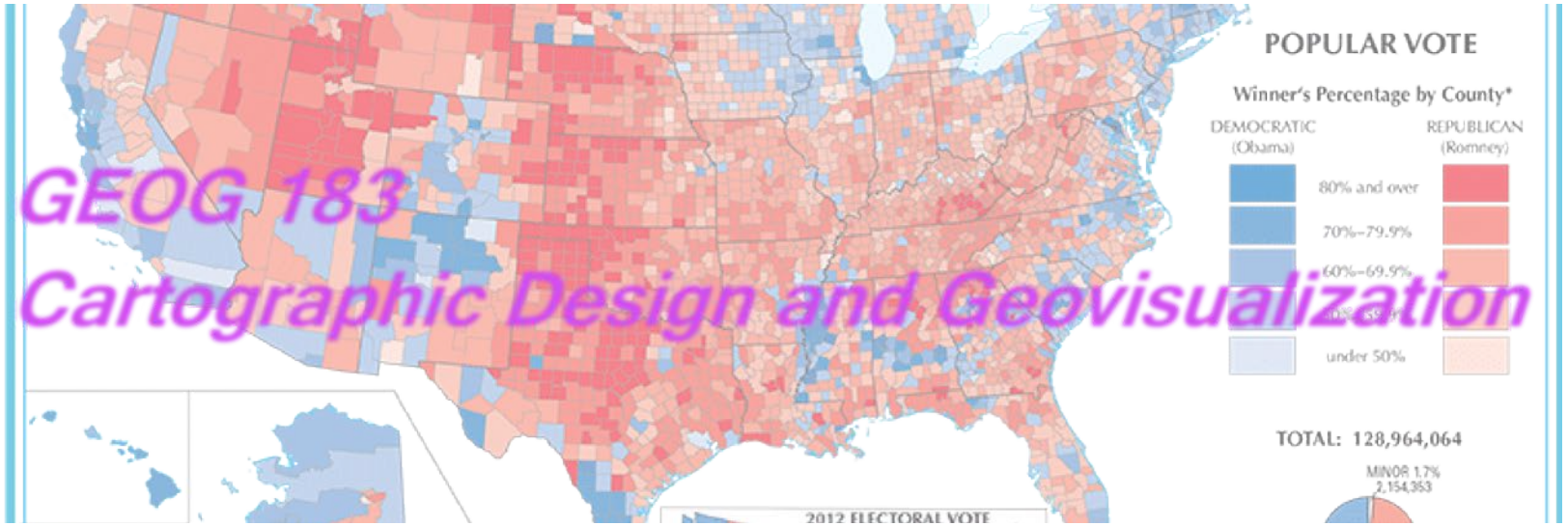
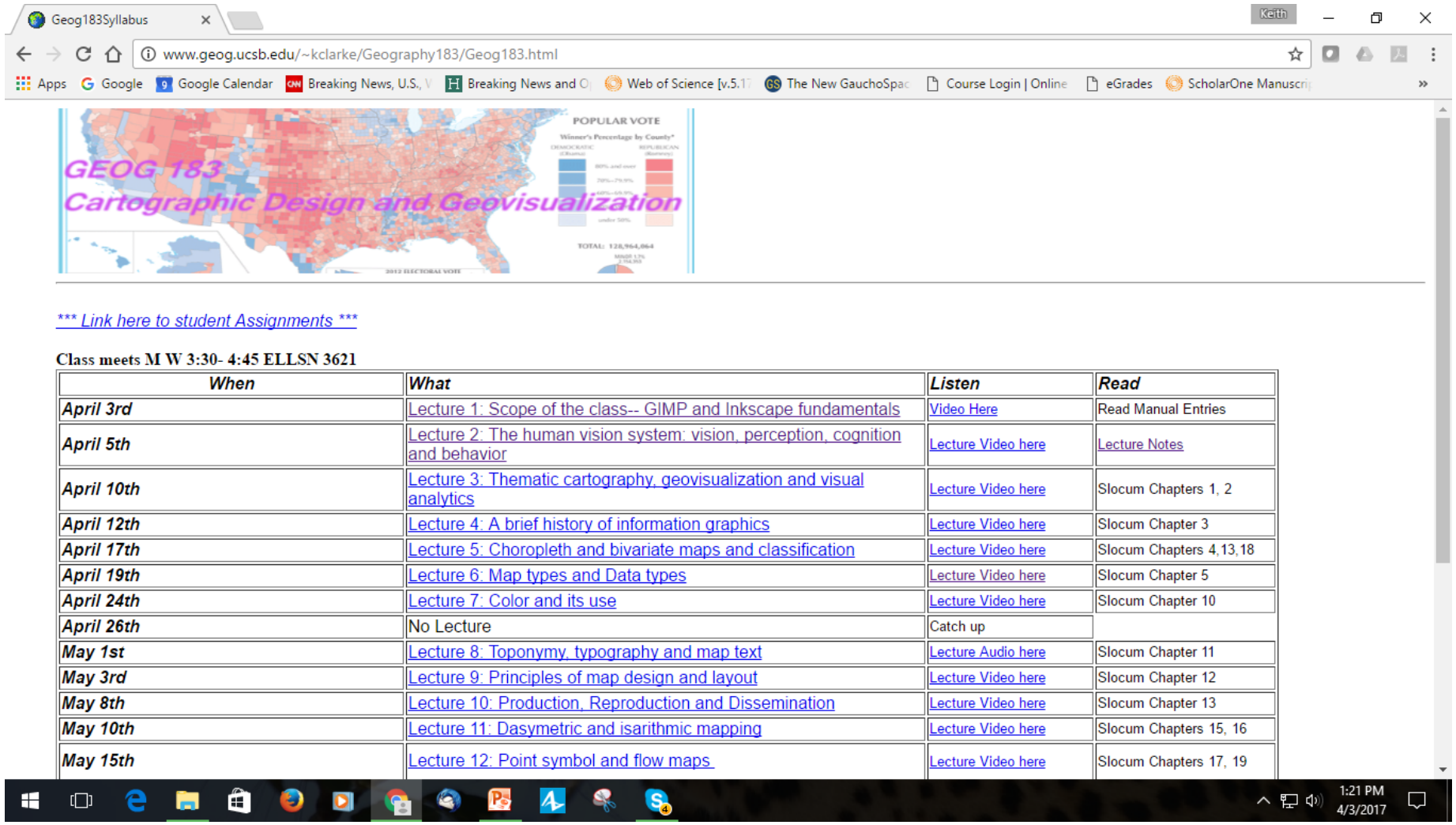


Geog183: Cartographic Design and Geovisualization Spring Quarter 2020

Lecture 1: Scope of the class--GIMP and Inkscape fundamentals

Class Website:

