IDIMS *Newsletter*

JOINT ESL/TRW INTERNATIONAL PROGRAM

Technical University of Denmark cuts the ribbon

The Electromagnetic Institute of the Technical University of Denmark became the home of an IDIMS system, newly installed under the TRW/ESL International Program this summer. Located near Copenhagen in Lyngby, this IDIMS' mission is to contribute to the study of the North Atlantic. One of its first assignments is to assess where the land mass of Greenland ends and the surrounding ice mass begins. The study of ice dynamics and age is also on its list of assignments.

The IDIMS International Program pools the talents of ESL and TRW Components International (CI), combining the capabilities of the two TRW organizations. Developed in early 1979, the program is organized into a system build phase, a training phase, and an installation phase. Managers of the synergistic program are Norm Lyon at ESL and Rod Chatt at TRW CI.

Installation at the Technical University occurred ahead of schedule. When Andy Failla of ESL, accompanied by Rod Chatt of TRW CI, arrived in Denmark in July for final site preparation, he was surprised to find the crated IDIMS already there. So, Andy launched the installation after arranging for computer install support. Weilding a crowbar, Andy unveiled the IDIMS at 9 a.m. on July 15. Six hours later, IDIMS displayed its first image — setting a record for the fastest installation.

An impromptu "christening" ceremony — true to Danish academic tradition — followed installation. The culmination of the ceremony was cutting a red ribbon of "disqualification" that had been placed on the system. This signified that the symbolic student, IDIMS, achieved qualification for graduation. (The ribbon was donated by one of the University's students.) Formal contract sign-off followed in August when ESL's Pat Hu and Bob Putnam put IDIMS through its final acceptance tests.

Professor Preben Gudmandsen (far left) of the Technical University of Denmark cuts IDIMS' ribbon, which signifies that a student has qualified for graduation in Danish academic tradition. Looking on are E. Lintz Christensen (second from left) and Bruno Wolff (right) of the University's Electromagnetic Institute and Rod Chatt (third from left) of TRW Components International. ESL's Andy Failla was also there, but is not pictured because he was the man behind the camera.

Imagery teleconferencing between IDIMS systems has been added to the list of IDIMS' talents. The first phase of incorporating Distributed Systems (DS/3000) into IDIMS' repertoire was completed in July, creating an imagery network between systems at different sites. Special IDIMS software, tailored for use with IDIMS release 4.29, was developed for this application.

Assuming that an image has been passed by conventional means (such as FCOPY), a site may demonstrate results of processing techniques to another site using the IDIMS display. Control information to manipulate the image is passed between sites.

"The response time for DS/IDIMS operations is similar to that for normal IDIMS operations," comments Jan Fabini, a member of the team that worked on the DS incorporation.

System functions, image display, and display control are operational now. Processing functions, as well as automatic transfer of imagery, are proposed for introduction during the next development phase.

Distributed IDIMS links users

New system functions and an addition to the IDIMS command syntax give the user control over the networking capability. The new feature only requires the interface hardware for a standard DS/3000 connection. Software package DS/3000 supports the use of HP 3000 computers in a local (hardwired) or remote (via modem) network.

System functions and command syntax. REMOTE, the new system function, establishes a link to another IDIMS site and initiates a session in parallel to the local session. REMOTE may be used, also, to terminate an existing parallel session. The special character # is used to designate command lines controlling the remote session — much like its use in standard Hewlett-Packard Distributed Systems command syntax.

Using the SET system function, the default use of # in a command line can be reversed so that all commands may control the remote session *unless* they

contain a # character. This frees the user from typing # on all commands.

Exiting, or even aborting, an IDIMS session with the END system function automatically terminates the remote session. Termination occurs even if the REMOTE command was not issued.

Function and command execution. System functions — and in the future, processing functions — are executed either locally or remotely. Execution of image display and display control commands is either local or in parallel.

Local execution of all commands is the same as normal IDIMS use. Processing for remote execution takes place on the remote IDIMS system. However, terminal I/O takes place locally; line printing and other external I/O are performed by peripheral devices at the remote site. Parallel execution of commands involving the display results from the necessity to control the remote display. Both displays respond to the local trackball and local terminal inputs. Thus, a user may demonstrate a particular mapping on an image to a remote site user; and both witness the same image presentation.
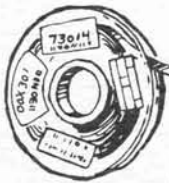
IDIMS AND MPE UPDATE

IDIMS customers will now receive versions of Hewlett-Packard's MPE (Multi-programming Executive) operating system more quickly. To accomplish this, ESL has expanded its working agreement with HP to allow ESL to obtain new versions of MPE immediately upon official release. This ensures that IDIMS customers receive IDIMS/MPE releases that are more trouble-free.

