

# SEXTANTE, a versatile open{source library for spatial data analysis

Olaya, V.<sup>a</sup>, Gimenez, J. C.<sup>a</sup>

<sup>a</sup>



the GIS and the server, and the need to implement a system-based solution to allow communication between them. A direct implementation of geospatial algorithms in the server, based on a common data model, is a recommended alternative.

The application of grid computing techniques has been considered as one of the most relevant advantages of a remote spatial data processing network (Padberg and Greve, 2009), since it could solve storage and computing issues in such fields as the analysis of Digital Elevation Models, which usually implies massive amounts of data (Lanig et al., 2008). Thus, integration in a grid computing scenario might be considered



language with the command{line version of SAGA, including a set of R commands that allow to call SAGA algorithms from within the R environment. Reverse integration between GRASS and R (that is, using R from GRASS) has also been developed (Bivand, 2000)

Gstat and IDRISI are another good example of that. Gstat can be accessed from within IDRISI, which already contains a large set of built{in geoalgorithms.

### **3. The SEXTANTE library**

Ability to reuse existing geospatial algorithms. The large body of spatial data analysis algorithms implemented in other libraries and applications cannot be ignored when creating this library. Mechanisms for wrapping those algorithms should be implemented so they can be exposed through the library. Algorithms served via remote services should be considered as well.

Open source. Distribution under an open source license will facilitate the inclusion of the library in various projects and applications. The library should be distributed under a license that is compatible with the licenses of the libraries and applications it depends on. The library should be distributed under a license that is compatible with the licenses of the libraries and applications it depends on.

algorithm. This is also similar to what can be found in other software packages like GRASS or ArcGIS,





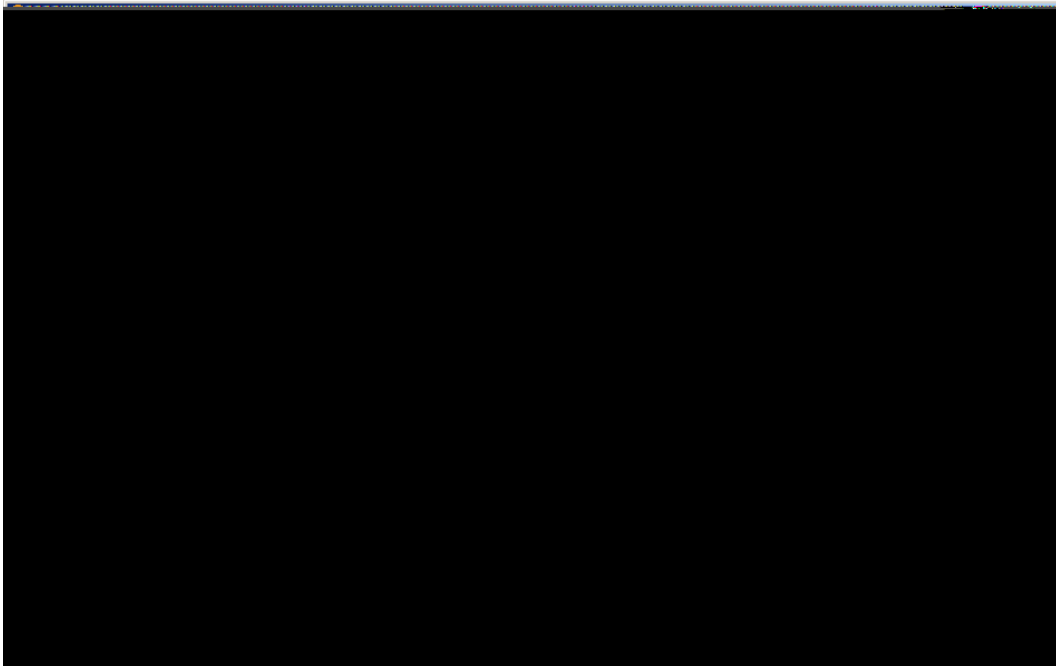


Figure 2: The SEXTANTE graphical modeler

#### 4. Current

SEXTANTE is currently implemented as part several applications, all of them open{source. In the desktop GIS category, OpenJUMP<sup>1</sup> and gvSIG<sup>2</sup> rely on SEXTANTE for their analytical capabilities and





non{editable formats. Source code can be checked out anonymously from the SVN repository. Instructions are given in the SEXTANTE website.

Gonzalez, F. and Leduc, T. (2010). GGL: A geo{processing de nition language that enhance spatial sql with parameterization. In *Proceedings of the 13th AGILE International Conference on Geographic Information Science 2010. Guimaraes, Portugal*.

Granell, C., Diaz, L., and Gould, M. (2010). Service-oriented applications for environmental models: Reusable geospatial services. *Environmental Modelling and Software*