
Introduction

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Biographical notes: Maurie Caitlin Kelly is the Director of Informatics at the Pennsylvania State University Institutes of Energy and the Environment. She has worked in the fields of government information policy, information access, and geospatial information sciences for over 20 years and currently directs the geospatial data clearinghouse for the Commonwealth of Pennsylvania, PASDA. In addition, she teaches courses in information science and technology, international business and policy, and management.

Bernd J. Haupt is a faculty member at Penn State University. He received his PhD from Kiel University in Oceanography, Marine Geology, and Meteorology in 1994. He has sailed on numerous research cruises throughout the world including the North Atlantic, North Sea, Baltic, South China Sea and Mediterranean. He has published many articles, served as co-editor of the book *The Oceans and Rapid Climate Change: Past, Present, and Future*, and regularly speaks at conferences. He lectures on oceanography, meteorology, and world geography and was awarded the 2012 Penn State Altoona College Outstanding Lecturer Award.

Despite decades of serving primarily only subject matter experts, geospatial information sciences (GIS) and related technologies have exploded into the public realm with help from services such as Google Earth and MapQuest. It has now become commonplace to consult a Garmin navigational system, to view images on Google Earth, and to map a route to your next vacation. Hand held mobile devices and ‘apps’ have driven GIS technologies even deeper into the consciousness of the average citizen who ‘checks in’ on the location-based social media service *foursquare* or follows the social media conversation in an area of their choosing through the new app *What’s Shakin’*. Such eye candy often hides the complex nature of geospatial technologies and the ongoing efforts to enhance access to data, to more intelligently mine and capture multifaceted datasets that provide the fuel that drives the engines of climate modelling, geographic analyses, and spatio-temporal research in fields as diverse as anthropology, architecture, hydrology, and civil engineering.

However, location-based services and GIS-based technologies have benefited from the influx of the social media savvy. For example, rescue efforts immediately following the earthquake and tsunami in Japan in 2011 were greatly enhanced by the development of a Ushahidi, an open source web-based software platform that allows users to upload information via mobile devices such as I-Phones. The Japan earthquake Ushahidi web mapping site was set up within hours of the disaster providing desperately needed information on the whereabouts of survivors as well as health-related resources, supplies, and other vital data. This same platform had formerly been used in support of the Haitian earthquake rescue efforts.

Yet with the many miraculous and, at times, mind boggling uses the public has found for GIS technologies hidden among their apps, it was surprising to find that for scholars and researchers the key to the future of GIS lay in two key areas – education and public engagement for decision making. The high tech/high touch atmosphere that surrounds GIS technologies in this decade belies the ongoing need for developing a deeper understanding of the technology itself and its meaningful role in our world. The articles included in this special issue highlight these two key factors in GIS – a greater need for broad-based education of the technology, its implications and applications, and a greater need for engaged citizens, decision makers, and government agencies in utilising and upgrading data resources to support decision making. From educating youthful learners to developing a deploying a full scale research centre for geospatial education, it is clear that the future of GIS depends heavily on the technical expertise and deep understanding of the science and its impact.