

Titel:/Title:/Titre: SCANIT: A minicomputer processing system to help transform raster-scanned map lines into polygon boundaries.

Autor(en)/Author(s)/Auteur(s): Elliot L. Amidon

Zusammenfassung:/Abstract:/Sommaire:

The U.S. Forest Service has adopted two computer mapping systems for exclusive, national use. One uses a grid cell method of data organization, the other forms polygons. In the latter case, digital polygon boundaries are constructed from raster lines generated by scanning maps with a microdensitometer. SCANIT is a minicomputer system to accept raster scanned data. It is a preprocessor, providing editing and general data processing capabilities for subsequent use by polygon-oriented systems, large and small.

Titel:/Title:/Titre:

EINSATZ VON APPLIKATIONSSOFTWARE UND PERIPHERIE-  
GERAETEN IM SYSTEM KERN DSRI - GPI

Autor(en)/Author(s)/Auteur(s):

Werner Berner

Zusammenfassung:/Abstract:/Sommaire:

Für das analytische Stereoauswertegerät DSRI der Firma KERN & CO. AG, Aarau, besteht eine Anzahl von Applikationsprogrammen. Am Beispiel der Datenregistrierung werden einige Programme vorgestellt und die Einsatzmöglichkeiten verschiedener Peripheriegeräte dargestellt, insbesondere wird das Problem der Datenredaktion behandelt.

Das Graphische-Peripheriegerät GPI kann on-line mit Analytischen- und Analoggeräten betrieben werden. Der off-line Betrieb mit Mini- und Tischrechnern wird anhand der Programmpakete zur Behandlung planimetrischer und altimetrischer Daten vorgestellt.

Titel./Title./Titre: ON-LINE AERIAL TRIANGULATION WITH THE  
DIGITAL STEREOCARTOGRAPH DS

Autor(en)/Author(s)/Auteur(s): ING. GIANCARLO CAPANNI

Technical Photogrammetric Department of Officine Galileo

Zusammenfassung./Abstract./Sommaire: A PROCEDURE FOR INDEPENDENT MODELS  
AERIAL TRIANGULATION IS DESCRIBED . STARTING FROM DATA ACQUISITION  
(OBSERVATION OF THE STEREOSCOPIC MODEL) UP TO THE FINAL  
ADJUSTMENT OF A BLOCK OF MODELS, THE VARIOUS STEPS OF THE  
PROCEDURE ARE EXAMINED .  
THE AUTHOR POINTS OUT ALSO SOME OPERATING METHODS PERMITTING TO  
INCREASE THE RATE OF PRODUCTION OF THE DIGITAL STEREOCARTOGRAPH  
DS . PARTICULAR PROCEDURES ARE ALSO TAKEN INTO CONSIDERATION WHICH  
FACILITATE THE DETECTION AND THE REMOVAL OF BLUNDERS AMONG THE  
OBSERVED DATA .

Titel./Title./Titre: CONFIGURATION AND FIELDS OF APPLICATION OF THE  
STEREO COMPILER SC/1 A NEW INSTRUMENT BY OFFICINE GALILEO

Autor(en)/Author(s)/Auteur(s): ING. GIANCARLO CAPANNI

Technical Photogrammetric Department of Officine Galileo

Zusammenfassung./Abstract./Sommaire: THE MAIN CONSTRUCTION CHARACTERISTICS  
OF THE STEREOCOMPILER SC/1, A NEW COMPUTER ASSISTED STEREOCOMPA-  
RATOR DESIGNED AND PRODUCED BY OFFICINE GALILEO, ARE DESCRIBED  
TOGETHER WITH THE MOST IMPORTANT ASPECTS OF THE RELEVANT SOFTWARE  
WHICH IS AN ESSENTIAL PART OF THE SYSTEM .  
THE MAIN FIELDS OF APPLICATION OF THIS INSTRUMENT ARE ALSO  
TAKEN INTO CONSIDERATION WITH PARTICULAR REFERENCE TO THOSE  
APPLICATIONS FOR WHICH ANALYTICAL PROCEDURES ARE MORE SUITABLE  
OR INDISPENSABLE .

