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USAETL dubs Digital Terrain Elevation Data for terrain analysts at the Army's Digital Data Support Facility.

See page 3 for story.

Report supplies weather extremes data

by Mark K. Ross

Arica, Chile, has the world's lowest annual precipitation, averaging only 0.03 inch and had no rain for more than 14 consecutive years, from October 1903 to January 1918. In contrast, Cherrapunji, India, recorded nearly 87 feet of rainfall in a single year, from August 1860 to August 1861. These and other weather extremes can be found in USAETL's report titled, *World Weather Extremes*, by Pauline Riordan and Paul G. Bourget.

The American Library Association's Government Documents Round Table (GODORT) selected *World Weather Extremes* for their list of "Notable Documents 1986." GODORT's criteria for inclusion on the list includes innovative presentation, readability and design quality.

The report includes a color map of the world and a separate map of Canada and the United States, showing the locations where weather extremes have been recorded. Riordan and Bourget give the cartographer on the project, Carla Ennis, credit for the excellent design of the maps. In addition to the maps, the text discusses the reliability of some of the records and includes a table of weather extremes listed by element with documentation.

The extremes report includes highest and lowest temperatures, largest temperature variations, greatest thunderstorm frequencies, greatest and least amounts of rain and snow for various durations, largest and heaviest hailstones, highest wind speeds and most frequent occurrences of fog.

Besides being a fascinating list of the harshest weather in the world, the report provides vital information that can be used in the design of equipment for the Army. The report is incorporated into Military Standard 210, "Climatic Extremes for Military Equipment." By knowing the worst type of weather conditions that equipment is likely to face, designers can better judge how rugged materiel will have to be made to survive on an unpredictable battlefield.

The map of world weather extremes has been reproduced in a number of publications, both in the United States and abroad, and most recently in the *American Weather Observer*. Other recent users include the U.S. Air Force Air Weather Service units, the *Guinness Book of World Records, Reader's Digest, USA Today, Information Please Almanac,* several educational institutions and government agencies. Also, the records will be used in the *World Survey of Climatology,* issued by the World Meteorological Organization in Geneva.

This compilation of extreme weather records originally was prepared by the Cartography Branch of the Environmental Protection Research Division, Quartermaster Research and Engineering Center, Natick, Mass., in 1955. The original map was compiled from listings in the publication *Weekly Weather and Crop Bulletins.* In subsequent years the map has been revised about eight times and this is the third update of the report.

The latest update took approximately a year to compile. Much of the data collecting involved combing through journals and newspaper articles, looking for references and making untold numbers of phone calls to check leads and verify data.

There is no world agency that validates and establishes a register of weather extremes. Previous reports used the U.S. National Oceanic and Atmospheric Administration's Environmental Data Service to validate weather records. Since that service was discontinued, it was up to Riordan and Bourget to investigate the many leads received on new records.

"In some cases verifying the data was a call shot. We tried to get it to the highest level of validation as possible," Bourget said. Much of the report discusses the reliability of the records collected.

To ensure accuracy of weather records, various regulations concerning site, instrumentation and procedure in data collection have been established by the World Meteorological Organization. However, even records observed in conformance to these regulations are sometimes questioned.

Copies of the report can be purchased from the Government Printing Office (GPO number 008-022-00230-8), the National Technical Information Service and the Defense Technical Information Center (AD-A-170-138).

USAETL reports and papers

Reports may be obtained form the National Technical Information Service, Springfield, Va., 22161, or from the Defense Technical Information Center, Cameron Station, Alexandria, Va., 22314-6145. When requesting a report, please cite the AD number.

