

RESOURCES AND HELP FOR GIS

GENERAL

- ArcGIS Pro Help: <https://pro.arcgis.com/en/pro-app/latest/help/main/welcome-to-the-arcgis-pro-app-help.htm>
- ESRI Support (not particularly useful for many institutional users): <http://support.esri.com/en/>
- GIS StackExchange – a GIS Q&A community: <http://gis.stackexchange.com>
- Esri Community – Esri’s GIS Q&A community: <https://community.esri.com/>
- Spatial References: <http://spatialreference.org/>
- Joe Wheaton’s website - <http://gis.ioewheaton.org> (UC Davis alum, GIS expert, with tons of course material online)
- ESRI ArcGIS Blog – good for keeping current with GIS and data: <https://www.esri.com/arcgis-blog/overview/>
- GIS Bibliography – GIS research: <https://gis.library.esri.com/>
- ESRI Training and Tutorials: <https://www.esri.com/training/>
- ETGeowizards – ArcGIS Software for water-oriented field work: <https://www.ian-ko.com/>
- R (can also do GIS, spatial stats, and much more). Make sure to also install RStudio along with it. <http://cran.r-project.org/>

BOOKS

- Francis Harvey: *A Primer of GIS: Fundamental Geographic and Cartographic Concepts*. Beginning to Intermediate
- Michael Law, Amy Collins: *Getting to Know ArcGIS Pro*. Beginning to Intermediate.
- Tim Ormsby, Eileen Napoleon, Robert Burke, Carolyn Groessl, Laura Feaster: *Getting to Know ArcGIS Desktop*. Beginning to Intermediate. Well known and widely used reference for learning previous ArcMap/ArcCatalog software.
- *Making Spatial Decisions Using GIS and Remote Sensing: A Workbook* (I haven’t used this one, but it looks promising – sample chapter at <http://bit.ly/msd-remote>). Beginning to Intermediate
- John R. Jensen: *Remote Sensing of the Environment: An Earth Resource Perspective, Second Edition*. Intermediate to Advanced.
- C.P. Lo, Albert K.W. Yeung: *Concepts and Techniques of Geographic Information Systems*. Beginning to Advanced

CARTOGRAPHY

- ColorBrewer: <http://colorbrewer2.org/>
- Colorzilla (firefox/chrome browser addon): <http://www.colorzilla.com/> See a color you like? Colorzilla helps you find out what it is, then morph it.
- Color Scheme Designer: <http://colorschemedesigner.com/>
Helps you use colors that work well together
- ESRI Cartography Courses: <https://www.esri.com/training/mooc-cartography-courses/>

DESIGN

- StackExchange questions:
 - What makes a map beautiful? <http://gis.stackexchange.com/questions/3083/what-makes-a-map-beautiful>
 - What classifies a map as badly designed? <http://gis.stackexchange.com/questions/3087/what-makes-a-map-be-classed-as-badly-designed>
- GreenInfo Network: <http://greeninfo.org/>
A mapping firm with some excellent examples
- Shaded Relief (hillshades are hard): <http://www.shadedrelief.com/>
- Stamen Blog: <https://stamen.com/blog/>

COMMUNITIES AND GIS NEWS

- GIS StackExchange – a GIS Q&A community: <http://gis.stackexchange.com>
- Esri Community – Esri's GIS Q&A community: <https://community.esri.com>
- Reddit GIS – A community for GIS enthusiasts of all types: <http://reddit.com/r/gis>
- Public Lab – a community of open source hardware and data projects and people, often with spatial components: <https://publiclab.org/>
- GIS Lounge – a GIS news site: <https://www.gislounge.com/>
- Digital Geography – a GIS news and blogging site: <http://www.digital-geography.com/>

