

Package ‘plotGoogleMaps’

March 5, 2012

Type Package

Title Plot SP data as HTML map mushup over Google Maps

Version 1.2

Date 2012-01-31

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Description This package provides a interactive plot device for handling the geographic data for web browsers. It is optimised for Google Chrome browser. It is designed for the automatic creation of web maps as a combination of users’ data and Google Maps layers.

Depends R (>= 2.10.0), sp, rgdal, maptools,lattice

License GPL

Repository CRAN

Date/Publication 2012-03-05 16:44:05

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Description

Plot htm output with Google Maps API in form of bubble plot of spatial data, with options for bicolour residual plots. Ready to use as local htm file or into your own website.

Usage

```
bubbleGoogleMaps(SP,  
  filename = '',  
  zcol = 1,  
  max.radius = 100,  
  key.entries = quantile(SP@data[, zcol], (1:5)/5),  
  do.sqrt = TRUE,  
  add = FALSE,  
  previousMap = NULL,  
  colPalette = NULL,  
  strokeColor = '#FFAA00',  
  strokeOpacity = 1,  
  strokeWeight = 1,  
  geodesic = TRUE,  
  clickable = TRUE,  
  zIndex = 'null',  
  shape = 'c',  
  map.width = '80%',  
  map.height = '100%',  
  layerName = '',  
  control.width = '20%',  
  control.height = '100%',  
  zoom = 15,  
  fitBounds = TRUE,  
  mapTypeId = 'HYBRID',  
  disableDoubleClickZoom = FALSE,  
  draggable = TRUE,  
  keyboardShortcuts = TRUE,  
  mapTypeControlOptions = 'DEFAULT',  
  navigationControl = TRUE,  
  navigationControlOptions = 'DEFAULT',  
  scaleControlOptions = 'STANDARD',  
  noClear = FALSE,  
  scrollwheel = TRUE,  
  streetViewControl = FALSE)
```

Arguments

SP	object of SpatialPointsDataFrame-class with associated coordinate reference systems
filename	the name of the output htm or html file. If filename is not defined the function will create filename same as the name of SP object with htm extension.
zcol	variable column name, or column number after removing spatial coordinates from x@data: 1 refers to the first non-coordinate column
max.radius	value for largest circle (the plotting symbols) in metre, circumcircle of triangle or quadrangle (square)
key.entries	the values that will be plotted in the key; by default the five quantiles min, q.25, median q.75, max
do.sqrt	logical; if TRUE the plotting symbol area (sqrt(diameter)) is proportional to the value of the z-variable; if FALSE, the symbol size (diameter) is proportional to the z-variable
add	logical; if TRUE the result of the function will be a list stored as variable in the R. It is possible to combine more layers in the one plot, previously saved output from plotGoogleMaps should be given in the previousMap attribute.
previousMap	previously saved variable from plotGoogleMaps when attribute add is TRUE. It is solution for combining more than one layers in the one plot.
colPalette	colours to be used to fill plotting symbols; numeric vector of same size like key.entries
strokeColor	the color to draw the border of circle (the plotting symbols)
strokeOpacity	the stroke opacity between 0.0 and 1.0
strokeWeight	the stroke width in pixels
geodesic	render each edge as a geodesic (a segment of a 'great circle')
clickable	indicates whether this plotting symbol handles click events
zIndex	the zIndex compared to other polygons
shape	the shape for plotting symbol; 'c' for circle; 't' for triangle; 'q' for square
map.width	the width of the map. Can be in percent or in pixels (px)
map.height	the height of the map. Can be in percent or in pixels (px)
layerName	the name of the layer. Layer name appears on the check box for switching layer of and on in output htm.
control.width	the width of the part of htm for controlling layer (legend, opacity,...) Can be in percent or in pixels (px).
control.height	the height of the part of htm for controlling layer (legend, opacity,...) Can be in percent or in pixels (px).
zoom	the initial Map zoom level. Zoom levels between 0 (the lowest zoom level, in which the entire world can be seen on one map) to 19 (the highest zoom level, down to individual buildings) are possible within the normal maps view. Argument fitBounds should be FALSE.
fitBounds	sets the maps to fit to the boundary box values of sp object

