

R-Based Interfaces to Google Maps

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Clickable Overlaid Maps – *plotGoogleMaps*

- ▶ The *plotGoogleMaps* package has quite a few dependencies. Note a particular issue with installing the *XML* package.
- ▶ Windows users can find a binary of the *XML* package (needed by *plotGoogleMaps*, but not on CRAN) at:
<http://www.stats.ox.ac.uk/pub/RWin/bin/windows/contrib/>
Install the package version that matches your version of R.
- ▶ To see a vignette that describes *plotGoogleMaps*, type:

```
vignette('plotGoogleMaps-intro')
```

Data Preparation (Recent NZ Quake Data)

NZ Earthquake Data can be obtained from:

<http://magma.geonet.org.nz/resources/quakesearch/>

Use, e.g., data for 1 Jan 2009 through 2 July 2012. An unnamed blank final column slightly complicated the correct assignment of column names.

```
colnam <- names(read.csv('earthquakes.csv',  
                        header=TRUE, nrows=1))  
nzquakes <- read.csv('earthquakes.csv',  
                    col.names=c(colnam,"xx"), skip=1)  
nzquakes$xx <- NULL  
nzquakes$Energy <- 10^nzquakes$MAG
```

Plotting Preliminaries

```
library(plotGoogleMaps)
subNZquakes <- subset(nzquakes, LONG>0 & MAG>4.25)
# 'Large' earthquakes only; limit Eastern extent
coordinates(subNZquakes) <- ~ LONG+LAT
# subNZquakes is now a SpatialPointsDataFrame
proj4string(subNZquakes) <- CRS("+proj=longlat
                                +ellps=WGS84 +datum=WGS84")
# Ensures that the coordinates will be interpreted
# as longitudes and latitudes.
library(RColorBrewer)
key.energy <- c(30000, 150000, 500000,
               1500000, max(subNZquakes$Energy))
# NB: These are upper endpoints
# Do not include lowest value
key.depth <- c(20,60,200,max(subNZquakes$Depth))
```

Function Calls to Create the Overlaid Map

```
m1 <- bubbleGoogleMaps(subNZQuakes, zcol='Energy',
                        max.radius=1500,
                        key.entries=key.energy,
                        layerName="Energy",
                        add=TRUE, zoom=16,
                        colPalette=brewer.pal(5,"Accent"))
subNZQuakes2 <- subNZQuakes
# For a 2nd bubbleGoogleMaps overlay, use a new data
# object name is required (circumvents a ?bug!)
m2 <- bubbleGoogleMaps(subNZQuakes2, zcol='DEPTH',
                        filename='Energy+Depth.htm',
                        layerName='Depth', max.radius=500,
                        key.entries=key.depth,
                        previousMap=m1,
                        shape="t",
                        colPalette=rev(brewer.pal(4,"Oranges")))
```

Other Related Abilities – the *dismo* Package

```
library(dismo)
venue <- gmap("Sydney University", type="hybrid")
plot(venue)
zoomin <- gmap("Sydney University", type="hybrid", exp=0)
plot(zoomin)
xy <- locator(n=2) # Locate a particular building
with(xy, arrows(x[1], y[1], x[2], y[2], col="purple", lw=2))
selectPart <- drawExtent()
## Now click on map, then on two opposite corners of a rectangle
## marking out a red rectangle on the map
plot(selectPart)
```