

Report of the first joint ICA - ISP - FIG technical
coordinating meeting, 9-13th July 1979, Zurich, Switzerland

Ch. Eidenbenz, dipl.Ing.ETH
Federal Office of Topography, Switzerland

BACKGROUND AND OBJECTIVES

The last General Assemblies of the International Society for Photogrammetry (1976, Helsinki) and of the International Cartographic Association (1976, Moscow) recommended, that cooperation be instituted in areas of mutual interest. Automation was one of the activities mentioned.

Consequently, shortly after the Congresses, contacts were established and discussions were held between the representatives of ISP Commission IV and ICA Commission III to explore ways of developing cooperation between the two associations. It was decided, that a joint meeting, to take place in Zurich, Switzerland, July 9-13th 1979, would be organized by the Swiss Cartographic Society and the Swiss Photogrammetric Society and be held at the Swiss Federal Institute of Technology (ETH).

Subsequently, the Secretary General of ISP suggested that the Fédération Internationale des Géomètres (FIG) should also be invited to take part in the planned meeting. Commission V of FIG has a Working Group on Standardization of digital data which has been the point of contact for this cooperative effort.

The underlying objectives of this meeting was to prepare proposals for resolutions by the three associations at their next congresses or, in other words, to define the work that should be carried in common or separately by the three sister organisations between 1980 and 1984.

ORGANISATION AND DISCUSSIONS

In order to meet the demanding objectives of the meeting, a strict organisation was necessary. Interested persons could only participate on the condition that each would actively contribute in the form of a position paper on one of the two subjects of the meeting. Furthermore, the number of participants was limited to make an active discussion possible.

The subjects considered were :

- to define areas of common interest and those that are clearly not of common interest among the three professions, as well as to discuss the role of the cartographer, the photogrammetrist and the surveyor with the aim of developing an understanding of each particular role.
- to assess the impact of digital technology on the conventional topographic map and to discuss the changing considerations of errors and accuracies in this new mapping technology.

All of the received position papers were sent to the participants a month before the meeting to allow a good preparation. Moreover, a moderator was chosen for each of the two subjects. He had the demanding task of preparing for the meeting a synopsis of the varying viewpoints.

Thus, on July 9th, 29 specialists from 11 countries met in Zurich at a well-organised conference to define the mutual interests of their fields and to discuss the common possibilities of development in the area of digital technology. The significance of the meeting was enhanced by the presence of the Presidents of ICA, Prof. F.S.Ormeling and ISP M. J.Cruset. The sessions were chaired by Profs. E.Spiess and Dr.H.H.Schmid of the ETH Zurich.

During the first session, lengthy discussions were held in an attempt to redefine and mutually limit the roles of the photogrammetrist and the cartographer with regard to the overwhelming development in graphic data processing. It soon became evident however, that this development is only in its

beginning stages. It has become impossible to make as concise a definition or description of the two professions as has been the case up to now. Therefore, the participants renounced to a new definition. Neil Anderson, moderator for this subject, used a very illustrative analogy to depict this problem: like a gust of wind, these new developments have stirred up a pile of leaves. After a while, the leaves will settle again, but in a different arrangement and new leaves will have joined the pattern.

In further sessions the discussion increasingly focussed on the problems of data management. The question of suitable data bases arose and it was realized that here lies a central area of common interest. Fig. 1 clearly shows this interface of the various disciplines.