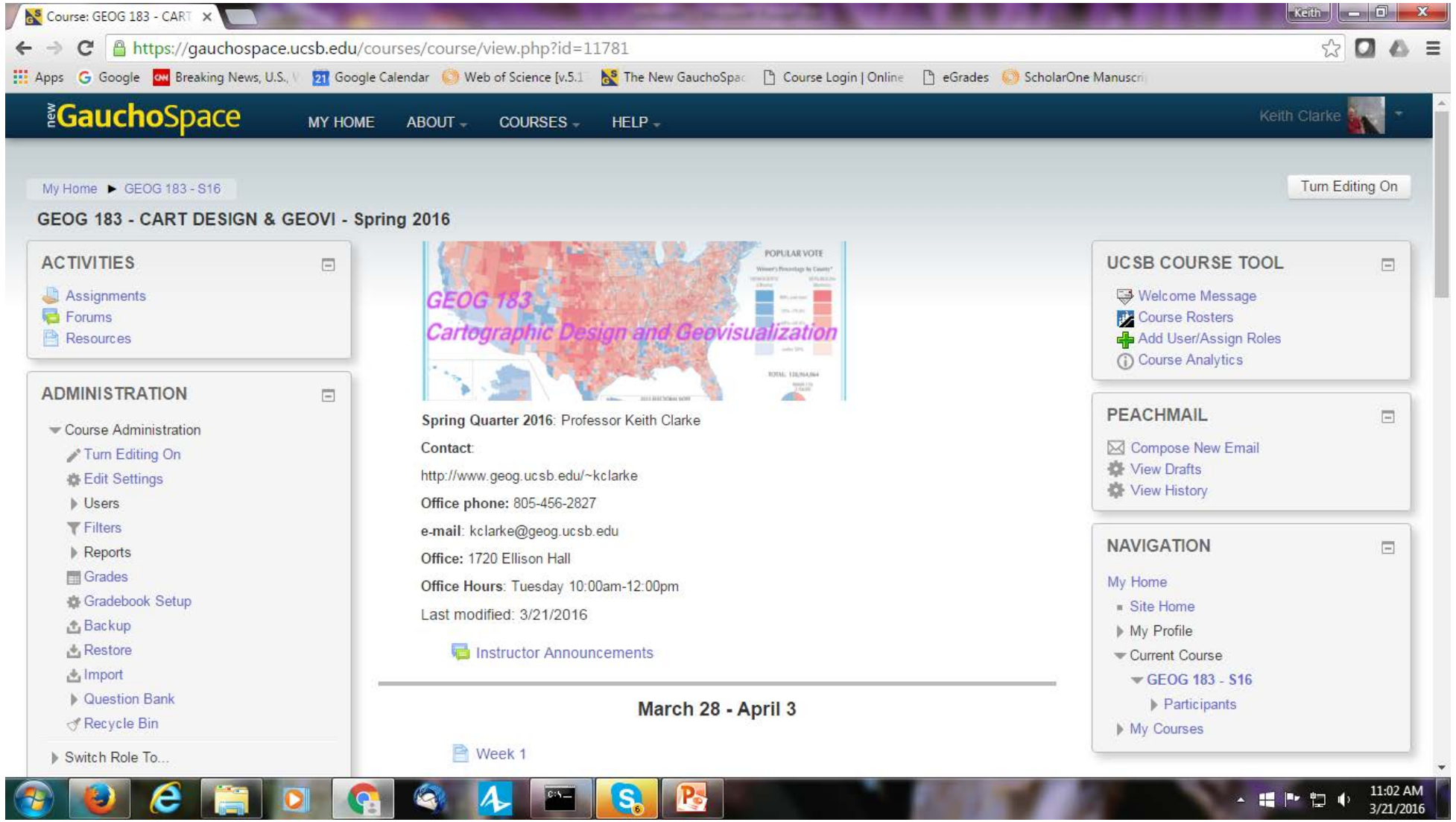
http://www.geog.ucsb.edu/~kclarke/Geography183/Geog183.html



Lectures

- Online, available form class website
- Lab will meet once a week-Fridays, online until further notice
- No mid-term, but keep up with text because there will be a final, there is one catch-up day
- Assignments will be critiqued and discussed as they come in during lecture
- First part of course is introduction, then will follow Slocum et al.'s course structure
- Use Gauchospace for discussion forum and messaging

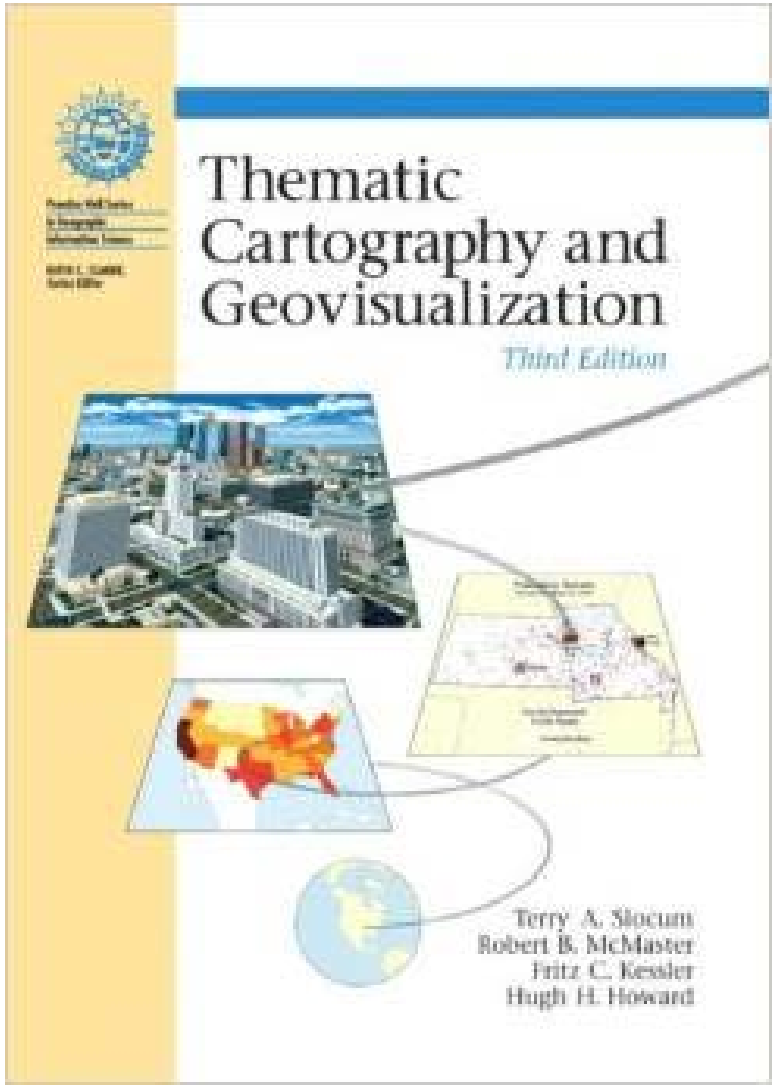
Lab Website: Gauchospace



Labs

- Will meet virtually until further notice, then in the Descartes Lab Ellison 3620
- TA is Matthew Feliciano
- Office Hours: TBA email: feliciano@ucsb.edu
- That leaves 8 weeks, so we will do 5 assignments plus a project
- Labs 1-5 will count for 10% of grade, project for 30%
- Final Exam will count for 20% of the grade, short answer questions
- Examples are posted on the class website

Slocum et al. 3ed. 2008, but a classic
Web content via MyGeoSciencePlace at Pearson



Lectures and Topics Weeks 1-5

- Lecture 1: Scope of the class-- GIMP and Inkscape fundamentals
- Lecture 2: The human vision system: vision, perception, cognition and behavior
- Lecture 3: Thematic cartography, geovisualization and visual analytics
- Lecture 4: A brief history of information graphics
- Lecture 5: Choropleth and bivariate maps and classification
- Lecture 6: Map types and Data types
- Lecture 7: Color and its use
- Lecture 8: Toponymy, typography and map text
- Lecture 9: Principles of map design and layout
- Lecture 10: Production, Reproduction and Dissemination

Lectures and Topics Weeks 6-10

- Lecture 11: Dasymetric and isarithmic mapping
- Lecture 12: Point symbol and flow maps
- Lecture 13: Map animation
- Lecture 14: Visual analytics and data exploration
- Lecture 15: Dealing with uncertainty
- No Lecture (Memorial Day)
- Lecture 16: Web-based cartography
- Lecture 17: Cartography in virtual environments
- Lecture 18: Research in cartography and visualization and class summary
- Final exam

Learning Goals for Geog 183

1. Understand and implement principles of good design in cartography
2. Understand human vision and how it influences perception and cognition
3. Become familiar with using open source tools to improve the visual quality of web-based and other maps
4. Cover the scope of contemporary thematic cartography and web mapping
5. Gain hands-on experience in designing and improving web based maps
6. Master skills that will transfer to a host of other classes and to life beyond UCSB

I expect you to:

