

WHAT EVERY WARRIOR SHOULD KNOW ABOUT MAPS

By Captain Dirk E. Plante

After just a short time in Korea, I've discovered that many warfighters are unaware that a great deal has changed in the past few years when it comes to maps. Not that it's necessarily their fault; many people just assume that maps will be there when they are needed—that they will show up somehow, someway. However, that isn't the case.

Issues

I have identified ten items that every warrior should know about maps. As the Army's map experts, en-gineers need to educate their fellow warriors on these ten issues. I have also included lessons learned or procedures used in Korea to illustrate some of the points.

1. Engineers are no longer responsible for map distribution.

On 1 April 1998, the Defense Logistics Agency (DLA) took over the mission of map distribution. Some engineers may find this hard to accept, but it makes good sense. Maps are a supply commodity, and logisticians handle supplies.

2. DMA is now NIMA.

Before DLA began distributing maps, the responsibility belonged to the National Imagery and Mapping Agency (NIMA). NIMA was formed on 1 October 1996 by combining the Defense Mapping Agency (DMA), the Central Imagery Office (CIO), the National Photographic Interpretation Office (NPIC), and the Defense Dissemination Program Office (DDPO). Also included were imagery-related elements of the Central Intelligence Agency (CIA), the Defense Intelligence Agency (DIA), the National Reconnaissance Office (NRO), and the Defense Airborne Reconnaissance Office (DARO).

3. There are maps other than TLMs and JOGs.

For ground forces, the two most popular map scales are the 1:50,000 topographic line maps (TLMs) and the 1:250,000 joint operations graphics (JOGs). NIMA produces a wide variety of products that range from a 1:135-million-scale world map to a 1:7,000-scale city map and some even larger-scale products. Products can be lumped into one of four categories: aeronautical, hydrographic, topographic, and digital. Since so many different types of products are available besides paper maps, the name of the entire family of products has changed from mapping, charting, and geodesy (MC&G) to geospatial information and services (GI&S).

There are thousands of GI&S products that deal with Korea alone. The series of 1:50,000-scale TLMs covering the peninsula includes more than 400 map sheets.

4. Maps have national stock numbers (NSNs).

NSNs are 13-digit numbers unique to each supply item. Under DMA's distribution, not all products carried NSNs. Now, as NIMA updates GI&S products, DLA assigns NSNs to them. (Even classified GI&S products have NSNs, although not all units can order them.) Only a few items still lack NSNs. As NIMA produces a new edition of a particular product, the NSN is printed on it. On map sheets, it is normally found in the lower right-hand margin.

The NSN should not be confused with another number normally found on GI&S products—the NIMA-assigned reference number (formerly known as the DMA reference number). When NIMA was responsible for distribution, this reference number was used to order the product; today NSNs are used. NSNs are randomly assigned numbers, but NIMA reference numbers are based on an orderly numbering scheme. Therefore, adjoining map sheets will have adjoining NIMA reference numbers but may not have successive NSNs.

The island of Cheju, located off the southwestern coast of Korea, is covered by two 1:100,000-scale map sheets, with NIMA reference numbers of L654X3412 and L654X3512 (see

figure). The corresponding NSNs are 7643-01-424-5709 and 7643-01-424-6286. While the NSNs in this example are not successive, some adjoining products have successive NSNs. It depends on the order in which NIMA requests NSNs from DLA.

5. When GI&S products are updated, their NSNs and NIMA reference numbers do not change.

After NIMA assigns a reference number and DLA assigns an NSN to a product, it will always be identified by those numbers—even when the product is updated. What changes is the edition number of the product. When a GI&S product is updated, the edition number increases by one from the previous edition number. When a product is ordered through the supply system using the NSN, logisticians fill the requisition with the most current edition. Outdated editions are never issued. When a new edition of a product is stocked, the previous edition is destroyed. This procedure ensures that the most current information is provided to the field.

6. Map unit basic loads (UBLs) must be maintained.

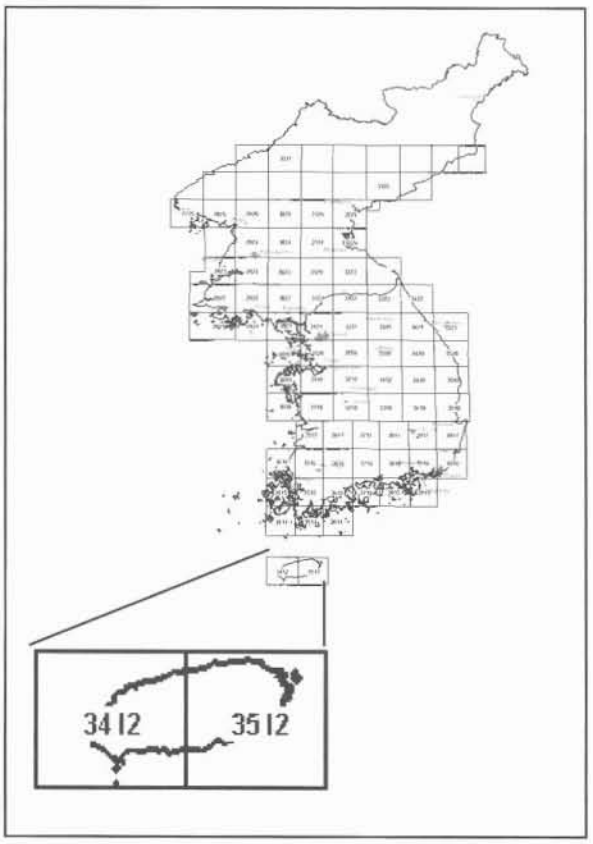
Maintaining map UBLs is just as critical as maintaining UBLs for food and ammunition. To help keep UBLs current, DLA publishes catalogs of the products it stocks. Additionally, it publishes updates (called *Bulletin Digests*) several times each year to provide information on current editions of a product and the date the edition was produced. The unit's map custodian should be thoroughly familiar with these publications.

