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The *aa*-index since 1844 in relation to solar inertial motion and its prediction

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The series of the geomagnetic *aa*-index (yearly data) was studied since 1844 in relation to the solar inertial motion (SIM). The SIM is composed of two types, the ordered in trefoils and the disordered. The SIMs (the solar orbits) in the years 1840-1905 and 1980-2045 are of disordered type and are nearly identical. A similarity between the courses of geomagnetic *aa*-index in the intervals 1844-1867 and 1984-2007N was found. Moreover, the *aa*-index in these intervals have the same best fit lines (the polynomials of the fourth order) with close positions of the extrema. The extrema of the best fit line for the *aa*-index in the interval 1906-1928 which corresponds to the first half of the ordered, trefoil interval of the SIM have the opposite positions to them. The correlation coefficient between the *aa*-indices in the interval 1844-1866 and in the interval 1984-2006 is 0.61. The solar cycles could also be created by the SIM. The correlation coefficient between the *aa*-indices in the interval 1844-1866 and in the interval 1906-1928 is –0.43. Close similarity between the above mentioned sequences of the SIM and a similarity of the *aa*-indices in the intervals 1844-1867 and 1984-2007N were used for establishing of a cautious predictive assessment of a course of the geomagnetic *aa*-index up to 2045: After 2007, the *aa*-index (and sunspot numbers) could copy their values from the interval 1868-1905. The results indicate that geomagnetic (solar) activities are non random processes. If prediction is true, further evidence of the primary role of the SIM in geomagnetic (solar) variabilities is established