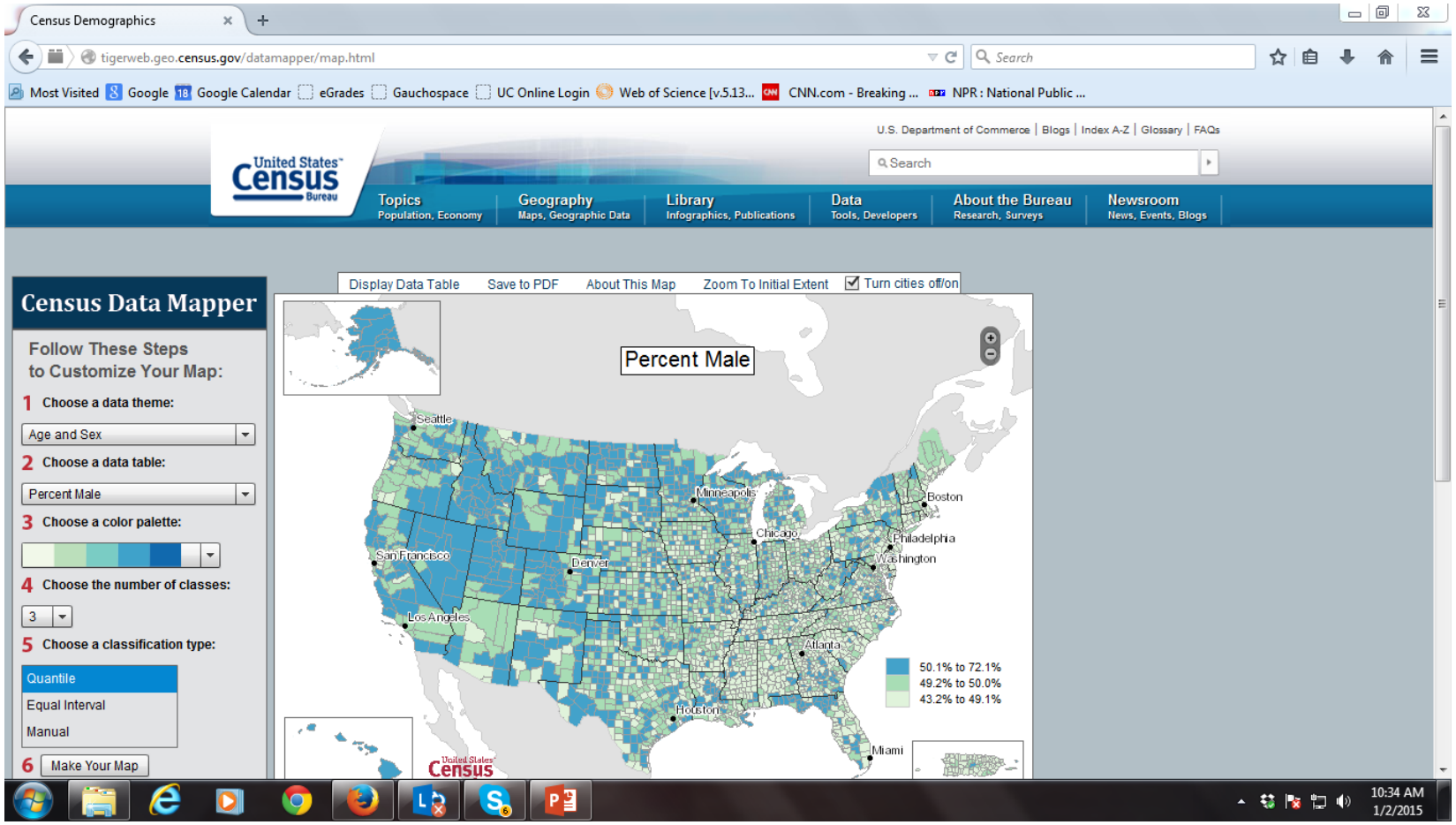
- Read the text
- Come to lecture (or watch the videos)
- Attend/watch the labs (esp. important when labs are introduced)
- Submit assignments of time
- Use Gauchospace
- Follow the UCSB Code of Student Conduct http://www.sa.ucsb.edu/regulations/students/student-conduct
- Ask questions
- Have fun learning new material

Consider….

- Using web and other software mapping tools, almost any idiot (or bot) can create a map
- It takes knowledge and skill to create a ***good*** map
- It takes experience, skill, creativity and hard work to create a ***great*** map
- Fortunately, maps can be sequentially improved
- Good design follows known principles, and uses cartographic methods correctly
- Usually employs user centered design
- Same goes for much of graphic design, information graphics etc.

For example, Census Data Mapper

http://tigerweb.geo.census.gov/datamapper/map.html



Why open source tools?

- Powerful set of tools for mapping
- Price is right!
- Continuous improvements
- Available across platforms and OSs
- Get lots of cools additions and refinements
- Can use them on almost any computer
- Break down into raster and vector for mapping
- Raster – Photoshop – GIMP
- Vector – Illustrator – Inkscape

We will use many other tools as well…

- Will start with Quantum GIS
- Adobe Acrobat and PDF as display tools
- Will cover some basics of Leaflet and Java scripting
- For project, you can use any tool you wish
- Files will be bigger, resolutions higher than you may have used in the past
- Goal is to simulate the web and print publishing requirements
- Last assignment before project uses R-Studio and Shiny for interactive web design

GIMP

- GIMP (GNU Image Manipulation Program) is a free and open-source raster graphics editor used for image retouching and editing, free-form drawing, resizing, cropping, photo-montages, converting between different image formats, and more specialized tasks.
- GIMP is released under LGPLv3 and GPLv3+ licenses and is available for Linux, OS X, and Windows
- Original author(s) Spencer Kimball, Peter Mattis and the GIMP Development Team, originally a one-semester project at UCB
- Initial release January 1996, now 20 years old!
- Most recent Stable release 2.8.20 (2017-02-01)
- Development status: Active, API is a set of callable libraries
- Written in C, GTK+
- Web site: www.gimp.org

