

# Package ‘FlexScan’

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**Type** Package

**Title** Flexible Scan Statistics

**Version** 0.2.1

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**Depends** R (>= 2.10)

**Description** An easy way to conduct flexible scan.

Monte-Carlo method is used to test the spatial clusters given the cases, population, and shapefile.

A table with formal style and a map with clusters are included in the result report.

The method can be referenced at: Toshiro Tango and Kunihiko Takahashi (2005) <[doi:10.1186/1476-072X-4-11](https://doi.org/10.1186/1476-072X-4-11)>.

**License** GPL-3

**Imports** smerc, sp, spdep, methods, graphics

**Encoding** UTF-8

**LazyData** true

**NeedsCompilation** no

**Repository** CRAN

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flexscan

*Flexible Scan Statistics***Description**

An easy way to conduct flexible scan. Monte-Carlo method is used to test the spatial clusters given the cases, population, and shapefile. A table with formal style and a map with clusters are included in the result report. The method can be referenced at: Toshiro Tango and Kunihiko Takahashi (2005) <doi:10.1186/1476-072X-4-11>.

**Usage**

```
flexscan(map, case, pop, nsim, k, alpha, isplot, col)
```

**Arguments**

map	spatial object, typically a shapefile read in using 'rgdal::readOGR'
case	numeric, a vector of number of cases for each region of 'map'; it is noteworthy that the order of regions in 'case' is corresponding to that in 'map'
pop	numeric, a vector of number of population for each region of 'map'; it is noteworthy that the order of regions in 'pop' is corresponding to that in 'map'
nsim	numeric, the number of simulations for Monte Carlo test; the default is 999
k	numeric, the maximum number of regions allowed for clusters; the default is 10
alpha	numeric, the significance level of flexible scan test; the default is 0.05
isplot	logical, whether to plot the results; the default is TRUE
col	color vector, two colors for most likely cluster and secondary cluster; the default is c("red", "blue")

**Value**

data.frame	a data.frame containing 8 variables as follows:
Cluster Type	most likely cluster or secondary cluster
Region ID	region id for each cluster; it is noteworthy that the 'ID' is the order of regions in 'map'
Observed Cases	observed cases for each cluster
Expected Cases	expected cases for each cluster
SR	standardized ratio of observed to expected cases
RR	relative risk for each cluster
LLR	loglikelihood ratio for each cluster
P Value	p value of likelihood ratio test for each cluster

**Note**

Please feel free to contact us, if you have any advice and find any bug!

Reference:

Tango, T. & Takahashi, K. A Flexibly Shaped Spatial Scan Statistic for Detecting Clusters. INT J HEALTH GEOGR. 4, 11 (2005).

Updates:

Version 0.2.0: Fix the bugs according to the dependent package of "smerc" version 1.1

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**Examples**

```
data(map)
data(sample)
# simple example for checks; turn the warnings back on using 'options(warn=0)'
options(warn=-1)
flexscan(map, case=sample$case, pop=sample$pop, k=3, isplot=FALSE, nsim=10)
## Not run:
flexscan(map, case=sample$case, pop=sample$pop)

## End(Not run)
```

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map	<i>Shapefile</i>
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**Description**

There 123 tiles in the map.

**Usage**

```
map
```

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sample	<i>Sample Data</i>
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**Description**

There are two variables in the 'sample' including 'case' and 'pop'.

**Usage**

```
sample
```

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