

GISGeography

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HELPFUL RESOURCES

13 Free GIS Software Options: Map the World in Open Source

A LIST OF FREE OPEN SOURCE MAPPING SOFTWARE



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Last Updated: Mar 4, 2018

Your search for free GIS software is now over

You don't have to pay a king's ransom to map the world.

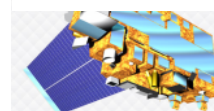
SOFTWARE



The Hidden Powers of QGIS 3: 33 Truly Underappreciated Features and Plugins

When QGIS releases a new version, it's kinda a big deal. Because the unsung heroes of open source GIS software are back! It's their third big release. QGIS 3!

REMOTE SENSING



THE **BIG**
SATELLITE LIST

The Big Satellite List. 50 Satellites. 30 Words or Less.

Think you know remote sensing satellites? Think again. This satellite list has the top 50

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Free Software

GIS Software

This is because you can do it all with free GIS software.

The best part is:

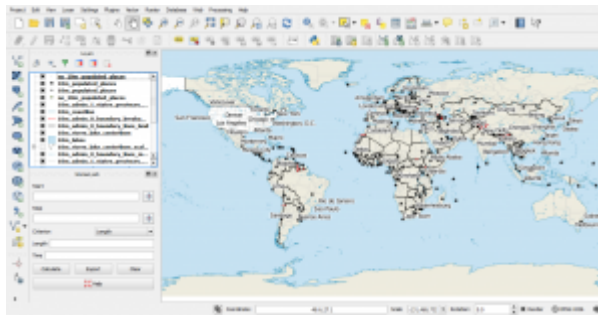
These free GIS software give you the firepower to **get the job done** as if you're working with **commercial GIS software**.

We've **mapped out the GIS software landscape**, but these 13 (out of 30) reign supreme for **free mapping software**.

1 QGIS – Formerly Quantum GIS

Highlights: Community All-in-one Cartography Plugins
☒ GISGeography Favorite

After the **epic GIS software battle in GIS history between ArcGIS vs QGIS**, we illustrated with 27 differences why QGIS is undoubtedly the **#1 free GIS software package**.



QGIS is jam-packed with hidden gems at your fingertips. For example, you can automate map production, process geospatial data, and generate drool-worthy cartographic figures.

There's no other free mapping software on this list that lets you **map like a rock star** than QGIS.

QGIS Plugins boost this mapping software into a state of epicness. If the tool doesn't exist, search for a plugin developed by the QGIS community.

Volunteer effort is key to its success. The **QGIS Stack Exchange** support is impressively great.

If you're still searching for free GIS software, you'd be insane not to download the free GIS software QGIS. Here's your

satellites that silently orbit the Earth. In 30 words or less.



1000 GIS Applications & Uses – How GIS Is Changing the World





From over 50 industries, here are 1000 GIS applications to open your mind of our amazing planet, its interconnectivity with location intelligence in mind.

beginner's guide to QGIS to get your feet wet.

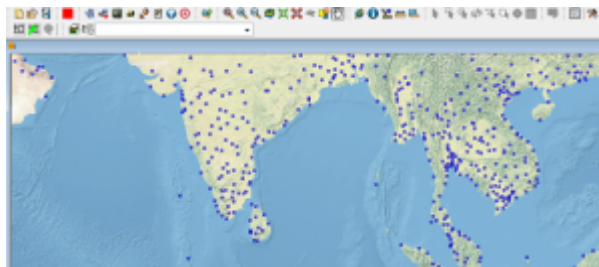
In February 2018, **QGIS 3** brings a whole new set of cartography, 3D and analysis tools. We've got you covered on how to find all of its newest features and plugins:

READ MORE: The Hidden Powers of QGIS 3: 33 Truly Underappreciated Features and Plugins

2 gvSIG

Highlights:  3D Tools  Compatibility  CAD Tools  Data Management

In 2004, the **gvSIG project** emerged as a free, open source GIS software option in Spain.



We illustrate in this **gvSIG guide and review** why we like it SO much:




gvSIG really outperforms QGIS 2 for 3D. It really is the best 3D visualization available in open source GIS.