Titel:/Title:/Titre: DATA ACQUISITION FOR ENGINEERING APPLICATIONS:  
COMPARISON OF OPERATING PROCEDURES IN COMPUTER ASSISTED  
ANALOGICAL STEREOPLOTTER AND IN ANALYTICAL STEREOPLOTTERS

Autor(en)/Author(s)/Auteur(s): ING. GIANCARLO CAPANNI

Technical Photogrammetric Department of Officine Galileo

Zusammenfassung:/Abstract:/Sommaire: THE PROBLEM OF DATA ACQUISITION FOR  
DIGITAL TERRAIN MODEL IS BECOMING MORE AND MORE IMPORTANT .  
THE AUTHOR PRESENTS AN ANALYSIS OF THE PROCEDURES FOR PRODUCING  
DTM BY USING AN ANALOGUE STEREOPLOTTER ASSISTED BY A DESK  
COMPUTER AND BY USING AN ANALYTICAL STEREOPLOTTER .  
THE DIFFERENCES BETWEEN THE TWO SYSTEMS ARE POINTED OUT WITH  
REFERENCE TO SOME ENGINEERING APPLICATIONS OF PHOTOGRAMMETRY

Titel:/Title:/Titre: Système d'aide au traitement numérique d'images.  
Application a la télédétection.

Autor(en)/Author(s)/Auteur(s): P. COLIN ,A. HOURANI ,B. KEITH ,P.L.WENDEL

Zusammenfassung:/Abstract:/Sommaire: Les problèmes de traitement en  
télédétection ne peuvent être abordés que par des systèmes  
polyvalents, entièrement programmables, en raison de la  
grande diversité des opérations à effectuer. En effet il  
faut éviter la perte d'information qui est due à l'interface  
entre la machine et le thématicien : l'informaticien .

Ce travail décrit la conception et la réalisation d'un  
système d'aide au traitement numérique des images orienté  
vers les applications de la télédétection (LATIN) .

LATIN est un système logiciel qui a été réalisé pour  
faciliter l'aquisition, le traitement des images, la présen-  
tation des informations et le developpement des programmes  
utilisateurs .

LATIN a été implanté sur le système de traitement  
d'image LAE980, qui comporte des mémoires de masse, une caméra  
de TV, un "Flying spot", une console à mémoire, un processeur de  
matrice .

Titel:/Title:/Titre:

Digital Transfer of Pass Points with the KERN PG-2

Autor(en)/Author(s)/Auteur(s):

Egon Dorrer, Jürgen Peipe

Zusammenfassung:/Abstract:/Sommaire:

A computer-assisted analog stereoplotter with image coordinates rather than planimetric model coordinates as inputs is capable of utilizing a purely digital point transfer. Therefore, if aerial triangulation was performed with an analytical stereoplotter, pass points necessary for stereocompilation with an analog instrument, need not be marked physically on the photographs. The paper discusses a first investigation into the feasibility of this idea with a modified KERN PG-2 stereoplotter. In particular, routines for interactive real-time positioning and for interior orientation are described. Results on the accuracy analysis for different versions of available fiducials, carried out with aerial photography in 1:15 000 of Sudbury Testfield, Canada, are discussed. They confirm the original expectations.

Titel:/Title:/Titre:

Digitally Enhanced Analogue Photogrammetry - The Sensible Economic Alternative

Autor(en)/Author(s)/Auteur(s):

Eric John Fien, B.Surv. (Qld.)

Zusammenfassung:/Abstract:/Sommaire:

More than ten years' practical use in day-to-day Photogrammetric practice has demonstrated the economic advantages of combining the power of digital data processing with the simplicity and economy of analogue restitution. This paper describes the existing equipment, its software system, application packages and current state of development and explores the present state of the art systems which are proposed for implementation in 1980.

Titel:/Title:/Titre:

"Testing Procedures for Analytical Plotters"

Autor(en)/Author(s)/Auteur(s):

Lawrence W. Fritz

Zusammenfassung:/Abstract:/Sommaire:

Performance and acceptance tests of equipment are procedures for quality control that are essential in any evaluation process. The wide variety of analytical plotters on the market today, and their basic differences from analog plotters, requires that we institute a new look at these procedures. This paper addresses many of the test procedures that should be applied and the underlying philosophy of these performance tests for analytical plotters. Included is, what should be tested, why it should be tested, and how it can be tested. The approaches suggested are pragmatic in that they are addressed to the needs of the majority of analytical plotter users and are therefore designed to measure quantifiable performance. Practical simplified tests are proposed that will enable a typical user to verify that a particular analytical plotter is suitable for his needs or, to provide a means for him to ascertain that his specifications for an analytical plotter have been met. An example of an actual analytical plotter acceptance test is presented.

Titel:/Title:/Titre: Photogrammetry and The Geographical Information System. An insight into the Technological Alternatives.

Autor(en)/Author(s)/Auteur(s): Carlos Salmán González.

