Spatial monitoring based on scan statistics

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Abstract:

A problem of great interest in industry, engineering, epidemiology, public health and so many other scientific fields is whether a set of points/events is randomly distributed on the plane or presents some nonrandom pattern. In the latter case it is also of great importance to locate any cluster, i.e. any area with high concentration of points/events. In the present study a new spatial scan statistic is presented that aims to address the aforementioned questions. We propose a novel statistical procedure based on scan statistics, for the monitoring of the distribution of the points/events. Simulated data are used to illustrate the methodology and to reveal its capabilities and strengths.

Keywords:
scan; monitoring