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A fresh angle on GIS and mapping  
news from Vermont...and  
the rest of the world



# VGIS News

## Happenings At VCGI

### Data Highlights

*VCGI Staff*

#### Wind Speed Data

Predicted mean wind speed and wind power data was made available for download from the VGIS Data Warehouse in November.

The Massachusetts Technology Collaborative, in conjunction with the Connecticut Clean Energy Fund and Northeast Utilities, commissioned and funded the preparation of Wind Energy Resource Maps for New England. Maps were developed by TrueWind Solutions, LLC and AWS Scientific, Inc.

**VCGI would like to thank the VT Agency of Natural Resources (ANR) for clipping the data to VT, and drafting the metadata.**

#### E911 Data

Another 9-1-1 update was made available in October. This data was exported on 9/15/08. The LANDMARKS layer has been discontinued and the Roadnames.dbf file has not been updated in the "OTHER" dataset (comprised of Esadata.dbf, Esn.dbf and Roadnames.dbf). VCGI is no longer applying any QAQC procedures to the data and it is provided solely "as is".

E 9-1-1 continues the process of simplifying the data structure, that is "flattening" the database, in order to make it more streamlined and straightforward. While the metadata has been updated, VCGI will not be able to put a lot of resources into polishing the metadata further and recode utilities originally used to import the previous coverage based layers until this effort is completed. The timeline for completion is not determined at this time.

Due to budgetary issues, the regularity of data updates is likely to remain biannual or possibly quarterly. Please direct any questions to Mike Brouillette, E-911 Project Manager: [mikeb@vcgi.org](mailto:mikeb@vcgi.org) or 802-882-3008.

# New and Updated Data

*From the VCGI Website*

## New

- **CadastralParcels\_CCPARCELS**, Chittenden RPC Parcel data (town-based)
- **ClimateOther\_WINDPWR50M**, Predicted mean wind power at 50 meter height
- **ClimateOther\_WINDSPD30M**, Predicted wind speed at 30 meter height
- **ClimateOther\_WINDSPD70M**, Predicted wind speed at 70 meter height
- **EconOther\_NMTC**, New Market Tax Credit - Hot zones & qualified County/Tracts
- **GeologicSurficial\_SURFICIAL62K**, Surficial geology data - 1:62,500
- **TransRoad\_RDSTIGER**, Census TIGER road centerlines
- **UtilityTelecom\_CABLE2007**, Vermont Cable Systems 2007
- **UtilityTelecom\_CABLEMOD2007**, Vermont Cable Modem Systems 2007
- **UtilityTelecom\_DSL2007**, Vermont DSL Systems 2007
- **UtilityTelecom\_WISP2007**, Vermont Wireless Internet Service Providers layer 2007
- **WaterOther\_CLASSA**, VT Water Quality Standard's Class A watersheds
- **WaterOther\_PARTA303D**, VT impaired waters - EPA 303(d) list (part A)

## Updated

- **EcologicHabitat\_DEERWN**, Deer wintering areas
- **EmergencyE911\_DW**, Driveways captured for E911 use
- **EmergencyE911\_ESA**, E911 Emergency Service Agency Locations
- **EmergencyE911\_ESITE**, E911 Site locations (buildings, hydrants, public phones, ...)
- **EmergencyE911\_ESZ**, E911 Emergency Service Zone data layer
- **EmergencyE911\_OTHER**, Other E911 databases - tabular
- **EmergencyE911\_RDS**, E911 Road centerlines from 1:5000 orthophotos and GPS
- **EmergencyE911\_SHEETS**, E911 Atlas Map Sheets Boundaries
- **GeologicSoils\_NITRATELI**, Nitrate Leaching Index based upon SSURGO soils
- **LandLanduse\_CCLANDUSE08**, Chittenden RPC Landuse data (2008) - parcel based
- **TransRoad\_RDS**, VTrans Road centerlines from 1:5000 orthos and GPS
- **TransRoad\_RDSMAJ1**, Major road centerlines extracted from TransRoad\_RDS
- **TransRoad\_RDSMAJ2**, Major road centerlines extracted from TransRoad\_RDS

## Chittenden County RPC GIS Data is Now Available On-line!

*Steve Sharp, VCGI*

VCGI has implemented a distributed data distribution architecture which provides users with a single point of access to Vermont's GIS (VGIS) data. This system is referred to as the Distributed VGIS Data Warehouse (Warehouse). The Warehouse consists of several components, including GIS data, a cataloging database, metadata, and data download services. The Warehouse is administered by VCGI, but is supported by organizations who create, maintain, and provide GIS data (e.g.: CCRPC, ANR, VTrans, etc.).