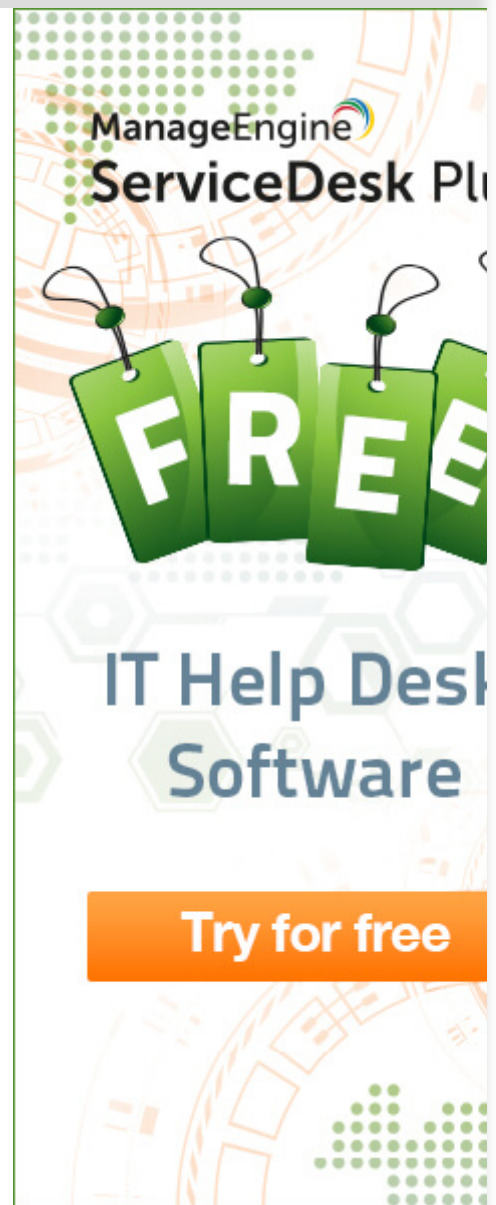
The **NavTable** is agile in that it allows you to see records one-by-one vertically.

The **CAD tools** are impressive on gvSIG. Thanks to the OpenCAD Tools, you can trace geometries, edit vertices, snap and split lines and polygons.

If you need GIS on your mobile phone, gvSIG Mobile is perfect for field work because of its interface and GPS tools.

3 Whitebox GAT

Highlights:  LiDAR Tools  Hydrology  GISGeography Favorite



ManageEngine ServiceDesk Plus

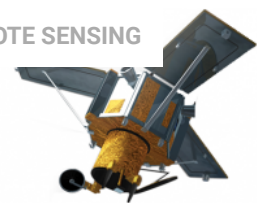
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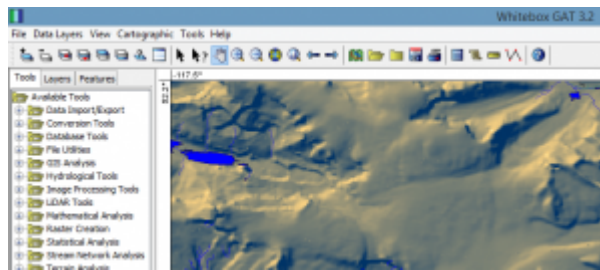
REMOTE SENSING



DigitalGlobe Satellite Imagery: Worldview, GeoEye and IKONOS

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DigitalGlobe Satellite Imagery If you want the sharpest satellite imagery in the world, then you should harness the power of DigitalGlobe satellite imagery. To

Yes, **Whitebox GAT** (Geospatial Analysis Toolbox) is #3 on the list of open source, free GIS software.



Unbelievably, Whitebox GAT has only been around since 2009 because it feels so fine-tuned when you see it in action.

There's a hydrology theme around Whitebox GAT. It actually replaced **Terrain Analysis System (TAS)** – a tool for hydro-geomorphic applications.

Whitebox GAT is really a full-blown open-access GIS and remote sensing software package.

Where it shines is LiDAR!

With no barriers, Whitebox GAT is the swiss-army knife of **LiDAR data**.

The LiDAR toolbox is a life-saver. For example, LAS to shapefile is an insanely useful tool. But you may need a Java update to go in full throttle though.

The cartographic mapping software tools are primitive compared to QGIS.

But overall Whitebox GAT is solid with over 410 tools to clip, convert, analyze, manage, buffer and extract geospatial information.

I find it amazing this free GIS software almost goes unheard of in the GIS industry.

Get more useful knowledge from the **Whitebox GAT Open Source Blog**.

give you a ballpark figure: Each pixel in a Worldview-3



Esri JavaScript API Examples: 15 High-Tech Webmaps and Webscenes



What Can You Do With a GIS Degree?



