

# Package ‘fisheye’

January 17, 2022

**Title** Transform Base Maps Using Log-Azimuthal Projection

**Version** 0.1.0

**Description** Base maps are transformed to focus on a specific location using an azimuthal logarithmic distance transformation.

**License** GPL-3

**Depends** R (>= 3.5.0)

**Imports** sf

**Encoding** UTF-8

**RoxygenNote** 7.1.2

**Suggests** covr, tinytest

**NeedsCompilation** no

**Author** Timothée Giraud [cre, aut] (<<https://orcid.org/0000-0002-1932-3323>>),  
Luc Guibard [aut]

**Maintainer** Timothée Giraud <[timothee.giraud@cnr.fr](mailto:timothee.giraud@cnr.fr)>

**Repository** CRAN

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## R topics documented:

fisheye-package . . . . .	2
fisheye . . . . .	2
<b>Index</b>	<b>4</b>

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fisheye-package	<i>Package description</i>
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### Description

Base maps are transformed to focus on a specific location using an azimuthal logarithmic distance transformation.

### References

Hägerstrand, T. (1957). Migration and Area: A Survey of a Sample of Swedish Migration Fields and Hypothetical Considerations of their Genesis. Lund Studies in Geography, Series B, Human Geography, Department of Geography, University of Lund, Lund.

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fisheye	<i>fisheye</i>
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### Description

This function transform an sf layer with a fisheye transformation. Several methods are available. This is a visualisation method that should not be used for geospatial calculation (area, distances...). The output sf object has no CRS as it is not relevant.

### Usage

```
fisheye(x, centre, method = "log", k = 1)
```

### Arguments

x	an sf object (POINT, LINESTRING, MULTILINESTRING, POLYGON, MULTIPOLYGON) to be transformed. This object needs to be projected (no lon/lat).
centre	an sf object, the center of the transformation. This object must use the same projection as x.
method	transformation method, either 'log' or 'sqrt'. See Details.
k	integer, factor to adjust the log transformation, higher values soften the deformation. See Details.

### Details

The 'log' method transforms distances to center with:  $d' = \log(1 + 10^{-k} * d)$

The 'sqrt' method transforms distances to center with:  $d' = \sqrt{d}$

### Value

A transformed sf object is returned.

**Examples**

```
library(sf)
ncraw <- st_read(system.file("shape/nc.shp", package="sf"), quiet = TRUE)
nc <- st_transform(ncraw, 3857)
ncfe <- fisheye(nc, centre = nc[100, ], method = 'log', k = 4)
plot(st_geometry(ncfe), col = "grey70", lwd = .2)
plot(st_geometry(ncfe[100,]), col = NA, lwd = 2, border = "red", add = TRUE)
```

# Index

[fisheye](#), 2

[fisheye-package](#), 2