U.S. Army photo by MAJ Matt Fontaine, 1st Security Force Assistance Brigade Public Affairs

Leaders from Train Advise Assist Command (TAAC)-Capitol, TAAC-East, and Task Force Southeast, receive an operations and intelligence overview brief from the Task Force Southeast intelligence and operations staff at Advisor Platform Lightning, Paktiya Province, Afghanistan, in June 2018. The leaders from Turkey and the United States discussed common strategies to train, advise, assist Afghan National Defense Security Forces in their three geographic areas of responsibility.

SFAB Geospatial Intelligence Support: Advising the Afghan National Army

by Chief Warrant Officer 3 Jason A. Schelte

Introduction

The U.S. Army's 1st Security Force Assistance Brigade (SFAB) G-2 geospatial intelligence (GEOINT) section conducted a train, advise, and assist mission with the Afghan National Army (ANA) G-2 from March to October 2018. The section was assigned to Afghanistan's Task Force Southeast area of operation. The initial focus was to provide mission command to the ANA 203rd Corps Headquarters; however, the team also found an opportunity to train, advise, and assist the topographic section within the 203rd Corps G-2, which consisted of one officer and one noncommissioned officer. The objective was to assess the topographic section's processes and capabilities in the following areas and to recommend improvements:

- Software programs.
- Data management for intelligence reports.
- Requests for information.
- Computer hardware and printers.
- Expendable supply requests.

The team also conducted engagements with the ANA G-2's targeting, plans, and analysis sections, eventually integrating with those same sections in the military intelligence kandak (battalion) of the ANA 203rd Corps.

During the deployment, mission command requirements at times conflicted with the SFAB advisors' scheduled activities with the ANA, prompting the question of how best to prioritize the SFAB's advising responsibilities.

FalconView

After completing some of the initial evaluation of the ANA, advisors began more in-depth training on systems. The topographic section had a rudimentary understanding

of FalconView, which was their only source of mapping software. It was built into all the 203rd Corps G-2 section's baseline computers; however, the section used old digital map data using Russian text within FalconView. All the sections within the ANA G-2 wanted to learn new techniques for building their products so that they could meet their mission requirements. Most of the ANA G-2 enlisted soldiers and a few officers attended the training. The G-2 advisor team encouraged the ANA to practice using the software to be able to train future G-2 soldiers.

By the end of the deployment, it was clear that the number and quality of products the ANA G-2 were producing had increased significantly. The targeting section created quality products that supported air strikes, and the analysis section built products that displayed friendly and enemy disposition. The plans section created products that were far better than the hand-drawn scheme of maneuver templates they were previously using.

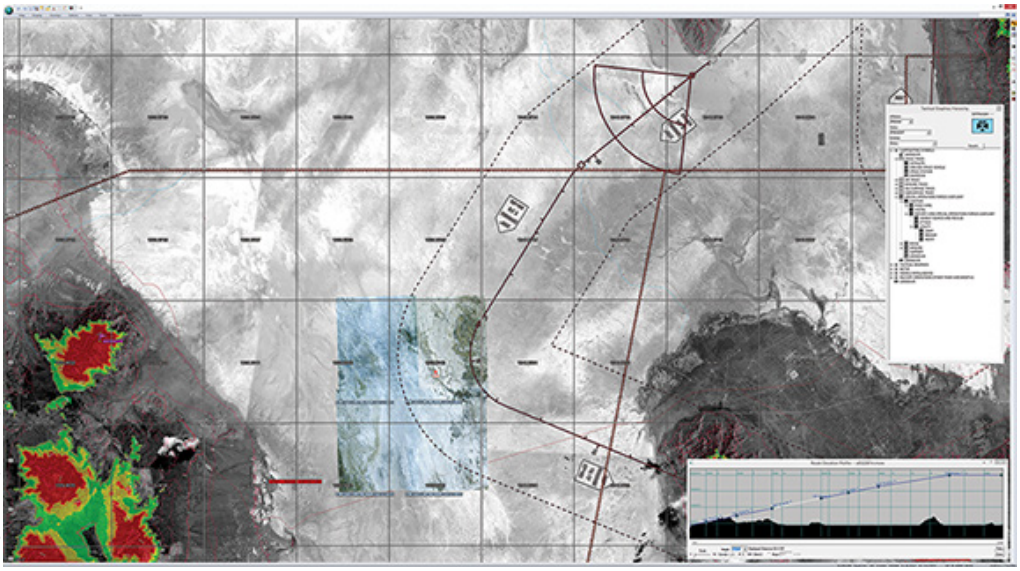


Image courtesy of Georgia Tech Research Institute

FalconView provides pilots with maps that help them anticipate what they will find as they carry out a mission. In addition to topographical information, the maps include obstacles, enemy positions, and other changing information.