Another new twist to the ESL and HP relationship puts ESL "on-top-of" new MPE features, enhancements, and problems through pre-release of MPE. Formal meetings are being set up to inform ESL of these details, allowing advanced planning for IDIMS modifications. The new procedure has already been inaugurated with a meeting on the next major release — MPE-IV. IDIMS customers can expect delivery of MPE-IV/IDIMS, which may mean a 20-40 percent increase in throughput, in July 1981.

IDIMS modifications of MPE are also undergoing a change. The tape holding the modified MPE will no longer contain any other HP software subsystems; it will only contain the fundamental operating system (FOS). This alleviates potential problems with HP support and ensures that IDIMS customers are running the cleanest version of the software modules available.

ATHENA MIT (MPE 2011), which will be sent out to IDIMS customers around March, is the first release for which the new modification procedures are being used. The major features of ATHENA are changes in console and terminal control commands — automatic speed-sensing, operator console switching to different terminals, and automatic and user logging.

MATE brings home imagery technology

NASA Ames' MATE Van, dubbed "IDIMS-on-Wheels" at ESL, has been visited by about 2000 people in nine states in less than a year on the road. The 30-foot van, which is equipped with a Compact IDIMS, literally brought home Landsat imagery analysis techniques for resource management applications on its first multi-state tour.

"MATE has done well in getting to key people with Landsat imagery on-line," says Larry Hofmann, program manager at NASA Ames Technical Applications Branch (TAB). MATE's log book lists six governors and numerous state legislators.

MATE has received many encores — requests that it return to contribute its operating capabilities to demonstration projects, state programs, and resource conferences. "We're moving into greater training and demonstration project emphasis, using MATE's capabilities to do the work where the user state agencies are located," comments Larry.

Before moving on to that phase, an itinerary of three states not-yet-visited is planned for early 1981. Then only two states in the 14-state Western Region (the only region in the U.S. to have this ser-
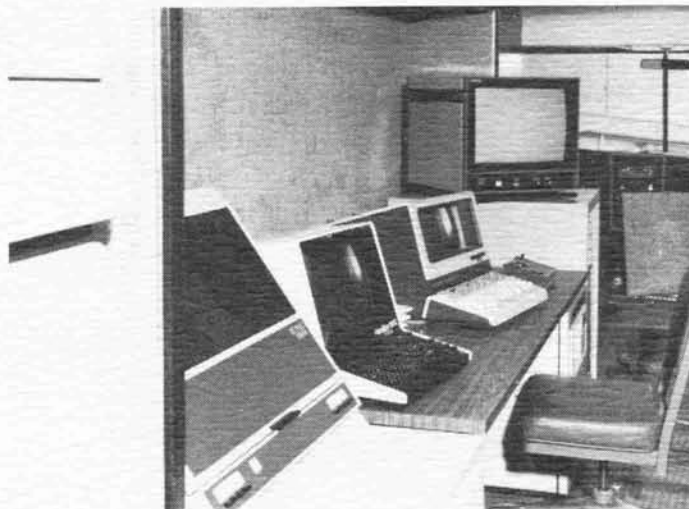
The MATE van's display station has given Landsat resource tours to over 2000 visitors in its first year on the road.

vice) will remain virgin territory to MATE — Hawaii and Alaska. "We'll have to put pontoons on the van and take the ocean routes," jokes TAB's Fred Mascy, who monitors the van's activities. The journey for the van to the two remote states will someday become a reality. For now, Hawaiian and Alaskan agencies will continue to make the trek to Ames.

The van first hit the road in February 1980 after its debut at the WRAP Con-

ference in October 1979. MATE organizationally falls in the Western Region Applications Program (WRAP), which is managed by TAB.

The Compact IDIMS housed by MATE has full, stand-alone capability in the field, as well as full compatibility with Ames' fixed IDIMS center. When at its Ames home base, the van serves double duty by off-loading the main center's demand.

A mobile home for a Compact IDIMS, the MATE van, serves a 14-state jurisdiction.

