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While the collection, assessment and adoption of citizen-generated data is by itself an interesting problem, one of the more challenging drivers of this situation is the growing league of user-friendly applications and citizen-developed software that is advancing this process. Whether it is custom virtual basic applications, the downloaded GoogleEarth program or the customizable Google Map APIs, these programs are unleashing a significant energy that is amassing a publicly accessible mountain of spatial data and information. Like the related PPGIS applications, it is hard to find an appropriate balance of caution and creativity that is required to experiment with these new applications without taking significant risks.

This position paper offers three different cases that serve as a basis for discussing somewhat unusual directions from which my understanding of Volunteering Geographic Information (VGI) is drawn.

Example: Vernal Pools in NJ

The Center for Remote Sensing and Spatial Analysis (CRSSA) at Rutgers University worked with the NJ Department of Environmental Protection to develop an IMS application tracking potential Vernal Pools throughout the state. The initial list of roughly 13,000 vernal pools (generated through analysis of remotely sensed images and other spatial data) was shared publicly by CRSSA on an ArcIMS site so that 100+ citizen scientists could visit the suspected vernal pools during the short spring season and verify their status. An educational process was established through which volunteers could be trained and formally certify creating a higher level of reliability, with NJ DEP biologists subjected submissions to a quality check. With 3,000 sites surveyed after years of work, the end remains a distant goal. Limited funding for training along with the rigor asked of volunteers and the difficulty of reaching the remote sites are all likely contributors to the slow advance of the project. (<http://www.dbcrrsa.rutgers.edu/ims/vernal/>)

Example: CommonCensus.Org

While the data collected are closer to personal attitudes than attempts to collect scientifically-valid data, CommonCensus has employed custom-written coding strictly authored by its developer to map tens of thousands of Internet-user responses. His homemade maps (left in LatLong because projections are hard to code from scratch) show the urban areas with which local residents most closely identify.

I wrote about this (Tulloch 2007) describing the changes it represents within a framework examining empowerment:

“It is quite telling that an individual can single-handedly develop such an interface and collect these data from over 40,000 participants (while living thousands of miles away) without the *imprimatur* of a geography degree or the support of an NGO. Allowing this massive audience to actively participate in the collaborative mapping of boundaries for their landscapes is an act of empowerment. In some ways this map serves as a direct critique of the existing invisible political boundaries that so few of these respondents recognize as their own. As an Internet tool, CommonCensus is an innovative creation for direct expression of personal opinion and identity that would otherwise be hard to translate into a meaningful spatial representation.”

Example: Second Life at Landing Lights Park

The popular interactive video game, Second Life, has inspired a different sort of public input which could serve as a model for other forms of grassroots spatial data collection. A member of New York City's Queens Community Board, Tom Lowenhaupt, wanted to get community input of ideas for designing a park at the end of the runways for LaGuardia Airport. A special virtual arena was created in Second Life that was a 1/5 scale model of the park space and surrounding buildings – an especially nice touch are the models of the “landing light” towers that lend the park its name -- where avatars could go and use special tools to design a virtual park as an expression of their vision for its future. The arena included a variety of maps and information for visitors less familiar with the site, and it provides spaces for discussing the maps or alternative designs.

The parallel for VGI is that these park design volunteers were working on a small map and locating objects where they wanted in a manner that is not very different than if they had been marking sites of illegal polluters or places where they had spotted suspected endangered species. The ability to

conduct virtual presentations and discussions about the submitted materials in this environment creates additional opportunities for volunteers to help filter or assess the information that is being volunteered. However, participation requires users to navigate through Second Life which is both a benefit and a concern:

“Unlike traditional participatory design methods, like workshops or focus groups, participatory design in Second Life is much less constrained by geography while more limited generationally.” (Tulloch 2007)



Where is this going?

These examples highlight both potential successes and failings of VGI-based efforts. The vernal pools project demonstrates how barriers to participation can quickly limit contributions. The Second Life example raises a concern that only youth and young adults will be actively engaged in the gaming environment that is required for participation. It seems possible that almost any computer-based or Internet-based volunteer effort will get its highest participation from either the technologically friendly youth or perhaps older citizens who have significant leisure time.

The wide open access and participation in the CommonCensus project has left it exposed to deliberate efforts to bias the outcomes, while the vernal pool project has demonstrated how the process can be slowed by barriers to participation. It appears that an easy process like that at CommonCensus.org allows participation for those motivated by only casual curiosity in contrast with the vernal pools project where participants are much more likely to be active conservation advocates and nature lovers.

The question about motivation is key: Michael Lewis (2001) suggested that popular Internet phenomena are less a hijacking of people's time than an indication of something larger that participants found lacking in their lives. Collecting data, giving input to a project, or searching for Steve Fossett's plane online are often a way to fill that void. Unfortunately, some of the Internet applications that entice users are less valuable to society or researchers -- one of Lewis' examples included a teenager who discovered ways to manipulate stock values.

The motivations are difficult to track but there are some potential motivations that would be a concern: Are the participants changing the outcome for a specific purpose? Advancing a field for personal gain? Hoping to become famous? Will they keep working if some of their points are discarded and their attributes are heavily edited? It remains unclear whether VGI is sufficiently rewarded in exchange for the volunteerism or what the ethical obligation for that rewards should be.

References

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