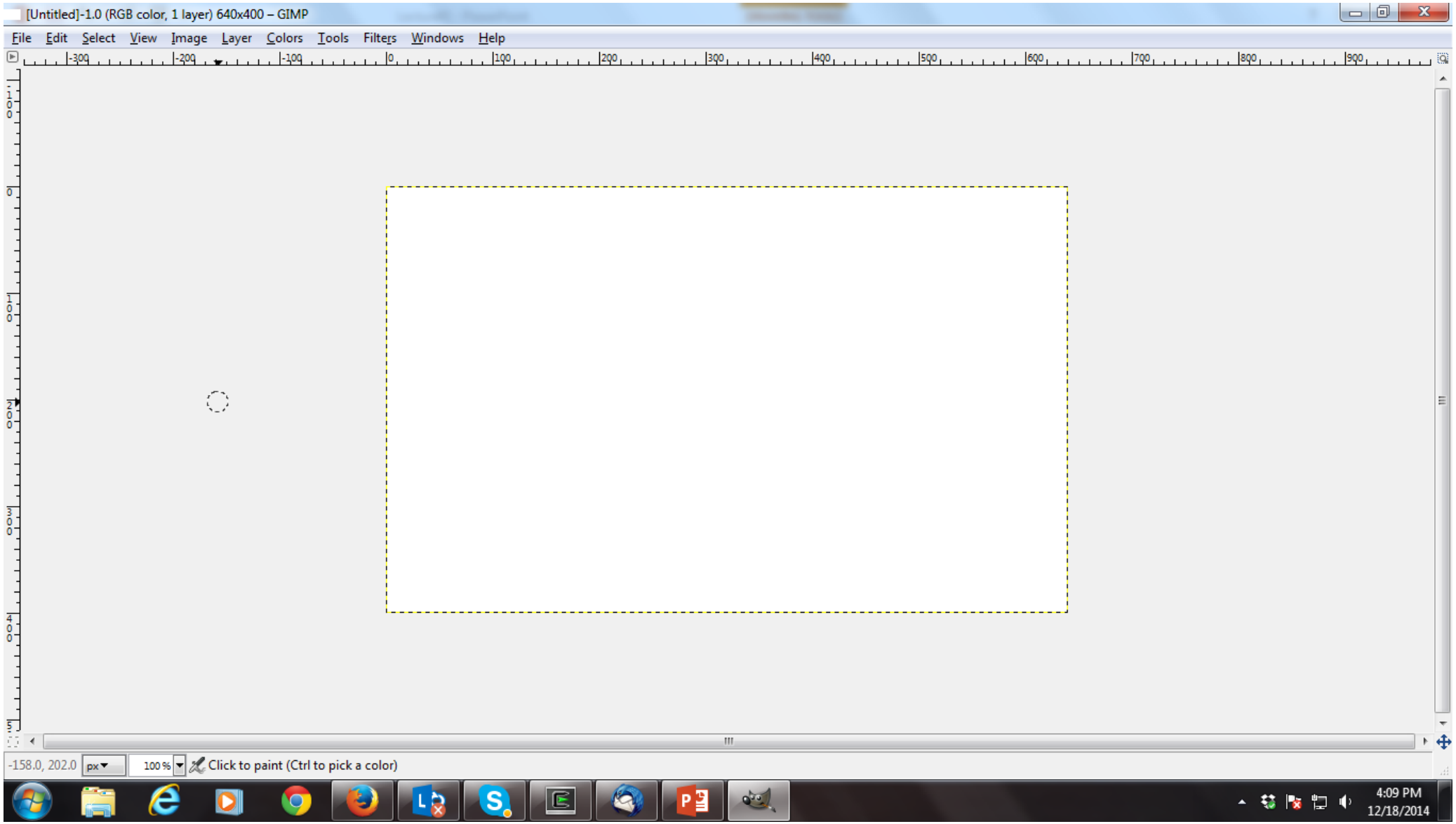
Capabilities

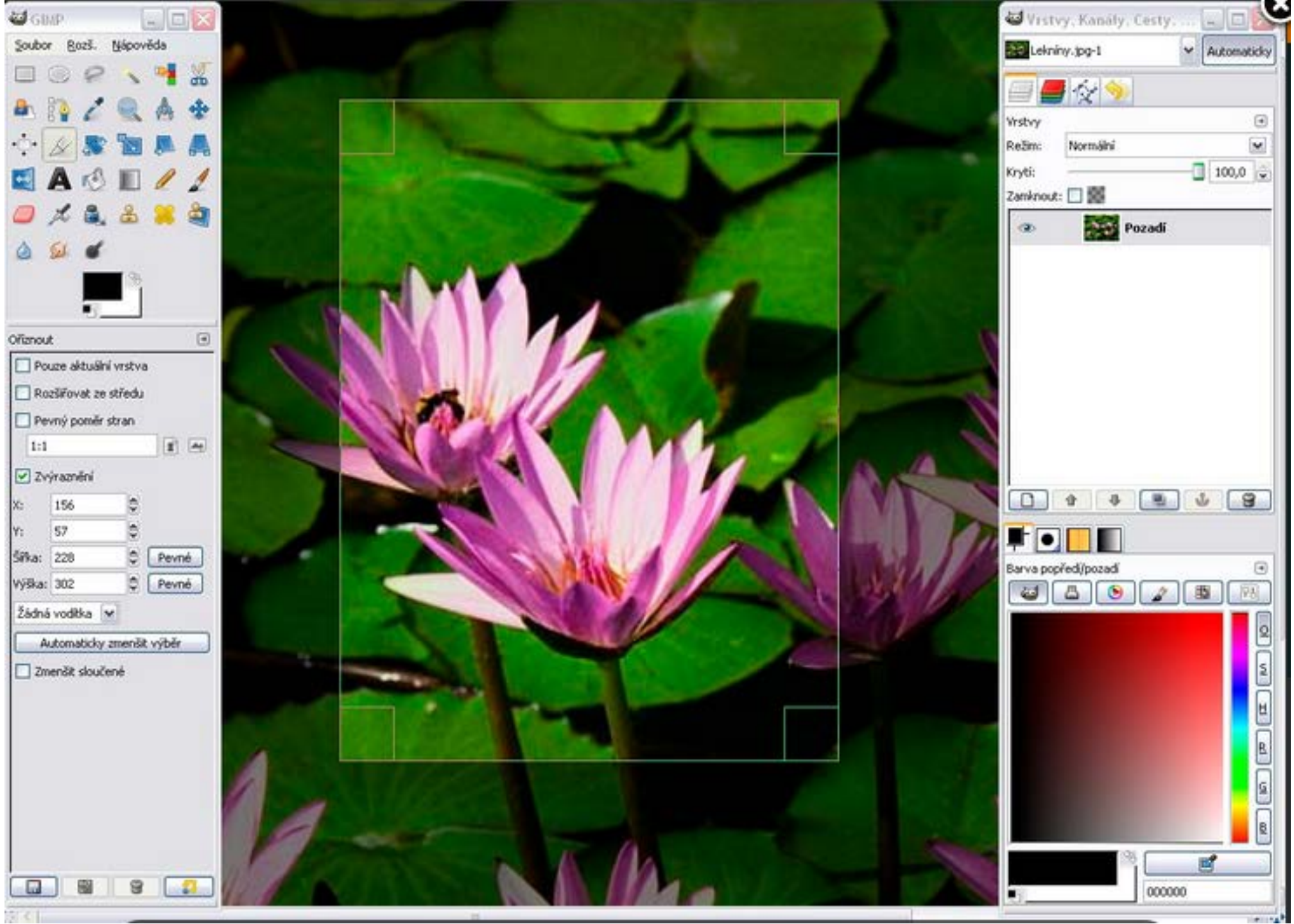
- image retouching and editing
- free-form drawing
- resizing and image density change
- cropping
- photo-montages
- converting between different image formats
- support for layers and transparency
- “magic” lasso and other neat tools
- full interactive online manual

Website

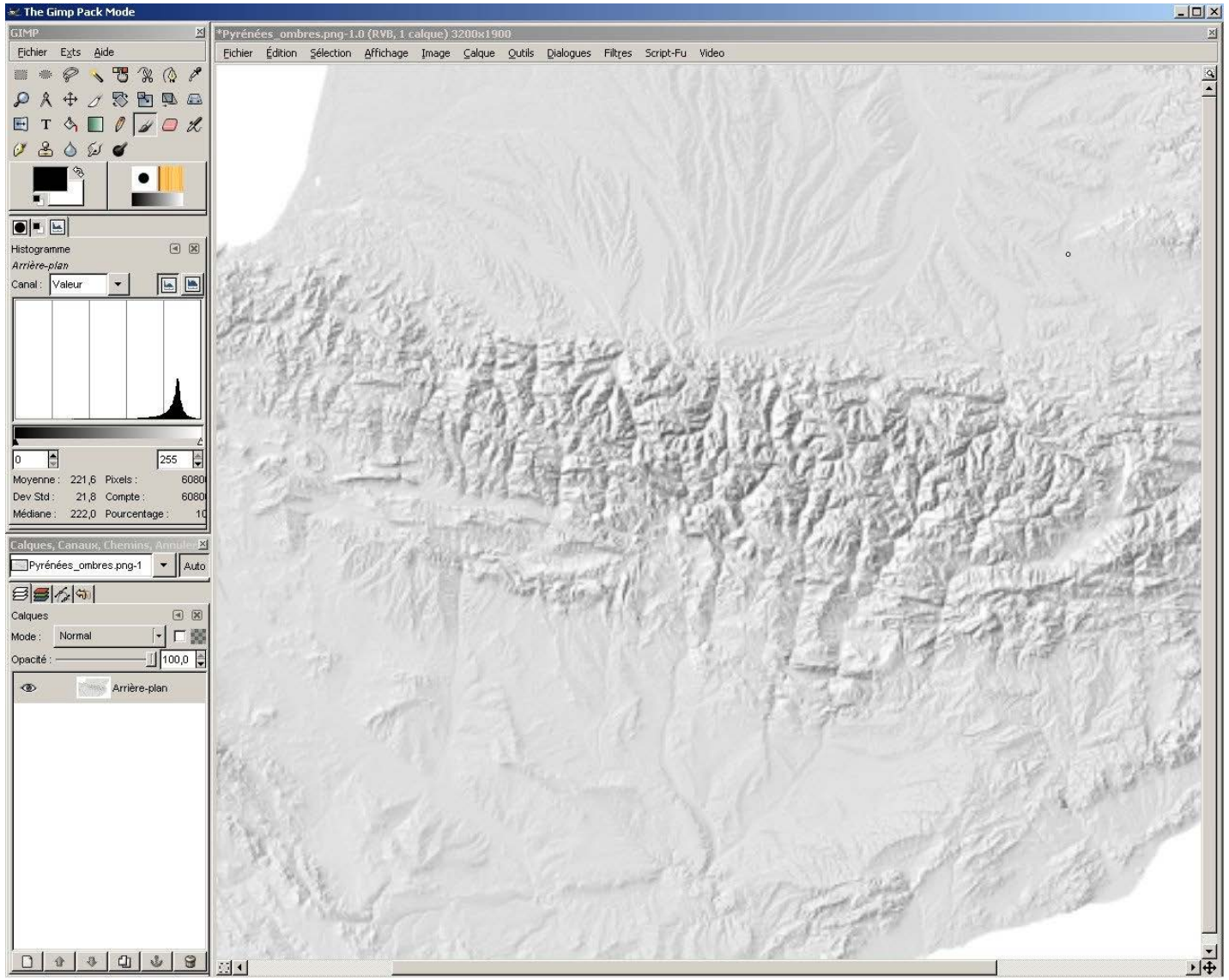

GIMP - GNU Image Mani
Keith
Secure | https://www.gimp.org
Apps
Google
Google Calendar
Breaking News, U.S.,
Breaking News and O
Web of Science [v.5.1
The New GauchoSpac
Course Login | Online
eGrades
ScholarOne Manuscri
GIMP
DOWNLOAD
NEWS
ABOUT
DOCS
PARTICIPATE
TUTORIALS
DONATE
GIMP
GNU IMAGE
MANIPULATION PROGRAM
DOWNLOAD 2.8.20
RELEASE NOTES
The Free & Open Source Image Editor
This is the official website of the GNU Image Manipulation Program (GIMP).
GIMP is a cross-platform image editor available for GNU/Linux, OS X, Windows and more operating systems. It is free software, you can change its source code and distribute your changes.
Recent News
An Interview with Michael Natterer, GIMP maintainer
2017-03-01
GIMP 2.8.20 Packages for macOS and Microsoft Windows are available
2017-02-07
1:38 PM
4/3/2017