Users converge in Las Vegas for annual meeting

The third annual meeting of the IDIMS Users' Group drew users from all parts of the continent to Las Vegas, Nevada May 15 and 16. Hosted by EG&G Aerial Measurements Division, the two-day session was attended by representatives from nearly all the IDIMS sites, plus ESL and TRW personnel and IDIMS vendors.

The yearly meeting is designed to promote an interchange of ideas, applications, and problem solutions among IDIMS users and ESL.

"This year's meeting focused on involving IDIMS users in directing ESL's IDIMS priorities," says Sheldon Levy of EG&G, who chaired the meeting.

And, it accomplished just that. "A line of action was defined for resolving mutual user and ESL concerns. It was an extremely positive meeting," comments the ESL organizer of the event, Mary Mattson.

On the agenda were a hardware panel discussion, a business activity review, a software panel discussion, and user and vendor presentations. Capping the meeting was a tour and demonstration of EG&G IDIMS facilities, which included a souvenir for each attendee — a Dunn color photo of the Vegas Strip as seen by IR scanner data.

ESL's Brian Gordon opened the first day's discussion on hardware, emphasizing the importance of users keeping ESL abreast of their current activities and those planned for the future. He then shared ESL's intentions for short-term and long-term hardware development. Some specifics he mentioned were the Telex high-speed tape drive activity, the new features of the DeAnza image processor, and the planned development of a 32-bit-machine IDIMS system.

Ed Bollet of Hewlett-Packard, Chuck Nordby of DeAnza, and Mason Killebrew of Dunn Camera were also members of the hardware panel. Speaking about HP's system and hardware maintenance program, Ed detailed coverage, cost, and support program considerations. Chuck gave insights to the present and future structure and capabilities of the DeAnza image processor, stressing DeAnza's willingness to meet ESL's digital image processing requirements. Mason described Dunn Camera applications for image processing — the basis for a new IDIMS subsystem.

Norm Lyon was next at the podium, with a review of the past year's business activities. The establishment of an Imagery Data Systems line of business within ESL, the corporate commitment indicated by that action, and its impact on IDIMS owners were key points in Norm's talk. He also announced that stereo viewing and color camera subsystems had become available to IDIMS sites. Concluding his remarks, the IDIMS marketing manager reported progress in the development of price/configuration information covering standard IDIMS systems and subsystems.

The final formal segment of the two-day session, the software panel discussion, included a presentation of ESL's maintenance support and user services. ESL's Dave West addressed concerns, which were raised at the previous meeting, for greater visibility of software updates, including fixes and new releases. Dave explained in detail what happens when a *Software Problem Report* is received by ESL. The development of a new format for the monthly *Software Status Report* was also noted by Dave.

Responding to other concerns earmarked at last year's meeting, Andy Failla of ESL reviewed the growth and development of ESL's product support program. Noting the expansion of ESL's software quality assurance program, he described the procedures that Bob Ferrie, IDIMS quality assurance engineer, follows when evaluating and testing a software problem.
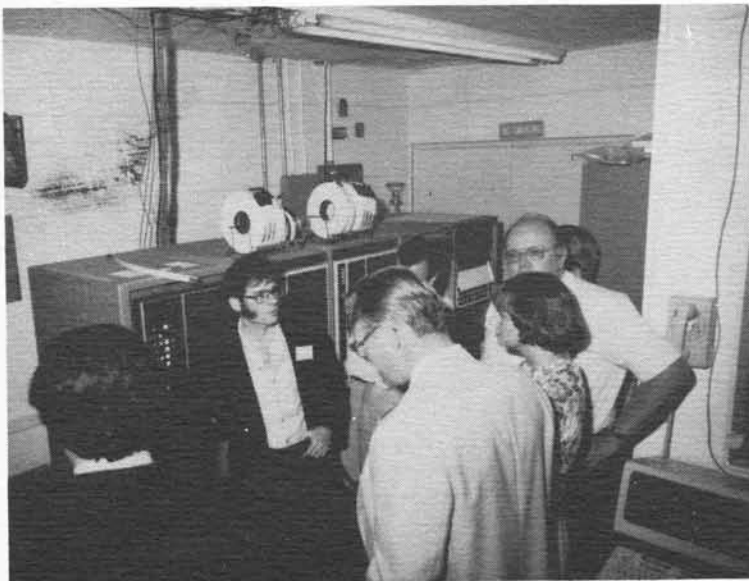
1980's chairman, Sheldon Levy, describes EG&G's IDIMS system to fellow users.