mapTypeId	the initial Map mapTypeId. 'HYBRID' - map type displays a transparent layer of major streets on satellite images. 'ROADMAP' - map type displays a normal street map. 'SATELLITE' - map type displays satellite images. 'TERRAIN' - map type displays maps with physical features such as terrain and vegetation.
disableDoubleClickZoom	enables or disables zoom and center on double click.
draggable	if FALSE, prevents the map from being dragged
keyboardShortcuts	if FALSE, prevents the map from being controlled by the keyboard.
mapTypeControlOptions	the initial display options for the Map type control. 'DEFAULT' - uses the default map type control. 'DROPDOWN_MENU' - a dropdown menu for the screen realestate conscious. 'HORIZONTAL_BAR' - the standard horizontal radio buttons bar.
navigationControl	enabled or disabled state of the navigation control
navigationControlOptions	the initial display options for the navigation control. 'ANDROID' - the small zoom control similar to the one used by the native Maps application on Android. 'DEFAULT' - the default navigation control. The control which DEFAULT maps to will vary according to map size and other factors. It may change in future versions of the API. 'SMALL' - the small, zoom only control. 'ZOOM_PAN' - the larger control, with the zoom slider and pan directional pad.
scaleControlOptions	the initial display options for the scale control.
noClear	if TRUE, do not clear the contents of the Map div.
scrollwheel	if FALSE, disables scrollwheel zooming on the map.
streetViewControl	the initial enabled or disabled state of the Street View pegman control

Value

This function returns a list with HTML, JavaScript, Google Maps API key and else what is necessary for the final web map. The second output is htm file ready to use stored in working direcoty.

Author(s)

Milan Kilibarda <kili@grf.bg.ac.rs>

See Also

[plotGoogleMaps](#), [ellipseGoogleMaps](#), [segmentGoogleMaps](#)

Examples

```
# Data preparation
data(meuse)
coordinates(meuse) <- ~x+y
proj4string(meuse) <- CRS('+init=epsg:28992')

m<-bubbleGoogleMaps(meuse,zcol='zinc',filename='myMap.htm')

m<-bubbleGoogleMaps(meuse,zcol='cadmium',filename='myMapCadmium.htm',layerName='Bubble plot - meuse',colPalette
# see results in your working directory
```

ellipseGoogleMaps	<i>Create a ellipses plot from spatial points data frame on Google Maps, by using three attributes: semi-major axis, semi-minor axis, and orientation in degrees.</i>
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Description

Plot htm output with Google Maps API in form of ellipses plot of spatial data. Ready to use as local htm file or into your own website.

Usage

```
ellipseGoogleMaps(SP,
  filename = '',
  zcol = 1:3,
  add = F,
  previousMap = NULL,
  scale_e = 10,
  colPalette = NULL,
  strokeColor = '#FFAA00',
  strokeOpacity = 1,
  strokeWeight = 1,
  geodesic = TRUE,
  clickable = TRUE,
  zIndex = 'null',
  map.width = '80%',
  map.height = '100%',
  layerName = '',
  control.width = '20%',
  control.height = '100%',
  zoom = 15,
  fitBounds = TRUE,
  mapTypeId = 'HYBRID',
  disableDoubleClickZoom = FALSE,
  draggable = TRUE,
  keyboardShortcuts = TRUE,
```

```

mapTypeControlOptions = 'DEFAULT',
navigationControl = TRUE,
navigationControlOptions = 'DEFAULT',
scaleControlOptions = 'STANDARD',
noClear = FALSE,
scrollwheel = TRUE,
streetViewControl = FALSE)