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ArcGIS Model Builder: How to Create a Custom Toolbox and Export as a Python Script



MapInfo Professional by Pitney Bowes

MIT online AI program

Transform your organ into an innovative, effi and sustainable busin

MIT Sloan and MIT CSAIL

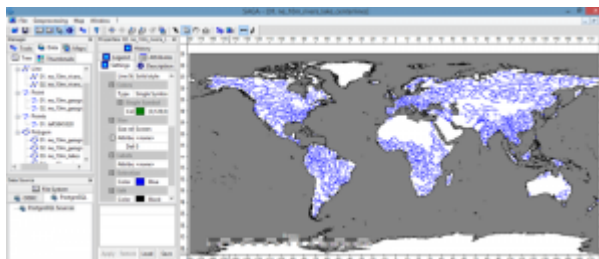


4 SAGA GIS

Highlights: Geoscientific Tools Ease of Use GISGeography Favorite

SAGA GIS

(System for Automated Geoscientific Analyses) is one of the classics in the world of free GIS software.



It started out primarily for terrain analysis such as hillshading, watershed extraction and visibility analysis.

Now, SAGA GIS is a powerhouse because it delivers a fast growing set of geoscientific methods to the geoscientific community.

Enable multiple windows to lay out all your analysis (map, histograms, scatter plots, attributes, etc). It provides both a user-friendly GUI and API.

It's not particularly useful in cartography but it's a lifesaver in terrain analysis.

Closing gaps in raster data sets is easy. The morphometry tools are unique including the SAGA topographic wetness

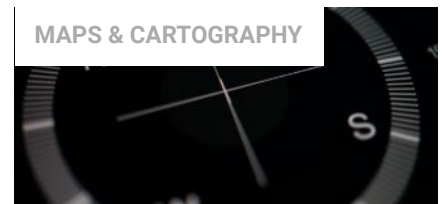
POPULAR POSTS



27 Differences Between ArcGIS and QGIS – The Most Epic GIS Software Battle in GIS History

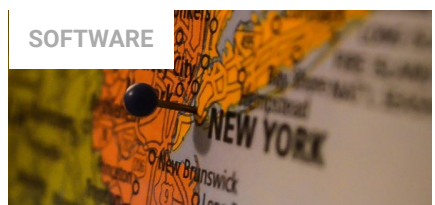
It's a head-to-head GIS software showdown with the star-studded lineup in the GIS industry- ArcGIS vs QGIS. Discover the differences between ArcGIS and QGIS

MAPS & CARTOGRAPHY



Magnetic North vs Geographic (True) North Pole

The Magnetic North Pole is a point in Northern Canada where the northern lines of attraction enter the Earth. Compass needles point to the magnetic north.



13 Free GIS Software Options: Map the World in Open Source

index and topographic position classification. If you have a DEM, and don't know what to do with it – you **NEED** to look at SAGA GIS.

Overall, **it's quick, reliable and accurate**. Consider SAGA GIS a prime choice for environmental modeling and other applications.

READ MORE: SAGA GIS (System for Automated Geoscientific Analyses) Review and Guide

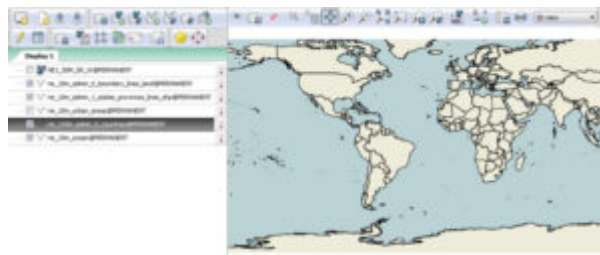
There's a bucket load of free GIS software packages available for you to map the world. Manage, visualize and edit GIS data with open source GIS software.

5 GRASS GIS

Highlights: 🎓 Research Community ⚙️ Analysis Tools

GRASS GIS

(Geographic Resources Analysis Support System) was developed by the US Army



Corps of Engineers as a tool for land management and environmental planning.

It has evolved into a free GIS software option for different areas of study.

Academia, environment consultants and government agencies (NASA, NOAA, USDA and USGS) use GRASS GIS because of its intuitive GUI and its reliability.

