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24th and 25th cycles of solar activity: features and predictors

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The report is devoted to the consideration of heliogeophysical features of the 24th and 25th cycles of solar activity, and new methods for predicting extremes of solar activity. The authors proposed to use the maximum of the fifth zonal harmonic of the solar global magnetic field as a predictor of the time of the maximum of the 11-year cycle of solar activity (SA). The polar field of the Sun is an effective parameter for predicting the height of the SA cycle [1]. It has been shown that epidemiological processes can serve as an additional predictor of global changes in solar activity [2]. For example, the beginning of the next cycle of local measles epidemics occurs 12-15 months before the extremes of the SA cycle. The maximum 25th cycle of solar activity (SA) is expected with a cycle height of no more than 127 for forecasting using the authors method.

[1] V. Obridko, D. Sokoloff, M. Katsova. Astronomicheskii Tsirkulyar, No. 1658, 1 (2023)

[2] M. Ragulskaya. Geomagnetism and aeronomy. v.63, no.7, (2023) p. 984