Google Earth

The topographic section had no knowledge of Google Earth or typical mapping software such as ArcGIS or QGIS, and it was clear the ANA needed a common operational picture. The ANA Corps' joint operations center had no practical way to view, update, or display current, or historical, enemy and friendly activity. They needed a better way to have situational awareness of the battlefield. The method had to be able to display enemy and friendly locations, as well as show unit boundaries. The joint operations center also needed to be able to share their common operational picture so that other echelons could use the same information. The previous method was to use a large, wall-size, hardcopy map and a ladder. They rarely updated the large overview map, other than the major military facility locations. That method also created a problem with finding precise coordinates because it was difficult to get anything more accurate than a six-digit military grid reference system (MGRS) grid from the large wall map.

The SFAB G-2 GEOINT advisors suggested Google Earth as the best possible solution to fulfill their needs for a common operational picture. The introduction of Google Earth led to several new tactics, techniques, and procedures that the ANA began to use to keep up with and maintain current and historical situational awareness.

SFAB advisors were able to locate a version of Google Earth that was usable on stand-alone computers. This was helpful for ANA soldiers who had no internet capability. The drawback to the offline version was that the ANA would not be able to share the information or products they created unless they had CD/DVD burning capability or a USB hard drive. Google Earth later became part of the basic build for the computer workstations. Using an internet connection with Google Earth meant we could update the program and use it in Dari.

Now that some members of the ANA use Google Earth to create their products, commanders are getting a better picture of where the significant activities (SIGACTs) are taking place in their battlespace. At the time of the SFAB's redeployment in November 2018, the ANA were creating a SIGACTs report plotting the top three or four SIGACTs for discussion. The preferred method is to plot all SIGACTs on Google Earth to give the commander a better understanding of activities in the area of operation. The joint operations center's floor officer in charge could still discuss the three or four main points but also display all activity. This would lead to a greater understanding of activities in the area of operations. Then, once records are kept over time, the ANA could potentially see patterns, historical information, and trends, thereby enhancing predictive analysis.

The 203rd Corps G-2 is responsible for enemy and friendly location updates on Google Earth. The near-term goal was for the G-2 to be responsible for updating enemy activity and for the G-3 to be responsible for updating friendly activity. The long-term goal is to have the four brigade S-2s