Zusammenfassung:/Abstract:/Sommaire: Abstract.

An integrated approach to survey the National Territories it is a prerequisite to social and economical development and is a convenient way to reduce duplication of efforts and waste of resources. This approach necessarily implies the evolution from the concept of Cartographic survey project to the concept of Geographical Information System. The impact of this fact in our discipline is enormous and it must make us to look more carefully into the foundation of Information Systems and also in the adequate planning procedures and strategies in order that these systems could be established. The links of Photogrammetry with other disciplines like Geodesy, Resources Mapping, Cartography and Remote Sensing must be more thoroughly studied. The Technology available nowadays it provides enough alternatives related to the degree of sophistication, in such a way that each countries according to its own conditions can choose the right level. In these paper some of these alternatives are analyzed and related to the before mentioned concepts.

Titel:/Title:/Titre:

SOFTWARE SYSTEMS DESIGN CRITERIA FOR AN ANALYTICAL STEREO PLOTTER

Autor(en)/Author(s)/Auteur(s):

Wayne Hall, Systemhouse Ltd.

Zusammenfassung:/Abstract:/Sommaire:

The construction of an analytical stereoplotter is more than the simple amalgamation of mechanics, electronics, and control software. To develop a stereoplotter which will be able to meet the variety of applications foreseen in the marketplace, considerable care and planning must precede the actual implementation. The design of an analytical stereoplotter is primarily a "system" design, with considerations of expandability, functionality and ergonomics being foremost in this design.

This paper will explore some of the system design criteria which have been applied to the development of the AUTO PLOT analytical stereoplotter at Systemhouse Ltd.

This paper should be delivered in conjunction with that of Mr. Richard Payne, Systemhouse Ltd.

Titel:/Title:/Titre:

Aviplotter APT 1 - ein neues Gerät für die  
Photostereometrie

Autor(en)/Author(s)/Auteur(s):

J. Böhm

Zusammenfassung:/Abstract:/Sommaire:

Das AVI PLOTTER APT 1 ist ein leistungsfähiges und bequemes Interpretationsgerät der mittleren Preisklasse. Es hat einen 5-fach Zoom und die Bilder können mittels einer parallelpaarigen Kamera unter der Betrachtung optik verschoben werden. Das Gerät läßt sich durch einen Einblick für einen zweiten Beobachter und eine photoelektronische Vierrichtung erweitern. In dem Beitrag werden zunächst das Grundgerät und seine Bauteile beschrieben. Es folgen Bemerkungen über seine Leistungsfähigkeit. Den Schluss bilden die möglichen Anwendungsgebiete und Arbeitstechniken.

Titel:/Title:/Titre:

PROCESSEUR PROPAL II PRETRAITEMENTS DE DONNEES DE  
TELEDETECTION.

Autor(en)/Author(s)/Auteur(s):

J. L. HOLLETTE

Zusammenfassung:/Abstract:/Sommaire:

Les diverses étapes de prétraitement des images de télédétection – correction des erreurs systèmes, correction géométrique de précision – sont réalisées sur une configuration processeur parallèle PROPAL II/Mini-calculateur.

Ce type de système développé par CIMSA assure le prétraitement d'un nombre important d'images par jour. L'extraction automatique de points d'appui et la rectification numérique par PROPAL II sont décrites.

Titel:/Title:/Titre: Darstellung digitaler Bilddaten im Großformat -  
Herstellung von rektifizierten Orthoscannerbildern und  
Bildverbänden

Autor(en)/Author(s)/Auteur(s): Dipl.Ing. Helmut HRUSKA

AUSTROPLAN, Österr. Planungsgesellschaft m.b.H., Wien

Zusammenfassung:/Abstract:/Sommaire:

Vorgestellt wird die Entwicklung eines Bildausgabegerätes für die Fernerkundung. Auf der Grundlage von digitalen Bilddaten können erstmals im Ausgabegerät selbst Bilder in beliebigem Filmformat und mit beliebig kontinuierlichem Maßstab hergestellt werden. Die wesentlichen Systemeigenschaften werden genannt und anhand von Bildbeispielen erläutert.

Weiters wird die Ausgabe rektifizierter Scannerstreifen und zusammenhängend-geschlossener Bildverbände demonstriert und deren Probleme bei der Datenaufbereitung und -darstellung diskutiert. Die Anwendung des Systems bei der digitalen Herstellung von Orthofotos, ohne Restriktion bei Maßstab- und Formatwahl, soll einen Ausblick auf künftige Verfahren andeuten.

