

E.Gavryuseva (1, 2), S.Zharkov (3), V.Zharkova (4)

(1) Institute for Nuclear Research, Moscow, Russia and

(2) Arcetri Astrophysical Observatory, Florence, Italy

(3) Sheffield University, UK

(4) Bradford University, UK

(elena.gavryuseva@gmail.com / Fax: 39 055 2752 292 / Phone: 39 055 2752 225)

- We compare a basic topology of large scale solar magnetic field with the distribution of the sunspot activity in latitude and in time in the past 2 solar cycles.

The large scale magnetic fields were composed from the data of WSO observatory, the sunspot characteristics we extracted for the cycle 23 from the Solar Feature Catalogues (<http://solar.inf.brad.ac>

The magnetic field variations reveal a 4-zonal structure with 22-year periodicity and waves through the solar latitudes with the two years periods. The results are compared with the latitudinal variations in time and cumulative variations in the butterfly diagrams. The correlation results are used to explain the double peaks and variable character of the solar activity that can be used for its modelling and prediction.