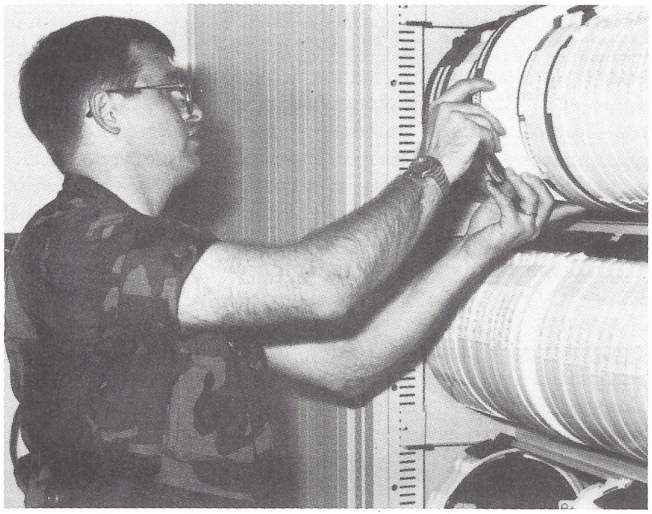
World Weather Extremes. Pauline Riordan and Paul G. Bourget, U.S. Army Engineer Topographic Laboratories, December 1985. AD-A170 138.

Air Photo Analysis, Photo Interpretation Logic and Feature Extraction. Dr. Jack N. Rinker and Phyllis A. Corl, U.S. Army Engineer Topographic Laboratories, June 1984. AD-A153 926.

Papers presented or published by USAETL scientists are available in the proceedings or from the author.

Digital Terrain Data Requirements at USAETL. Regis J. Orsinger, Army Topography Conference, Fort Belvoir, Va., 20-23 October 1986.

USAETL provides digital support to MICROFIX users



Staff Sgt. Robert Murphy pulls a magnetic tape from USAETL's DTED Level I tape library.

A recent and significant effort by USAETL's Terrain Analysis Center (TAC) and the U.S. Military Academy has made Digital Terrain Elevation Data (DTED) Level I readily accessible to the Army in the field.

DTED Level I, produced by the Defense Mapping Agency (DMA), describes the shape of the earth's surface using a matrix of uniformly spaced points. Field units use elevation data for applications such as intervisibility or line of sight, perspective or oblique views, terrain masking, tinted elevations and slope.

DMA supplies DTED Level I to TAC; however, the data is available on nine-track tape only—a format that is not compatible with the MICROFIX-T (TOPO), a work station now available to all topo units. For this reason, the members of the Army Topographic Engineering Coordinating Committee agreed to install a DTED dubbing facility at USAETL's TAC.

In late January 1987, the U.S. Military Academy completed the DTED dubbing facility installation at USAETL. The facility, also designed by the academy, enables data transformation from nine-track tape to videocassette tape in a format compatible with the MICROFIX-T. Hence, TAC can provide direct support to topographic software users.

Such users request DTED in "cells" or units of DTED. A cell of data consists of an area of one degree latitude by one degree longitude. The cell is identified by the southwest corner. A request for the area between 50 and 51 degrees north latitude, and 9 and 10 degrees east longitude, for instance, would read N50E9.

Several pieces of hardware, supplied by the U.S. Army Forces Command, were needed to begin the transformation and dubbing process. The DTED Level I cell(s) is read from the nine-track tape drive to a central processing unit that transforms or reformats the DTED for MICROFIX to read. The DTED is then transported by cable to the MICROFIX-T where it is stored on the hard disk. The videocassette recorder (VCR) then records the data from the hard disk in VHS format. The maximum time for transforming and dubbing a one-degree cell of DTED is three hours. The DTED cell(s) is now ready for use by the terrain analyst.

In addition to processing requests from MICROFIX-T users, TAC has been building a worldwide DTED Level I tape library. By agreement with DMA, an initial as well as automatic dissemination program is in effect. Completion of the library will eliminate TAC's need to obtain data from DMA prior to processing field requests.

TAC's transformation and dubbing operation is viewed as merely the beginning of digital support to Army units in the field. The Army Digital Data Support Facility forms the umbrella under which the MICROFIX DTED dubbing activity and other potential support operations will be placed.