To ensure that they have the most current edition of GI&S products in their UBL, units should set up an automatic distribution account with DLA. Then when DLA receives new editions of products that are on the unit's automatic distribution listing, DLA will ship them to the unit. The unit should destroy previous editions and notify subordinate units to do the same. Classified and unclassified/limited distribution products require special destruction methods based on their classification.

Due to environmental concerns, we are looking into a program to recycle paper products rather than burn them. Before selling the material to a civilian contractor for recycling, the maps would be shredded by U.S. assets to ensure that map data is not legible.

7. GI&S products may be obtained in several ways.

Using standard supply procedures (providing an NSN to the supply sergeant) to obtain maps is usually adequate for small units. However, other avenues are available. DLA has a web site that allows units to order GI&S products on the Internet. DLA and NIMA also maintain 24-hour hotlines and e-mail addresses where units can obtain information or order products. Higher-level staffs supporting units during a crisis or contingency normally use these options. All GI&S products are Class II, expendable, nonrepairable, nonrecoverable items of supply, issued at no cost to the requestor.



8. Know what datums are and what they do.

Datums are base references for positioning a coordinate system's grid lines. They ensure that artillery hits the correct target, that link-ups are made at the right terrain or topographic feature, that adjoining units properly coordinate area boundaries on the battlefield, etc. Differences in datums are the result of various attempts to develop a mathematical model of a portion or the entire surface of the earth. Because the earth is not a perfect sphere, many mathematical models have been developed to express that shape.

In Korea, the World Geodetic System 1984 (WGS 84) is the only datum allowed in military operations. This prevents mishaps due to positioning errors, although it does not eliminate human error in reporting incorrect coordinates. Providing a grid coordinate from a Tokyo Datum-based map would introduce an error of more than 750 meters when comparing the same location on a WGS 84 map. The warfighting commander in chief in Korea directs the use of only one datum, because all GI&S products for Korea produced by NIMA have a WGS 84-based coordinate system. This is not the case in all areas where the Army may operate. To make the transition to WGS 84, millions of older Tokyo Datum products were destroyed to prevent their accidental use. The datum on Republic of Korea-produced GI&S products is labeled "Korean Geodetic System 1995 (KGS

95)," which is the same datum as WGS 84.

9. Know the map experts.

NIMA is the map expert and can provide training that units need. The National Imagery and Mapping College (NIMC) at Fort Belvoir, Virginia, is the training arm of NIMA. Within NIMC is the Defense Mapping School (DMS), which provides training to soldiers in GI&S-related MOSs in the Army and other services. Much of this training takes place at Fort Belvoir, but DMS also offers on-line, self-tutorial practical exercises (PEs) and mobile training teams (MTTs). Both PEs and MTT courses can be requested through GI&S officers.

In Korea, an MTT visits annually, primarily because of the rapid changeover of personnel but also to provide the newest training available. Dozens of installations are spread across the peninsula, so training is consolidated at a few large installations. Getting MTT support is never a problem; however, getting units to attend training they committed to months earlier can be. One way to alleviate that problem is for units to include this training on their long-range training calendars, provide a by-name list of who will attend, and remind commanders and their staffs of the upcoming training. Additionally, an executive one-hour overview of the training should be given to commanders a month before the scheduled event. If commanders know what type of training will be conducted and how it benefits their soldiers, the training should receive the command emphasis it needs.

10. Annex M contains necessary information about GI&S products.

Although it is generally the responsibility of the intelligence staff (the S2, G2, or J2) or operations staff (the S3, G3, or J3) to produce Annex M of an operations plan or order, engineers normally do the work. The annex, which contains information needed to ensure timely and accurate GI&S support for an operation, identifies available GI&S products. Since maps and other GI&S products are not available at all scales for all areas of the world, warriors must identify specific requirements to the GI&S officer, who will forward it through the chain of command to NIMA.

Conclusion

Much has changed in the world of maps in the last few years. We've gone from using paper maps taped to a map board to displaying digital maps during briefings and inside combat vehicles. Products have evolved from mapping, charting, and geodesy products to geospatial information and services products. The Department of Defense and the Army have reassigned the mission of GI&S product distribution. But something that will never change is the need to keep warfighters up to date on what is happening in the engineer community.

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Sources:

1. Joyce Forbes, NIMA Geospatial Liaison to PACOM, Camp Smith, Hawaii.

2. Sid Ikehara, DLA Map Support Office, Hickam Air Force Base, Hawaii.

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the island well—its rain and resource problems and its people. Because of the Kosraen culture, working with the various island committees, offices, and businesses was sometimes difficult. It was important to adhere to local customs and speak the language. For example, Kosraens have a strict view of working on Sunday, and anything except going to religious services or visiting with friends is considered work. Tourists and others from off the island can break the tradition if they do so subtly. However, the team earned much respect by never testing the limits of the custom.

Using the Kosraen language had daily, direct benefits. It provided a good first impression and formed the basis for lasting friendships.

A Positive Experience

The organization, deployment preparations, and construction projects of CAT 84-53 describe the workings but not the importance of the team. When the deployment ended, the team had accomplished much. Soldiers were better trained both as engineers and as people. Their engineering skills were improved because of the quantity and variety of work.

Cultural experiences received from interacting with the Kosraen people were positive for each member of the team. Relations with the people of a foreign nation improved, as did their quality of life. Because of the team's accomplishments, Aaron Sigrah, special assistant to the Governor of Kosrae, declared that it was a "wo" CAT. "Wo" is the Kosraen word for "good." CAT 84-53 is proud to be known as a good civic action team.

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