RpostGIS

an R-library for using PostGIS spatial structures and functions

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Recently, it is more and more widespread in geographical information systems to store the vector graphical maps in databases instead of the former file based solution. This makes it possible to relate the map tables without any interface to the descriptive tables and to access the maps by a large number of users, and even the security of access is getting better.

For the PostgreSQL[1] database server the PostGIS[2] extension based on the OpenGIS *"Simple Features Specification for SQL"*[3] has the above capabilities. Besides of storing the spatial structures, the PostGIS has several functions for handling spatial objects. Beyond that, depending on the installation, the GEOS[4] functions also allows several spatial transformations. So, we can use them through simple ODBC connection on the maps stored in the database.

In the R environment several libraries enabling spatial statistical processes are accessible and offer a great number of functions. But the spatial structures and vector graphical maps are readable only in ESRI shape file formats. Because we could not find such a library that is able to read PostGIS tables, we developed one ourselves.

The RpostGIS library makes it possible to read the maps through the ODBC connection and transformed or generated by the PostGIS and GEOS functions to the R system to apply further operations[5].

The presented package enables direct use of maps based on databases of spatial information systems in the R environment.

1 http://www.postgresql.org/
2 http://postgis.refractions.net/
3 http://www.opengis.org/docs/99-049.pdf
4 http://geos.refractions.net/
5 Norbert Solymosi, Jenő Reiczigel, Andrea Harnos, József Mészáros, László Molnár D., Franz Rubel. Finding spatial barriers by monmonier's algorithm. ISCB 2005, Szeged, 2005.