

# Periodicities in solar activity, solar radiation and their links with terrestrial environment

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In this paper, a spectral analysis of the averaged sunspot numbers, solar irradiance, and the summary curve of eigenvectors of SBMF was carried out using Morlet wavelet and Fourier transforms. We detect a 10.7-year cycle from the sunspots and modulus summary curve of eigenvectors as well a 22 years cycle and the grand solar cycle of 342-350-years from the summary curve of eigenvectors. The Gleissberg centennial cycle is only detected on the full set of averaged sunspot numbers for 400 years or by adding a quadruple component to the summary curve of eigenvectors. Another period of 2200-2300 years is detected in the Holocene data of solar irradiance measured from the abundance of <sup>14</sup>C isotope. This period was also confirmed with the period of about 2000-2100 years derived from a baseline of the solar background magnetic field, supposedly, caused by the solar inertial motion (SIM) induced by the gravitation of large planets. The implication of these findings for different deposition of solar radiation into the northern and southern hemispheres of the Earth caused by the combined effects of the solar activity and solar inertial motion caused by the gravitation of large planets on the terrestrial temperature are discussed.