The center's future holds possibilities for both production and distribution of other digital support such as data transformation and dubbing for FIREFINDER, the Army's counter-artillery and counter-mortar radar system; and special terrain data analysis entailing large, map-scale levels of detail.

Staff Sgt. Robert Murphy loads a nine-track tape onto the tape drive.

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Goals set for automating terrain analysis

The Army uses a systematic, five-step approach to integrate opposing forces doctrine with terrain and weather, mission and specific environment. This approach, referred to as the Intelligence Preparation of the Battlefield (IPB), was developed to ensure that commanders receive current, accurate, concise and integrated information on which to base tactical decisions.

Threat evaluation, the first step, comprises a detailed study of enemy forces. The result of this step shows how opposing forces would fight, both offensively and defensively, without concern for weather and terrain. A doctrinal template is used during this step to provide a visual aid depicting how opposing forces might appear according to doctrine and training.

In step two of the IPB process, the areas of influence and interest are evaluated. The scope of the IPB is narrowed to a specific battlefield area to give the commander as much background information as possible, such as the geological aspects and physical features of the area, in order to develop route information for planning the unit mission and objectives.

Step three of the IPB process, terrain analysis, is another important aspect of battlefield preparation and is one of the most significant to the commander preparing for battle. Analysts graphically portray the effects of trafficability and intervisibility on operations. Analysts also focus on the military aspects of the terrain and their effects on friendly and enemy capabilities to move, shoot and communicate during this step. The military aspects include: observation, fields of fire, concealment and cover, obstacles, key terrain, and avenues of approach and mobility corridors.

Weather analysis is the fourth step in the IPB process and enables analysts to determine how weather affects both the friendly and opposing forces to move, shoot and communicate.

In the fifth step of the IPB process, threat integration, enemy doctrine is integrated with weather and terrain data. This integration supplies information on how the enemy will most probably fight—when, where and with what—under influences of weather and terrain.

As outlined in the five-step IPB process, the use of graphics—photos, maps, overlays, templates and matrices—is extensive; the generation of such graphics is manual and time-consuming.

Several on-going efforts at USAETL will support automation of the terrain analysis function of the IPB. Goals for supporting this IPB segment include developing digital representations of the terrain; developing automated and interactive techniques for extracting terrain information from source materials (i.e., imagery and maps); developing automated techniques to perform terrain analysis; and developing automated and interactive techniques using expert system approaches to integrate terrain data bases for the IPB.

USAETL will implement the automated techniques in several phases. Scientists will introduce automated techniques to terrain analysts and then improve on them. This will be done by drawing from the AirLand Battlefield Environment (ALBE) thrust.

The ALBE thrust, initiated by the U.S. Army Corps of Engineers, will give the Army the capabilities needed to measure, monitor and manipulate the battlefield environment. A primary objective of the ALBE Demonstration and Evaluation program is to give field commanders the capability to assess and exploit battlefield environmental conditions for their tactical advantage. This is accomplished through Tactical Decision Aids (TDAs).

TDAs are graphics that show the effects of environment on equipment, weapon systems and battlefield operations. They deal with concerns such as mobility, counter-mobility, hazard zones, smoke obscuration, weapon systems performance, terrain and atmospheric utilities, and aviation flight planning and will provide terrain analysts with a rapid analysis tool.

Terrain analysts will assemble the necessary information, i.e., digital terrain data, historical climatological data, force equipment data, and real and near-real-time environmental sensor data, to generate a TDA. The commander can use TDAs to evaluate weapon systems performance, determine the advantage of one system over another and anticipate the outcome of operations. Since TDAs show current and predicted environmental effects, it is possible to create simulations of tactical situations to help effectively plan battle operations.

TDAs will provide the Army with an operational capability to assess and exploit battlefield environmental effects for maximum tactical advantage. TDAs are being integrated into the ALBE test-bed hardware configuration which is being prepared for a series of field demonstrations. These will be conducted to gather data and develop methodologies that will facilitate transitioning of ALBE software and products to Army systems in the field.

