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VMAP/SGS. A video analytical plotter for
efficient and low cost solutions, for Architectural
Photogrammetry.

by

VASSILIS A. TSIVOS
VTA Photogrammetric Consultants Ltd
Calgary, Canada

and

DIMITRIS KOTOUZAS
D. KOTOUZAS Corp.
Athens-Greece

1. INTRODUCTION:

The technical advances of the computer and particularly the scanning technology, are having a serious impact in photogrammetry today:

- The design and use of the new photogrammetric equipment, (ie analytical stereoplotters) is simpler and easier.
- Various applications such as Aerial Triangulation and Orthophoto requiring laborious and time consuming techniques in data collection, are becoming more automated.
- The capability of capturing, storing, displaying and analyzing the various images using digital means, offers us opportunities that would not otherwise exist.

The purpose of this paper is to introduce the ECLIPSE 2000 Analytical plotter, and compare it to conventional Analytical plotters. This comparison will highlight the obtained benefits of using the new computer technology.

2. DISPLAY OF SCANNED IMAGES:

Conventional Photogrammetric equipment use diapositives of aerial photographs/satellites for the creation of stereoscopic models. These models are generated analytically or empirically, and are

observed through optical subsystems.

The ECLIPSE 2000 can accept scanned images instead of photo material. Scanned at a resolution to satisfy the accuracy requirements, these images are stored in digital form and displayed on the standard VGA monitor, and viewed with a simple stereoscopic subsystem similar to katoptric stereoscopes.

The ability to display stereoscopic images in digital form is changing radically the design of the new generation of analytical plotters.

It eliminates the need of photo material and expensive hardware. (Photo holders, stepping motors, and mechanical links).

Similarly, the floating mark subsystem found in analytical stereoplotters, has been substituted by a 3 button mouse, that is also used for collecting information, activating the menu and selecting menu options.

The new restitution instrument, solely a computer and a stereoscope, is fully analytical, employing the same mathematical model that conventional analytical plotters do.

3. STEREOSCOPIC SUPERIMPOSITION:

Another big advantage of the ECLIPSE 2000, is its stereoscopic superimposition ability.

The vectors whether generating a new map, or updating old maps) are superimposed and displayed against an overlay of images. This assists in the quality control, and it is the only efficient method of updating existing maps.

4. MONOSCOPIC SUPERIMPOSITION, DIGITAL ORTHOPHOTO:

The ECLIPSE 2000 system, has also the capability to correct the image file, given the Aerial Triangulation, DTM's, or break line information.

The end result is digital orthophoto, and 3-D digital restitution, with monoscopic vision and superimposition

5. SYSTEM EASY TO LEARN AND USE:

Because of its simplicity, the ECLIPSE 2000 is easy to learn and use.

It does not require operators with photogrammetric training, its capabilities for monoscopic digitizing makes it unique for quick cadastral, and resource type of mapping.

Persons with normal stereoscopic vision, are capable of using the system for more precise measurements, including Terrestrial and Architectural Photogrammetry. (Simply the operator locates the cursor on the screen, and digitizes the information as in digitizing tablets.

6. COMPATIBILITY WITH OTHER SYSTEMS:

The data collected with the ECLIPSE 2000 system can be edited and plotted with a variety of plotters(WILD, CALCOMP, HP).

Further, the data can be translated to other systems such as AUTOCAD, INTERGRAPH, ARC/INFO and ASCII.

7. ADVANTAGES - DISADVANTAGES:

Compared to present analytical stereoplotters, the ECLIPSE 2000 has the following advantages:

- It is a PC based restitution instrument, offering 3-D data collection/editing through mono/stereo vision and digital orthophoto.
- It offers unique capabilities for map updating and quick resource type of mapping.
- Its cost is low, compared to other analytical stereoplotters.
- It requires no maintenance, and it occupies small office space.
- It does not require operators with special training.
- It is easy to learn and use.
- When high resolving power is required, the scanning must be performed with high resolution. This creates large files that require increased storage capacity and slow down the image display.