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Longitudinal and latitudinal asymmetries in sunspot and active region occurrences in the cycle 23 detected from the Solar Feature Catalogues

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The latitudinal distributions of sunspot areas during the cycle (a butterfly diagram) and their resulting (excess) magnetic fields closely correlate with the solar magnetic field in their migration during the cycle from higher latitudes of $35-40ˆ{\circ}$ towards the equator. The residuals of the sunspot areas averaged over 1 year minus those averaged over 4 years revealed a well defined periodicity of 2-2.5 years that is similar to the period of the North-South asymmetry in sunspot area and active region areas and flare occurrences. The distributions of cumulitative sunspot areas in the Eastern and Western hemispheres are compared with the locations of flare occurrences that allowed to establish the active longitude of about 200 degrees predicted for the cycle 23 by some non-axisymmetric dynamo models.