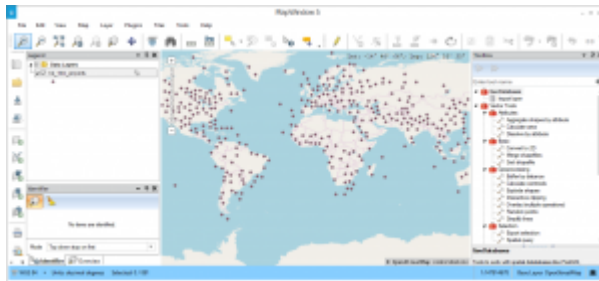
It has **over 350 rock-solid vector and raster manipulation tools**.

Not awfully useful in cartographic design, GRASS GIS excels primarily as a free GIS software option for analysis, image processing, digital terrain manipulation and statistics.

6 MapWindow

Highlights: 💧 Hydrology 🛠️ Plugins </> Programmer Tools

In 2000,
MapWindow
was proprietary
GIS software.
However, it has
been made open
through a



contract with the **US EPA** called "**Basins**". At this point, The source code was released to the public.

Now that MapWindow 5 has been released, it surprisingly has some serious punch. For example, MapWindow does **about 90% of what GIS users need** – map viewer, identify features, processing tools and print layout.

It has some higher level tools such as TauDEM for automatic watershed delineation. While HydroDesktop for data discovery, download, visualization and editing, DotSpatial for GIS programmers. In addition, it has an extensible plugin architecture for customization.

7 ILWIS

Highlights: 🌐 Open Source 🖥️ Ease of Use

Free GIS
software users
rejoice. Once
commercial GIS
software, now
turned into open
source GIS.



ILWIS



(Integrated Land and Water Information Management) is an oldie but a goodie.

The extinction-proof ILWIS is free GIS software for planners, biologists, water managers and geospatial users. ILWIS is good at the basics – digitizing, editing, displaying geographic data. Further to this, it's also used for remote sensing with tools for image classification, enhancements and spectral band manipulation.

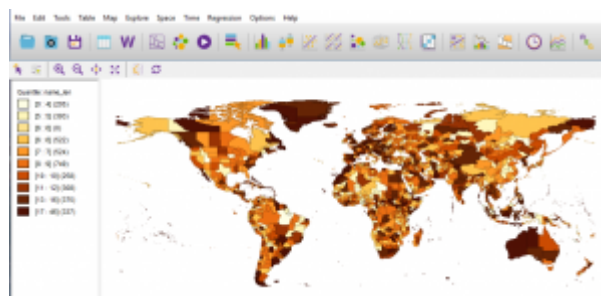
Over time, it has improved support for time series, 3 analysis and animation. Overall, I found it difficult to do some of the basics like adding layers. However, the documentation is thorough with a pretty decent following for usage.

READ MORE: Integrated Land and Water Information Management (ILWIS)

8 GeoDa

Highlights:  Open Source  Geostatistics

GeoDa is a free GIS software program primarily used to introduce new users into spatial data analysis. It's main **functionality is data exploration in statistics.**



GeoDa Software

One of the nicest things about it is how it comes with sample data for you to give a test-drive. From simple box-plots all the way to regression statistics, GeoDa has **complete arsenal of statistics** to do nearly anything spatially.

It's user base is strong. For example, Harvard, MIT and Cornell universities have embraced this free GIS software to serve as a gentle introduction to spatial analysis for non-GIS users. From economic development to health and real estate, it's been used as an exciting analytical in labs as well.

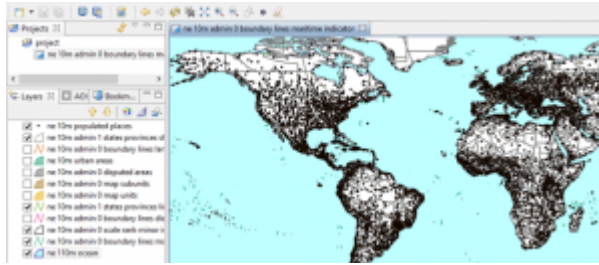
READ MORE: GeoDa Software – Data Exploration at its Finest

9 uDig

Highlights:  Open Source  Ease of Use  Basic Mapping

uDIG is an acronym to help get a better understanding what this Free GIS software is all about.

- **u** stands for user-friendly interface
- **D** stands for desktop (Windows, Mac or Linux). You can run uDIG on a Mac.
- **I** stand for internet oriented consuming standard (WMS, WFS or WPS)
- **G** stands for GIS-ready for complex analytical capabilities.



