

Impact of Digital Globe Technology on Traditional GIS

A Review of Commonplace Study and Observation

A Geographic Information System (GIS) is a computerized system which allows for spatial analysis of geographic information. GIS has the ability to answer spatial questions like: *Where might a company build a major highway so that it is at any point 600 feet away from any streams, .5 miles from major residential areas and 3 miles from national parkland?* Tedious transparency overlay of spatial information was the mode of this kind of “spatial analysis” until the high technology era produced GIS programs like ESRI’s ArcGIS-ware, which dominates the GIS market with an iron fist. The complicated nature of these programs forces product training on anyone who wishes to utilize them in analysis, which undoubtedly as lead to a sense of GIS professionalism and elitism within spatial studies.

The 2004 release and rapid popularization of Google Inc.’s Google Earth, the free digital globe, may have encouraged a whole new kind of spatial analysis; that which *anyone* is a participant. How might the Google’s digital globe technology impact traditional GIS methods of spatial analysis? This paper seeks to discover what literature has been produced on this topic by: establishing basic information on the purpose and nature of GIS and a digital globe; listing various issues which have arisen from both technologies; considering what the future looks like for development at either end. Since formal scholarly work could not be found regarding this very recent issue, this paper relies on the comments and opinions of other experts; the users.

Background of Respective Technologies

GIS-

A Geographic Information system is “a computerized system (hardware and software) designed for the storage, retrieval, management, analysis and display of information attached to geographic locations” (Yapa, 253). The science at the core of these systems is Geographic Information Science which is recognized and taught by universities globally. GIS can be utilized to create simple town maps, analyze the spread of pollution into ground wells, identify land areas prone to landslides, or calculate which neighborhoods see the highest instances of violent crimes; all because it can efficiently organize attribute information of places and describe them as different visible map layers.

Google Earth-

Digital Globe Technology has arguably been popularized by the Google Earth program, although the concept of a digital globe is much older than this single product (Butler), but as its brand is what many associate with the term, it will remain the primary example in this review. The downloadable program displays spatial information obtained from remote sensing, like satellite imagery and aerial photography on a 2.5-D globe (meaning an object is being projected in two dimensions but intuitively processed in three). It borrows from GIS technology in that point and line objects make up selectable layers like political boundaries, restaurants, and roads. It also incorporates the basic tools of GIS, as it allows users to zoom, pan and search for attributes (names, coordinates, etc) of places.

Issues and Concerns

GIS-

GIS as a science, as well as a program has attracted a fair number of concerns. As a science, and ultimately a profession and livelihood for many people, it remains difficult to understand without specific instruction in geography, spatial analysis, programming, cartography, statistics and social theory. Actual GIS programs, like ArcGIS, require years of training to become proficient. These factors contain GIS to a group of people with a highly specialized skill set. Adding to this idea, an article from The University Consortium for Geographic Information Science brings to light the ethical and legal issues which arise from the pricing mechanisms controlling GIS programs and critical spatial data (GIS and Society). Mainly that the high costs in both of these areas help to limit public participation. A local newspaper wanting to visualize its distribution for future growth cannot afford the multiple thousands of dollars required to purchase ESRI products, nor is it economically relevant for them to train an employee to use the software. As this might be a query that push-pins on a wall map just can't tackle (think: showing distribution change over time or proposed change with the addition of a new residential development), the newspaper would outsource this project to a local geospatial business and thus resort to a specialist.

Google Earth-

While the geographic community realizes the many technical shortcomings of Google Earth (limited map projection, altitude inaccuracies, out of date imagery,