GUI: Canvas and View control

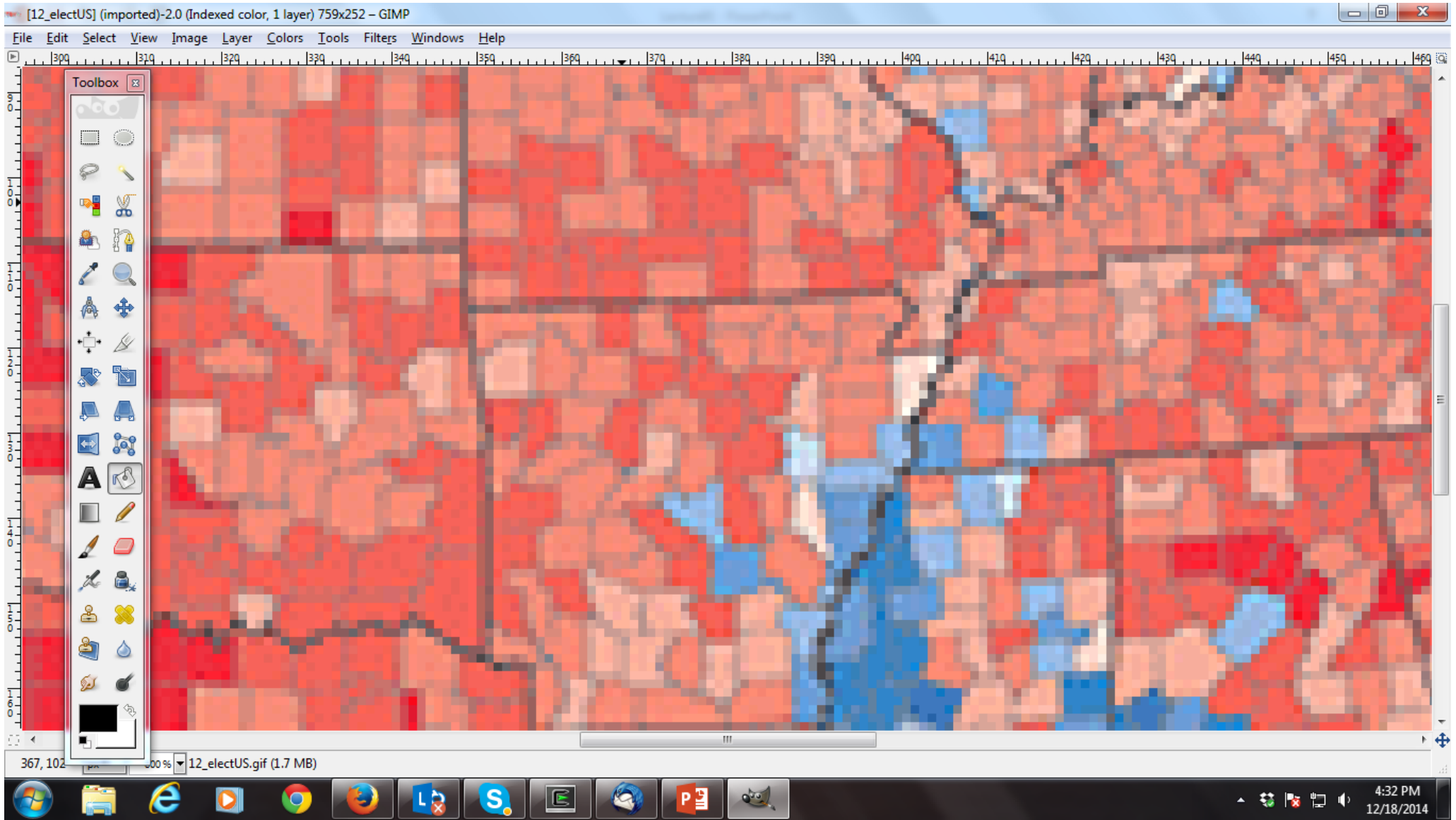



GIMP
Soubor
Rozš.
Nápověda
Oříznout
Pouze aktuální vrstva
Rozšiřovat ze středu
Pevný poměr stran
1:1
Zvýraznění
X:
156
Y:
57
Šířka:
228
Pevné
Výška:
302
Pevné
Žádná vodítka
Automaticky zmenšit výběr
Zmenšit sloučené
Vrstvy, Kanály, Cesty, ...
Lekniny.jpg-1
Automaticky
Vrstvy
Režim:
Normální
Krytí:
100,0
Zamknout:
Pozadí
Barva popředí/pozadí
000000

