Bringing Geospatial Tasks into the Mainstream of Business Analytics

Ian Cook TIBCO

July 1, 2015
Why Geospatial Data Tasks?

- Everyone collects geospatial data
- Geospatial data tasks are outside the mainstream
What Is Visual Analytics Software?

- Spotfire, Tableau, others
- Think: Excel on steroids
Spotfire Has an R Engine Built In

- TIBCO Enterprise Runtime for R (TERR)
- Configure R scripts to run in Spotfire analysis documents
- Apply R scripts without looking at the code
Data Function

Name
Description

Name
Type
Desc

Name
Type
Desc

hw <- paste("Hello," , "World!")

dd <- paste(rep("Daisy", 2), collapse="", "")
Basic Geospatial Data Tasks

- Transform coordinate reference systems
- Perform spatial overlay
- Find unions, intersections, differences
- Calculate lengths, areas, perimeters
- Calculate geographic coordinates of shapes for drawing on maps
Packages for Basic Geospatial Data Tasks

Essential packages

▷ sp
▷ rgdal

Other important packages

▷ geosphere
▷ rgeos
▷ maptools
Transform CRS

spTransform(
    Spatial,
    CRS=CRS("+proj=longlat +ellps=WGS84 +datum=WGS84 +no_def")
)

Returns Spatial object with coordinates transformed to the new coordinate reference system (in this example, WGS84 longitude/latitude coordinates)
Perform Spatial Overlay

SpatialPoints %over% SpatialPolygons

Returns vector of indices of the polygons in which each point falls
Try It Yourself

Spotfire software: spotfire.tibco.com/trydesktop
Data functions: github.com/ianmcook/useR-2015