Titel:/Title:/Titre:

ANALYSIS AND COMPARISON OF THE WORKING PRINCIPLES OF THE DIGITAL GEOMETRY STEREOPLOTTERS (DGS)

Autor(en)/Author(s)/Auteur(s):

INGHILLERI Giuseppe

Zusammenfassung:/Abstract:/Sommaire:

The overall organization of the DGS is taken into consideration and the working principles are defined and analysed. For establishing valid reference criteria five "operational modes" corresponding to 4, 3, 2, 1 and 0, degrees of freedom for the operator at a DGS are defined and the working principles are compared in the framework of each of them.

Titel:/Title:/Titre:

Report of the Working Group II/3 on Automated Instruments and Systems

Autor(en)/Author(s)/Auteur(s):

Z. Jaksic

Zusammenfassung:/Abstract:/Sommaire: The report describes the activities of the Working Group II/3 on Automated Instruments and Systems in the period 1976-1980. These activities have been concentrated on the three following major themes.

- Theoretical studies related to the definition of goals for automation of photogrammetric processes. Under this topic also the techniques for image correlation, for signal processing and for the control of automatic devices have been studied.
- Design principles and performance characteristics of automated instruments. This includes the analysis of various automatic components and of the instruments for automatic generation of different output forms. The ISP Correlation Test is a part of this group of studies.
- Analysis of the effects of automation of various processes on the overall organization of photogrammetric data processing systems. To this theme also belongs the investigation of the role of automated instruments in large information systems.



# Stereoscopic Digitizing Plotting and Interpreting System

(S.D.P.I. System)

Dr. K. Jeyapalan

Introduction - Maps should be revised periodically to take into account the economic and political developments that affect the mapped territory. Existing photogrammetric Instruments have the capability of plotting the original maps with speed and accuracy, however, they are too slow when used to revise existing maps.

The Stereoscopic Digitizing Plotting (SDP) system is being developed by the author for use in such revision work. This system uses near vertical aerial photographs and the versatile mini computer. The computer system has the capability of numerous digital computations; it can take in data from a digitizer and drive a plotter. This SDP system will be used in the project "Photogrammetrical Inventory" sponsored by U.S. Forest Service.

Photo interpretation and the identification of new developments are time consuming tasks. The objective of this research is to automate the SDP system and equip it with the capability of interpreting aerial photographs using an image analysis system. In order to do so we need to equip the SDP system with a Rear Projection digitizer, (LMS) linear measuring set and a Zoom Stereoscope.

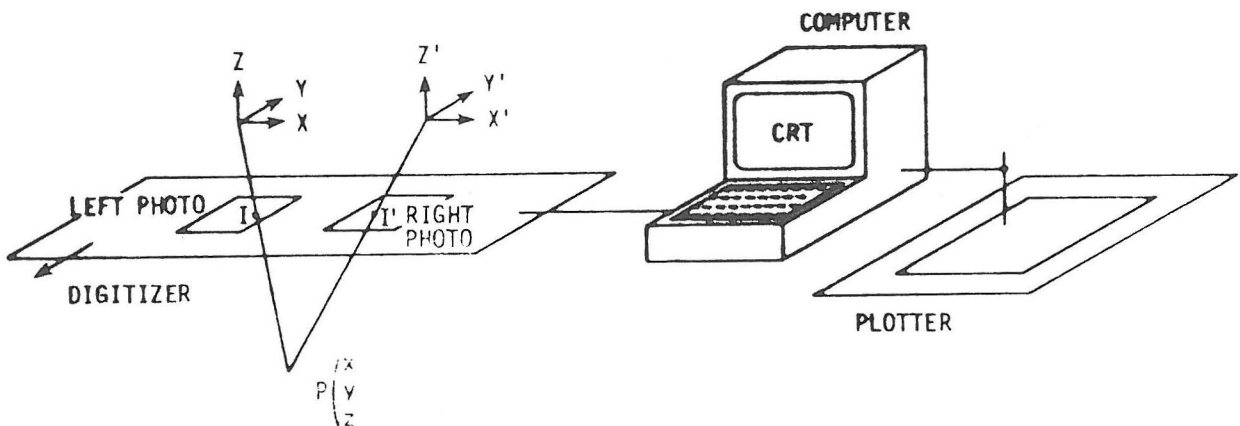


Fig. I. S.D.P. System.

