Maps

Christopher J. Fiscus

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How to plot coordinates on a map using ggmap

```
## read in data
locs<-read.delim("locs.txt", header=T)

## Format of data (Name, lat, long)
locs[6:9,]
```

```
##                       Name      lat      long Pop_Group
## 6                 Algerian 36.54247  5.998535         1
## 7                 Arequipa 36.00000  4.000000         1
## 8                    Atlas 37.00000  7.000000         1
## 9 California Mariout (81A) 30.93333 28.000000         1
```

```
## install library if not already installed, load library

need<-c("ggmap") # required packages
ins<-installed.packages()[,1] #find out which packages are installed
(Get<-need[which(is.na(match(need,ins)))]) # check if installed
```

```
## character(0)
```

```
if(length(Get)>0){install.packages(Get)} #install if not installed previously
eval(parse(text=paste("library(",need,")")))#load the required packages
```

```
## Loading required package: ggplot2
```

```
## ggmap requires that maps be downloaded from the internet prior to use.  See vignette for more info

## Download a watercolor map centered on Eurasia from stamen, zoom at continental level
myMap<-get_map(location=c(-20,0,150, 60), source="stamen", maptype="watercolor", zoom=3)
```

```
## Map from URL : http://tile.stamen.com/watercolor/3/3/2.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/4/2.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/5/2.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/6/2.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/7/2.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/3/3.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/4/3.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/5/3.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/6/3.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/7/3.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/3/4.jpg
```

```
## Map from URL : http://tile.stamen.com/watercolor/3/4/4.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/5/4.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/6/4.jpg
## Map from URL : http://tile.stamen.com/watercolor/3/7/4.jpg
## coordinates are left, bottom, right, top
```

```
## Define map using ggplot syntax
p<- ggmap(myMap) + geom_point(aes(x = long, y = lat), data = locs[6:9,],
           alpha = .8, color="black", size = 3)

## plot map
print(p)
```