# Package 'fisheye'

July 22, 2025

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

**Version** 0.2.0

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

**URL** https://github.com/riatelab/fisheye

**BugReports** https://github.com/riatelab/fisheye/issues

**License** GPL-3

**Depends** R (>= 3.5.0)

**Imports** sf

**Encoding** UTF-8

**RoxygenNote** 7.2.3

**Suggests** covr, tinytest

**NeedsCompilation** no

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**Repository** CRAN

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## Contents

`fisheye-package` *Package description*

## 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.

`fisheye` *fisheye*

## 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` | transfomation 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