### S.D.P. System

The S.D.P. system consists of a digitizer, computer and a plotter. (see Figure 1). The positive prints of a stereo pair are placed on the digitizer. In order to establish the exact location and orientation of the camera, twelve parameters,  $(X_o, Y_o, Z_o, K, \phi, W)$  corresponding to the left print and  $(X_o', Y_o', Z_o', K', \phi', W')$  corresponding to the right print, have to be determined. These are determined by using 6 or more pass points, common to both photographs points and 3 or more ground control points. The coordinates  $(x, y)$  of the left photo and the  $(x', y')$  of the right photo, corresponding to the pass and control points, are digitized and the information is passed on to the computer. The program in the computer calculates the twelve parameters and stores these values on a tape.

Now if the ground coordinates of some unknown points such as  $(I, I')$  are required, the corresponding photo coordinates are digitized and transferred to the computer. Another computer program retrieves the twelve parameters and forms the corresponding ground coordinates  $(x, y, z)$ . The same software will, when instructed, plot the location of the point in any desirable scale. Since existing topographic maps generally require little revision in the form of new roads and buildings, the S.D.P. system can digitize these and update the map quickly.

### S.D.P.I. System

The Stereoscopic Digitizing Plotting Interpreting (S.D.P.I.) system will be equipped with an image analyzing system (see Figure 2) to accelerate the interpreting capability of the S.D.P. system, thus allowing it to digitize new developments with speed and accuracy. In this image analyzing system the equivalent positive points are scanned by a T.V. Camera and the image signals are transmitted to two T.V. Screens via a control unit, consisting of a densitometer and a mixer system. The densitometer controls the grey levels of the image on the T.V. Screen and the mixer eliminates the old

data. One T.V. Screen can be used to visually eliminate the old data with the help of the control unit. Once satisfactory display is obtained on the T.V. Screen, the image from the other T.V. Screen is projected underneath the corresponding positive print on the Rear projection digitizer of the S.D.P.I. system. This new data is then readily digitizer by viewing a Zoom stereoscope.

