

Spatial Visualisations

Neighbourhood structures

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Outline

Get the right map

Find the nearest neighbours

More examples - spatial visualisation with R

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Get a map of Africa

```
library(maptools)
data(wrld_simpl)
Africa <- wrld_simpl[wrld_simpl@data$REGION==2,]
plot(Africa)
```



Get a maps of other world regions

```
Antarctic <- wrld_simpl[wrld_simpl$REGION==0,]  
plot(Antarctic)
```



Get a maps of other world regions

```
Australia <- wrld_simpl[wrld_simpl$REGION==9,]  
plot(Australia)
```



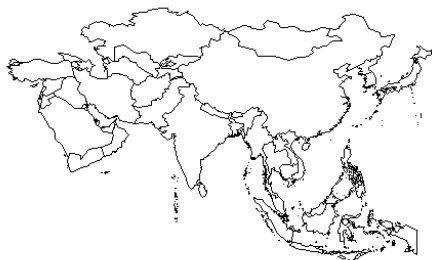
Get a maps of other world regions

```
America <- wrld_simpl[wrld_simpl$REGION==19,]  
plot(America)
```



Get a maps of other world regions

```
Asia <- wrld_simpl[wrld_simpl$REGION==142,]  
plot(Asia)
```



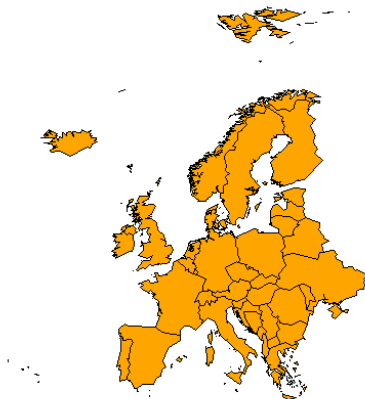
Get a maps of other world regions

```
Europe <- wrld_simpl[wrld_simpl$REGION==150,]  
plot(Europe)
```



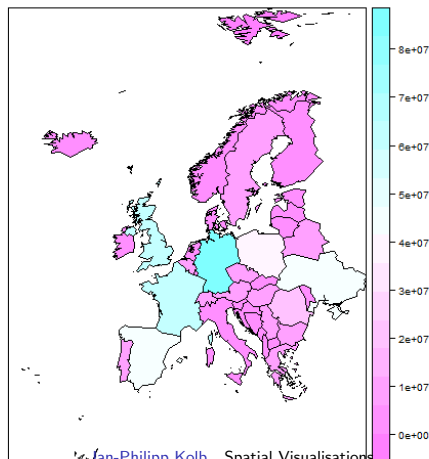
Deleting a country

```
Europe2 <- Europe[-which(Europe$NAME=="Russia"),]  
plot(Europe2,col="orange")
```



The sp-package

```
spplot(Europe2, "POP2005")
```



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Get the center of a polygon

```
library(sp)
library(spdep)
Af <- coordinates(Africa)
plot(Africa)
points(x=Af[1,1], y=Af[1,2], col="red", pch=20)
```



Find the nearest neighbours

```
Af_nb <- tri2nb(Af)
```

The neighbours for the first country:

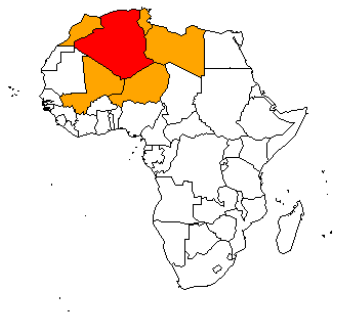
```
Af_nb[1]
```

```
[[1]]
```

```
[1] 24 26 27 32 48
```

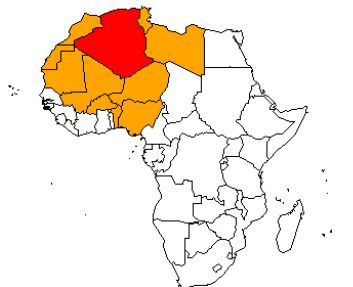
Find the nearest neighbours

```
plot(Africa)
plot(Africa[1,], col="red", add=T)
plot(Africa[Af_nb[1][[1]],], col="orange", add=T)
```



Find the nearest 10 neighbours

```
IDs <- row.names(as(Africa, "data.frame"))  
Af10_nb <- knn2nb(knearneigh(Af, k = 10), row.names = IDs)  
plot(Africa)  
plot(Africa[1,], col="red", add=T)  
plot(Africa[Af10_nb[1][[1]],], col="orange", add=T)
```



Compute the distance

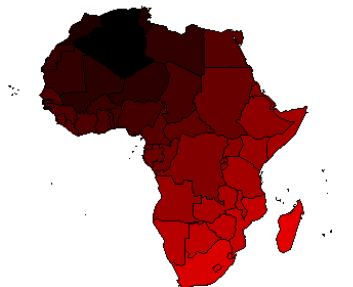
```
Af <- coordinates(Africa) # get centroid  
library(raster)  
pointDistance(Af[1:4,], lonlat=TRUE) # compute distance
```

