**POSTER**

**“*Solar wind fluctuations and solar activity long-term swing: 1963-2012”***

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**Abstract:**

In this study we investigate the time variation of several solar activity indices using yearly and or 27-day average on earth orbit to understand links between solar activity parameters. We achieve our research by investigating several data plotted using averages. We also investigate pixel diagrams built with the criterions defined by Zerbo et al. 2012, and select the years with highest solar activity and estimate their energy level mean to the polar cap index used as a proxy of Joule heating (Francis K. et al.,1999).

The solar activity begins with the development of the solar wind cycle and ends by the minimum of the spots of the following cycle. Its total duration is of the order of 17-19 years.Main results suggest relationship between solar activity and plasma flux parameters.

We learn that solar wind is only one of the contributing factors to geomagnetic activity and that there are a close links between the coronal hole which is the region of open field lines and the injection and dissipation of surprising and important energy in the interplanetary medium. This implies the necessity to deal with space phenomenon by considering the severe interconnection between solar activity indices for interplanetary and earth environment weather forecasting.

**Key words**: solar wind cycle- solar activity indices-Joule heating-IMF reversal- parameters interconnection.