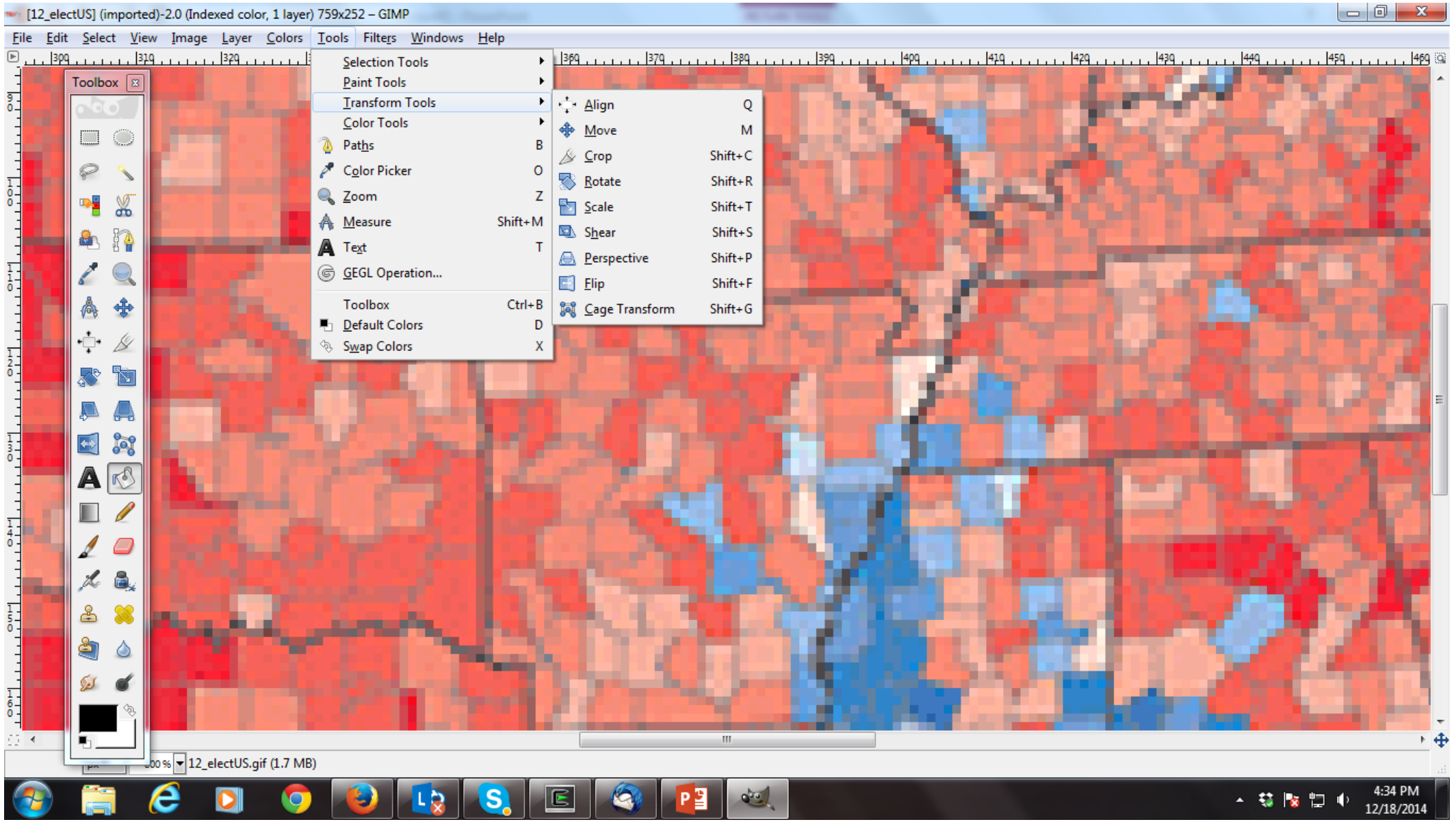
Cartography with Gimp



Toolbars, toolsets and functions



Pullright selection



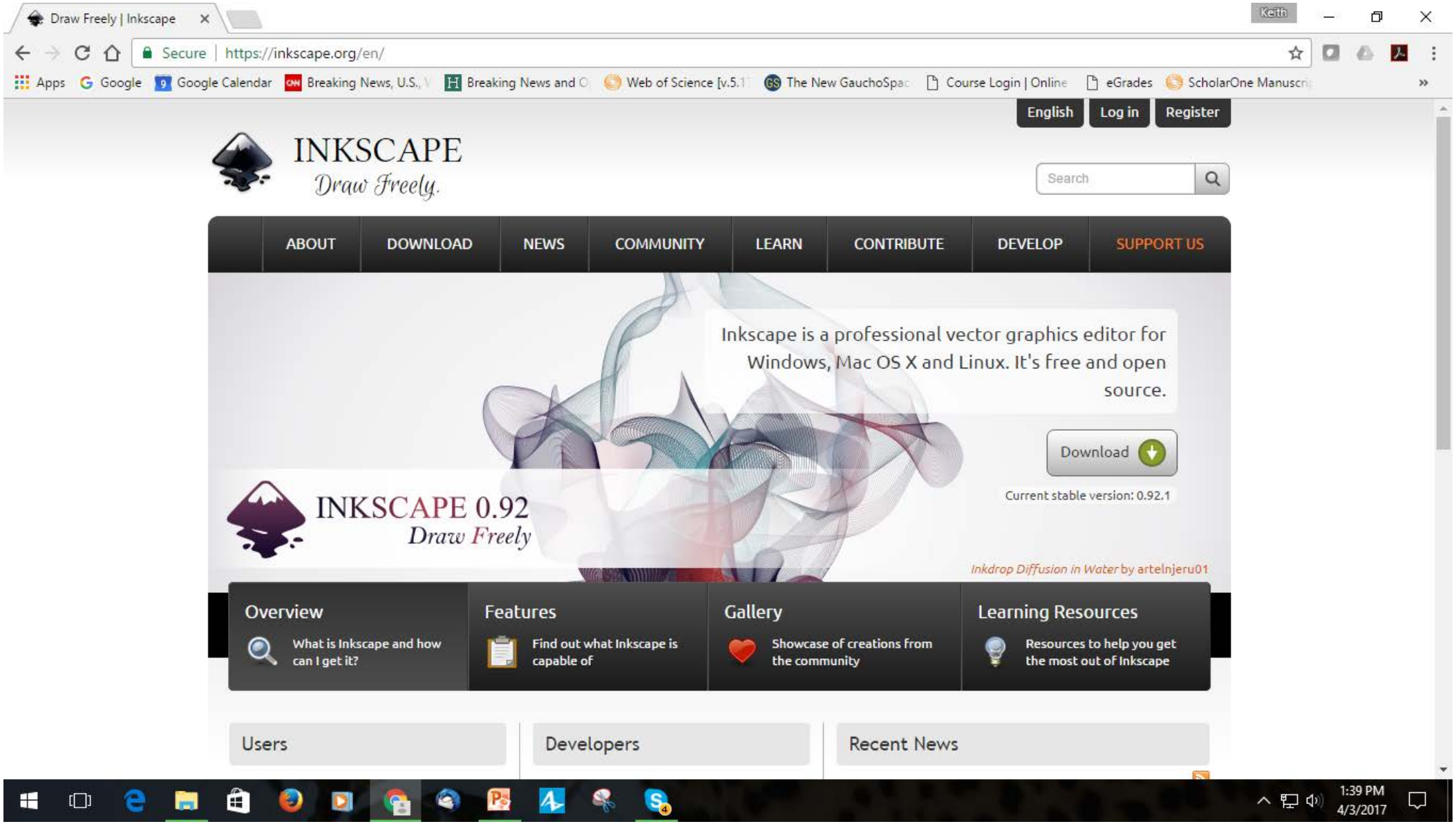
Inkscape

- free and open source software vector graphics editor
- goal is to implement full support for the Scalable Vector Graphics (SVG) 1.1 standard.
- also supports various other formats for Import/Export
- The word Inkscape is a compound of the words ink and scape
- Inkscape is cross-platform and runs on OS X, Unix-like operating systems, and Microsoft Windows
- Inkscape began in 2003 as a code fork of the Sodipodi project. Sodipodi, developed since 1999, was itself based on Raph Levien's Gill (Gnome Illustration Application)
- The fork was led by a team of four former Sodipodi who focused on implementing the complete SVG standard, whereas Sodipodi development emphasized creating a general-purpose vector graphics editor, possibly at the expense of SVG
- Inkscape's new developers changed it greatly: They rewrote it from C into C++; adopted the GTK+ toolkit C++ bindings (gtkmm); redesigned its user interface, and added a number of new features
- implementation of the SVG standard, although incomplete, has shown gradual improvement

