



To the origin of latitudinal structures of the photospheric magnetic field

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The measurements of the line-on-sun component of the photospheric magnetic field taken by the WS vatory (<http://solar.inf.brad.ac.uk>) since 1997 to 2006. have been used for the analysis. New approach suggested to reveal the influence of the weak and strong magnetic fields on the organizing of global t of the field and dynamic of solar variability over last three cycles N 21, 22 and 23. .

- The latitudinal topology of the photospheric magnetic field is composed of 1) a four zonal 20 periodical structure and 2) polarity's waves running from the equator to the poles with period years about.
- The boundaries of the four zones are located at the equator and at $\pm 25^\circ$ degrees (where activity has the highest amplitude). The polarities of the pre-equatorial zones coincide to the p of leading sunspots and have opposite signs in the Northern and Southern hemispheres. It is imp study whether the non-zero level of the magnetic field calculated as a mean around the Sun at latitudes is a component of a basic background field or the result of the misbalance of the strong r field mainly concentrated in active regions.
- The polarity's waves have different periods in the Northern and Southern hemispheres, but synchronized by solar activity cycle. The study of the origin of these waves was performed in their relationship with the presence of the differential rotation and torsional waves in the magn of the Sun.
- The results are used for the predictions of solar variability on the short and long term scale.