DATA

- **Data Finders**
 - List of High Quality Datasets: <https://github.com/nickrsan/awesome-public-datasets/>
 - NRCS Geospatial Data Gateway: <http://datagateway.nrcs.usda.gov/GDGOrder.aspx>
 - An incredible list of data links from Humboldt State University: <https://libguides.humboldt.edu/GIS>
 - National Map Data Delivery: <https://www.usgs.gov/the-national-map-data-delivery>
 - US Census Data Explorer: <https://data.census.gov/>
 - Book: The GIS Guide to Public Domain Data: <https://spatialreserves.wordpress.com/>
- **Datasets**
 - Enhanced National Hydrography Dataset (NHDPlus): <https://www.usgs.gov/national-hydrography/nhdplus-high-resolution>
 - GeoNames (GNIS): http://geonames.usgs.gov/domestic/download_data.htm
 - National Land Cover Dataset (NLCD): <http://www.mrlc.gov/>
 - TIGER (National lines and boundaries – Census): <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html>
 - USGS Water Data for the Nation: <http://waterdata.usgs.gov/nwis>
 - Listing of Global Terrain Data: <http://vterrain.org/Elevation/global.html>
 - World Terrain Data: <http://www.naturalearthdata.com/>
 - World Borders: http://thematicmapping.org/downloads/world_borders.php

WEB GIS, ONLINE SERVICES, AND MAP PUBLISHING

- MapBox: <https://www.mapbox.com/> Primarily for software developers
- CartoDB: <https://cartodb.com/>
Make your own online maps
- ArcGIS Online: <https://www.arcgis.com>
Web mapping platform tied in to ArcGIS Desktop
- AppSheet: <https://www.appsheet.com/>
A free tool to create simple data collection apps

OTHER TRAININGS

UCD Extension Classes: <http://bit.ly/extensiongis>

ESRI Trainings: <http://training.esri.com/gateway/index.cfm>

FREE AND OPEN SOURCE GIS**TERMINOLOGY:**

Free – NOT free-of-cost, but in terms of granting freedoms of use and modification:

1. The freedom to run the program, for any purpose
2. The freedom to study and adapt the program for ones own needs
3. The freedom to redistribute the program
4. The freedom to improve the program and to release these improvements to the public

Open Source – source code is easily accessible and can be modified, extended and/or distributed for noncommercial purposes benefitting the researchers, academics, and other end users. The word “open” never refers to freedom. <http://www.opensource.org/docs/osd>

PROGRAMS:**RECOMMENDED**

Quantum GIS (QGIS)– <http://qgis.org/> - **Recommended**

- Becoming very advanced and usable!
- Provides integration with OSGIS packages to extend functionality
- Extended capabilities via Python plug-ins
- One of the largest FOS GIS user communities

Map Window – <http://www.mapwindow.org/>

- Developed to address the need for a GIS programming tool
- Extensible plug-in architecture
- Functions for hydrologic analysis **gvSIG** - <http://www.gvsig.org/web/>
- Developed by the regional government of Valencia (Spain) to replace proprietary software

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- Easily extendible allowing continuous application enhancement
 - Available in many languages
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OTHER NOTABLE GIS

GRASS – <http://grass.osgeo.org/>

- Well known, mature, long existence
- Developed by a branch of the USACE for land management and environmental planning - Over 350 programs and tools, ability to couple with statistic software R - Underlies many other advanced GISs.

uDig – <http://udig.refractory.net/>

- GIS functionality more focused towards data viewing and editing from databases and Internet sources

OpenJUMP – <http://www.openjump.org/>

- Developed particularly for vector data editing and conflation
- Ability to work with GIS data in GML format

PostGIS - <https://postgis.net/>

- An extension to the PostgreSQL database that adds support for storing, querying, and indexing geographic data.
- Does not contain an interface but provides spatial functionality to a traditional database.
- Works well in combination with QGIS and OpenJUMP

RESOURCES:

PAPERS:

Chen 2010, *Assessment of open source GIS software for water resources management in developing countries*
<http://www.sciencedirect.com/science/article/pii/S1570644310000511>

Steiniger 2009, *Free and open source geographic information tools for landscape ecology*
<http://www.sciencedirect.com/science/article/pii/S1574954109000363>

Donnelly 2010, *Evaluating open source GIS for libraries*
<https://sites.google.com/site/gisintheacademiclibrary/full-article-texts>

OPEN SOURCE COMPARISON;

Wikipedia: http://en.wikipedia.org/wiki/Comparison_of_GIS_software

WEBSITES:

Open GIS Consortium <https://www.ogc.org/>

Open Source Geospatial Foundation <http://www.osgeo.org/>

Wikipedia http://en.wikipedia.org/wiki/List_of_GIS_software

OTHER RESOURCES:

Free Software Foundation <http://www.fsf.org/>

Open Source Initiative <http://www.opensource.org/>

Color Laboratory <http://colorlab.wickline.org/colorblind/colorlab/>

Github: <http://github.com>

Bitbucket: <http://bitbucket.com>