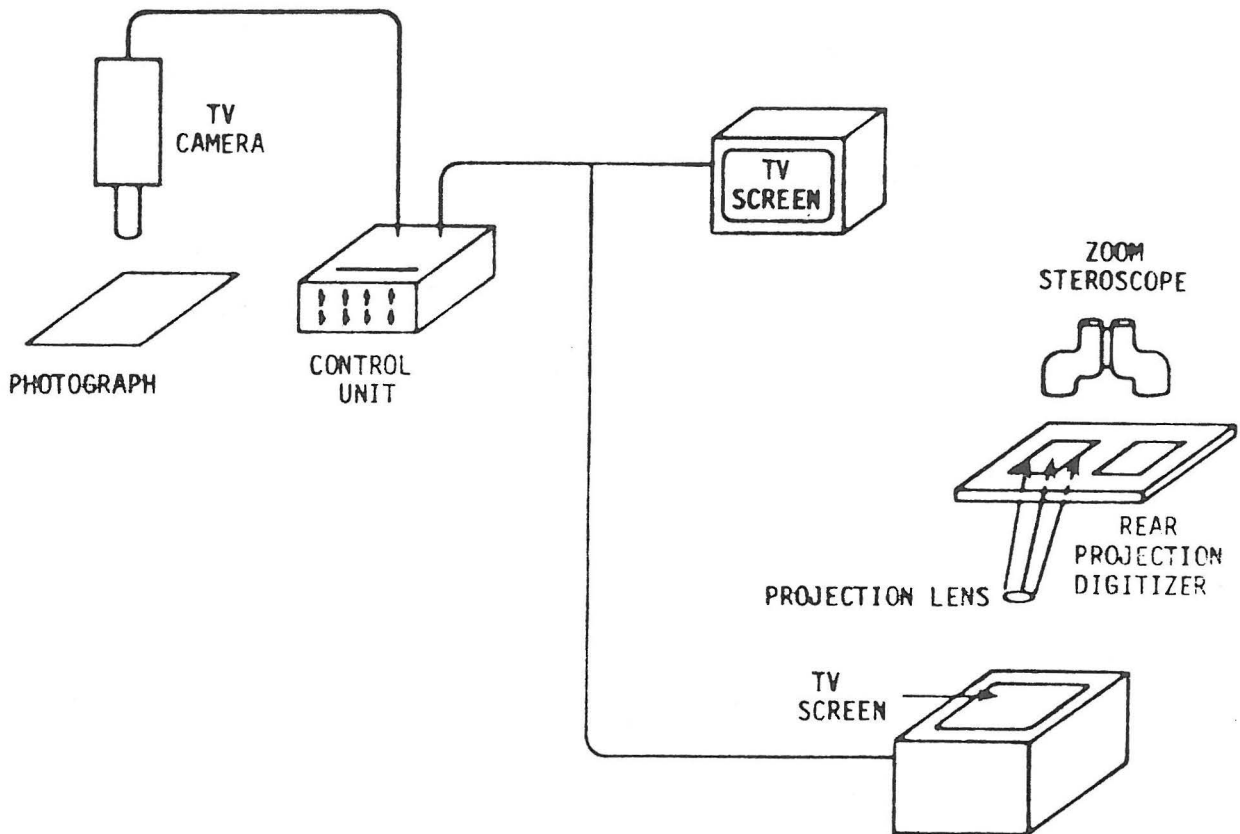


Fig. 2. S.D.P.I. System.

#### References

1. Jeyapalan, K. 1979, "Numerical Cadastral Survey", Photogrammetric Engineering, Vol. 45 No. AP 9.
2. Reeves, R. G., 1975, "Manual of Remote Sensing", American Society of Photogrammetry.
3. Simonett, D. S. and Lintz, J. Jr., 1976 "Remote Sensing of Environment" Addison-Wesley Publishing Company.

Titel:/Title:/Titre: EVALUATION DE PROCESSEURS SPECIALISES POUR LE TRAITEMENT DES IMAGES - ADAPTATION A DIFFERENTES METHODES DE RECTIFICATION NUMERIQUE

Autor(en)/Author(s)/Auteur(s):

P. KELLER

Zusammenfassung:/Abstract:/Sommaire:

Dans le cadre du programme SPOT, et plus particulièrement du développement du Centre de Rectification des Images Spatiales, nous avons comparé les performances de nombreux processeurs spécialisés de traitement des images. Nous avons modélisé deux de ces processeurs et réalisé plusieurs programmes d'essais. L'analyse des performances est présentée, performances liées à l'architecture du matériel considéré mais aussi aux différents algorithmes de rectification.

Titel:/Title:/Titre: The construction of a computer-assisted Photogrammetric system.

Autor(en)/Author(s)/Auteur(s):

Rune Larsson

Zusammenfassung:/Abstract:/Sommaire:

When photogrammetric organizations are interested in modernization of their equipment, they are often faced with the fact that they are forced to use their existing photogrammetric instruments in connection with new computer equipment. Here some of the experiences gained from building such a system are discussed in general. Different aspects of the problem are : central or distributed computer intelligence, interactivity, feedback of information to operator, system sensitivity to computer break-down and the impact of micro-computers.

Conclutions are drawn from two different points of wiew : the educational institution and the photogrammetric production organization.

**Titel:/Title:/Titre:**

Ein computer-unterstütztes Luftbilddauswertesystem

**Autor(en)/Author(s)/Auteur(s):**

Dr. Lichtner, Werner , Hannover

**Zusammenfassung:/Abstract:/Sommaire:**

Es werden die arbeitsorganisatorischen Möglichkeiten und Vorteile eines computer-unterstützten Luftbilddauswertesystems bei der niedersächsischen Landesvermessung in Hannover beschrieben. Das System besteht aus einem Minicomputer der HP 1000-Reihe, aus mehreren Bildschirmterminals und zwei photogrammetrischen Auswertegeräten( Planicom C100, Monokomparator PK 1 der Fa. ZEISS). Neben den arbeitsorganisatorischen Vorteilen eines solchen Systems werden auch wirtschaftliche Vorteile und Möglichkeiten der Systemerweiterung kurz erläutert und diskutiert.

**Titel:/Title:/Titre:**

TECHNIQUES FOR DIGITAL IMAGE RECORDING IN PHOTOGRAMETRY

**Autor(en)/Author(s)/Auteur(s):**

MARK T. MASON

**Zusammenfassung:/Abstract:/Sommaire:**

RECENT TRENDS IN DIGITAL IMAGE PROCESSING HAVE SHOWN A NEED FOR IMAGE RECORDING EQUIPMENT THAT SIGNIFICANTLY REDUCES SYSTEM THROUGHPUT TIME WHILE MAINTAINING RECORDING PRECISION AND IMAGE FIDELITY.

THIS PAPER WILL EXAMINE PROBLEMS ENCOUNTERED IN HIGH-SPEED PRECISION IMAGE RECORDING ON BOTH BLACK AND WHITE AND COLOR FILM, AND TECHNIQUES THAT CAN BE USED TO OVERCOME THESE PROBLEMS.

