Package 'tanaka'

November 28, 2023

Type Package

Title Design Shaded Contour Lines (or Tanaka) Maps

Version 0.4.0

Description The Tanaka method enhances the representation of topography on
a map using shaded contour lines. In this simplified implementation of
the method, north-west white contours represent illuminated topography
and south-east black contours represent shaded topography. See Tanaka
(1950) <doi:10.2307/211219>.

License GPL-3

Imports terra, sf, mapiso, maplegend, grDevices, graphics

Encoding UTF-8

RoxygenNote 7.2.3

Suggests tinytest, covr, lwgeom

URL https://github.com/riatelab/tanaka/

BugReports https://github.com/riatelab/tanaka/issues/

NeedsCompilation no

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R topics documented:

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tanaka-package   *Tanaka Contours Package*

Description

The tanaka package is a simplified implementation of the Tanaka method. Also called "relief contours method", "illuminated contour method", or "shaded contour lines method", the Tanaka method enhances the representation of topography on a map using shaded contour lines. North-west white contours represent illuminated topography and south-east black contours represent shaded topography.

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tanaka   *Plot a Tanaka Map*

Description

This function plots a tanaka map.

Usage

```
tanaka(
  x,
  nclass = 8,
  breaks,
  col,
  mask,
  light = "#ffffff70",
  dark = "#00000090",
  shift,
  legend.pos = "left",
  legend.title = "Elevation",
  add = FALSE
)
```

Arguments

x	a raster or an sf contour layer (e.g. the result of tanaka_contour(), "min" and "max" columns are needed).
nclass	a number of class.
breaks	a vector of break values.
col	a color palette (a vector of colors).
mask	a mask layer, a POLYGON or MULTIPOLYGON sf object.
light	light shadow (NW color).

dark	dark shadow (SE color).
shift	size of the shadow (in map units).
legend.pos	position of the legend, one of 'topleft', 'top', 'topright', 'right', 'bottomright', 'bottom', 'bottomleft', 'left' or a vector of two coordinates in map units (c(x, y)). If leg.position = NA then the legend is not plotted. If leg.position = 'interactive' click on the map to choose the legend position.
legend.title	title of the legend.
add	whether to add the layer to an existing plot (TRUE) or not (FALSE).

Value

A Tanaka contour map is plotted.

References

Tanaka, K. (1950). The relief contour method of representing topography on maps. *Geographical Review, 40*(3), 444-456.

Examples

```
library(tanaka)
library(terra)
library(sf)
com <- st_read(system.file("gpkg/com.gpkg", package = "tanaka"),
  quiet = TRUE
)
ras <- rast(system.file("tif/elev.tif", package = "tanaka"))
tanaka(ras)
tanaka(ras, mask = com)
tanaka(ras,
  breaks = seq(80, 400, 20),
  legend.pos = "topright",
  legend.title = "Elevation\n(meters)"
)
tanaka(ras,
  nclass = 15,
  col = hcl.colors(15, "YlOrRd"),
  legend.pos = "topright",
  legend.title = "Elevation\n(meters)"
)
```

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  tanaka_contour   *Create a Contour Layer*

Description

Create a contour layer.

Usage

```
tanaka_contour(x, nclass = 8, breaks, mask)
```

Arguments

x	a raster object.
nclass	a number of class.
breaks	a vector of break values.
mask	a mask layer, a POLYGON or MULTIPOLYGON sf object.

Value

A MULTIPOLYGON sf object is return. The data.frame contains 3 fields: id, min (minimum value of the raster in the MULTIPOLYGON) and max (maximum value of the raster in the MULTIPOLY-GON).

Examples

```
library(tanaka)
library(terra)
library(sf)
ras <- rast(system.file("tif/elev.tif", package = "tanaka"))
iso <- tanaka_contour(x = ras)
plot(st_geometry(iso), col = c(
  "#FBDEE1", "#F0BFC3", "#E7A1A6",
  "#DD8287", "#D05A60", "#C03239",
  "#721B20", "#1D0809"
))
```

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