

# **IMPROVED ANALYSIS OF DIFFERENTIAL ROTATION PARAMETERS OF ACTIVE LONGITUDES OF SOLAR X-RAY FLARES**

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There is increasing evidence that various manifestations of solar activity are non-axisymmetric and mainly occur in two preferred longitude ranges, so called active longitudes. We have earlier analyzed the longitudinal occurrence of solar X-ray flares observed by GOES satellites using a specially developed dynamic, differentially rotating coordinate system. In this frame, the longitude distribution shows two persistent preferred longitudes separated by about 180 degrees whose strength alternates in time, similarly to the so called flip-flop phenomenon. Here we make an improved statistical analysis to find the globally best fitting values for the parameters describing the differential rotation of active longitudes. We find that the revised analysis gives a more consistent set of parameters, e.g., for the different classes of X-ray flares. Also, the improved parameters yield a higher level of non-axisymmetry for the longitudinal distribution, thus increasing evidence for the existence of active longitudes.

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