



# IDIMS Newsletter

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*A view of the HP-3000 Series II model 8 used in ESL's IDIMS facility.*

This newsletter is the first of an on-going series to be published bi-monthly by the IDIMS Product Group of ESL, Inc. Its purpose will be to keep IDIMS Users (and other interested parties) informed in the following areas:

- IDIMS software—enhancements, new developments, and maintenance.
- IDIMS hardware—new peripherals and subsystems.
- IDIMS applications—how the system is used.
- Activities and events of interest to IDIMS Users.

## IDIMS SUPPORT TEAM

The IDIMS Support Team, reporting to the IDIMS Product Manager, has the responsibility of installing and maintaining ESL's Image Processing systems. This support covers the hardware and software associated with these systems.

Dave West, our Systems Programmer, works full-time on IDIMS software and is responsible for maintenance, testing and updating. Dave is assisted by Jackie Gabbert. The support team draws on numer-

ous analysts, programmers, and engineers within the Imagery Systems and Exploitation Group for support.

We will also have a digital electronic technician (Customer Engineer) working full time on the Support Team. This individual is responsible for the installation and integration of IDIMS hardware and the maintenance of some of the subsystems used in IDIMS.

Both our Systems Programmer and Customer Engineer are prepared to make calls in the field whenever necessary.

## IDIMS SOFTWARE SUPPORT PROCEDURES

What happens to that bug report you turn in? Does it seem to take a long while to get it fixed? To help users better understand what happens to their bug reports, we'd like to explain the process from first report to when the final fix is given.

All error reports should be addressed to Dave West or Jackie Gabbert. Upon receipt they are logged in and assigned a unique identification number. Any subsequent references to the report should be by this number. An acknowledgement of the report is sent to the submitter. The next step is duplicating the bug. It cannot be overemphasized how important it is for you to submit proper documentation with all bug reports—session histories, line printer, maps, and anything else you feel will help us find the bug. We cannot correct an error if we cannot duplicate the error. End of sermon.

Once a bug has been verified, it is assigned a priority to be fixed. Priority rating is on a sliding scale; when its turn comes, a programmer is assigned to correct the bug. Once the programmer corrects the error and does some preliminary testing, the function is turned over to an independent tester for verification. The tester certifies that the error is corrected and the function is ready to go for the next IDIMS release.

In order to help make the error correction procedure more efficient, it would be advisable for each IDIMS installation to select an individual to be responsible for reviewing and forwarding their error reports. This person would also be the recipient of

status cards and error report inquiries from Dave West and Jackie Gabbert.

A word on IDIMS releases: The in-house IDIMS systems at ESL (a CX and a Series II) are used as a production mode test-bed. A new IDIMS release must run in-house for a period of four weeks, without error. The tapes for a new release are made at the beginning of the test period, and the releases are distributed at the end of the period, along with the supporting documentation. If a software failure occurs during this period, the four week test will restart from the beginning. A bug that is corrected, tested and certified ready for release will go out on the IDIMS release that follows the test phase. A maximum delay of three months should be allowed between bug fixing and release to customers. This may seem lengthy, but an extensive test phase is essential. In the situation where a customer is totally disabled by a functional error, some short-term solution will be worked out. The time between IDIMS software releases will be a minimum of two months.

## IDIMS SOFTWARE

### NEW RELEASE

A new release of IDIMS is now being prepared at ESL. This release, with versions for CX and Series II installations, introduces a number of significant new features.

For CX installations this release will incorporate a number of features that were developed first for this Series II version of IDIMS. Among these are:

- New cursor coordinate display with intensity levels shown for all three bands of a color display.
- Improved timing displays on the session histories.
- Support of displays having color graphics and programmable cursors.
- Display of cursor coordinates when doing an expansion.

The new release, for both CX and Series II installations, will have these features.

- Command files. A user can compose a sequence of IDIMS commands in the EDITOR, save them as a permanent file, and then execute the file during an IDIMS session. This feature should prove useful in setting up demonstrations, as both

display control and application commands are referenced in a command file.

- Delay command. This command, used in command files, allows a pause in the execution until the analyst enters a carriage return. When display commands are in a command file, a DELAY will enable proper timing pauses.
- The applications function program automatically restarts if it aborts during operation. Thus, the CANCEL command is not needed.
- As a function completes, the message 'END OF FUNCTION NAME' is printed: In a multi-command line, the analyst knows where in the processing sequence the system is.
- An enhanced MACRO definition capability is available to users with the programmer attribute. All users may access the MACRO's as defined.
- DELETE won't abort if an invalid image name is input.

### SOFTWARE UPDATE

The following software functions have been updated and will be included in upcoming versions of IDIMS:

- TRANSFORM: it had a problem assigning class numbers to control points
- TAPECOPY: it now handles input buffers 8192 bytes long

### SOFTWARE MAINTENANCE STATUS

Some currently reported software problems:

- ANNOTATE: Possible MPE command word conflict.
- DIVERGE: integer overflow
- ENTER: working with bit images
- FL: lines don't always coincide with selected points
- FLICKER: system crash
- GETSAMP: x-file creation problem
- IDIMS: abort placed analyst into MPE DEBUG; also, lack of warning where analyst uses more than allocated share of disk space

Image deletion problem.

