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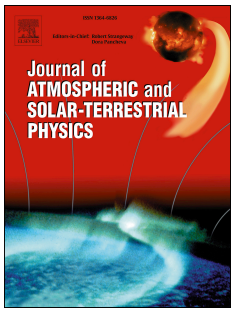

Precursors of an upcoming solar cycle at high latitudes from coronal green line data

K. Petrovay, M. Nagy, T. Gerják, L. Juhász

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Precursors of an upcoming solar cycle at high latitudes from coronal green line data

K.Petrovay, M. Nagy, T. Gerják

EötvösUniversity, Department of Astronomy, Budapest, Hungary

L. Juhász

EötvösUniversity, Department of Geophysics and Space Science, Budapest, Hungary

Abstract

After reviewing potential early indicators of an upcoming solar cycle at high latitudes, we focus attention on the rush–to-the-poles (RTTP) phenomenon in coronal green line emission. Considering various correlations between properties of the RTTP with the upcoming solar cycle we find a correlation between the rate of the RTTP and the time delay until the maximum of the next solar cycle. On the basis of this correlation and the known internal regularities of the sunspot number series we predict that, following a minimum in 2019, cycle 25 will peak in late 2024 at an amplitude of about 130 (in terms of smoothed monthly revised sunspot numbers). This slightly exceeds the amplitude of cycle 24 but it would still make cycle 25 a fairly weak cycle.

Keywords: Sun, solar activity, solar cycle, sunspot number

1. Introduction

Solar Cycle 25 reached its maximum in April 2014 with a 13-month smoothed sunspot number of $R = 116$ (revised value[1]) or $R = 70$ (unrevised value), about

*Corresponding author

Email address: K.Petrovay@astro.elte.hu (K.Petrovay)

[1]The revision of the official sunspot number series that took place in 2015 was a well known crucial milestone in recent solar physics. For more explanations see http://sidc.oma.be/silso/newdataset