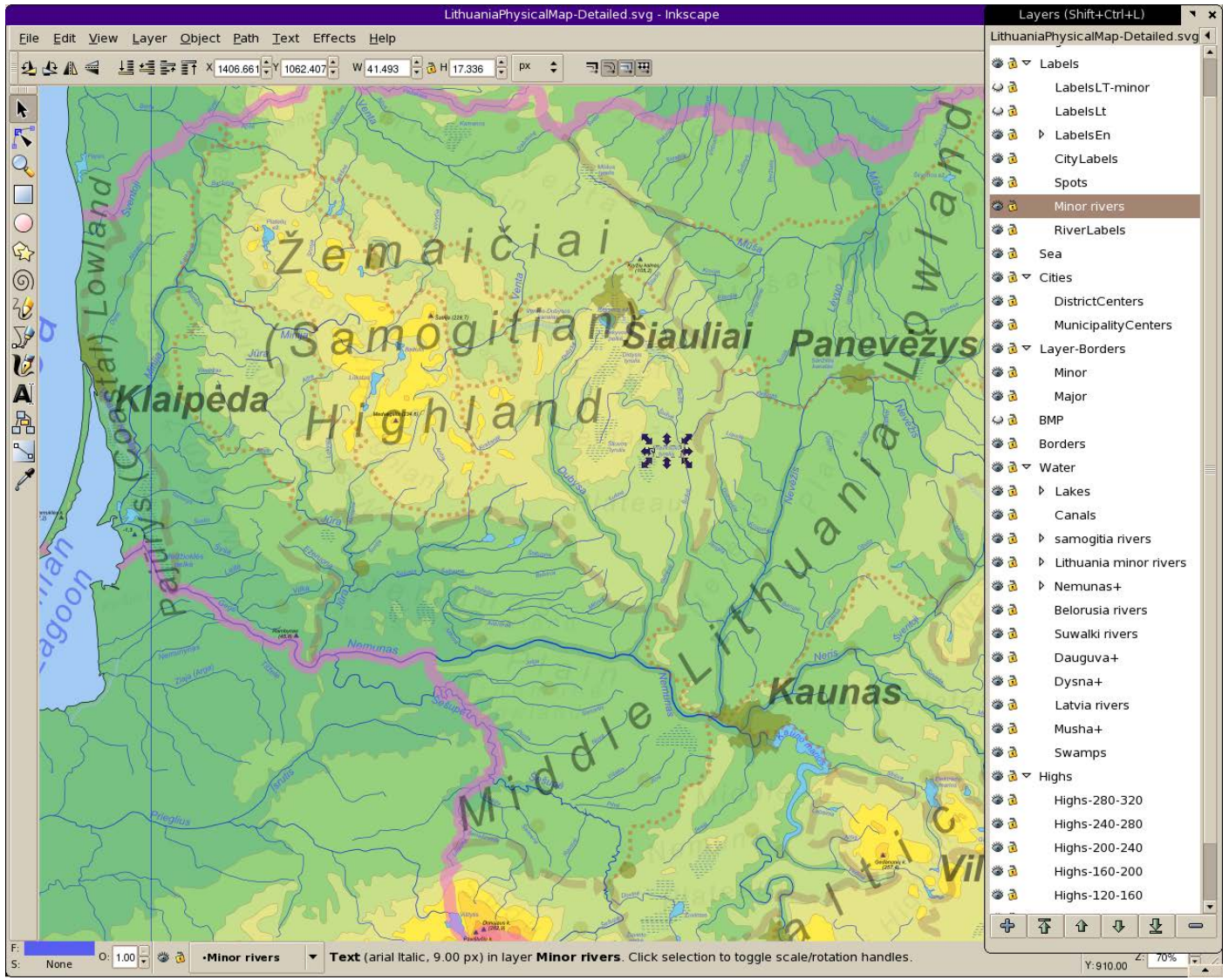
Capabilities

- Native SVG support, raw2 data files can be opened with a web browser
- Import and conversion for many vector formats, e.g. ESRI shape files
- Object creation
- Object manipulation
- Fill and stroke
- Operations on paths
- Text support
- Rendering
- Misc, including export to many formats and conversion to raster

