a period cycle of 20-30 months since 1950, with an estimated amplitude of 0.5 C. The origin of this period is investigated by computing the scale spectra associated to the principal indices that characterize air mass flows in the troposphere and the stratosphere, as well as the signals related to the sunspot number and the solar flux. Each analysed signal shows this period of approximatively 2.5 years. This suggests that the 2.5 years-cycle could be resulted from the solar activity.