```

Arguments

SP	object of SpatialPointsDataFrame-class with associated coordinate reference systems and minimum three attributes: semi-major axis, semi-minor axis, and orientation in degrees.
filename	the name of the output htm or html file. If filename is not defined the function will create filename same as the name of SP object with htm extension.
zcol	variable column names, or column numbers after removing spatial coordinates from x@data: 1 refers to the first non-coordinate column. Attribute names or numbers of columns contains semi-major axis, semi-minor axis, and orientation in degrees respectively
add	logical; if TRUE the result of the function will be a list stored as variable in the R. It is possible to combine more layers in the one plot, previously saved output from plotGoogleMaps should be given in the previousMap attribute.
previousMap	previously saved variable from plotGoogleMaps when attribute add is TRUE. It is solution for combining more than one layers in the one plot.
scale_e	if is 10 then ellipses is drawn 10:1
colPalette	colours to be used to fill plotting symbols; numeric vector of same size like key.entries
strokeColor	the color to draw the border of circle (the plotting symbols), NULL for no border
strokeOpacity	the stroke opacity between 0.0 and 1.0
strokeWeight	the stroke width in pixels
geodesic	render each edge as a geodesic (a segment of a 'great circle')
clickable	indicates whether this plotting symbol handles click events
zIndex	the zIndex compared to other polygons
map.width	the width of the map. Can be in percent or in pixels (px)
map.height	the height of the map. Can be in percent or in pixels (px)
layerName	the name of the layer. Layer name appears on the check box for switching layer of and on in output htm.
control.width	the width of the part of htm for controlling layer (legend, opacity,...) Can be in percent or in pixels (px).
control.height	the height of the part of htm for controlling layer (legend, opacity,...) Can be in percent or in pixels (px).
zoom	the initial Map zoom level. Zoom levels between 0 (the lowest zoom level, in which the entire world can be seen on one map) to 19 (the highest zoom level, down to individual buildings) are possible within the normal maps view. Argument fitBounds should be FALSE.

<code>fitBounds</code>	sets the maps to fit to the boundary box values of sp object
<code>mapTypeId</code>	the initial Map <code>mapTypeId</code> . 'HYBRID' - map type displays a transparent layer of major streets on satellite images. 'ROADMAP' - map type displays a normal street map. 'SATELLITE' - map type displays satellite images. 'TERRAIN' - map type displays maps with physical features such as terrain and vegetation.
<code>disableDoubleClickZoom</code>	enables or disables zoom and center on double click.
<code>draggable</code>	if FALSE, prevents the map from being dragged
<code>keyboardShortcuts</code>	if FALSE, prevents the map from being controlled by the keyboard.
<code>mapTypeControlOptions</code>	the initial display options for the Map type control. 'DEFAULT' - uses the default map type control. 'DROPDOWN_MENU' - a dropdown menu for the screen realestate conscious. 'HORIZONTAL_BAR' - the standard horizontal radio buttons bar.
<code>navigationControl</code>	enabled or disabled state of the navigation control
<code>navigationControlOptions</code>	the initial display options for the navigation control. 'ANDROID' - the small zoom control similar to the one used by the native Maps application on Android. 'DEFAULT' - the default navigation control. The control which DEFAULT maps to will vary according to map size and other factors. It may change in future versions of the API. 'SMALL' - the small, zoom only control. 'ZOOM_PAN' - the larger control, with the zoom slider and pan directional pad.
<code>scaleControlOptions</code>	the initial display options for the scale control.
<code>noClear</code>	if TRUE, do not clear the contents of the Map div.
<code>scrollwheel</code>	if FALSE, disables scrollwheel zooming on the map.
<code>streetViewControl</code>	the initial enabled or disabled state of the Street View pegman control

Value

This function returns a list with HTML, JavaScript, Google Maps API key and else what is necessary for the final web map. The second output is htm file ready to use stored in working direcoty.

Author(s)

Milan Kilibarda <kili@grf.bg.ac.rs>

See Also

[plotGoogleMaps](#), [segmentGoogleMaps](#), [bubbleGoogleMaps](#)

Examples

```
# Data preparation
ell<- data.frame(E=c(7456263,7456489,7456305),N=c(4954146,4952978,4952695),A=c( 2.96,4.55,7.10),B=c(2.35,2.1
coordinates(ell) <- ~E+N
proj4string(ell) <- CRS("+proj=tmerc +lat_0=0 +lon_0=21 +k=0.9999 +x_0=7500000 +y_0=0 +ellps=bessel +towgs84=5

m<-ellipseGoogleMaps(ell,filename="Ellipse.htm",mapTypeId='ROADMAP')
# see results in your working directory
```

plotGoogleMaps

Create a plot of spatial data on Google Maps

Description

Plot htm output with Google Maps API and a plot of spatial data as a combination of users' data and Google Maps layers. Ready to use as local htm file or into your own website.