More info here:

[http://www.vcgi.org/dataware/?page=../search\\_tools/linked\\_servers.cfm](http://www.vcgi.org/dataware/?page=../search_tools/linked_servers.cfm)



Mike Brouillette of VCGI Attains GISP Certification from the GIS Certification Institute - A GISP is a certified geographic information systems (GIS) Professional who has met the minimum standards for ethical conduct and professional practice as established by the GIS Certification Institute (GISCI). In order to attain this certification, an applicant completes an application that reflects professional experience, education, and contributions to the profession. Visit the GISCI web site for more information, and remember that the "grandfathering" deadline (which allows the applicant to substitute experience for deficiencies in education and contributions) is January 1, 2009! [www.gisci.org](http://www.gisci.org)

CCRPC is the first RPC to “link” itself into this system. Our hope is that other RPCs will do the same.

<http://www.vcgi.org/dataware/?rpc=CC>

VCGI would like to thank Pam Brangan, CCRPC GIS/IT Manager, for her efforts and willingness to make this initiative a success.

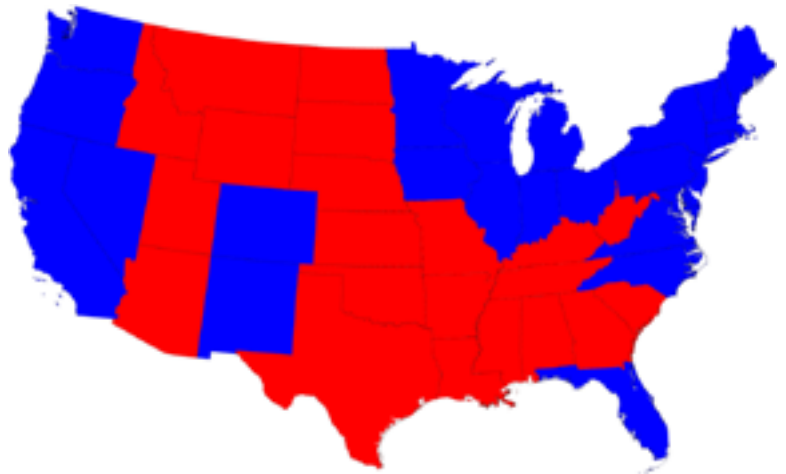
## National Election Results: How Do We Represent Them?

*Mark Newman, Department of Physics and Center for the Study of Complex Systems,  
University of Michigan*

*From: <http://www-personal.umich.edu/~mejn/election/2008/?map>*

Most of us are, by now, familiar with the maps the TV channels and web sites use to show the results of the presidential election:

The states are colored red or blue to indicate whether a majority of their voters voted for the Republican candidate, John McCain, or the Democratic candidate, Barack Obama, respectively. Looking at this map it gives the impression that the Republicans won the election handily, since there is rather more red on the map than there is blue. In fact, however, the reverse is true – the Democrats won by a substantial margin. The explanation for this apparent paradox, as pointed out by many people, is that the map fails to take account of the population distribution. It fails to allow for the fact that the population of the red states is on average significantly lower than that of the blue ones. The blue may be small in area, but they represent a large number of voters, which is what matters in an election.



We can correct for this by making use of a *cartogram*, a map in which the sizes of states are rescaled according to their population. That is, states are drawn with size proportional not to their acreage but to the number of their inhabitants, states with more people appearing larger than states with fewer, regardless of their actual area on the ground.