Preliminary demonstrations and evaluation of the TDA software will be conducted at USAETL this fall. Selected ALBE capabilities will then be transferred to planned or existing systems that will function in a battlefield environment.

USAETL's Digital Topographic Support System, scheduled for fielding in the early 1990s, will provide a capability to produce TDAs. This automated terrain data analysis system will enable terrain teams to manipulate digital terrain information and generate tactical terrain graphics.

The use of computer-generated terrain scenes for mission planning and battlefield management is being studied by USAETL scientists. Through the ongoing Computer Image Generation (CIG) program, scientists plan to refine and field advanced CIG capabilities. Demonstration experiments prove that CIG technology and adequate digital terrain data bases can provide color perspective scenes to depict given geographic areas from selected viewpoints. This capability will be integrated into the IPB process.

Future automated capabilities will be directed at making products more dynamic, making systems more responsive and providing better tools to the terrain analyst.

Topo Notes

Work station supports commanders' topo needs

by Maj. Todd Bacastow, 227th Engineer Detachment, USAREUR

Skepticism about introducing new technology is rooted in military tradition. World War I provides a spectacular example of this. The trench mortar was rejected twice by the British War Office and finally introduced by a cabinet minister who had begged money from an Indian maharaja to produce it.

As with the trench mortar, the recent technological innovation in U.S. Army topographic capability resulted from efforts outside established channels. The MICROFIX topographic work station, an automated terrain information system, was developed and fielded through the efforts of the Department of Geography and Computer Science at the U.S. Military Academy. Officers and cadets from this department have been involved with the MICROFIX project since its inception in 1982.

In 1984, the Belvoir Research, Development and Engineering Center proposed the use of MICROFIX as a tool to define topographic requirements for automation from field experience. Working with the Department of Geography and Computer Science, the center placed MICROFIX systems in one theater, one corps and one division-level terrain unit for test and evaluation. Reports from these evaluations helped to define the unique automation needs of the Army topographic units supporting the commander on the battlefield. They also led to the concept of the MICROFIX topographic work station software. Development of the topographic system began in the summer of 1985. The Department of Geography and Computer Science developed major portions of the system software and coordinated a cooperative effort of four Department of the Army laboratories and the U.S. Army Forces Command.

Army terrain analysis finally entered the computer age with the fielding of the MICROFIX topographic work station in July 1986. This system became the only Army standard computer system to support the battlefield commander's topographic needs. It is a first-generation system with hardware limitations. However, it has and will continue to perform the invaluable function of identifying key areas for future development while providing a usable interim system.

This "use, learn, develop"philosophy is at the core of the whole MICROFIX project. Developers quickly provided a working prototype. It was fielded, and users provided immediate feedback. This feedback was incorporated in successive versions so that each new product more closely matched user needs. Researchers already are working on the next logical development, seeking to capitalize on improvements in computer technology that have appeared since MICROFIX was first fielded.

The MICROFIX topographic work station has benefitted the battlefield commander. Army terrain teams can now provide automated battlefield information, the first significant advance in terrain analysis capability since World War II. Feedback from the MICROFIX analysis capability is being amassed as input for the developers of more sophisticated systems scheduled for fielding in the 1990s. Most importantly, soldiers were trained on a relatively simple automated system. These are the same people who will use or supervise the use of the complex systems on the drawing board today.

The challenge of introducing new technologies to the Army topographic community is great. State-of-the-art concepts and technologies must be fielded in a rapid, timely manner even if it means upsetting the existing organizations or established programs. By all accounts, the MICROFIX topographic work station has been a success; however, the question of how to continue the modernization of Army topographic assets remains.

Seven essential steps must be taken in order to modernize Army topographic capabilities.