Usage

```
plotGoogleMaps(SP,
  filename = '',
  zcol = 1,
  add = FALSE,
  previousMap = NULL,
  colPalette = NULL,
  strokeColor = '#FFAA00',
  strokeOpacity = 1,
  strokeWeight = 1,
  geodesic = TRUE,
  clickable = TRUE,
  draggableMarker = FALSE,
  iconMarker='',
  flat = TRUE,
  visible = TRUE,
  zIndex = 'null',
  map.width = '80%',
  map.height = '100%',
  layerName = '',
  control.width = '20%',
  control.height = '100%',
  zoom = 15,
  fitBounds = TRUE,
  mapTypeId = 'HYBRID',
  disableDoubleClickZoom = FALSE,
  draggable = TRUE,
  keyboardShortcuts = TRUE,
  mapTypeControlOptions = 'DEFAULT',
```

```

navigationControl = TRUE,
navigationControlOptions = 'DEFAULT',
scaleControlOptions = 'STANDARD',
noClear = FALSE,
scrollwheel = TRUE,
streetViewControl = FALSE)

```

Arguments

SP	object of Spatial-class with associated coordinate reference systems
filename	the name of the output htm or html file. If filename is not defined the function will create filename same as the name of SP object with htm extension.
zcol	variable column name, or column number after removing spatial coordinates from x@data: 1 refers to the first non-coordinate column
add	logical; if TRUE the result of the function will be a list stored as variable in the R. It is possible to combine more layers in the one plot, previously saved output from plotGoogleMaps should be given in the previousMap attribute.
previousMap	previously saved variable from plotGoogleMaps or bubbleGoogleMaps when attribute add is TRUE. It is solution for combining more than one layers in the one plot.
colPalette	colours to be used to fill polygon or colour for the line
strokeColor	the color to draw the borders of polygon, NULL for no border
strokeOpacity	the stroke opacity between 0.0 and 1.0 for the polygon or line
strokeWeight	the stroke width in pixels for polygon border or line
geodesic	render each edge as a geodesic (a segment of a 'great circle')
clickable	indicates whether this marker (point), polygon or line handles click events
draggableMarker	if TRUE, the marker can be dragged
iconMarker	if "" default marker icon, link to the image or local image to be used as marker image
flat	if TRUE, the marker shadow will not be displayed
visible	if TRUE, the marker is visible
zIndex	the zIndex compared to other polygons
map.width	the width of the map. Can be in percent or in pixels (px)
map.height	the height of the map. Can be in percent or in pixels (px)
layerName	the name of the layer. Layer name appears on the check box for switching layer of and on in output htm.
control.width	the width of the part of htm for controlling layer (legend, opacity,...) Can be in percent or in pixels (px).
control.height	the height of the part of htm for controlling layer (legend, opacity,...) Can be in percent or in pixels (px).

zoom	the initial Map zoom level. Zoom levels between 0 (the lowest zoom level, in which the entire world can be seen on one map) to 19 (the highest zoom level, down to individual buildings) are possible within the normal maps view. Argument fitBounds should be FALSE.
fitBounds	sets the maps to fit to the boundary box values of sp object
mapTypeId	the initial Map mapTypeId. 'HYBRID' - map type displays a transparent layer of major streets on satellite images. 'ROADMAP' - map type displays a normal street map. 'SATELLITE' - map type displays satellite images. 'TERRAIN' - map type displays maps with physical features such as terrain and vegetation.
disableDoubleClickZoom	enables or disables zoom and center on double click.
draggable	if FALSE, prevents the map from being dragged
keyboardShortcuts	if FALSE, prevents the map from being controlled by the keyboard.
mapTypeControlOptions	the initial display options for the Map type control. 'DEFAULT' - uses the default map type control. 'DROPDOWN_MENU' - a dropdown menu for the screen realestate conscious. 'HORIZONTAL_BAR' - the standard horizontal radio buttons bar.
navigationControl	enabled or disabled state of the navigation control
navigationControlOptions	the initial display options for the navigation control. 'ANDROID' - the small zoom control similar to the one used by the native Maps application on Android. 'DEFAULT' - the default navigation control. The control which DEFAULT maps to will vary according to map size and other factors. It may change in future versions of the API. 'SMALL' - the small, zoom only control. 'ZOOM_PAN' - the larger control, with the zoom slider and pan directional pad.
scaleControlOptions	the initial display options for the scale control.
noClear	if TRUE, do not clear the contents of the Map div.
scrollwheel	if FALSE, disables scrollwheel zooming on the map.
streetViewControl	The initial enabled or disabled state of the Street View pegman control

