Proposal of changes for a second edition of "Displaying Time Series, Spatial, and Space-Time Data with R"

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1 Interactive graphics

In the last two years several R packages devoted to interactive graphics have been published. The `htmlwidgets` package is the framework for creating R bindings to popular JavaScript libraries. In the context of the book these are the more interesting packages:

- `leaflet` (spatial data): https://rstudio.github.io/leaflet/ (*"Leaflet is a JavaScript library for creating dynamic maps that support panning and zooming along with various annotations like markers, polygons, and popups."*)
- `mapview` (spatial data): http://environmentalinformatics-marburg.github.io/mapview/introduction.html (*"mapview was created o fill the gap of quick (not presentation grade) interactive plotting to examine and visually investigate spatial data"*)
- `dygraphs` (time series): http://rstudio.github.io/dygraphs/ (*"Dygraphs provides rich facilities for charting time-series data in R and includes support for many interactive features including series/point highlighting, zooming, and panning."*)
- `highcharter` (time series and maps): http://jkunst.com/highcharter/
- `streamgraph` (time series with stacked graphs): http://hrbrmstr.github.io/streamgraph/

Most of the examples of interactive graphics included in the book make use of the `gridSVG` package. Unfortunately this package is not of common usage nowadays and their authors are not adding new features to it. Therefore, I will rewrite these examples with the new packages.

2 New features in the `sp` package

The `sp` package includes in the recent versions (https://cran.r-project.org/web/packages/sp/news.html) new features that should be covered in the book:

- A new function `panel.ggmap`: Figure 8.4 (Air Madrid example) will be modified to use it.
- A new class SpatialMultipoints (an unique feature can be represented with multiple locations): A new section will be included to display these objects.

On the other hand, Edzer Pebesma, author of `sp`, has recently published the `sf` package, implementing Simple Features for R (https://cran.r-project.org/package=sf). The visualization methods included in this package are still in development, but I think it is interesting to devote an example to this package.

3 Improvements

- Add introductory sections with easier examples to show the basics of the most important packages and functions.
- Additional section devoted to the `rgl` package (http://rgl.neoscientists.org/about.shtml) using the Earth's city lights imagery (http://visibleearth.nasa.gov/view.php?id=55167) in the code, maybe including an interactive example with the `rglwidget` package (http://www.htmlwidgets.org/showcase_rglwidget.html)
- Alternative method for the figure 3.9 (calendar plot) using `ggplot2` based on this post https://mvuorre.github.io/post/2016/2016-03-24-github-waffle-plot/
- The "Bivariate Choropleth Maps: A How-to Guide" is an useful resource to improve the section 8.2.3 http://www.joshuastevens.net/cartography/make-a-bivariate-choropleth-map/

4 Bug fixes

- Make animated plots code from Chapter 13 portable (https://github.com/oscarperpinan/spacetime-vis/pull/6)
- Fix URLs for brazilAdm and brazilDEM datasets (https://github.com/oscarperpinan/spacetime-vis/pull/3)
- Fix URLs for Galicia DEM datasets (https://github.com/oscarperpinan/spacetime-vis/issues/5)