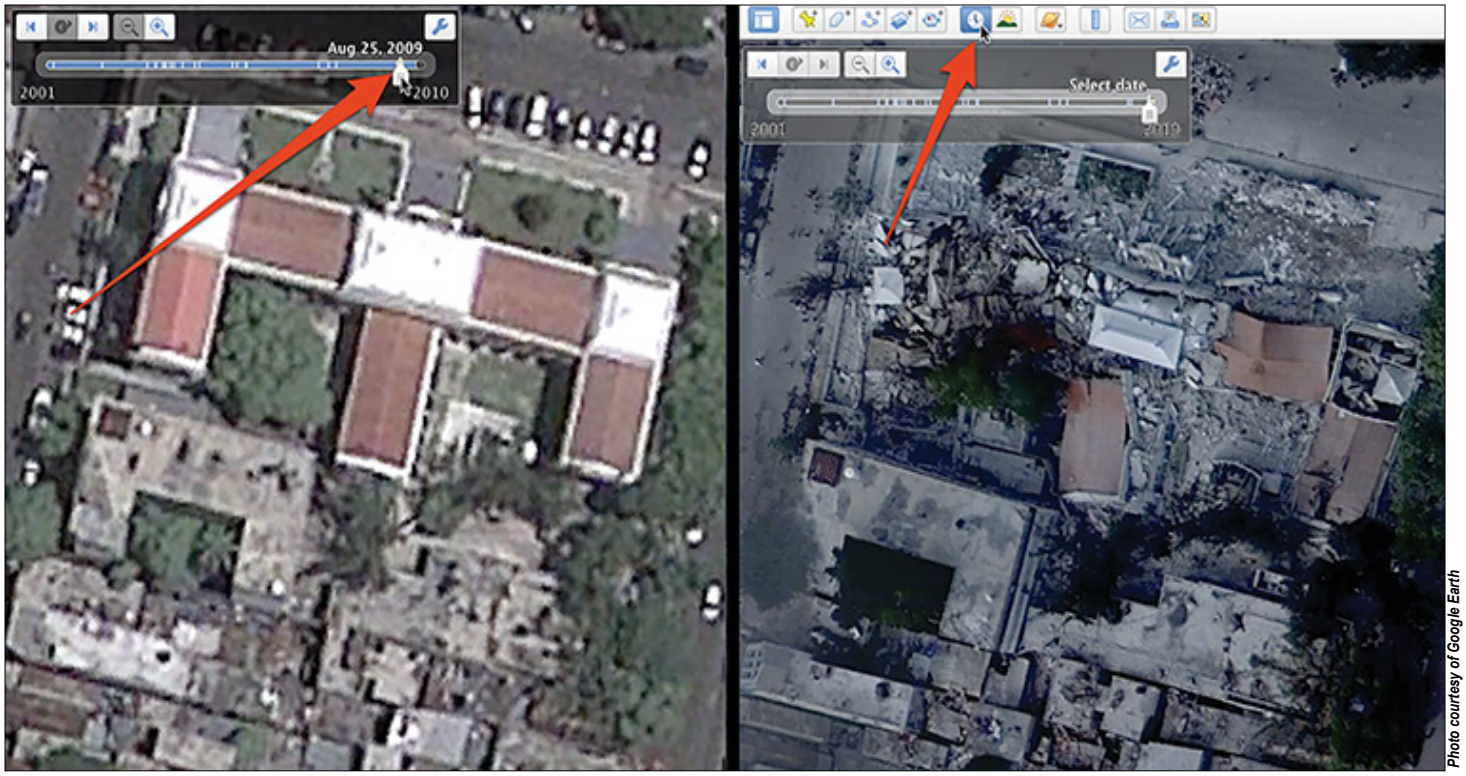


Photo courtesy of Google Earth

"Before and after" imagery depicting earthquake damage to the Haiti National Palace. The "before" image is from August 25, 2009, while the "after" image was taken on January 22, 2010. Change detection through "historic imagery" is one feature of Google Earth.[1]

create the SIGACTs for their areas, and then through the liaison officers, pass the information to the Corps G-2 to consolidate the information. Similarly, the brigades can send their operations and friendly information to the Corps G-3.

The SFAB GEOINT advisor recommended that Google Earth become the main tool for the Corps ANA's common operational picture. The ANA should also distribute Google Earth to the brigades and kandaks. The program will allow the ANA to display enemy and friendly disposition, giving commanders a better understanding of their areas. Google Earth is much more precise because it can deliver ten-digit grids rather than the typical six collected from the wall map. This simple-to-use program provides data that is easy to share among multiple echelons and will modernize the ANA's common operational picture by upgrading from the use of analog mapping. It will help them to visualize intelligence reports, see patterns and trends of enemy operations, and conduct predictive analysis.