Value

This function returns a list with HTML, JavaScript, Google Maps API key and else what is necessary for the final web map. The second output is htm file ready to use.

Author(s)

Milan Kilibarda <kili@grf.bg.ac.rs>

See Also

[bubbleGoogleMaps](#), [ellipseGoogleMaps](#), [segmentGoogleMaps](#)

Examples

```

# Data preparation
# Point data
data(meuse)
coordinates(meuse) <- ~x+y
proj4string(meuse) <- CRS('+init=epsg:28992')
# Line data
data(meuse.grid)
coordinates(meuse.grid) <- c('x', 'y')
meuse.grid <- as(meuse.grid, 'SpatialPixelsDataFrame')
im <- as.image.SpatialGridDataFrame(meuse.grid['dist'])
cl <- ContourLines2SLDF(contourLines(im))
proj4string(cl) <- CRS('+init=epsg:28992')

# Create web map of Point data
m <- plotGoogleMaps(meuse, filename='myMap.htm') # open the myMap, see in working directory

# Combine point and line data
mapMeusePoints <- plotGoogleMaps(meuse, add=TRUE, mapTypeId='TERRAIN')
mapMeuseCl <- plotGoogleMaps(cl, previousMap=mapMeusePoints, filename='myMap2.htm')
# see results in your working directory

```

segmentGoogleMaps *Create a segment circles - pie charts plot of spatial data on Google Maps, by using two or more related attributes.*

Description

Plot htm output with Google Maps API in form of pie charts plot form spatial data by using two or more related attributes. Ready to use as local htm file or into your own website.

Usage

```

segmentGoogleMaps(SP,
                  zcol = 1:length(SP@data),
                  filename = '',
                  max.radius = 100,
                  scalelist = TRUE,
                  do.sqrt = FALSE,
                  add = F,
                  previousMap = NULL,
                  colPalette = rainbow(ncol(SP@data[, zcol])),
                  strokeColor = '#FFAA00',
                  strokeOpacity = 1,
                  strokeWeight = 1,
                  fillOpacity = 0.7,
                  geodesic = TRUE,
                  clickable = TRUE,

```

```

zIndex = 'null',
map.width = '80%',
map.height = '100%',
layerName = '',
control.width = '20%',
control.height = '100%',
zoom = 15,
fitBounds = TRUE,
mapTypeId = 'HYBRID',
disableDoubleClickZoom = FALSE,
draggable = TRUE,
keyboardShortcuts = TRUE,
mapTypeControlOptions = 'DEFAULT',
navigationControl = TRUE,
navigationControlOptions = 'DEFAULT',
scaleControlOptions = 'STANDARD',
noClear = FALSE,
scrollwheel = TRUE,
streetViewControl = FALSE)

```

Arguments

SP	object of SpatialPointsDataFrame-class with associated coordinate reference systems
filename	the name of the output htm or html file. If filename is not defined the function will create filename same as the name of SP object with htm extension.
zcol	variable column names, or column numbers after removing spatial coordinates from x@data: 1 refers to the first non-coordinate column
max.radius	value for largest circle (the plotting symbols) in metre
scalelist	if TRUE circles are different in size, FALSE all circles have same radius
do.sqrt	logical; if TRUE the plotting symbol area (sqrt(diameter)) is proportional to the value of the z-variable; if FALSE, the symbol size (diameter) is proportional to the z-variable
add	logical; if TRUE the result of the function will be a list stored as variable in the R. It is possible to combine more layers in the one plot, previously saved output from plotGoogleMaps should be given in the previousMap attribute.
previousMap	previously saved variable from plotGoogleMaps when attribute add is TRUE. It is solution for combining more than one layers in the one plot.
colPalette	colours to be used to fill plotting symbols; numeric vector of same size like key.entries
strokeColor	the color to draw the border of circle (the plotting symbols), NULL for no border
strokeOpacity	the stroke opacity between 0.0 and 1.0
strokeWeight	the stroke width in pixels
fillOpacity	the opacity between 0.0 and 1.0
geodesic	render each edge as a geodesic (a segment of a 'great circle')