ISOCLS: checking variance calculation accuracy

MINDST: problem with stat files from ISOCLS

MI: mensuration file access problem and missing points

MODTRANS: displays bias values from prior calculations and analyst cannot access records by number

PICSTAT: problem handling real data

RANDSAMP: stack underflow

READP: ":" not acceptable character

REGISTER: parameter response problems

SE: SE1 or SE2 sometimes recalls zero image plane

SIGMAQ: single gray level image produced

TSSELECT: looping

ZIP: can't see image when constructing polygon

## IDIMS HARDWARE

It's been rumored for a long time that HP is developing a large storage disk drive. We at ESL understand that it will have a 125 MByte capacity, plug right into the existing disk controller (alongside of 7905's and 7920's) and will require a revised operating system which HP calls MPE-II-B. ESL will be testing these "big disks" and new operating system on our in-house systems soon. HP says these disks should be available by mid-1978, and we plan to offer them as options in our IDIMS configurations as soon as possible after that.

In the fourth quarter, 1977 ESL undertook the development of a controller which would allow us to attach high-speed high-density mag tapes to IDIMS. We've got our prototype running with an 800/1600 BPI 125 IPS Kennedy transport now. The next step is to run 1600/6250 BPI at both 75 and 125 IPS. Presently, our plan is to begin delivering 800/1600 BPI tape drives in the second quarter 1978 and the 1600/6250 BPI in the third quarter. No additional software will be required to operate these new tape drives.



*The Perkin/Elmer Microdensitometer used in ESL's IDIMS facility.*

## IDIMS APPLICATIONS

This section will be a regular feature in our Newsletter and will provide descriptions of particular uses of IDIMS, a function or related subsystem to solve a problem. Topics currently scheduled to be addressed are listed below:

- The Geographic Entry System (GES).
- The Earth Resource Inventory System (ERIS).
- Geometric Mapping Functions (WARP, PGC).
- Fourier filtering for image restoration.

The topic for this month is the use of the stereo viewing subsystem (Hardware and software).

### STEREO VIEWING

IDIMS supports the presentation of stereo imagery on the system display. The single screen viewing technique relies on the fact that the odd and even lines of the image being viewed are alternately refreshed every 60th of a second (the entire image therefore being refreshed 30 times per second). The stereo image to be viewed must first be prepared as a composite of the two stereo image matrix. This is done through the use of MINGLE—a function which produces an image whose odd lines are the odd lines of image 1 and whose even lines are the even lines of image 2. When the composite image is viewed on the monitor, through a viewer synchronized to the refresh pulse, one eye will see the odd lines while

they are being refreshed and the other eye will see the even lines. This results in the presentation to each eye information from only one of the numbers of the stereo pair—the situation that produces the perception of stereo, or three dimensional data. There are two stereo viewer subsystems that are available for IDIMS. One is a pair of glasses that is made from a piezo electric material between two polarizers, the other is a mechanical viewer which uses a rotating shutter.

The software to produce the composite image (MINGLE) is a part of the standard IDIMS function library. Stereo mensuration software which allows the analyst to select a stereo cursor shape and to manipulate the two halves of the cursor separately, so that the cursor has an apparent height, is also a part of the function library.

#### *PROJECT NASA/BLM-ASVT ALASKA*

ESL is currently under contract to NASA Johnson Spacecraft center to implement the first phase of a wildland inventory system based on remote sensing data. They are being used to implement this system in a two million acre site in the interior of Alaska under management control by the BLM. This area is bounded on the north by the Alaska Range, on the south by a line passing through the confluence of the MacLaren and Susitna Rivers, on the east by Paxson and on the west by Cantwell.

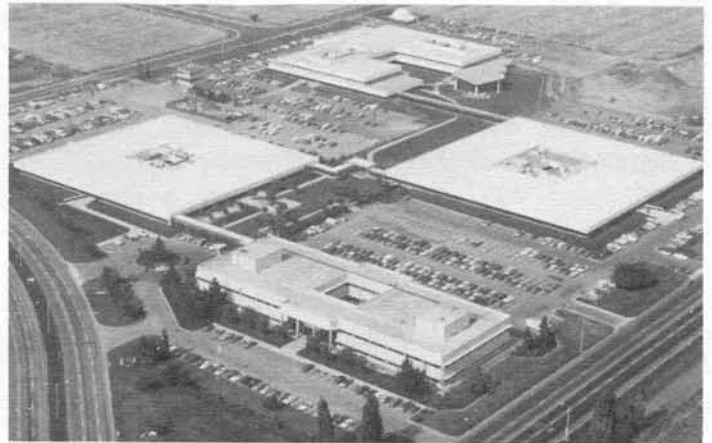
The objective of the Program is to conduct a wildland inventory using remote sensing techniques and statistical sampling methodologies. The end goal is for the BLM to implement such an inventory system into its day-to-day wildland management practices. To fulfill management needs the following tasks on wildland inventory are being performed:

- Digital mapping for vegetation.
- Manual mapping:
  1. for vegetation
  2. for geology

- Statistical analysis of the above which involve:
  1. acreage compilation.
  2. determination of vegetation change
- Documentation of all procedures and techniques used.
- Hands-on training for BLM personnel on all aspects of the program.
- Development of a sampling scheme to estimate vegetation forage and timber production on the phase II site in NW Arizona.
- Detailed costing provision for all of the above.

#### **IDIMS ACTIVITIES & EVENTS**

The first IDIMS Users Group Meeting will be held June 14–15 at the Le Baron Hotel, San Jose, California. ESL cordially invites all present users to attend. This two-day event will allow attendees to meet users from other IDIMS installations, learn about new IDIMS technology under development, exchange ideas on IDIMS applications, and tour the ESL facilities. Activities will include two luncheons and a banquet dinner. Correspondence concerning should be addressed to: IDIMS Product Manager, Andy Failla.



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