Mike Guberick of Scripps Institution — elected chairman for 1981 — presents their application of IDIMS to satellite oceanography.

Election results

Capturing two-thirds of the vote, Scripps Institution of Oceanography in San Diego, California has been elected the site of the 1981 Users' Group Meeting. The gathering, which is slated for May 6, 7 and 8, is being extended an extra half day by popular demand.

Poll results came in as mirror images for the chairman and vice chairman races. Scripps' Michael Guberick edged out Bill Alford of Goddard for chairman by the same margin that Bill topped Mike with for vice chairman.

Mary Mattson's bid for re-election as ESL representative was uncontested.

Photos courtesy of EG&G

ESL's Dave West was pleased to find EG&G's IDIMS software release in good working order during the User's Group meeting in May.
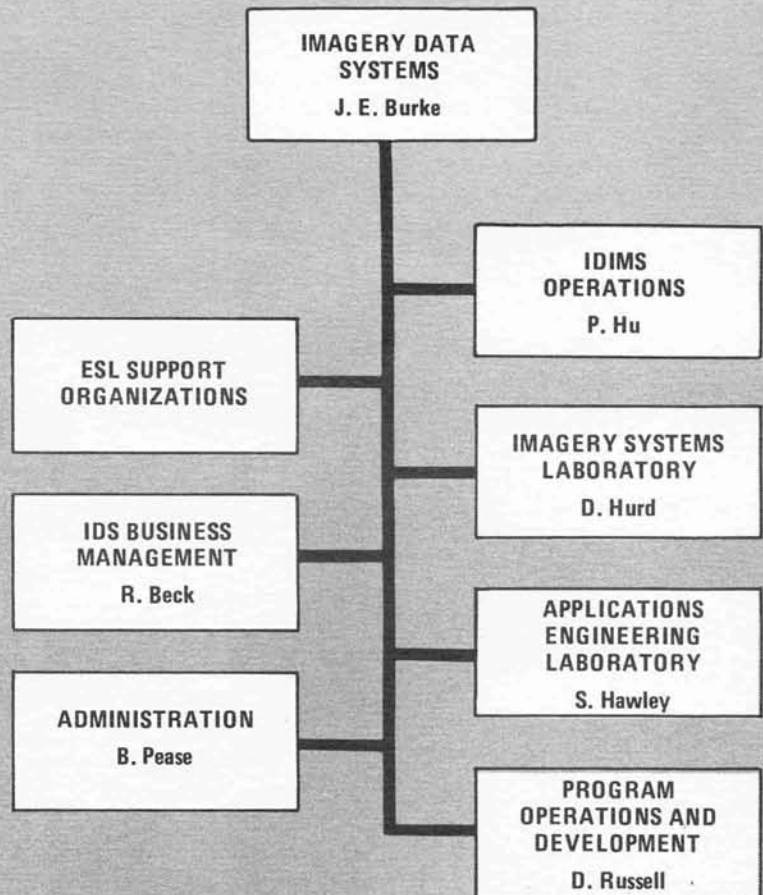
IDS who's who

A company-wide reorganization of ESL during the past year has resulted in the establishment of an Imagery Data Systems (IDS) line of business. Refinement of this organization — under which all IDIMS-related activities fall — has included promotions and technical department restructuring.

The overall structure of the new organization, which is directed by Dr. Jim Burke, is shown in the accompanying diagram. Pat Hu has been promoted to IDIMS operations manager, and all IDIMS system activities have been centralized under Pat. Replacing Pat as IDIMS system programs manager is Rick LaPado. Norm Lyon and Andy Failla continue their respective functions in marketing and support for the standard systems area.

Standard and custom imagery systems development work will take place in Don Hurd's restructured laboratory. Cliff Reader and Ron Mitooka have been promoted to staff scientist positions. The lab has formed four engineering units to cover imagery and geoimagery data systems developments. The units and their designated managers are: IDIMS engineering, Bob Putnam; imagery systems engineering, Larry Hubble; applications systems, Charlie Pfefferkorn; and data management, Mike Lovas.

