Web Maps

Barry Rowlingson

August 27, 2009

The `webmaps` package does two main things: converting spatial data from R to create HTML/Javascript maps using OpenLayers, and importing map tile data into R for use on R graphic plots.

1 Creating HTML maps

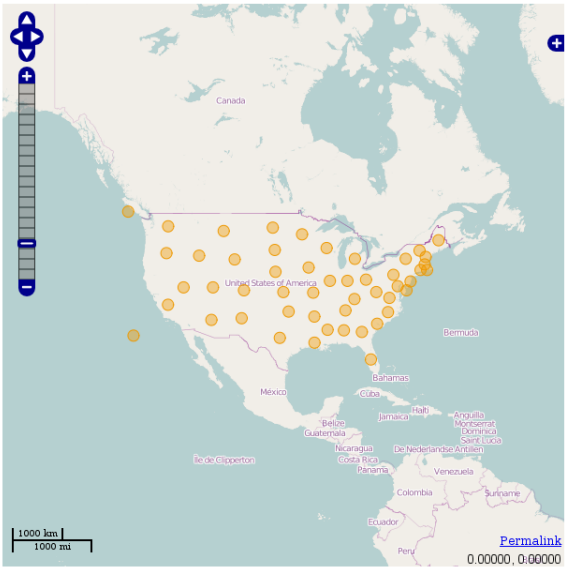
The `webmaps` package takes spatial data and produces an HTML page that overlays that data onto a map. It uses the OpenLayers javascript library and OpenStreetMap as base data. In this way it produces freely-usable maps for the web with no need to get an API key or submit to some restrictive re-use license.

Here is a simple example:

```
> library(webmaps)
> state = data.frame(state.x77)
> state$Name = rownames(state)
> coordinates(state) = cbind(state.center$x, state.center$y)
> osmMap(layer(state,"States"), title="State␣Data",outputDir ="./states1")
```

Pointing your web browser to the generated html file produces this:

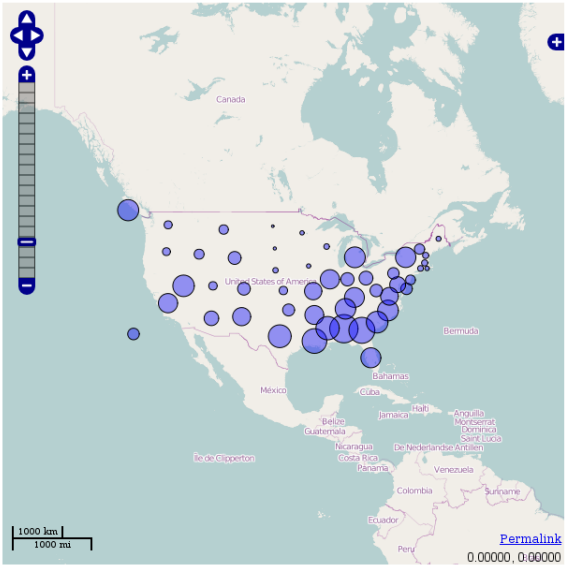
State Data



The package can produce maps with several layers of information containing points, polygons and lines. The appearance of layers can be individually controlled.

The appearance of individual features can also be set. Here we scale the size of the points by the murder rate in each state:

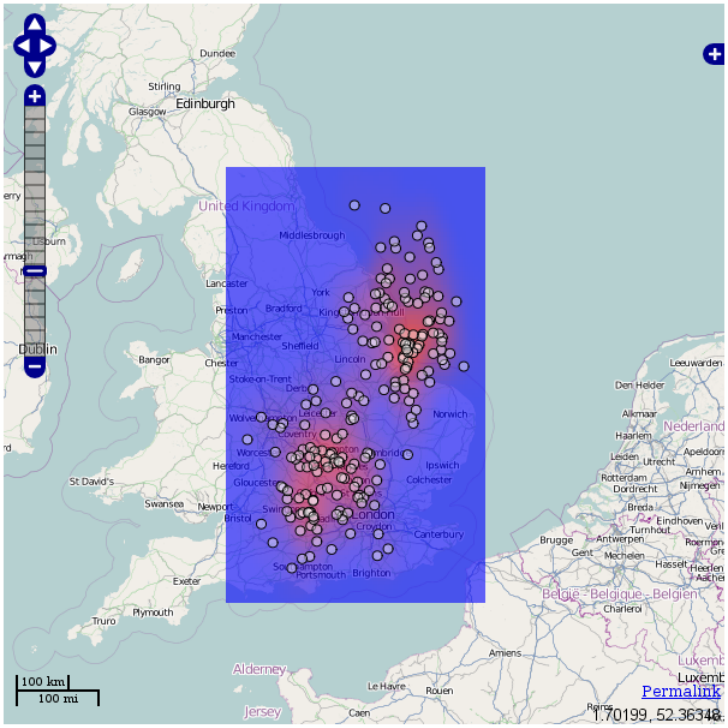
State Data



It's also possible to overlay raster data by using `ilayer`. Here we generate some points and use the `splancs` kernel smoothing function to produce a surface:

```
> library(splancs)
> pts = cbind(rnorm(100,0.5,.5),rnorm(100,53.5,.5))
> pts = rbind(pts,cbind(rnorm(100,-1,.5),rnorm(100,52,.5)))
> k = kernel2d(pts,sbox(pts),0.4,100,100)
> kl = ilayer(k,name="density",colorRamp(c("blue","red")))
> pts = data.frame(pts)
> coordinates(pts) ← cbind(pts[,1],pts[,2])
> ptsl = layer(pts,"Points",lstyle(fillColor="white",strokeColor="black"))
> osmMap(kl,ptsl)
```

map



These examples are fully explained in the `demo(osmMap)` which displays a PDF document.

2 Importing map tiles

See the help for `getTiles` for more documentation.

```
>  lancs = getTiles(c(-2.842,-2.7579),c(54.0295,54.063),
+           zoom = 12,path="http://tile.openstreetmap.org/")
>  image(lancs)
```