From a niche to a global user community: Open Source GIS and OSGeo

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Geographical Information Systems (GIS) have evolved from a highly specialized niche to a technology that affects nearly every aspect of our lives, from finding driving directions to managing natural disasters. The masses have discovered geospatial data and technologies through the availability of popular globes; wiki-fied street mapping which was started by a few individuals has grown to weekly mapping parties around the globe. Today almost everybody can create customized maps or overlay GIS data. Current GIS technology covers viewing maps and images on the web, simple and complex spatial analysis, modeling and simulations.

In our presentation we'll present highlights of the last 20 years of Open Source GIS developments. Many projects are born as initiative of individuals when the lack of available software for a specific application is solved by own development and the result is then made available to the public on the Internet for further collaborative development. In the early 80's, the first Open Source GIS (MOSS and GRASS GIS) reached production status followed by the PROJ4 library project, a first crucial library for many Open Source GIS applications. In 1995 the UMN MapServer project was started to implement OGC standard. The second cross-project library GDAL/OGR was born in 1998. While these projects became mature, new applications were started with partially extraordinary success (OpenEV, OSSIM, MapBuilder, PostGIS, Geoserver, Quantum GIS, uDIG, MapGuide Open Source, MapBender, gvSIG, Geonetwork and OpenLayers).

The wealth of available but partially unconnected projects suggested to establish an umbrella foundation to foster source code and knowledge sharing. Hence, in February 2006, the Open Source Geospatial Foundation (OSGeo, www.osgeo.org) has been created to support and promote worldwide use and collaborative development of Open Source geospatial technologies and data. The foundation supports outreach and advocacy activities to promote Open Source concepts. It also builds shared infrastructure for improved cross-project collaboration. OSGeo has been a stimulating

force for cooperative developments of sister projects, leveraging each other efforts by developing shared architecture components and expanding interoperability.

To become an OSGeo member, the software project needs to undergo a rigorous review of its source code, development structure and community health. In these community-developed projects a whole "ecosystem" of users, translators, developers, and provides quick support and tested solutions, both for beginners and professionals.

In our opinion, Open Source GIS is an appropriate choice for scientific computing as it is developed in a peer review process. We will show some case studies for GRASS GIS usage in research which illustrates its academic roots especially in environmental applications. This covers analysis of spatio-temporal data sets such as multi-temporal Lidar and remote sensing data including processing of large amounts of geospatial data on a cluster.

Biography

Markus Neteler received his MSc degree in Physical Geography and Landscape Ecology from the University of Hanover in Germany in 1999. He worked at the Institute of Geography as Research Scientist and teaching associate for two years. From 2001-2007, he was a researcher at FBK-irst (formerly ITC-irst), since 2005 he works at Fondazione Mach, Trento, Italy. He is head of the GIS and Remote Sensing technological platform. His main research interests are remote sensing for environmental risk assessment and Free Software GIS development. He is author/co-author of two books on the Open Source Geographical Information System GRASS and various papers on applications in GIS. He is founding-member of the Open Source Geospatial Foundation (OSGeo.org) and serves in the board of directors. In September 2006, he was honored with the Sol Katz Award for Geospatial Free and Open Source Software (GFOSS).