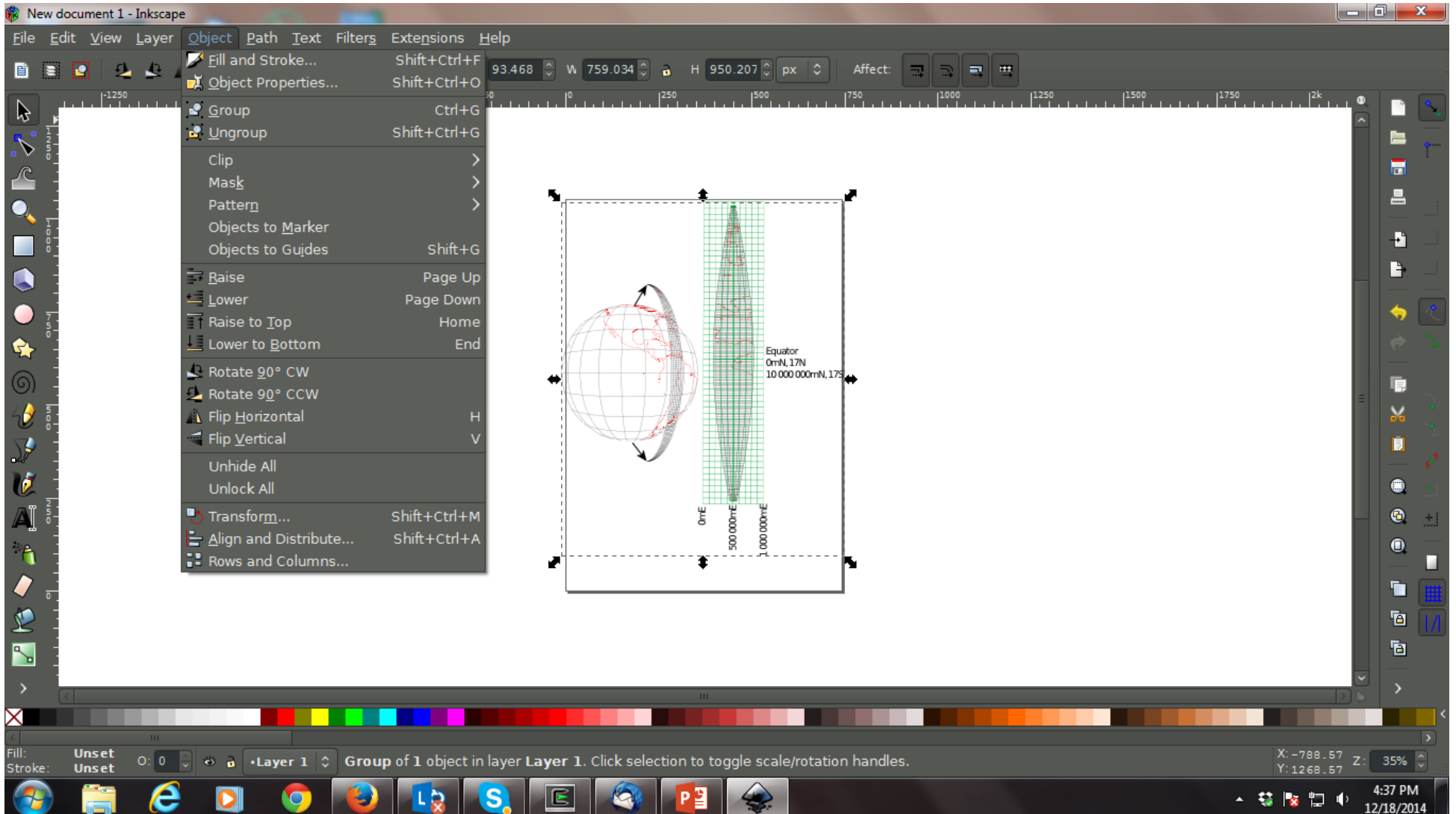
www.inkscape.org



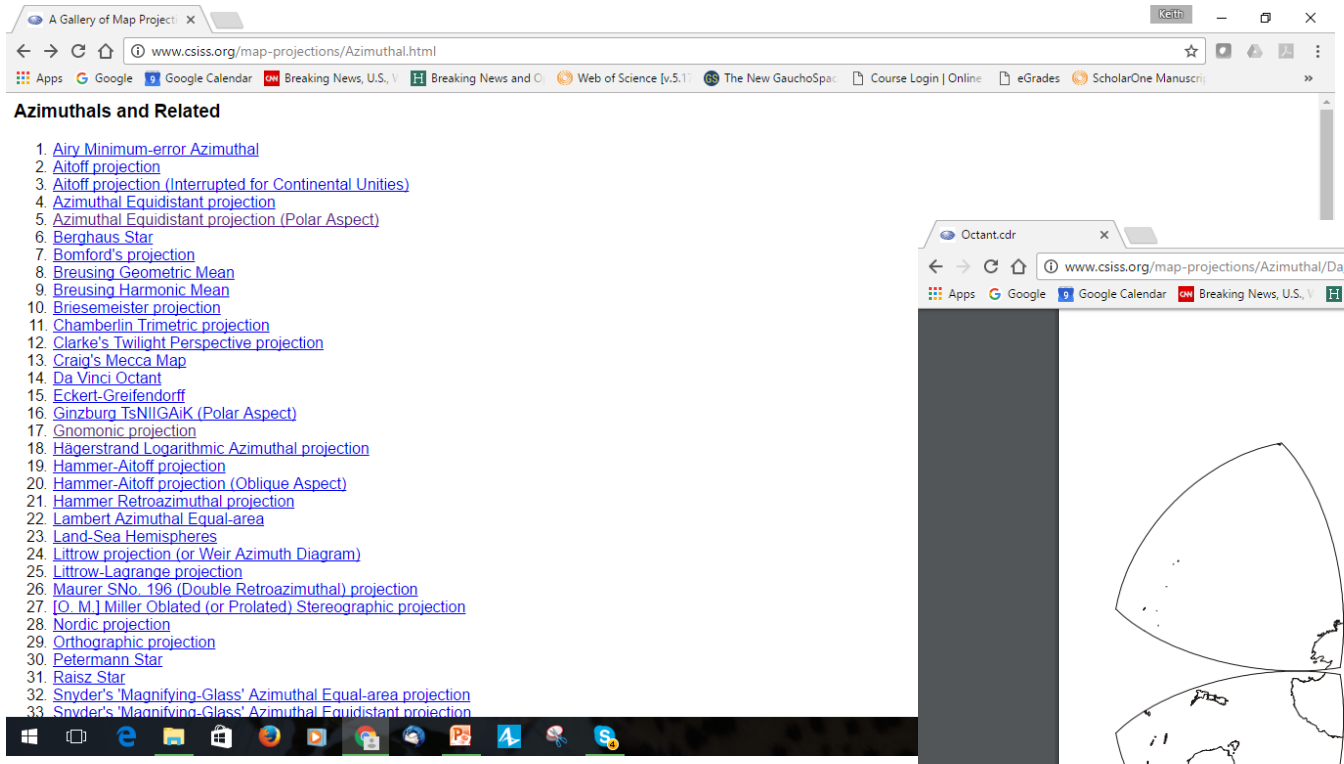
Inkscape cartography

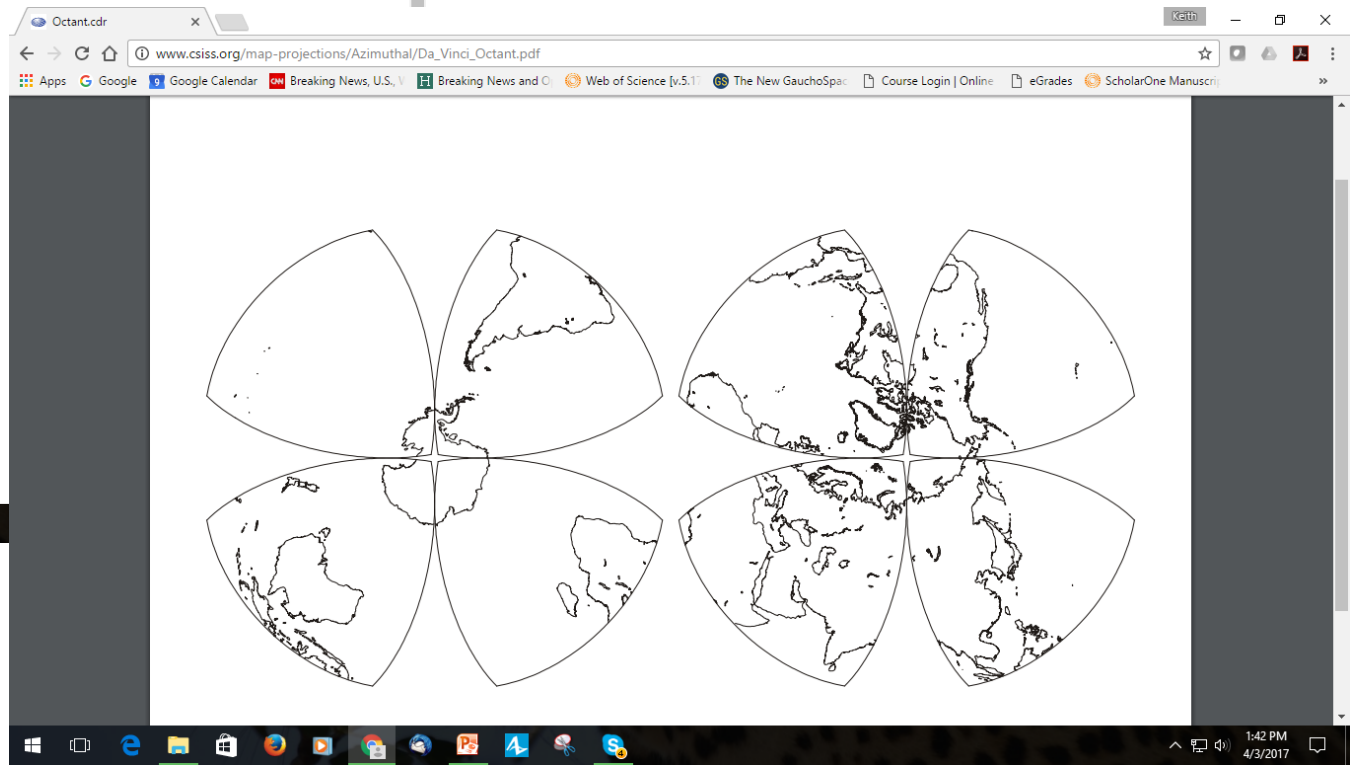


Pullrights, import, group and ungroup objects

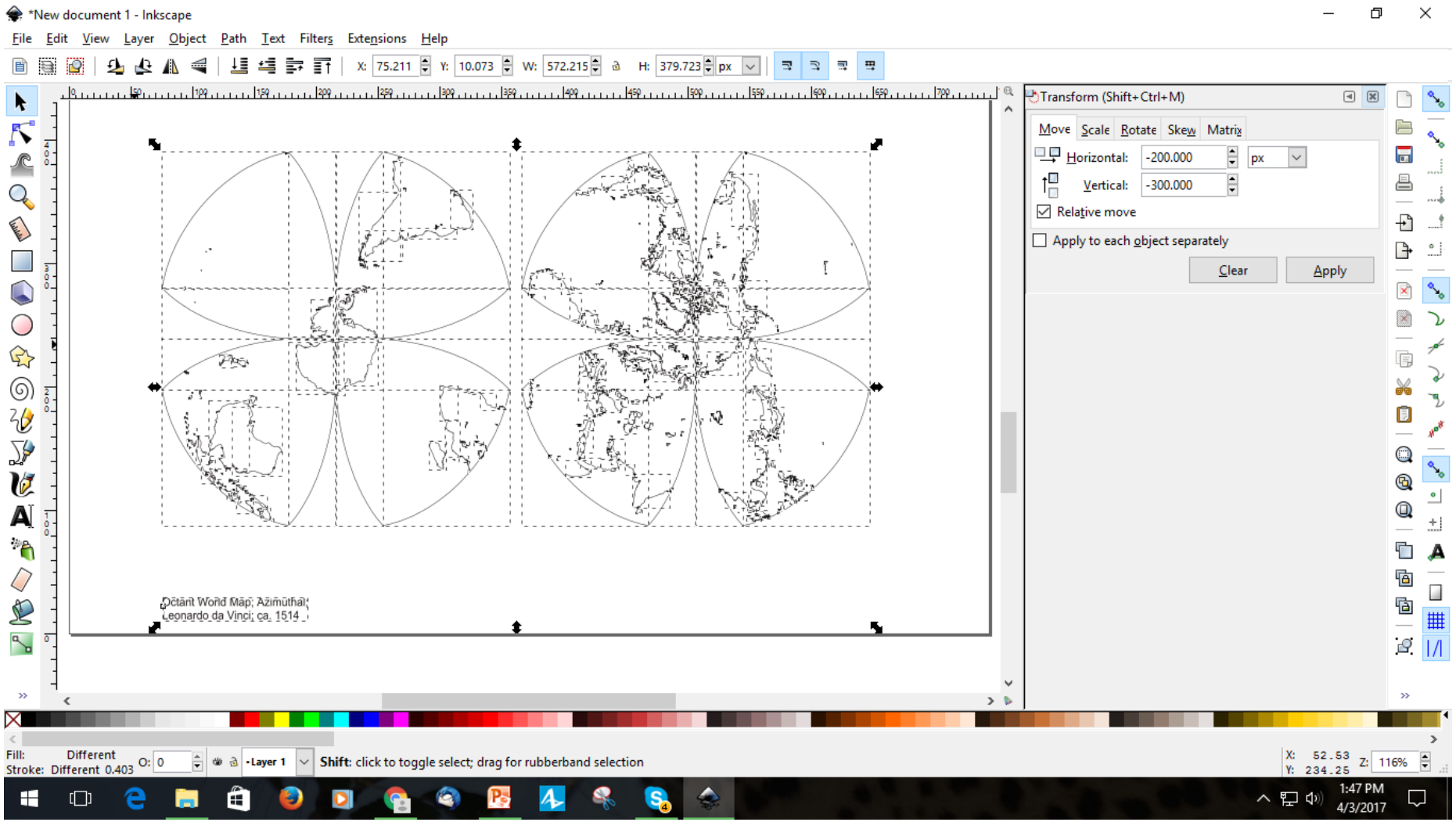


Reads SVG and PDF files as native





Da Vinci Octant: Ungrouped



Bottom line

- Use GIS or other mapping software to create map form, layout and to handle data
- Pass result to editing tools to use the design loop
- Use Inkscape and GIMP
- Better maps through:
  - knowledge
  - skill
  - experience
  - creativity
  - esthetics
  - understanding human vision (first lecture)