



VOLUNTEERED GEOGRAPHIC INFORMATION

IN JIM BAUMANN'S THIRD 'THOUGHT LEADER' INTERVIEW,
HE MEETS PROF. MICHAEL GOODCHILD

Michael F. Goodchild is professor of geography at the University of California, Santa Barbara; chair of the executive committee, National Center for Geographic Information and Analysis (NCGIA); associate director of the Alexandria Digital Library Project; and director of NCGIA's Center for Spatially Integrated Social Science.

Baumann: Gazetteers have traditionally been essential in the collection and distribution of geographic information. There is a groundswell of participation in Web-based social network sites that contribute volunteered geographic information (VGI). These can be viewed as asserted gazetteers in what might be described as the democratization of geographic data. Please discuss what the GIS community gains (and loses) from this phenomenon.

Goodchild: Although gazetteers (the names layer) are important for many reasons, and increasingly so, they have never included more than the officially recognized names that appear on maps. Names that are not officially recognized, such as "downtown Santa Barbara," and names that are meaningful to local communities, such as "the Riviera" [the hilly area of Santa Barbara north of downtown], do not appear in any gazetteer. This limits many applications, for example, making it difficult to build GPS navigation systems that recognize the full range of place-names that people need to use. Moreover, the official mapping agencies are not likely to invest in adding such names to their gazetteers anytime soon. However, place-names are one of the most successful forms of volunteered geographic information, and people are clearly willing to spend time providing them to Web sites. Volunteered gazetteers can provide much richer descriptive information than before; allow features to have multiple names; and include names for the smallest, least significant features. What do we lose by relying on volunteered place-names? I think one major problem is lack of accuracy, whether by accident or design. But a

more significant problem concerns preservation. National mapping agencies can devote significant resources to preserving place-names, ensuring that future generations have access to today's data, but no such mechanisms exist for volunteered geographic information. Once the initial enthusiasm has worn off, who will undertake the tedious task of updating and preserving?

Baumann: Do you see asserted and authoritative spatial data working together, in parallel, or in opposition to each other? Please explain.

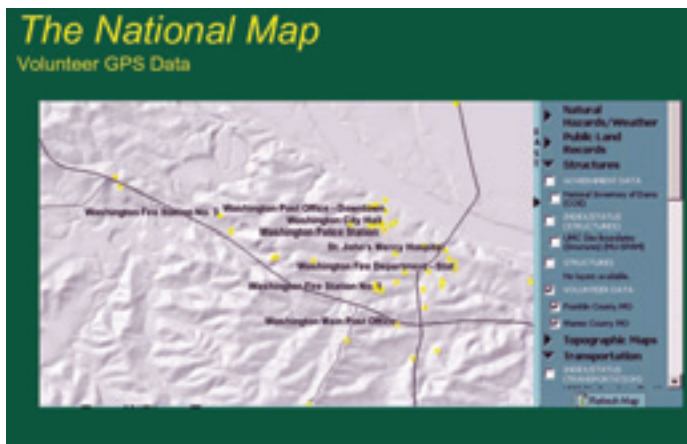
Goodchild: I think the best option is to make them complementary, and there are already signs that the traditional authorities are willing to work with citizens. In the UK [United Kingdom], for example, the Ordnance Survey has developed a program that encourages volunteers to provide geographic information about their local communities, and volunteers are playing an increasingly important role in ensuring that authoritative sources of geographic information are accurate and kept up-to-date.

Baumann: What role does VGI play in societal GIS? How will it help shape the evolution of GIS?

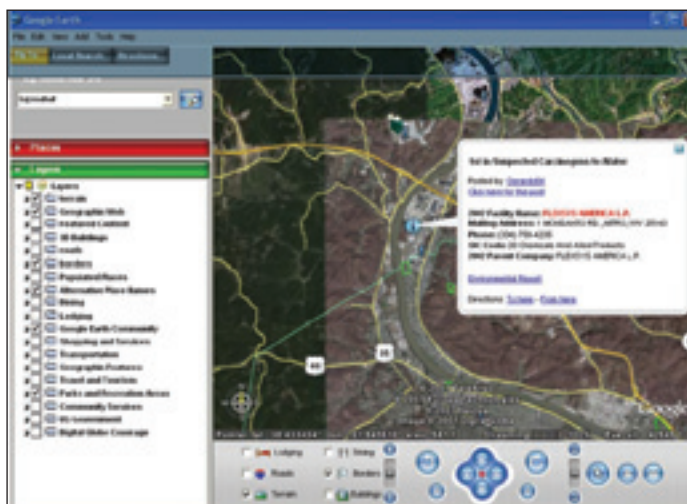
Goodchild: One of the criticisms leveled at GIS has been its insistence on a single point of view. VGI is, in a sense, postmodern GIS, in which individuals are able to assert their own views of their surroundings and play a part in local decision making. Another criticism was the tendency of GIS to empower those who could afford its high costs and marginalize those who could not. I think that by engaging citizens in the process of acquiring and using geographic information, VGI has the potential to alter this landscape significantly and soften some of these criticisms.

Baumann: While Wikimapia has genuine potential, it seems to be populated with some information that is not particularly useful or interesting. However, I do think that it can be a valuable resource.