Unclassified Map Dataset

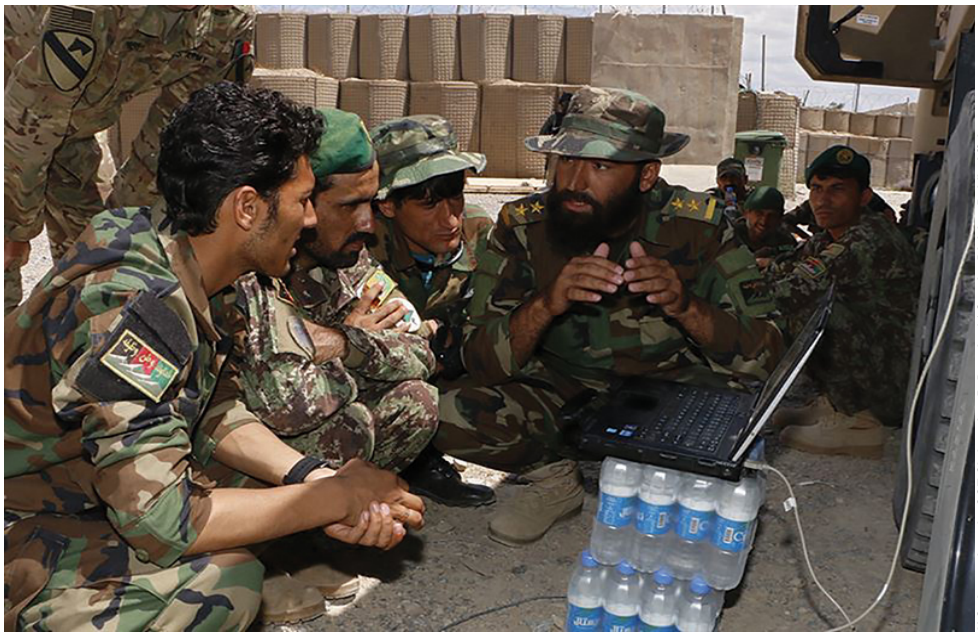
While going through transition training to get settled in Afghanistan, 1st SFAB G-2 topographic advisors learned of an unclassified hard drive, which contains an imagery dataset from the National Geospatial-Intelligence Agency. The hard drive contains map data—Buckeye imagery, orthoimagery, and a few pieces of vector data—in a 1.5 terabyte external hard drive. It runs an internal virtual machine on the computer that allows all the data to be visible. It does not need an internet connection to work, and it is small, light, compact, and portable. The user can capture images to create products in support of mission requirements, pull the images into PowerPoint, and then easily modify them for mission-specific needs. The hard drive can create a KML[2] that Google Earth uses, which will give users the flexibility of viewing multiple layers. The hard drive is usable in a stand-alone version of Google Earth and can support operations with no connectivity. The hard drive also creates web services that can be pulled into programs like FalconView, ArcGIS, and QGIS, and can display all visible map and imagery layers.

We were excited to show how this relatively new tool worked because it contained unclassified imagery of Afghanistan that we could share with our ANA partners. The hard drive class was popular among the ANA G-2 section, and the topographic, targeting, plans, and analysis sections could use what they learned to create products that supported their mission requirements with the latest imagery. However, the advisors had only one hard drive to give to the ANA, so the SFAB advisors requested more drives through the National Geospatial-Intelligence Agency for further distribution. The primary SFAB G-2 GEOINT advisor created a PowerPoint presentation to support the hard drive training and had it translated into Dari for the ANA to use in future train-the-trainer situations.

This drive is versatile for multiple applications, but the data size of 1.5 terabytes is difficult to store on most computers. This means the user will need either an external hard drive or a connection to a server that can support the large data size. The ability to get more drives is a supply issue that the ANA is working to resolve. Other sections, such as the G-3 and the G-5, could use the drive when they have a requirement to create or display any type of visualization product.

Afghan National Army Data Management for Intelligence Reports

Currently the ANA maintains no recorded history of enemy SIGACTs, other than dated Microsoft Word documents that discuss information gathered from intelligence reports. No type of intelligence data management is in place at the Corps level. The Afghan National Directorate of Security emails intelligence reports in a Word document that contains reports from the previous day. Each morning, a few of the reports are chosen at random and briefed to the Corps Commander.



U.S. Army photo by SGT Christopher B. Dennis, 1st Cavalry Division Public Affairs

An Afghan National Army (ANA) officer teaches Soldiers of the ANA 203rd Corps about filling electronic warfare equipment under supervision of United States Army SSG Justin Hood, electronic warfare specialist for the Military Advisor Team of Task Force Southeast, during electronic warfare training July 6, 2017.

Now with the use of Google Earth in the ANA joint operations center, the Afghan Corps Commander needs a data management system to help maintain intelligence reports that can filter, sort, and ultimately help visualize enemy and friendly activity on the battlefield. Currently, with written reports in a Word document, there is no way to sort the reports by time, date, type of incident, province, district, or reporter name. Word documents do not have anything other than the rudimentary search capability of the "CTRL+F" (find) function, which means users must know exactly what they are looking for, and on which date something occurred, for the documents to be helpful. It is likely that the National Directorate of Security level may be facing the same problems with data management and battlefield visualization; however, the issue of data management starts at the top of an organization and the Directorate is best suited to drive this change.

If intelligence reports were compiled and maintained in a Microsoft Excel spreadsheet, they could be sorted and filtered, and a user could modify the document to better understand SIGACTs by type or dates. At a minimum, the Excel spreadsheet would need to have the following details: report ID, date, time, activity, enemy type, MGRS, province, district, corps, brigade, kandak, tolay, and description of activity. Maintaining the data in an Excel format could help analysts to see enemy patterns, understand trends, use historical information for predictive analysis, and plan for future missions.

