

The Army's Hidden Gems: Geospatial Engineers

CPT MICHAEL A. BURKEEN

"In a fight between a bear and an alligator, it is the terrain which determines who wins."

— Jim Barksdale

Geospatial engineers are a powerful combat multiplier... if only we knew where to find them. Because the Army's geospatial engineer teams (GETs) operate no lower than the echelon of a brigade combat team (BCT), junior officers and NCOs can go half their career without ever being introduced to a 12Y (geospatial engineer) or 125D (geospatial engineering technician); and yet it is the platoons and companies on the ground who need most to understand and control the terrain to win their battles. Since 500 B.C., Sun Tzu and every successful military leader have recognized the importance of terrain analysis. Thankfully, we have geospatial engineers who can provide a common operating picture (COP) and mission-tailored visualization products that are essential to mission success.

Unfortunately, far too many of us military leaders and planners view geospatial engineers as "just map guys," leaving the full potential of their capabilities underutilized. Most Soldiers are familiar with standard geospatial intelligence (GEOINT) products such as topographic line maps and joint operational graphics (air). Fewer are familiar with tailored GEOINT products such as:

- Hydrology analysis: shows operational impacts of water within an area of operations
- Surface material: depicts areas based on types of soil at its surface
- Viewshed analysis: shows areas of direct observation from a given point

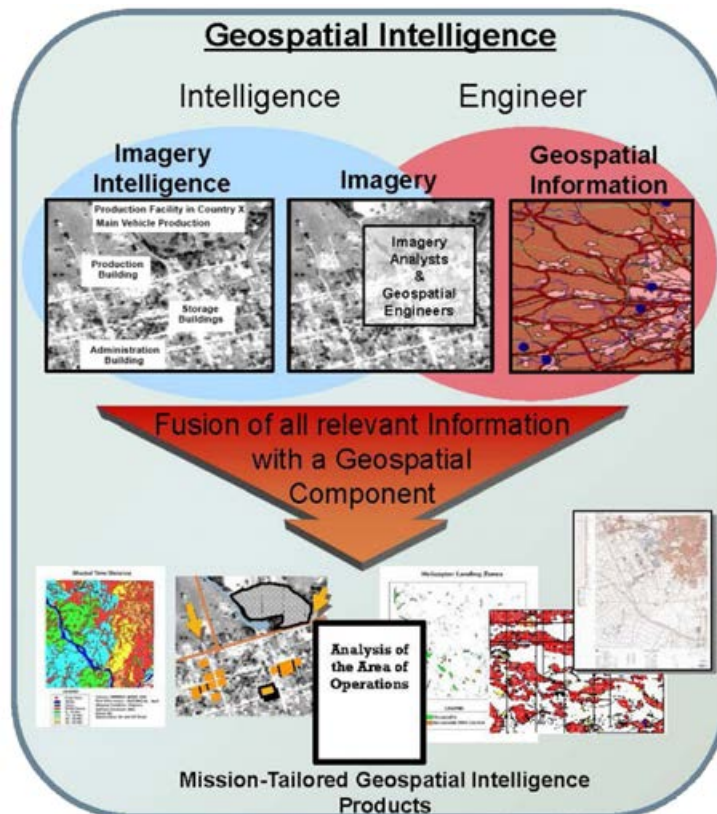


Figure 1 — Elements of Geospatial Intelligence (Army Techniques Publication 3-34.80, *Geospatial Engineering*)

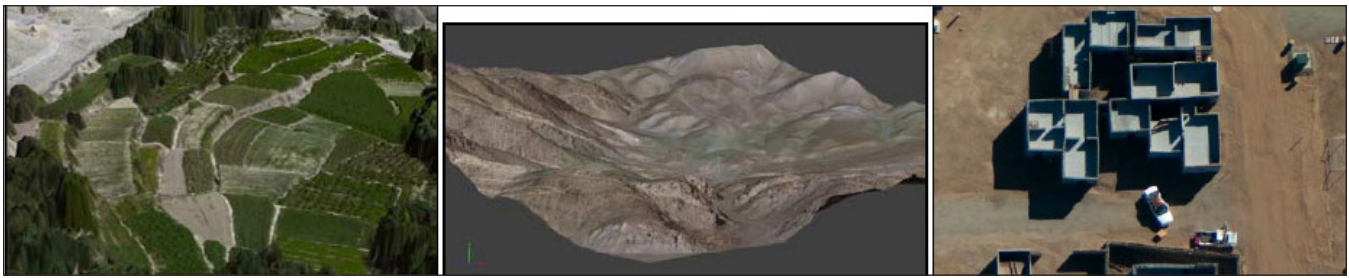


Figure 2 — Examples of BuckEye Products (Courtesy of Army Geospatial Center)

- Fly-through: provides 3D terrain visualization from an observer’s point of view
- Urban tactical planner: displays key aspects of urban terrain
- BuckEye: provides downloadable, unclassified, high-resolution 2D and 3D imagery

While the above examples are a small glimpse into the capabilities geospatial engineers can provide, it is the integration of a fourth dimension — time — that makes them truly unique. GEOINT such as coherent change detection and pattern analysis allow for more dynamic and interactive geospatial products and provide our warfighters with a more realistic picture of the operating environment. Commanders and staff leveraging their geospatial engineers are more capable than ever before to accurately predict the future within their area of operation.