<code>clickable</code>	indicates whether this plotting symbol handles click events
<code>zIndex</code>	the <code>zIndex</code> compared to other polygons
<code>map.width</code>	the width of the map. Can be in percent or in pixels (px)
<code>map.height</code>	the height of the map. Can be in percent or in pixels (px)
<code>layerName</code>	the name of the layer. Layer name appears on the check box for switching layer of and on in output htm.
<code>control.width</code>	the width of the part of htm for controlling layer (legend, opacity,...) Can be in percent or in pixels (px).
<code>control.height</code>	the height of the part of htm for controlling layer (legend, opacity,...) Can be in percent or in pixels (px).
<code>zoom</code>	the initial Map zoom level. Zoom levels between 0 (the lowest zoom level, in which the entire world can be seen on one map) to 19 (the highest zoom level, down to individual buildings) are possible within the normal maps view. Argument <code>fitBounds</code> should be <code>FALSE</code> .
<code>fitBounds</code>	sets the maps to fit to the boundary box values of <code>sp</code> object
<code>mapTypeId</code>	the initial Map <code>mapTypeId</code> . <code>'HYBRID'</code> - map type displays a transparent layer of major streets on satellite images. <code>'ROADMAP'</code> - map type displays a normal street map. <code>'SATELLITE'</code> - map type displays satellite images. <code>'TERRAIN'</code> - map type displays maps with physical features such as terrain and vegetation.
<code>disableDoubleClickZoom</code>	enables or disables zoom and center on double click.
<code>draggable</code>	if <code>FALSE</code> , prevents the map from being dragged
<code>keyboardShortcuts</code>	if <code>FALSE</code> , prevents the map from being controlled by the keyboard.
<code>mapTypeControlOptions</code>	the initial display options for the Map type control. <code>'DEFAULT'</code> - uses the default map type control. <code>'DROPDOWN_MENU'</code> - a dropdown menu for the screen realestate conscious. <code>'HORIZONTAL_BAR'</code> - the standard horizontal radio buttons bar.
<code>navigationControl</code>	enabled or disabled state of the navigation control
<code>navigationControlOptions</code>	the initial display options for the navigation control. <code>'ANDROID'</code> - the small zoom control similar to the one used by the native Maps application on Android. <code>'DEFAULT'</code> - the default navigation control. The control which <code>DEFAULT</code> maps to will vary according to map size and other factors. It may change in future versions of the API. <code>'SMALL'</code> - the small, zoom only control. <code>'ZOOM_PAN'</code> - the larger control, with the zoom slider and pan directional pad.
<code>scaleControlOptions</code>	the initial display options for the scale control.
<code>noClear</code>	if <code>TRUE</code> , do not clear the contents of the Map div.
<code>scrollwheel</code>	if <code>FALSE</code> , disables scrollwheel zooming on the map.
<code>streetViewControl</code>	the initial enabled or disabled state of the Street View pegman control

Value

This function returns a list with HTML, JavaScript, Google Maps API key and else what is necessary for the final web map. The second output is htm file ready to use stored in working directory.

Author(s)

Milan Kilibarda <kili@grf.bg.ac.rs>

See Also

[plotGoogleMaps](#), [ellipseGoogleMaps](#), [bubbleGoogleMaps](#)

Examples

```
# Data preparation
data(meuse)
coordinates(meuse) <- ~x+y
proj4string(meuse) <- CRS('+init=epsg:28992')

m <- segmentGoogleMaps(meuse, zcol=c('zinc', 'lead', 'copper'), filename='myMap.htm')
# see results in your working directory
```

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