- Army topographic capabilities must clearly follow firm requirements identified to support operational doctrine. New topographic technology must be demanded internally, not pushed externally.
- Importance of topographic support must be well articulated by users as well as producers, particularly where budgetary allocations are concerned.
- The Army must place innovative leaders in critical topographic positions. Too often, innovators are assigned to positions outside of the topographic mainstream where they cannot influence future developments.
- The topographic community must force a shortening of the research and development (R&D) timetable. Too much time elapses in the R&D cycle with too few results in the field.
- The Army must actually field systems. There is no substitute for a system in the field. Experience is not gained and wars are not won with things "coming down the pike."
- The U.S. Army Corps of Engineers and the Defense Mapping School must establish a program of training for the system. This training should include instructions for operators and supervisors in formal military schools and continuing education to the unit.
- Each new system must be supplemented by another. Thus, we must begin the development cycle over again.

The nature of warfare is constantly changing, and today more than ever, topographic technologies of yesterday are not good enough to ensure victory on the battlefield. Obstacles slowing the introduction of new topographic technology must be removed. Indian maharajas and military academies working outside established channels cannot be depended upon to move Army topography into the 1990s.

MICROFIX offers variety of capabilities

by CW2 Robert L. Pickett, 537th Engineer Detachment, Fort Lewis, Wash.

By now, most terrain analysts and technicians in the field have become quite familiar with using the MICROFIX and reaping the benefits of its processing capability and product output.

Resident software applications such as the Battlefield Environmental Effects Software, Digital Terrain Mapping and Tactical Weather Intelligence provided by USAETL, the U.S. Military Academy's Computer Graphics Laboratory and the Atmospheric Sciences Laboratory respectively; have given terrain analysts the edge in producing quality analysis in a timely manner. The topographic library application is crucial in managing terrain product data bases.

Another very useful function, yet perhaps not widely known, allows MICROFIX to be used as an analyst work station. The terrain analyst must be able to display point, linear and areal feature representations of the analysis. Further, this information must be presented as specified by the analyst. The 537th Engineer Detachment (Terrain) Fort Lewis, Wash., has demonstrated these capabilities with the support of the MICROFIX.

Situation Map Display

The procedure combines the overlay-definable capabilities of point-type features within the Situation Map Display such as airfields and bridges, the linear and areal feature-depiction capabilities found within the Sketch application and the additional labeling capabilities found in the Print Graphics Screen application.

Data entry is, and for the short term will likely continue to be, a tedious and man-hour intensive effort. Accepting that fact, and realizing the analytical potential of having data in an automated form, helps one focus on a more important issue. Given the capabilities of the system, how should the data be input to be best manipulated and represented? Data entered in its most fundamental form to answer the simple and specific question is a good rule of thumb. This will then support a "building-block" approach toward answering the more complex and detailed questions.

Point feature data are input, stored, retrieved, overlay-defined and graphically depicted well within the MICROFIX software capabilities. Linear and areal features can be easily stored, retrieved and displayed, but not so easily input. Typically, however, the terrain-specific information terrain analysts must deal with is generally supplemental information to a standard map feature. For example, road width, surface composition and capabilities are not readily contained on a map; yet the physical representation and specific orientation of a road are contained on a map.

The Sketch Application

Through the videodisc map and MICROFIX software interaction, information about the width, type and surface can be "traced" and annotated appropriately through the Sketch application. This same technique may be applied to map features such as railroads, power lines, pipelines, drainage features, linear obstacles, vegetation and restricted areas. Linear position and areal extent features not shown on a videodisc map (e.g., drop zones, soils, features whose positions have been added or changed from the original video map publication) are traced using an overlay technique.

By determining a scale of reproduction for the original hard-copy product, a terrain analyst can enlarge or reduce it to match the on-screen video scale (taped to the screen in overlay form), then trace and annotate it using the Sketch application. While this technique may appear unreliable, it is quite accurate. Accuracy and technical control of the data entered are direct functions of quality control measures imposed and of the operator's experience and expertise.