VGI for the US The National Map project led by USGS



Google Earth as a prime example of presenting VGI to the world. Image from a presentation by David Tulloch, Rutgers University

For example, obscure yet relevant information that might otherwise be lost could be posted and contribute to our collective body of knowledge. You mentioned in your Citizens as Sensors discussion that you think the benefit of sites like Wikimapia will be in the compilation of local data. Please expand on this observation.

Goodchild: Wikimapia demonstrates what is possible in a general sense, but I think the eventual value of sites like Wikimapia will be much more specialized. I'm thinking of local community groups and their need to acquire and share descriptions of their communities for specific purposes such as planning; networks for hobbyists who need to acquire and share highly specialized geographic information; or sites that might be developed by local communities to provide information for tourists.

Baumann: Marshall McLuhan's view of the Global Village is often used to describe the World Wide Web. What is required to nurture a problem-solving geospatial initiative on the Web that would take a leading role in our virtual world community?

Goodchild: Geospatial data and tools are essential in almost everything we do as humans, and over the past few years they have become accessible to virtually all of us on the well-endowed side of the digital divide. We have seen volunteer initiatives, such as MapAction and the GISCorps, playing an important role in disaster response and other volunteer activities that are providing open sources of basic map information in communities that have never previously had access. I think the most significant new opportunity lies in the fact that a substantial fraction of the human population now has access to mobile phones and, hence, to electronic networks. I think mobile phones could be used to acquire and share damage assessments in the immediate aftermath of a disaster and to develop detailed databases for community planning. Project GLOBE has already shown the potential for empowering schoolchildren worldwide as environmental sensors; a new initiative, sponsored by a major foundation,

could explore the potential of a much more powerful and comprehensive approach that would reach beyond the digital divide.

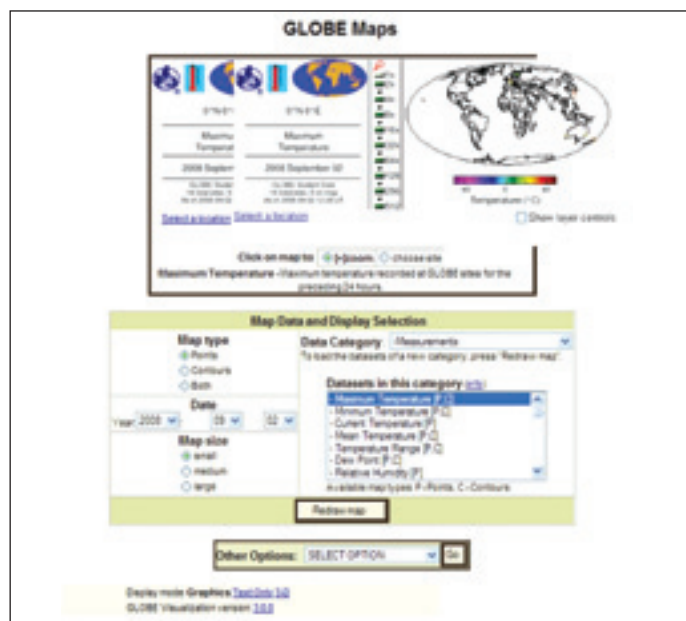
Baumann: "The bad invariably pushes out the good" is an axiom that has been applied to various disciplines. How true do you think that is in VGI-based initiatives as far as the quality of data? What about the efforts of individuals or groups to subvert, either consciously or simply through a lack of attention, VGI-based projects? For example, you mentioned in your Citizens as Sensors discussion a nonexistent café that was geographically referenced to the park in front of the Santa Barbara mission.

Goodchild: The experience of Wikipedia seems to be that accurate, large-scale information resources can be created from volunteer action. Wikipedia's accuracy varies and is most problematic for the more obscure entries that are not accessed very often. Similarly, I think VGI will be most accurate when it concerns the largest, most prominent, and most important features on the earth's surface. The message in my example of the nonexistent café is that such errors are particularly obvious when the information is geographic, because they conflict with the feature's spatial context. Wikipedia relies on volunteers with specialist knowledge to monitor information; a similar approach to geographic information that relied on local specialists could work very well to clean out errors.

Baumann: You indicate that "computerization carries authority per se." This perceived authority has been ascribed to other forms of mass media including print and broadcast journalism. The Fourth Estate refers to the press and its ability to both function in the role of advocate and shape public opinion. Do you think VGI and other public mapping efforts play a similar role? When considering the pitfalls of these efforts, Google's controversial post-Katrina imagery of New Orleans springs to mind.

Goodchild: Yes, I think there is a tendency to believe what one discovers on the Web, whether the source is authority or assertion. Bad information can always be dressed up to look good. We usually think of metadata as the mechanism for resolving such problems, but asserted sources rarely carry any metadata. Somehow, we need to convince sources such as Google that providing simple metadata, such as the date of acquisition of imagery, would be in everyone's interests.

Interview conducted by Jim Baumann, who writes about international GIS-related topics for ESRI. He has written articles on various aspects of the computer graphics industry and information technology for more than 20 years. E-mail: jbaumann@esri.com



GLOBE Maps from the GLOBE Programme, in which students from registered schools can add their own data to the available maps in a number of disciplines