TOPICS COVERED WILL BE MECHANICAL EQUIPMENT, OPTICAL TECHNIQUES, APERTURE FUNCTIONS, LASER WRITING, DATA INTERFACES, DATA COMPRESSION AND MANIPULATION TECHNIQUES.

Titel:/Title:/Titre:

Erfahrungen mit dem Standardtest für Stereokomparatoren

Autor(en)/Author(s)/Auteur(s): Prof.Dr.-Ing.H.J.Meckenstock und  
cand.ing. Ing.(grad) M.Schmidt

Zusammenfassung:/Abstract:/Sommaire:

Es wird über Ergebnisse von Standardtest- Messungen an einem Stereokomparator Steko 1818 von JENA in der serienmäßigen Ausstattung und nach erfolgter Digitalisierung berichtet.

Titel:/Title:/Titre: *L'instrument à haute résolution visible (HRV)  
du système SPOT : un capteur adapté à la cartogra-  
phie spatiale.*

Autor(en)/Author(s)/Auteur(s): *Georges OTRIO (C.N.E.S.)*

Zusammenfassung:/Abstract:/Sommaire:

*On décrit les caractéristiques essentielles de l'instrument :  
performances géométriques et radiométriques, en soulignant  
l'aptitude de ce capteur à la haute résolution spatiale et aux  
applications cartographiques.*

*On donne enfin une description et l'état d'avancement de cet  
instrument dont la mise en orbite est prévue pour début 1984.*

Titel:/Title:/Titre:

THE DESIGN OF THE SYSTEMHOUSE AUTO PLOT VIEWER

Autor(en)/Author(s)/Auteur(s):

RICHARD PAYNE, SYSTEMHOUSE LTD.

Zusammenfassung:/Abstract:/Sommaire:

One of the significant advantages of an analytical stereoplotter is the reduction in complexity of the stereoviewer that is permitted by the use of the analytical capabilities of a computer.

This paper will discuss how Systemhouse approached the mechanical design and development of an uncomplicated analytical stereoviewer. It will address the emphasis that was put on the design criteria relating to user convenience and operator comfort.

The paper will also cover enhancements and options that are currently under consideration for the stereoviewer.

(This paper should be read in conjunction with that of Mr. W. Hall, Systemhouse Ltd.).

Titel:/Title:/Titre:

Evaluation of a digital image processing system.

Autor(en)/Author(s)/Auteur(s):

R. Ramachandran, P. Lohmann.

Zusammenfassung:/Abstract:/Sommaire:

This paper describes the evaluation of the drum-scanner system used for digital image processing. The system's spatial frequency response and density transfer characteristics are studied.

Titel:/Title:/Titre:

Ein Analytisches Plotter Programm zur objektiven on-line  
Punktdichtenbestimmung in Digitalen Höhenmodellen

Autor(en)/Author(s)/Auteur(s):

Helmut Rüdener

Zusammenfassung:/Abstract:/Sommaire:

Die Genauigkeit Digitaler Höhenmodelle wird primär von Punktdichte und Geländecharakter bestimmt. Die Interpolationsmethode hat nur einen sekundären Einfluß. Da der Erfassungs- und Verarbeitungsaufwand stark von der Punktmenge abhängen, besteht ein Interesse, nur die für eine definierte Genauigkeit der Geländerepräsentation notwendige Punktmenge zu erfassen.

In dem Bericht werden Verfahren und Programme für rechnergestützte und analytische Auswertegeräte beschrieben, welche eine in Genauigkeit und Punktdichte optimale Erfassung ermöglichen. In experimentellen Tests wird die Leistungsfähigkeit der Verfahren nachgewiesen.

Titel:/Title:/Titre:

Analytical Plotter Programs for Objective Point-Density  
Destination in Digital Height Models

Autor(en)/Author(s)/Auteur(s):

Helmut Rüdener

Zusammenfassung:/Abstract:/Sommaire:

The accuracy of digital height models (DHM) is primarily influenced by the point-density and the terrain-type. The influence of the interpolation method is less important. The amount of the needed time for data-acquisition and data-processing depends strongly on the number of points. That is why there is a great interest in reducing the data to a number which is adequate for a predefined accuracy in terrain-representation.

The report describes procedures and programs for computer-aided and analytical instruments, which allow data-acquisition in optimal point-density. An experimental test shows the efficiency of the procedures.



Titel:/Title:/Titre: THE EPIPOLAR SCANNER STEREO PLOTTER IN AN INTEGRATED PHOTOGRAMMETRIC PROCESSING ENVIRONMENT

Autor(en)/Author(s)/Auteur(s): Frank A. Scarano

Zusammenfassung:/Abstract:/Sommaire:

The AS-11B-X was developed by RADC to generate digital terrain elevation data at very high speed to meet DMA production requirements. The speed has been achieved by employing new scanning and correlation techniques, data organization for optimal scanning, digital scan shaping, and correlation, and multiple channel processing.

