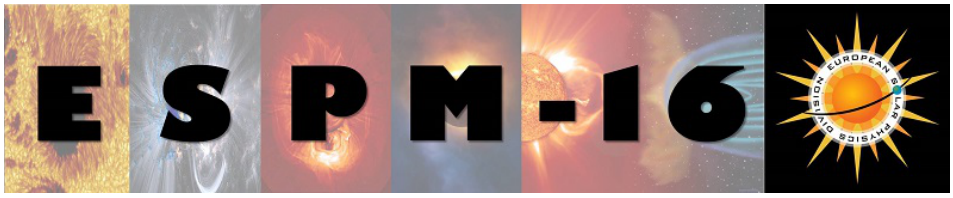

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On the minimum - maximum method for the solar cycle prediction

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One of the methods to predict the future solar activity is the minimum - maximum method, which is based on a linear relationship between relative sunspot number in the minimum and maximum epochs of solar cycles. It belongs to the precursor class of the solar activity forecasting methods. In present work we apply a modified version of this method using data not only from the minimum year, but also from a couple of years before and after the minimum. The new version of the 13-month smoothed monthly total sunspot number data set from SILSO-SIDC is used. We investigate the value of the correlation coefficient of the mentioned relationship as a function of the time lag around the solar minimum. Further, a statistical significance of the results and inclusion/exclusion of the curious solar cycle no. 19 are discussed. For the next solar maximum of the cycle no. 25 we predict a similar amplitude as the previous one, or even something lower. This is in accordance with the overall middle-term lowering of the solar activity after the secular maximum in the 20th century and consistent with the Gleissberg period of the solar activity. The reliability of the method is experimentally checked by applying it to reconstruct a couple of previous solar cycle maxima, using the earlier data. Finally, the minimum-maximum method and its results are discussed in the context of the well-known empirical findings: the extended solar cycle and the Waldmeier effect, as well as various solar dynamo models.

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