Compute the distance

	1	2	3	4
1	0.00			
2	4789101.03	0.00		
3	2067138.93	2967661.45	0.00	
4	3501686.52	1303347.32	1844025.87	0.00

Compute/plot a distance matrix

```
Dist_Af <- pointDistance(Af, lonlat=TRUE)
Af_color <- Dist_Af[,1]
Af_color <- Af_color/max(Af_color)
Af_color <- rgb(Af_color,0,0)
plot(Africa,col=Af_color)
```



Outline

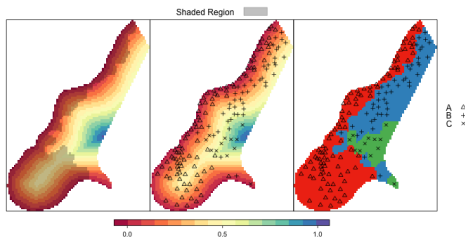
Get the right map

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More examples - spatial visualisation with R

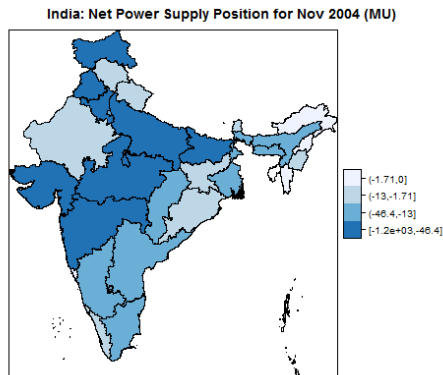
spplot() and latticeExtra functions

<http://casoilresource.lawr.ucdavis.edu/drupal/node/962>



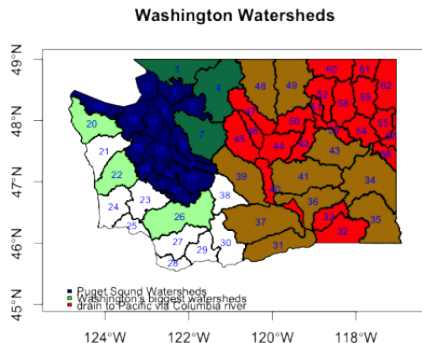
Know India through Visualisations - 1

<http://justanotherdatablog.blogspot.de/2014/02/know-india-through-visualisations-1.html>



Using R Working with Geospatial Data

<http://mazamascience.com/WorkingWithData/?p=1277>

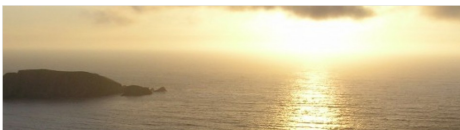


Very interesting blog

- ▶ <http://procomun.wordpress.com/2013/04/24/stamen-maps-with-spplot/>
- ▶ <http://procomun.wordpress.com/2011/05/20/great-circles/>
- ▶ <http://procomun.wordpress.com/2011/06/17/raster-cmsaf-and-solar/>
- ▶ http://procomun.wordpress.com/2012/02/18/maps_with_r_1/

DOCUMENTOS OMNIA SUNT COMMUNIA

Omnia sunt Communia! ~ Sobre software, documentación y
ciencia libres

 Ir


» OMNIA SUNT COMMUNIA!

"As we enjoy great advantages from the inventions of others, we should be glad of an opportunity to serve others by any invention of ours, and this we should do freely and generously"

 Ir

24
Miércoles
Abl. 2013

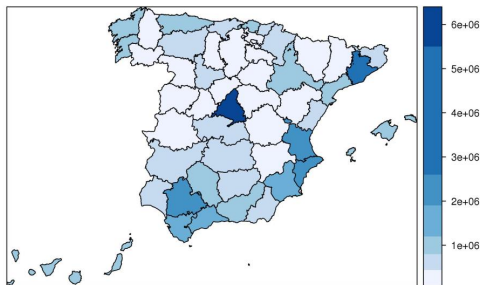
Stamen maps with spplot

POSTED BY OSCAR PERPIÑÁN LANQUERO IN R-PROJECT, [13](#) COMENTARIOS
VISUALIZATION

Several R packages provide an interface to query map services ([Google Maps](#), [Stamen Maps](#) or [OpenStreetMap](#)) to obtain raster images from them. As far as I

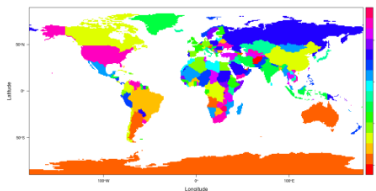
Maps with R (III)

`http:`
`//procomun.wordpress.com/2012/02/23/maps_with_r_3/`



Getting rasters into shape from R

<http://johnbaumgartner.wordpress.com/2012/07/26/getting-rasters-into-shape-from-r/>



Vote Compass: visualizing Canadian poll results with R

<http://blog.revolutionanalytics.com/2011/12/vote-compass-visualizing-canadian-poll-results-with-r.html>