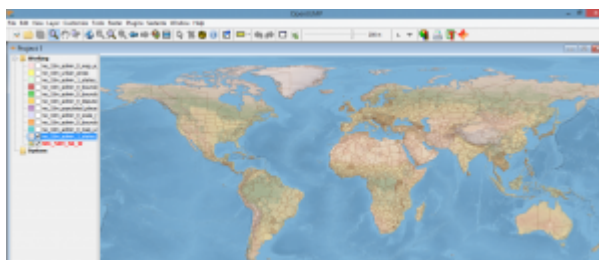
When you start digging into uDig, it's a nice open source GIS software option for basic mapping. **uDig's Mapnik** lets you import basemaps with the same tune as ArcGIS

Specifically, it's easy-to-use, the catalog, symbology and Mac OS functionality are some of the strong points. But it has limited tools and the bugs bog it down to really utilize it as a truly complete free GIS software package.

10 OpenJump

Highlights:  Open Source  Conflation

Formerly JUMP GIS, **OpenJump GIS** (JAVA Unified Mapping Platform)



started as a first class conflation project. It succeeded. But eventually grew into something much bigger. Because of how its large community effort grew, OpenJUMP into a **more complete free GIS software package**.

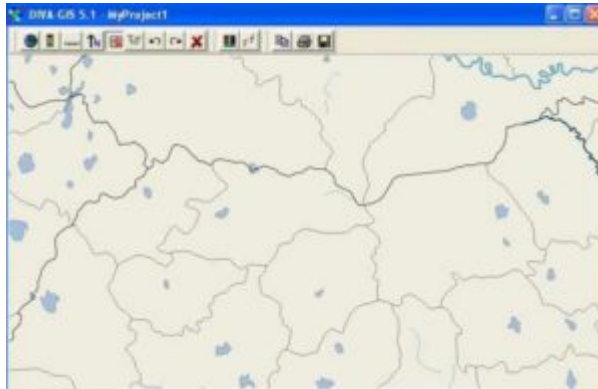
One of its strengths is how it handles large data sets well. Rendering is above-grade with a whole slew of mapping options. For example, you can generate pie charts, plotting and choropleth maps.

OpenJUMP GIS Plugins enhance its capabilities. There are plugins for editing, raster, printing, web-processing, spatial analysis, GPS and databases. Conflating data is another option with a whole lot more from its plugins.

11 Diva GIS

Highlights:  Open Source  Biology  Data

Biologists using GIS unite! This one specializes in mapping biological richness and diversity distribution including DNA data.



Diva GIS is another free GIS software package for mapping and analyzing data. Diva GIS also delivers useful, every day **free GIS data** for your mapping needs.

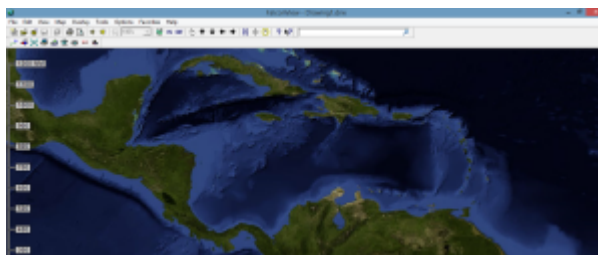
It's possible to extract climate data for all locations on the land. From here, there are statistical analysis and modeling techniques to work with.

For the biologist in you, it's worth a long look for biologists around the world. Otherwise, you should be looking at one of the top options above.

12 FalconView

Highlights:  Open Source  Fly-throughs

The initial purpose of FalconView is to be a free and open source GIS software.



Georgia Tech built this open software for displaying various types of maps and geographically referenced overlays.

Now, most of FalconView's users are from the US Department of Defense and other National Geospatial Intelligence Agencies. This is because it **can be used for combat flight planning**.

In SkyView mode, you can **fly-through** even using MXD files. It supports various types of display like elevation, satellite, LiDAR, KMZ and MrSID.

13 OrbisGIS

Highlights:  Open Source

OrbisGIS is a work-in-progress. Its goal is to be a cross-platform open source GIS software package designed by and for research.



It provides some GIS techniques to manage and share spatial data. OrbisGIS is able to process vector and raster data models.

It can execute processes like noise maps or hydrology process without any add-ons. **Orbis GIS Plug-ins** are available but are very limited for the time-being.

The developers are still working on the documentation. You may want to look elsewhere until this project gets sturdy up on its feet.