Requests for Information

Processing requests for information is time-consuming. These requests go through a series of checks before they reach the ANA G-2 topographic section. For example, when a person at an infantry kandak wants a map, the request must first go through their chain of command, up to the Corps level. Then it is assigned to the ANA G-2, and the G-2 tasks the topographic section. All personnel along the way must approve and sign the routing sheet before the next section receives the request for information. If a request is time-sensitive, or is submitted before a mission, this complicated process could hinder the troops on the ground.

The GEOINT advisor believes that the ANA soldier, with his first line supervisor, should be able to submit a request for information directly to the topographic section. This would also help the topographic section understand the required output or the effect the requester is trying to achieve.

Computer Hardware and Printers

The topographic section had a couple of Dell laptop computers, varying in age and software capabilities. The section also had four Hewlett-Packard (HP) plotters for printing large maps. Two of the four plotters were functional. One inoperable plotter had no ink and could not continue through the initialization process to show its status. The second

inoperable plotter had a problem with its printhead, requiring the section to order a new printhead (a slow process that came with its own issues). The third plotter worked, but the operating language was Chinese; fortunately, this was a simple fix, which involved reinstalling drivers on the computer and changing the operating language to English.

Supply Requests

Obtaining supplies, such as printer ink and external hard drives, was a cumbersome process. Supply requests became an issue for the ANA G-2 section when advisors and the ANA tried to order supplies for the HP plotters and external hard drives to support data sharing. Once advisors identified the need for ink and printheads, these expendable items should have been easy to order because they wear out regularly or they dry out through lack of use. When the ANA submitted the request, they found that not only did it have to go through the ANA G-2 chain of command, but it also had to go to the G-6 and the Ministry of Defense for approval. By the time we left, they were still waiting for the parts to arrive.

Similarly, advisors tried to help the ANA topographic section order a couple of external hard drives to support the sharing of data among several sections. This was more challenging than ordering printer supplies because the external hard drives were more expensive. The topographic section created the request form. The form went through the same approval process as the print supplies and again, by the time we left, the parts had not arrived.

The process is inefficient and needs to be streamlined. Once the staff primary approves a request, the G-4 should be able to action the request and order the needed parts, rather than having to route the request through several different sections.

Mission Priority—Mission Command or Advising?

The 1st SFAB's mission to advise host nation militaries is one of the U.S. Army's priorities. The SFAB is set up as a minimally manned brigade combat team to support small teams. When working with the ANA, we sometimes wondered, "What is the priority—mission command or advising?"

Although the SFAB's priority should be advising, the advisors have the ability to flex and help the mission command team that is in place. The SFAB team can help fill requests for information and increase mission command capacity during crisis or changeover of personnel. Additionally, since SFAB personnel have potentially already been in this position, they could give advice or standard operating procedures to the junior person in the mission command position. With this structure, the SFAB could focus fully on the train, advise, liaison, and support mission with the Afghans. Eventually, the SFAB G-2 GEOINT advisors could see the SFAB team and ANA G-2 topographic sections working hand in hand on mission requirements. A commander may have to assume risk because advisors focus primarily on their advising responsibilities and may not be able to meet unexpected mission command requirements.

Conclusion

Before the SFAB G-2 GEOINT section arrived in Afghanistan to train, advise, and assist, the topographic section would typically respond to a request for information by pulling a standard pre-made map from a warehouse and taping it together as necessary, rather than actually creating a product within the section. After working with the GEOINT team, the topographic section made significant improvements to this and other processes. As a result, they and other sections were able to more effectively support requests for information and provide better products.

Endnotes

1. Danny Sullivan, "Satellite Images Of Haiti Earthquake From Google & Bing Maps," *Search Engine Land*, January 22, 2010, https://searchengineland.com/satellite-images-of-haiti-earthquake-from-google-bing-maps-34270.

2. KML or Keyhole Markup Language is a file format used to display geographic data in an Earth browser such as Google Earth. You can create *KML* files to pinpoint locations, add image overlays, and expose rich data in new ways. *KML* is an international standard maintained by the Open Geospatial Consortium, Inc. (OGC). "Keyhole Markup Language," Google Developers, https://developers.google.com/kml/.

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