Once data are resident, they may be "complexed" to present the analyst with the information or features of the analysis. For example:

SCENARIO - Select preferable river crossing sites

ANALYST ACTION(s) -

Within Situation Map Display:
- Select geographic area for videomap
- Overlay predetermined crossing sites suitable for the operation (e.g., river crossings by asset)

Within Sketch:
- Select sketch depicting concealment potential
- Copy to new sketch - "Crossing Analysis"
- Edit elements from "Crossing Analysis" if declutter is necessary
- Select sketch(es) depicting route information
- Merge "Route" sketch(es) with "Crossing Analysis"
- Edit elements as desired

This building-block approach is continued until the information that is necessary to complete the analysis is displayed. The analyst then ranks the crossing sites using available work station data, to answer the customer's requirement.

To support the analytical decision, the complexed work station overlay may be output and further annotated through the print graphics screen application and given to the customer. This procedure allows analysis of very specific user requirements and products output to the customer's unique needs. Moreover, these complexed and factor overlays can be saved for use in briefings and presentations and on other work stations using the display capabilities of the slide-show prestored images application.

MICROFIX capabilities

This is but one example of the work station capabilities that MICROFIX provides to the terrain analyst. It demonstrates the following:
- An on-screen analytical function
- Video map and terrain analysis interaction
- Updateability of information, element by element
- Portability of analysis via hard copy and soft copy
- Factor-building: An inevitable action for most analyses
- Ability to custom-tailor products

(See MICROFIX, page 7)

Topo news

Lt. Col. Otis Williams (above) assumed command of the 30th Engineer Battalion on 21 May. He succeeds Lt. Col. Crosby E. Hazel.

Lt. Col. Williams served previously as Chief of the Evaluation and Standardization Division at the U.S. Army Engineer School, Fort Belvoir.

In addition to holding several troop assignments, Lt. Col. Williams has served as an assistant professor of Military Science, Jackson State University, Miss., and as the R&D coordinator, Waterways Experiment Station.

His awards include the Legion of Merit, Meritorious Service Medal with Oak Leaf Cluster and the Army Commendation with two Oak Leaf Clusters.

Lt. Col. Williams earned a bachelor's degree in civil engineering technology from South Carolina State College. He was commissioned in the Corps of Engineers in 1968 through the College's ROTC program. He also completed graduate study in civil engineering at Arizona State University and holds a master's degree in education administration from Jackson State University, Jackson, Miss.

MICROFIX (cont. from page 6)

•Ability for analysts to analyze point, linear and areal features at the same time

Great strides already have been made in the development of MICROFIX software. User requirements from the field will encourage more development. Perhaps in the near future, software and hardware upgrades will make procedures for using the MICROFIX as a terrain analyst work station even easier.

Use resources to the fullest. The utility of the MICROFIX may be limited only by your imagination.

Gen. J.A. Wickham Jr., Army Chief of Staff, addressed the subject of officer and warrant officer authorization reductions in a recent message.

In order to accommodate the mandated commissioned officer and warrant officer space reductions in FY87 and to correct a small commissioned overstructure, several actions will take place: the commissioned officer student account will be reduced beginning in FY89; documentation of requirement and authorization reductions in the TOE Army will begin in FY89; and documentation of commissioned officer authorization reductions in base operations will begin in FY89.

To correct the FY87-88 warrant officer overstructure problems, reductions in warrant officer positions in the TOE and TDA Army will begin in FY89. This reduction includes elimination of eight MOSs. The Terrain Analysis Technician (MOS 841A) will not be affected, but the other three warrant officer specialties are listed for elimination.

Gen. Wickham emphasized the importance of continued support of the efforts to keep Army structure within affordable bounds.

Col. Stan Johnson, Office of the Assistant Chief of Engineers, Military, Engineering and Topography Division, will be assigned to the Defense Mapping Agency (DMA) this summer.

Lt. Col. Richard Johnson, Office of the Deputy Chief of Staff, Intelligence, will begin at DMA in mid-July as Executive Director, HQ, DMA. Lt. Col. Johnson also has been selected for battalion-level command at the 649th Engineer Battalion (Topo), Schwetzingen, Germany. He will assume this command in May 1988.