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                    │ IMAGERY DATA    │
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IMAGERY DATA SYSTEMS LINE OF BUSINESS

IDIMS 4.29 software release

Coming your way in mid-December is IDIMS' latest software release — 4.29. It contains approximately 130 system software upgrades, in addition to 35 application function and utility upgrades. Meeting ESL's expanded QA program goal of improving each successive release, 4.29 is an even higher grade release than its predecessors. The new release includes several software updates that were recommended or donated by members of the IDIMS-user family.

Here are the details on 4.29's enhancements:

Site-tailored initialization/termination

IDIMS initialization and termination functions may now be tailored to the needs of individual sites. Sites may write their own procedures through the SITEINIT and SITETERM functions by responding to the appropriate general configuration questions within BUILDID.UTILS. When these switches are enabled, the normal IDIMS initialization and termination procedures, START'PECOS and END'PECOS, call the respective procedure after completion of the normal functions.

Trapping aborting users

An end sequence abort flag may now be engaged through the general configuration dialogue of BUILDID.UTILS. A YES response to the appropriate question forces a user who has aborted IDIMS when this flag is on through the end sequence on start-up the next time he operates IDIMS. The trap may be disabled at any time by responding NO to the same question.

Start-up display grabbing control

Sites may specify that a user may not "grab" the display on initialization of IDIMS. Responding to the appropriate question within the BUILDID.UTILS general configuration dialogue activates grabbing control.

Single Control Files

Now, sites can have only one program library. Previous versions' program libraries were defined only within each individual account. The control of the account's program library name is within the general configuration dialogue of BUILDID.UTILS. When the system is installed, the default will be PROG-LIB.CONTROL of the local account. However, if a site wishes, the name of the file may be changed to PROGLIB.CON-TROL.IDIMS.

Greater control over system functions definition

The program PROGLIB.UTILS has been modified to prompt additional questions for system functions. The most significant of these is that a system function definition can now specify that the images specified within the command line must be on-line prior to loading/running the function. If a system function is thus defined, all processing and system functions are locked out until the load for that function's input images is completed. However, display controller function usage is still permitted. Also, the prompting sequence of this program is more intelligent in the definition of system and display controller functions. (For example, if a display controller function is being defined, reasonable defaults are loaded in so that the user can more likely respond carriage return to the prompts.)

Limiting the number of users

A site manager may now limit the number of IDIMS users on a system. This capability is prompted within the BUILDID.UTILS general configuration computer dialogue. The appropriate software to activate the response to the existing prompt has been implemented.

System utilities session histories

Modifications of IDIMS utilities include the ability to use IDIMS intrinsics (IDIMS'READ/IDIMS'WRITE) so that they will run either batch or session mode, plus produce a session history. The utilities that have been modified are:

CLEAN.UTILS	TAPECOPY.UTILS
FIXCAT.UTILS	TAPELIB.UTILS
HELPPGM.UTILS	UPDLIB.UTILS
TAPECOMP.UTILS	WHATISIT.UTILS

And, the utility CLEAN.UTILS corrects for the bug that prohibited the deletion of any files in the first and last groups (alphabetically) of an IDIMS AC-COUNT. The utility HELPPGM.UTILS is modified to accept a $$ or // as the end of function description. This enhancement minimizes problems in entry of HELP file descriptions caused by forgetting to insert the // in the HELP file source. The utility WHATISIT.UTILS has been modified to accomodate a four-byte entry of file count on a tape permitting the user to input up to 9999 files on a tape. This increases the previous maximum capacity of 99 files per tape to 9999 files per tape.

New definition of delimiters

The number of delimiters available has been increased in this version of IDIMS. The following are the IDIMS delimiters used within this release:

Rivet	>	Plus	+
Equal Sign	=	Minus	−
Left Paren	(	Caret	∧
Right Paren	)	Back Slash	\
Left Bracket	[	Dollar Sign	$
Right Bracket	]	Semicolon	;
Asterisk	*	Less Than	<
Colon	:	Pound Sign	#
Slash	/		

Any user can "override" the use of delimiters in a command line by putting the character string containing the delimiter in single quotes (i.e., make an IDIMS character string).

Wild card parameters for LISTCAT

The system function LISTCAT has two new parameters, which permit selective LISTCATs of a user's image catalog. NAME and TAPE permit a selective listing of only those image names or those STORE tapes that are specified by the new parameters.

Creation of an advanced geographic information system — GIS-II — by late 1983 is the charge of a new ESL program. But, it won't take three years to see results. Intermediate GIS components will be spawned during the gestation of GIS-II. The first spin-off, an improved geographic entry system (GES), is slated for availability in March 1981.

