1. Introduction
Remote sensing offers a unique opportunity to study and characterize the spatial-temporal dynamics of fire activity at global scale in a systematic and operational way. A new weekly satellite Earth Observation product called Global Burned Surface (GBS) map appears as an opportunity to better understand the global fire activity phenomenon. This product is obtained from the daily NOAA-AVHRR GAC 8km data set (1982-1999, 1994 excepted).

2. Data and method
The detection algorithm for obtaining global burned surface (GBS) maps uses daily NOAA-AVHRR 8km remote sensing data based on a weekly composite data set. The algorithm is based on a multi-temporal and multi-spectral analysis with local threshold.

GBS time series data are distributed by latitudes and time. In order to compensate sea/emerged surface distribution on the data set, we normalise the total burned surface in each degree of latitude by the total amount of emerged surface in that latitude (Fig. 1).

3. Structural analysis
Geostatistical techniques, in particular the structural analysis step which consists in analysing the spatio-temporal correlation of the investigated variable can provide useful information:

3.1. Time
Fig. 2 shows the temporal correlation of the phenomenon through time. One can see a remarkable seasonal structure that is similar in both hemispheres: observations separated by 6 months are less correlated than those separated by 3 or 9 months. Observations distant by as much as 17 years show an almost identical temporal behaviour. The Northern hemisphere seems to show a slight but systematic enhanced temporal structure when compared to the Southern hemisphere.

3.2. Space
Fig. 3 shows the latitudinal correlation of the patterns of GBS. While the Southern hemisphere shows a slow decrease in the spatial correlation proving a unique and coherent structured behavior, the Northern hemisphere presents an increase of the spatial correlation for a separation distance of around 13-15 degrees, highlighting a duplicated patterns of GBS separated by these distances. The spatial correlation is < 0.5 for a separation distance of 18 degrees in both hemispheres. This analysis puts in evidence the existence of three major spatial structures where the global fire activity occurs: Boreal Latitudes, Medium-Low Northern Latitudes and Medium-Low Southern Latitudes.

3.3 Spatio-temporal evolution of patterns of GBS
Analysing the slopes of the spatial correlations for all the years, one can derive the fractal dimension of the latitudinal correlation. These fractograms (Fig. 4) further confirm the stronger spatial correlation for Southern latitudes ($D_{\text{South}} < D_{\text{North}}$) and show a remarkable inverted symmetry between both hemispheres. This figure clearly depicts the strong stability ($D<< 2$) of the relative global fire patterns in both hemispheres, the South having a more stable structure than the North. Extreme inversions can be observed for the years 1988, 1993 and 1995. We hypothesize that these structures are only perturbed by external climatic variations occurring in from time to time in the period considered, but further analysis and a longer time series of data are needed to confirm our hypotheses.

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