Since installation at DMAAC in 1976 the AS-11B-X has been integrated into a total photogrammetric data processing system, to be completed in 1980. In this system the AS-11B-X will be optimized for automated digital terrain data generation, while other components of the photogrammetric network will provide model setup data, post processing, and editing of the terrain data. All data transfers will be by communication links with the end product comprised of finished, formatted digital terrain elevation data files.

A second epipolar scanning stereoplotter is being provided to DMAAC and will also be integrated into the photogrammetric processing network. This second system will be called the Advanced Compilation Equipment.

Titel:/Title:/Titre: Tischrechner-Unterstützung von Monokomparator- und Stereoauswertegerät

Autor(en)/Author(s)/Auteur(s): Dr.-Ing. Eberhard Seeger

Zusammenfassung:/Abstract:/Sommaire:

Bei Monokomparator-Messungen durch Punktverwechslungen u. a. auftretende Fehler können durch on line-Rechnerunterstützung bereits beim Messvorgang eliminiert werden. Das für den Tischrechner HP 9825, 9835 und 9845 (mit Monokomparator ZEISS PK-1/ECOMAT-12) erstellte Programm CAMOC (Computer Assisted Monocomparator Measurements) erlaubt die on line-Berechnung der inneren und relativen Orientierung, sowie Fehlerbereinigung und Ausgabe von geprüften Bild- oder Modellkoordinaten für die Blockausgleichung. Die Stereoauswertung am Analoggerät (z.B. ZEISS-PLANIMAT, PLANICART, PLANITOP) kann ebenfalls durch Tischrechner unterstützt werden. Für HP 9825, 9835 und 9845 (mit ECOMAT-12, DIREC-1) steht das Programmsystem CASP (Computer Assisted Stereo Plotting) zur Verfügung. Ausgehend von der relativen Orientierung wird mit Hilfe von gemessenen Paßpunkten die absolute Orientierung durchgeführt. Es können direkt Landeskoordinaten ausgegeben oder Einstellwerte am Auswertegerät abgeleitet werden. Das Programm erlaubt interaktive Fehlerbereinigung und dynamische Punktregistrierung nach Intervallen. Es werden Beispiele für den Ablauf der Programme gegeben und ein Zeitvergleich durchgeführt.

Titel/Title/Titre:

Implementation of Automated Photogrammetric Systems in an Analog Mapping Organization

Autor(en)/Author(s)/Auteur(s)

Lowell E. Starr

Zusammenfassung:/Abstract:/Sommaire:

Implementation of automated photogrammetric systems in a long-established analog mapping organization requires revision of proven processes and skills. A special environment was created for the systems, cartographers and technicians were trained to operate the systems, and input phases were revised to provide an efficient and effective production flow. New procedures were developed to manage, edit, and post-process the output data. User interfaces and assistance has become part of the production scheme and procedures for accommodating them were developed. The result is an advancement in the technological capability of the organization. Practical experiences in implementing such systems are described.

Titel/Title/Titre: "Summary Report of Working Group II/4, Instruments for Processing and Analysis of Remotely Sensed Data"

Autor(en)/Author(s)/Auteur(s): James V. Taranik

Zusammenfassung:/Abstract:/Sommaire: Working Group II/4 in Commission II of the International Society of Photogrammetry is concerned with instrumentation for processing and analysis of remotely sensed data. The Working Group is composed of scientists from Europe and North America who are engaged in the design or utilization of instrumentation for remotely sensed data reduction. Three symposia were held by the Working Group to define the content of the final summary report. The first meeting was held in the United States at the EROS Data Center in Sioux Falls, South Dakota and the second meeting was held at the Canadian Center for Remote Sensing in Ottawa, Ontario. An interim report of Working Group activities was presented at the Commission II Symposium in Paris in September 1978. At that meeting a special sub-panel on instrumentation for processing of synthetic aperture radar data was developed. This SAR sub-panel sponsored the third symposium in Frascati, Italy in December 1979. The costs for central processing units have decreased with development of semiconductor technology. Array or parallel processors are now employed and they allow large volumes of data to be processed in near real-time. Research needs to be focussed on input and output devices and instrumentation for archiving and dissemination of data. In the near future small economical, compact analysis systems will be routinely employed at remote locations.