



*Editor's note: New to Pathfinder—in this issue we introduce Viewpoint commentaries. The articles are written by subject matter experts outside the agency on topical matters of GEOINT and national security.*

Today's research environment is one where basic research and understanding are not valued as much as engineering and technology application. With consideration to geospatial intelligence, in many cases there is more interest in capability-driven technologies rather than working to understand fundamental processes to foster long-term pre-emption and mitigation of problems.

The “geo” in geospatial represents, among other concepts, spatial pattern and awareness, places of identity or homeland, scale, connectivity between individuals, groups and places, and activities within geographic space. Within the last 10 years, some have touted the end of these traditional core concepts of geography, reasoning that access to massive amounts of information negates a need for geographic knowledge as our geospatial activities would be replaced by data computation and virtual interaction. These are misguided sentiments leading to the belief that spatial organization is so intuitive to us as humans that anyone can be a geographer without the need for formal education and training. What we have realized is twofold. First, understanding these concepts with consideration to political, social or economic phenomena requires rigorous scientific methodologies founded on spatial thinking and reasoning. And second, the need for geographical knowledge and understanding is greater than ever and ignoring that need will eventually lead to extreme failures in policy.

Spatial and platial understanding is inherent to human existence. These concepts are the base to the individual and collective understanding of our personal and group identity, our connection to the physical environment, and a justification for our existence. While the friction of distance may be decreasing due to cheaper and more available transportation and communications technologies, humans still require physical places, connections to environment, desire for a homeland and a

## A NOTE ON THE STATE OF GEOGRAPHY AND GEOSPATIAL INTELLIGENCE RESEARCH

*By Richard M. Medina and George F. Hepner,  
University of Utah*

host of other geographic realities that cannot be replicated in the virtual world, at least for the foreseeable future. For example, an October 14, 2014, article in *The Washington Post* highlights Amazon's plans to open a store in New York City. Many would wonder why the most successful virtual shopping company would want to open a physical store. Obviously, the answer is that they see an unmet market, which will yield a profitable outcome. Although an online retailer, Amazon is acutely aware of geographic realities with respect to factors such as warehouse location, shipping routes and population/income distributions.

Another more germane example of the importance of geographical concepts involves global terrorism. Al-Qaida ideologists wrote years ago about crucial geographies, controlling post-conflict regions and capturing resources. The al-Qaida grand plan was focused on control of land as a basis for expansion. And although the media portray the Islamic State as a religion-based political movement, which it is, the more fundamental basis for understanding ISIS is their perceptual and aspirational geographic endgame of a caliphate. Their black flag and narrative of jihadist justification involves historical geographic and culturally relevant regions, including Khorasan, an area spanning parts of Iran, Afghanistan and Turkmenistan. In spite of their tenuous control, ISIS has divided their area of administration in Syria and Iraq into provinces with leadership by regional government to control the people and resources within those provinces. In Syria and Iraq, ISIS has already taken control of oil fields, water and agricultural areas. In spite of their massive virtual recruiting efforts and religious-political characterization, much of the ISIS campaign is centered on human and physical geography.

Given the physical geography of the recent battles in Afghanistan, Iraq and Syria, the use of technology-based geospatial

intelligence has achieved good results. The climate, lack of heavily vegetated landscape and limited topographic relief in most of the areas has made satellite imagery, drone use and tactical communications very effective. However, being overly dependent on these technologies, combined with our failure to anticipate, educate our intelligence and military personnel, and acquire high-resolution human geography information will be a major disadvantage when the focus turns to other areas, such as Africa, Asia and Latin America, as it likely will in the future. Physical space is needed for training, planning and supplying of sustained insurgent and terrorist operations. Understanding the spatial patterns of cultural backgrounds, social connections and capital, routes, and geographic intentions are key to mitigating problems. The geography of cultural or ethnic disagreements can facilitate or agitate a regional conflict into a global one. Most people operate on geographic realities of need, power and control, threat, security, etc. (or perceived realities), not postulated political and sociological theories.

What does this all mean for the future of geospatial intelligence? We must be cautious on our path toward thinking we can gain a full understanding of human behavior and resultant actions through technology and the computation of big data. Trends of open-source intelligence, social media assessment and reliance on hardware technology and other technological capabilities for understanding human behavior are very popular, but we should not be deceived into believing that they can take the place of modern approaches to human geography and other social science disciplines. Geospatial intelligence managers and analysts should be fluent in core concepts of spatial analysis, geostatistics and research methodologies, and they should have small area cultural knowledge and understanding of larger area social and physical systemic processes.

Within the geospatial intelligence profession, the current technological push includes focus on exploration of big data and data mining. Recent studies have shown the bias of making tactical and policy decisions on the basis of social media analysis, which inherently includes sampling biases and primarily reflects the sentiment of certain demographic groups (e.g., young, literate, tech aware), whereas power, especially in traditional societies, resides in individuals and groups outside of the demographic being sampled. Geospatial data uncertainties and biases should be known prior to actions being taken on results from social media mining and other big data applications.

We should not let human geography, a long established discipline, be used as a buzz word. It is difficult to appreciate a discipline like geography when the first time many students see it in its true form is in college, if at all. Many people still believe that geography is the study of maps, or the study of state capital locations, or even worse, the study of rocks. The primary focus of human geography is to understand the spatial patterns of human behavior and interactions. From these patterns, insights into processes of behavior can be gained. In these uncertain times, it is vital to understanding the world and to leverage that understanding to design sound policies to address the global problems we face. Geography is a critical component to this understanding. ✨

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Richard M. Medina is an assistant professor in the Department of Geography at the University of Utah and director of the Geospatial Intelligence Research Lab. [richard.medina@geog.utah.edu](mailto:richard.medina@geog.utah.edu)

George F. Hepner is a professor in the Department of Geography at the University of Utah and director of the USGIF-approved certificate program in geospatial intelligence. [george.hepner@geog.utah.edu](mailto:george.hepner@geog.utah.edu)

Medina and Hepner co-authored "The Geography of International Terrorism: An Introduction to Spaces and Places of Violent Non-State Groups," ISBN-13: 978-1439886861.

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