While the Army’s past movement of geospatial engineers out of the S3 shops and into the S2 shops provided a much-needed improvement to the [imperative] partnership between the engineer regiment and military intelligence community in producing GEOINT, there is a major downside to that decision. The COP development is still owned by the S3 shop (perhaps rightly so, due to friendly locations and movement). However, GETs within a BCT have (given proper imagery intelligence support) everything they need to create excellent COPs; they just aren’t getting a seat at the table anymore. Other examples of our underrepresented geospatial engineers can be seen elsewhere across the force such as units with reconnaissance and surveying instrument sets (known as ENFIRE kits) that collect dust; the consolidation of multiple technical specialties into a single MOS (12Y); the separate training of engineers at Fort Leonard Wood, MO, and imagery analysts at Fort Huachuca, AZ; and the push for these capabilities to be handled at the lower unit level through capabilities such as Command Post of the Future (CPOF) or Joint Capabilities Release (JCR). While the premise behind CPOF, JCR, and other self-sufficient approaches are critical to mission command, self-reliance, and communication, it is the improper reading and interpretation of their geospatial data by untrained Soldiers that can yield results that are at least unsatisfactory or at worst fatal.

Consistent changes in the complexity of our environment, technological advancements, and the increased capabilities of our enemies force us to compete in every domain, with all warfighting functions, in order to accomplish our mission objects with effective combat power. Fortunately, geospatial engineering spans all

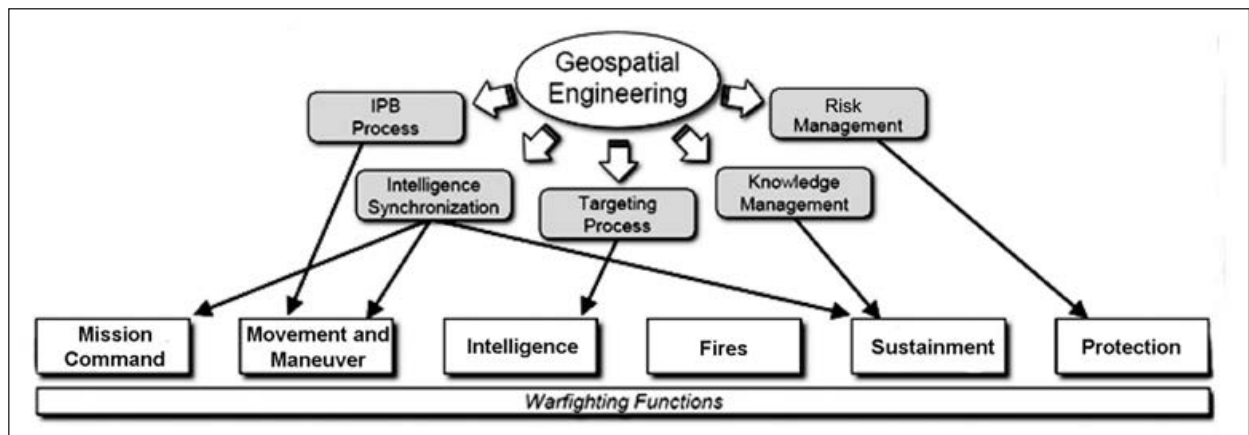


Figure 3 — Integration of Geospatial Engineering Across the Warfighting Functions (Army Techniques Publication 3-34.80, *Geospatial Engineering*)



The ENFIRE program modernizes and expedites the collection and dissemination of reconnaissance, construction, facilities planning and project management data for U.S. Army and U.S. Marine Corps engineers. (U.S. Army photo)

warfighting functions, and military leaders that leverage their geospatial engineers will have a COP that spans the continuum of geographic space. Whether operating in the strategic support area or the deep maneuver area, leaders and staff that maximize the human potential of their 12Ys and 125Ds will undoubtedly control the terrain.

CPT Michael A. Burkeen is a recent graduate of the Engineer Captains Career Course at Fort Leonard Wood, MO, and is currently completing his Master of Science degree in geological engineering at Missouri University of Science and Technology. He initially spent two years in the Army Reserves with the 282nd Quartermaster Company where he trained in logistic and transportation management. He later commissioned into the Vermont Army National Guard as an engineer officer in May 2014 and served in A Company, 572nd Brigade Engineer Battalion, 86th Infantry Brigade Combat Team (Mountain). Upon graduating top of his class from Norwich University with a bachelor's degree in business management/financial economics, CPT Burkeen left the National Guard to serve on active duty where he was first assigned to the 643rd Engineer Support Company in South Korea. He also went on to serve as a reconnaissance officer in the 11th Engineer Battalion and as the executive officer for the 814th Multi-Role Bridge Company.