



Digital Topographic Support Systems

Technology

Digital Topographic Support Systems (DTSSs) are integrated electronic (computerized) systems that produce annotated image maps. DTSSs are available in several versions:

- mobile (DTSS-Light [DTSS-L], vehicle-based systems)
- deployable (DTSS-Deployable [DTSS-D], systems fitted into rugged cases for easy transport and setup)
- fixed-facility (DTSS-Base [DTSS-B], systems designed to operate in a garrison environment).

These configurations make it possible to field DTSSs at theater, Corps, division, and brigade levels. DTSSs use commercial software and have custom-developed interfaces for the soldier. The systems generate and collect geospatial data, develop and manage a geospatial database, process geospatial information, provide geospatial information and services, and print out special map products. They can also update and supplement existing feature data from field reports or imagery.

Problem

In the past, the terrain analysis, topographic, and reproduction support provided by Army Engineer terrain teams depended on slow, labor-intensive processes that cannot meet the commander's requirement for rapid access to accurate topographic data and analysis on today's digital battlefield. Battlefield commanders rely heavily on intelligence preparation of the battlefield (IPB) to reduce uncertainties about the enemy, weather, and terrain. Terrain analysis, which provides this information, must be tailored to the specific mission and unit involved. Various tactical decision aids, such as cover and concealment and off-road mobility, are needed that integrate geospatial data, weather, imagery, and other information to support the commander's battle planning and execution.



The DTSS-D (deployable) system (above); DTSS-generated map of Taiwan (below).



Expected Cost To Implement

Approximate unit costs for the various systems in FY03 ranged from \$250,000 for the DTSS-D, to \$600,000 for the mobile, HMMWV-mounted DTSS-L, to \$750,000 for the fixed-facility DTSS-B for operating a workstation in a top-secret environment. The costs of the DTSS systems include the hardening necessary for them to function and survive in a battlefield environment, as well as all training and fielding costs.

Benefits/Savings

DTSS provides critical, timely, and accurate digital and hardcopy geospatial information to support mission planning and execution. It supports the warfighter with terrain analysis products, special map reproduction, and geospatial data management, and it provides timely and accurate knowledge of the battlespace. DTSS receives, manipulates, and exploits (manually or digitally), geospatial information and imagery and related information, and it allows Web-based access to geospatial data from the National Geospatial-Intelligence Agency (NGA) and other agencies; it also integrates real-time weather data into Army Tactical Decision Aids (TDAs), and improves capabilities to exploit nonstandard data.

Status

DTSS technology is functional and has been deployed worldwide. Currently, 68 DTSS-Ls have been built and fielded to Army terrain teams. Additional units are planned for 2004, resulting in a total of 83 fielded DTSS-Ls. Eighty three DTSS-Ds were fielded in FY01. Additional DTSS-Ds are being acquired in FY04 to support Special Forces and other urgent needs. The three DTSS-Bs that currently exist were upgraded in late FY02 through early FY03. The start of production for the DTSS-HVMP (High-Volume Map Production), which can produce up to 2,500 hardcopy map sheets a day, began in FY03; the systems will be fielded over 2 years beginning in FY04. Software updates and enhancements will be made over the life of the systems; (normally scheduled) hardware upgrades will occur on a 5-year cycle.

Distribution Sources

Contact the Combat Terrain Information System (CTIS) Office at: Topographic Engineering Center, Bldg. 2592, ATTN: CEERD-TS-T, 7701 Telegraph Road, Alexandria, VA 22135-3864, COMM: (703) 428-6734

Available Training

Initial training of users is provided at the National Geospatial Intelligence School (NGS), formerly the Defense Mapping School. The Program Management Office Combat Terrain Information Systems (PMO CTIS) has equipped the NGS with 125 systems for training the skills needed to operate the DTSS. NGS also has mobile training teams, which teach skills at user sites. System-specific tasks are taught with the delivery of the systems by new equipment training teams.

Available Support

PMO CTIS sends engineers to check out and set up each system, and provides training with each system fielding and with major software upgrades. Maintenance and spares support is provided for fielded DTSS systems worldwide, and PMO CTIS provides users with a hotline to report problems and obtain technical assistance.