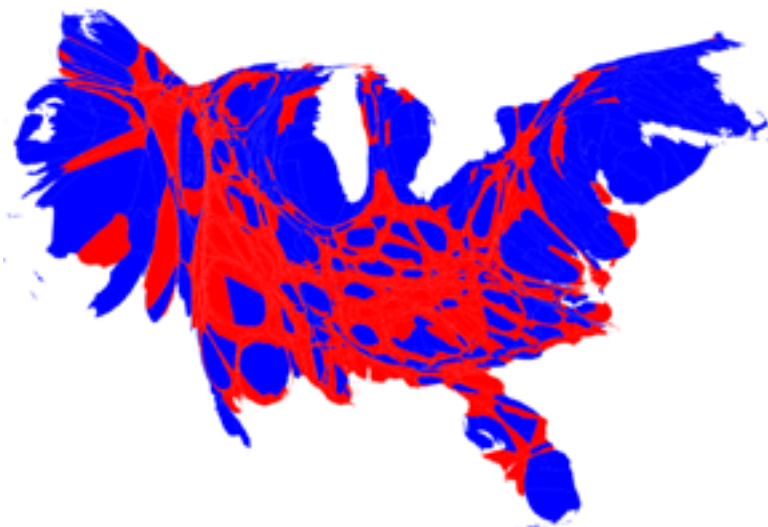
Here are the 2008 presidential election results on a population cartogram of this type:

The presidential election, however, is not actually decided on the basis of the number of people who vote for each candidate but on the basis of the [electoral college](#).

We can represent the effects of the electoral college by scaling the sizes of states to be proportional to their number of electoral votes, which gives a map that looks like this:

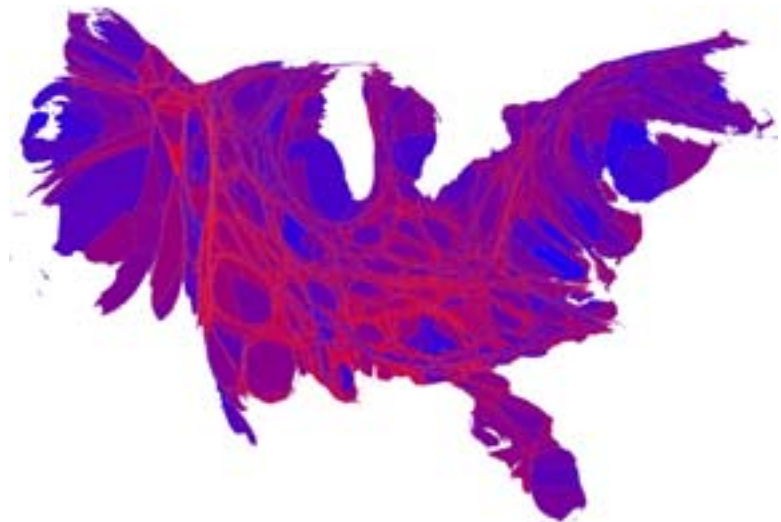


Here is what the cartogram looks like for the county-level election returns:



One way to improve the map and reveal more nuance in the vote is to use not just two colors, red and blue, but to use red, blue, and shades of purple in between to indicate percentages of votes.

And here's what that cartogram looks like:



More on cartograms in the next VGIS News (February)!

# Voices From All Sectors

## Transportation Notes

*Sara Moulton, VTrans*

The Year 2008 Town Highway Maps have been completed. There are 79 new maps. We generated new maps only for the towns that reported changes during the 2008 Mileage Certificate process. The maps from the years 2003-2007 are still valid for the towns that did not have changes.

The PDF version of these new maps can be accessed through the Mapping Unit website at:  
[http://www.aot.state.vt.us/Planning/mapgis/town\\_maps1.htm](http://www.aot.state.vt.us/Planning/mapgis/town_maps1.htm)

The changes incorporated into the maps are detailed in the "2008\_AllChanges" document located at:  
[http://www.aot.state.vt.us/Planning/Documents/HighResearch/Publications/2008\\_AllChanges.pdf](http://www.aot.state.vt.us/Planning/Documents/HighResearch/Publications/2008_AllChanges.pdf)

The following is a summary of some of the changes that have been made in the production of the Town Highway Maps in 2008.

### STRUCTURES

All the State Long, State Short and Town Long structures have been labeled. Previously, only selected structures were labeled and were identified by the prefixes "B" or "CB". "B" could refer to either a bridge or a culvert. ("CB" referred to a covered bridge.) We added the use of the prefix "C" and now differentiate whether the structure is a bridge "B" or a culvert "C".

Town Short structures were not shown on the 2008 Town Highway Map series. The data about Town Shorts that we were using for previous town highway maps had not been field checked for about 20 years. The VTrans Structures Division routinely reviews Town Longs, State Shorts, and State Longs, but does not include Town Shorts in the inspections. We are reviewing the Vermont On-line Bridge and Culvert Inventory Tool (VOBCIT) data (<http://apps.vtrans.vermont.gov/BridgeAndCulvert/Login.aspx?ReturnUrl=/BridgeAndCulvert/Default.aspx>) to determine if it can suitably fill the data gap and be used in next year's town highway map series.