Lt. Col. Robert Campbell will assume command of the 29th Engineer Battalion in July 1987. He previously worked in the facilities engineering area for one year with the staff commander in chief, HQ, U.S. Pacific Command, Camp Smith, Hawaii. Before his tour at Camp Smith, Lt. Col. Campbell was assigned to the ROTC Detachment at the University of Hawaii for three years.

Maj. John Quick, previously assigned as acting chief of the Topography Space Team of the Military, Engineering and Topography Division, Office of the Assistant Chief of Engineers, was assigned to the Command and General Staff College, Class 88, Fort Leavenworth, Kan. His assignment will commence in July.

Tech notes

DTSS supports Fort Hood demo

USAETL scientists and engineers provided support for the Portable All-Source Analysis System/Enemy Situation Correlation Element Work Station (PAWS) User Field Demonstration held at Fort Hood, Texas, in June. Support for the PAWS demo began in December 1986 with the conversion of the Digital Topographic Support System (DTSS) Capabilities Demonstration System, (DCADS) Intervisibility Software. DTSS project engineers prepared a User's Manual for this DTSS Prototype Intervisibility Software. The manual was used by intelligence analysts of the 2nd Armored Division during a two-day PAWS training course.

In conjunction with the PAWS demo, the terrain analysis product generation capabilities of the DCADS were also demonstrated. Terrain analysts from the 524th Engineer Detachment (TA) were trained to operate the DCADS. The soldiers generated intervisibility and terrain analysis products for their REFORGER area of interest with minimum supervision after a few days of hands-on use of both systems. The soldiers enjoyed operating the systems and visitors were impressed with the capabilities on display.

Reliability of terrain products

USAETL's Terrain Analysis Center (TAC) is seeking comments from users of its terrain analysis products. Users, especially in the field, are urged to forward comments to the center.

At TAC, concern over the lack of user feedback has been expressed. We recently received comments concerning one of our products from the 565th Engineer Detachment (T). Due in part to these comments, TAC is taking positive steps to improve the accuracy and reliability of its products. Establishing a dialogue between the user and producer will help us provide the best terrain study possible.

Please forward any comments concerning TAC products to: Commander and Director, USAETL, ATTN: Director, TAC, Fort Belvoir, VA 22060-5546

Global Positioning System update

USAETL engineers have rescheduled their visit to the New Orleans District. They will be establishing geodetic control for the district in October rather than in August. They will be using the GPS at the Tulsa District, in August, and at the Mobile District in September. Also in October, engineers will demonstrate the GPS technology at the Chief of Engineers Conference, to be held in the Wilmington District.

ALBE demo in Korea

USAETL's Terrain Analyst Work Station (TAWS), as part of the U.S. Army Corps of Engineers AirLand Battlefield Environment (ALBE) program, recently participated in the Eighth Army's Team Spirit Field Training Exercise in the vicinity of Seoul, Korea. USAETL scientists briefed demonstration attendees on their TAWS and Battlefield Environmental Effects Software and provided more than 400 topographic products to the combat forces participating in the Team Spirit exercise.

Gen. William J. Livsey, former Commander, U.S. Forces, Korea, Eighth Army, was impressed with TAWS, the forerunner of the Digital Topographic Support System (DTSS).

"This system will provide timely terrain analysis essential for accurate intelligence preparation of the battlefield, emplacement of communication and weapon systems and target value analysis," Livsey said.

Livsey stressed rapid development of the DTSS. "I think a prototype system could be fielded with this command now," Livsey said. "If the Joint Tactical Fusion Program Manager can field a stand-alone capability immediately, we need to pursue this approach."

Livsey feels that such a system could serve as a test-bed in a suitable location to help build and field-prove an automated terrain analysis architecture for the Army. At the same time, it would support the critical war-fighting needs now rather than in the future.

FOR THE COMMANDER AND DIRECTOR:

F. Darlene Seyler

F. DARLENE SEYLER
Public Affairs Officer