"GIS-II will allow integration of data from several sources and will maintain data in geographic coordinates while manipulations are performed," says Mike Gialdini, who manages the new development program. The end-product will include a fully-integrated graphics/attribute data structure and data-base management system. Additionally, GIS-II will feature high production through-put performance, complete analytical capabilities for geographically-oriented data, and efficient capacity for massive data bases.

Along the path to completion of GIS-II, these IDIMS-compatible subsystems will be available.

from GES...
...to GIS

Improved GES. Offering four times the resolution of the current version, this software replacement will include a symbology library for display of points and lines, a new menu, linkage to X-Y plotter, TRNSFORM modifications to increase efficiency, mensuration by class on line segment overlays, and increased text capacity of Tek screen. The improved GES will be available in March 1981.

Interactive Map Output System. This hardware/software system will compose and produce X-Y plot maps in five different projection systems of data from GES and IDIMS with highly flexible control of title and legend blocks, line weights/colors, symbology, and coordinate reference TICS. It will be available in March 1981, also.

Stand-alone Production Digitizing System. Intended for installations with high through-put digitizing requirements, this hardware/software system replacement for GES will be available in September 1981.

GIS-I. This hardware/software system will include the Interactive Map Output and Stand-alone Production Digitizing systems, as well as proximity analysis and topographical analysis (viewshed, sunshed, etc.). The system, which will be available in March 1982 will also feature a simultaneous multiple overlay capacity of 33 layers. GIS-I will be compatible with current IDIMS systems.
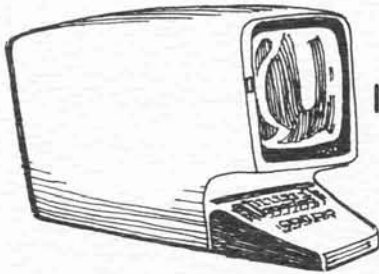
IDIMS ON DISPLAY

CX IDIMS laid to rest

An IDIMS I to IDIMS III upgrade for NASA Ames' Airborne Instruments Research Program (AIRP) has retired the last IDIMS based on a Hewlett-Packard CX model computer. The AIRP's old computer was one of the few forefunners of the well-known HP 3000 line still in active use. (Vintage computer buffs, take note. The AIRP system, originally known as the Series A, had "refrigerator" CPU doors and could be ordered in four different colors.)

The new IDIMS III, delivered ahead of schedule, will support AIRP's current data collection platforms, including the U-2 aircraft. Digital multi-spectral scanners (MSS) have been added to the IR and visual sensors and aerial cameras are now aboard the airborne platforms. MSS processing is being performed on IDIMS. The upgraded image processing facility will also be available to support the planned 1981 addition of an ER-2 platform.

Half way there

Stage one of a two-stage automating and reformatting overhaul of the *IDIMS Software Status Report* is now complete. The most noticeable changes in the recent issue are labeling of individual items and an easier-to-read format — the first fruits of an extensive programming effort. During the revamping, a few issues of the monthly publication didn't make it to your mailboxes.

A report format of one entry per page with nine possible lines of description and six possible lines of action and comment is the second-stage target of this undertaking. Only those entries that have undergone some type of action or change of status will be distributed each month. If the reports are compiled in a ring binder, then the old entries may be easily replaced by the new entries. To initiate this updating procedure, the first issue of the report will contain all unresolved reports, which will form the base.

Destined for ground-cover input

The Defense Mapping Agency's (DMA) Hydrologic and Topographic Center in Washington, D.C. has joined the fold of IDIMS sites. An IDIMS III with an ASAP subsystem was installed there in September. Configured with a DeAnza display, a Telex high-speed tape drive, and a Versatec wide-bed printer/plotter, the system will provide ground-cover input to the DMA's All-Digital Mapping Program.

Aerospace Center converts

DMA/AC exercised its contract option to expand the St. Louis Aerospace Center's existing system. The upgrade was completed in November. In addition to a host computer conversion, the upgrade included additional disks and displays, dual memory expansion of the array processor, and a second high-speed, high-density tape drive. Originally installed in 1979, the system has automated detection and delineation features from Landsat data.

Inside

IDIMS *Newsletter*

Seasons Greetings

GENERAL IDIMS INQUIRIES
Dial Direct (408) 743-6156