### SURFACE WATER

We changed our data source for surface water and starting using VHDcarto for both polys and arc. The data layer we were using before was very coarse and cartographic. VHDcarto is spatially more accurate, but there was a lot of interference of the streams with the mileage annotation. Rather than add the maintenance of this data layer to our duties and modify it to accommodate the mileage annotation, we decided to depict only the named streams.

### FOR GIS FOLKS

The VTrans road centerline data layer (TransRoad\_RDS) that was posted at the Vermont Center for Geographic Information (VCGI) in July 2008 included the changes submitted by the towns earlier this year on their Certificates of Highway Mileage.

During the course of producing the maps, several subsequent changes to various road centerlines throughout the state were made. Those changes are reflected in the road centerline data layer that was posted at VCGI on November 6.

Please let me know if you have any questions: Sara.Moulton@STATE.VT.US, or 802-828-2109.

# The Road to GIS

*Don Varney*

I have always had an interest in maps. About twenty years ago I moved to a house in the rapidly developing countryside in Southeastern Massachusetts. There was a bookstore in the nearby city that sold topographical maps and on a lark I bought one. I located my house but unfortunately it was in the lower corner of the map - which meant I had to buy three more maps to make the square around my house complete. Except - with all the interesting information about old cemeteries, forgotten trails, and back roads to get from here to there, I had to get another block of them. Ultimately, I built a wall sized frame backed with luan plywood and wallpapered them all on to form a giant map that covered a good twenty miles around my house. I loved to stare at that map and plot new ways to reach common destinations and to find old forgotten places recorded on the map. As an added bonus, I could predict changes in the weather by the way the thin plywood with paper pasted on it warped as the humidity changed.

By that time I had already been an IT professional for ten years and had spent a lot of time programming and learning about data and the ways of storing and organizing it. I loved it and I was good at it and I have made a good living from it ever since. In the mid nineties, business in the area crashed and I found myself uprooted and replanted in Vermont. Except for the neat map of Barre and Montpelier that you could get for free in various places, my map interest lay dormant.

A few years ago, a friend of mine showed me a GPS receiver attached to his IPAQ. We went for a ride in the car and he demonstrated how it could navigate us from place to place with spoken directions. I was stunned and I tried to think of a way to rationalize getting one.

## VT's Electoral Power!



This map shows each state re-sized in proportion to the relative influence of the individual voters who live there. The numbers indicate the total delegates to the Electoral College from each state, and how many eligible voters a single delegate from each state represents.

[http://www.nytimes.com/interactive/2008/11/02/opinion/20081102\\_OPCHART.html](http://www.nytimes.com/interactive/2008/11/02/opinion/20081102_OPCHART.html)

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## Other Cool Stuff

**NYT Musings on Modern Mapping** - "...What we gather in maps is shared information, and what we take from them is, so often, personal. And that is their beauty, whether they are digital and overlaid with information or flat."

[http://www.nytimes.com/2008/11/12/opinion/12wed4.html?\\_r=1&ref=opinion](http://www.nytimes.com/2008/11/12/opinion/12wed4.html?_r=1&ref=opinion)

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**Cool Uses of Google Maps** - "...To find out what I don't know that I want to know. One of the features of the My Maps area of Google Maps is the ability to see user-generated overlays for whatever area you are currently viewing."

<http://www.batesinfo.com/sept-2008-infotip.html>

Unfortunately, I am practical as well as geeky and just couldn't do it so I settled for a 1:100000 topographical map of Montpelier that I hung on the wall and looked at from time to time.

I had heard about geocaching a couple of times but didn't know much about it. One day, just before Christmas 2007, I was bringing a refurbished computer to a friend who wanted to give it to her nephew for Christmas. She wasn't there but her husband was and he started telling me about geocaching and how much fun it was and how he liked it as much as hunting (which amazed me). This went on for about an hour and then my friend and her brother arrived home and took up the sermon. I left a changed man – determined to give it a try. I asked to go along a few times but our schedules never synched up. When tax time came and I got my refund, I researched and bought myself a Garmin and I've been geocaching and loving it ever since. That sounds like the end of the story – cute eh? The geocaching site ([www.geocaching.com](http://www.geocaching.com)) offers members a query function to help filter the kinds of caches you want. It was basic SQL query stuff and I began writing little filters to target specific groups of caches that I wanted to find. I learned I could export gpx (xml) files to my Garmin and to my Ipaq. Looking at the raw xml intrigued my programmer side but I didn't know what to do about it.

