Package ‘fasterize’

July 27, 2020

Title  Fast Polygon to Raster Conversion
Version 1.0.3
Description Provides a drop-in replacement for rasterize() from the 'raster' package that takes 'sf'-type objects, and is much faster. There is support for the main options provided by the rasterize() function, including setting the field used and background value, and options for aggregating multi-layer rasters. Uses the scan line algorithm attributed to Wylie et al. (1967) <doi:10.1145/1465611.1465619>.
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URL https://github.com/ecohealthalliance/fasterize
BugReports https://github.com/ecohealthalliance/fasterize/issues
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**Description**

Rasterize set of polygons

Fast sf-to-raster conversion

**Usage**

```r
fasterize(
  sf,
  raster,
  field = NULL,
  fun = "last",
  background = NA_real_,
  by = NULL
)
```

**Arguments**

- `sf` an `sf::sf()` object with a geometry column of POLYGON and/or MULTIPOLYGON objects.
- `raster` A raster object. Used as a template for the raster output. Can be created with `raster::raster()`. The fasterize package provides a method to create a raster object from an sf object.
- `field` character. The name of a column in `sf`, providing a value for each of the polygons rasterized. If NULL (default), all polygons will be given a value of 1.
- `fun` character. The name of a function by which to combine overlapping polygons. Currently takes "sum", "first", "last", "min", "max", "count", or "any". Future versions may include more functions or the ability to pass custom R/C++ functions. If you need to summarize by a different function, use `by` to get a RasterBrick and then `raster::stackApply()` or `raster::calc()` to summarize.
- `background` numeric. Value to put in the cells that are not covered by any of the features of `x`. Default is NA.
- `by` character. The name of a column in `sf` by which to aggregate layers. If set, fasterize will return a RasterBrick with as many layers as unique values of the by column.

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Details

This is a high-performance replacement for \texttt{raster::rasterize()}.

The algorithm is based on the method described in course materials provided by Wayne O. Cochran.

The algorithm is originally attributed to Wylie et al. (1967).

Value

A raster of the same size, extent, resolution and projection as the provided raster template.

References


Examples

library(sf)
library(fasterize)
p1 <- rbind(c(-180,-20), c(-140,55), c(10, 0), c(-140,-60), c(-180,-20))
hole <- rbind(c(-150,-20), c(-100,-10), c(-110,20), c(-150,-20))
p1 <- list(p1, hole)
p2 <- list(rbind(c(-10,0), c(140,60), c(160,0), c(140,-55), c(-10,0)))
p3 <- list(rbind(c(-125,0), c(0,60), c(40,5), c(15,-45), c(-125,0)))
pols <- st_sf(value = rep(1,3),

geometry = st_sfc(lapply(list(p1, p2, p3), st_polygon)))
r <- raster(pols, origin = 1, res = 1)
r <- fasterize(pols, r, field = "value", fun="sum")
plot(r)

raster, sf-method

Create a raster from an sf object

Description

See \texttt{raster::raster()} for more details.

Usage

\#

\texttt{S4 method for signature ‘sf’}

\texttt{raster(x, origin, \ldots)}

Arguments

\begin{itemize}
  \item \texttt{x} \hspace{1cm} an \texttt{sf} object
  \item \texttt{origin} \hspace{1cm} the origin point of the output raster
  \item \texttt{\ldots} \hspace{1cm} Additional arguments, see \texttt{raster::raster()} for more details.
\end{itemize}
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