Another part of geocaching is hiding caches. Unfortunately, since the sport has been around for a few years, all the easy and nearby places have been taken. What to do? Google maps is integrated into the geocaching site so I began displaying caches overlaid on Google maps and then zooming in looking for areas where no caches had been placed. By switching the view to satellite, I could see if my target area was developed. By switching to terrain view I could see if I was going to have to hike up mountains. As good as Goggle maps was, it was frustrating not to be in real control of it. I did learn how to export a KML file from Google earth and use it to plot geocaches along a route. It was a convoluted process but the results were intriguing – plotting a search along a specific route for hundreds of miles within specific parameters (caches of a certain degree of difficulty, of a certain type, with a certain distance of the route). I was thirsty now.

I began to make additional inquiries into maps – the town highway maps on the state website in pdf format are quite handy although they lack street names. If only I could overlay the data somehow. I was sure it could be done. I started searching Amazon for books on maps and cartography. The first two I ordered turned out to be children's books. Oops! I noticed the letters GIS but I was still looking for "cartography" and I didn't realize what GIS meant. Somewhere I finally stumbled upon Global Information Systems and the buzzer went off and the lights went on. I've gotten my hands on a copy of GIS Fundamentals by Bolstad and am working my way through it. I've signed up for GIS On Pennies A Day at UNH in December. What I've learned so far suggests that I could learn to manipulate various data sets to produce maps to support both my hobby and my general interest in maps. With 28 years of computer experience, and plenty of equipment at hand, I'm hoping that the learning curve won't be as steep for me as for someone that has to learn all the GIS terminology as well as the computer support skills. Time will tell.

I'm not sure where this will take me but I've enjoyed learning technical things all of my life. The chance to combine computers and maps with the added seasoning of geocaching is a meal too enticing to ignore. I'm looking forward to learning enough to be able to attend conferences and speak to the professionals and understand the many applications of GIS that are still beyond my grasp at the moment. What an exciting area to be in today as the limitations of computing power drop away and the projects not possible ten years ago become doable today. Who would have thought my giant topo map of twenty years ago would lead me to study GIS today?

*Editor's Note: I would love to turn this into a regular column if others are interested in sharing their "road to GIS!"*

# VSDP News

## January Roundtable Planned

*Leslie Pelch, VCGI*

The Next Roundtable will take place on Wednesday, January 7 at VT Technical College in Randolph. Please visit the VSDP web page ([www.vcgi.org/vsdp](http://www.vcgi.org/vsdp)) for the schedule and registration form (due Dec. 30). Here are the topics that will be presented:

- Remote Sensing Data: what is available, what is coming soon, which to use
- Mapping Wildlife Habitat Blocks in the Upper Valley; Community Values, Connectivity, Representativeness, & Uniqueness
- GIS for Farm Management
- Scared of the Geodatabase? An introduction to personal and file geodatabases
- The Intersect between Surveying and GIS mapping - An Open Discussion
- Integrating GIS Education and Community Needs – Evaluating the Results
- The Impact of Web-based GIS Technology
- Regional and Municipal GIS Projects Around the State
- Open Source Web GIS - Serving up mapping data using open source tools
- Assessing the Risk of an Invasive Species at Vermont's National Park
- Data Storage Options - What's Right for You?
- State GIS Projects

## Mystery Map Contest

May's mystery map showed mines, extracted from the Geonames data layer. Congratulations to Nathan Dansereau of CVPS!



What do the shaded towns above have in common? Please submit your responses to Leslie at [lesliep@vcgi.org](mailto:lesliep@vcgi.org) or at the address given on the back page of the newsletter. The winner, drawn from among the respondents who send in correct answers, will receive his or her choice of data CD: Starter Kit, Soils, NAIP 2008 (!) or Topos.

# The VGIS News is Produced by:

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VT Center for Geographic  
Information, Inc.  
58 South Main St., Suite 2  
Waterbury, VT 05676  
802-882-3000  
[www.vcgi.org](http://www.vcgi.org)