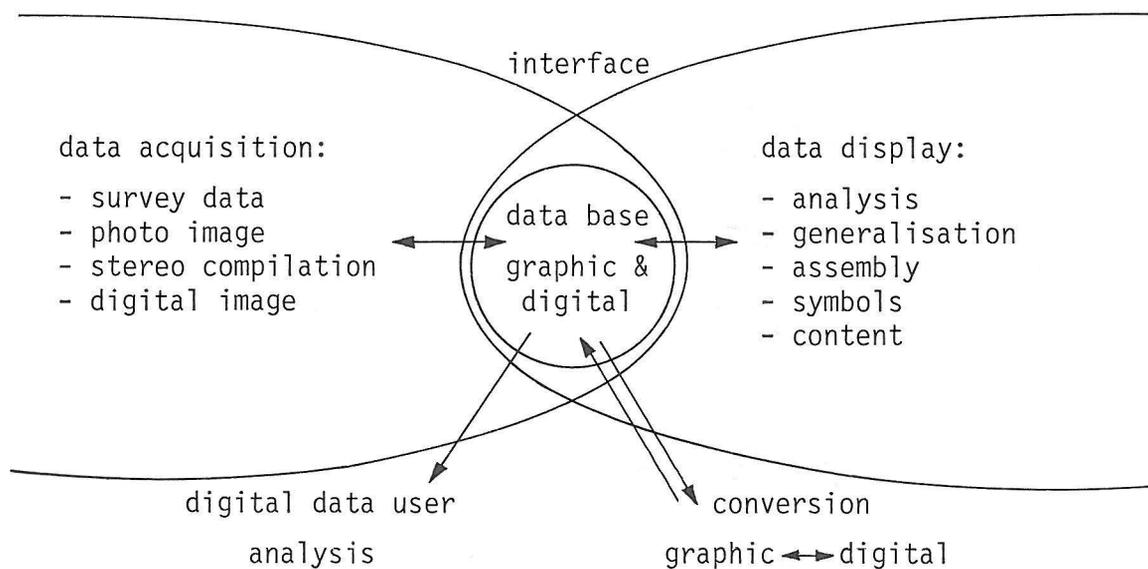


Fig. 1

At the same time it became evident to the participants that many of the existing data-related problems can only be solved in cooperation with computer specialists. To think of a future "photogrammetric-cartographic super-operator" is certainly not realistic. In future a kind of "data-base-manager" will be necessary to work hand in hand with the traditional specialists to overcome the problems inherent to the new technology.

Of course the traditional specialists themselves will also have to come to terms with computer technology. The future role of the different professions in the various fields is shown in Fig. 2 .

	Topographer	Photogrammetrist	Data base Manager	Cartographer
Computersystems	2	3	4	2
Topographic Survey	4	3	4	3
Photogrammetry	3	4	3	2
Cartography	2	2	2	4
Reproduction	1	1	1	3

1 = awareness, 2 = familiarity, 3 = knowledge, 4 = experience

Fig. 2

In handling the second subject, many problems were discussed. They can only be mentioned briefly here:

- There is often a confusion among terms used in graphic data processing and data bases. A glossary of terms would be very useful.
- The classification of cartographic data in a data base is of decisive importance and needs to be investigated.
- The exchange of data between different data bases is often impossible, or at best presents numerous difficulties. Considerable improvements could be achieved by developing standards for formats or interfaces.
- Many countries have already developed digital terrain models (DTM). The question arises how these data can be reasonably integrated into primary databases.

- The needs of the various users (customers) of digital data are still largely unknown. This information gap must be closed.
- The revision of data bases is a fundamental problem that must be solved together with the conception of a data base.
- The interaction of raster and vector mode in the acquisition, storage and representation of digital cartographic data is becoming more and more significant. It is important to know which form of data is best suited for what kind of manipulation or representation.
- There are various graphic data base products with interactive graphic editing stations (software/hardware) on the market. It is virtually impossible for a prospective customer to be aware of all the advantages and disadvantages of a particular system. A list of minimum requirements corresponding to the needs of computer cartography would be extremely useful for evaluations.
- An investigation on the economic aspects of digital cartography will sooner or later be inevitable.

All the above problems were discussed - some in great detail - at the meeting. In the following recommendations a selection of these problems were considered with respect to their priority.

RECOMMENDATIONS

1. In considering how the societies can develop better collaboration in the rapidly changing and developing field of digital mapping, it is recognized, that simply adding more conferences would burden an already dense schedule of national and international conferences at a time of fiscal restraint in many countries. On the other hand it is also recognized that effective technical exchange depends on people meeting to discuss areas of common interest as well as on the production of papers and reports for wider circulation. In this light the basic premise of the recommendation is to organize and/or support joint meetings and symposia

in conjunction with the already scheduled Society conferences. These would be designed to focus on the specific areas of interface between the participating Societies. Conference-organizers of course are already allocating time to joint sessions. The purpose here is to make more explicit the preparation and organisation of these joint sessions by:

- 1.1. identifying and articulating the areas of common interest,
 - 1.2. establishing and participating on joint program committees which will aid the conference organising committee in developing a balanced interdisciplinary format,
 - 1.3. publish the joint meetings in the Society publications.
2. It is recommended that a joint symposium be organised in conjunction with the 16th FIG Congress 1981 in Montreux, Switzerland. In this year there are no ICA or ISP conferences to conflict with this schedule. This could be coordinated through the FIG Congress committee and representatives from ICA and ISP, located in the host country. The subjects identified are the following:
- 2.1. Classification and definition of topographic features (taxonomy).
 - 2.2. Description of digital topographic data, taking into account geometric accuracy, precision and content.
 - 2.3. Investigation of the structure of data files and data bases for digital mapping.
 - 2.4. Definition of basic capabilities needed in interactive graphics editing systems for digital mapping.
 - 2.5. Economic aspects of digital mapping.
3. It is recommended that the participating Societies establish and appoint members to the Joint Study Groups to consider the following subjects, with one society taking the leading role in each of the subjects :
- 3.1. Classification of features for digital topographic mapping.
Lead Society - ICA.

3.2. Design and structure of data files and data bases most suitable for digital topographic information systems.

Lead Society - FIG.

3.3. Basic capabilities needed in interactive editing systems for photogrammetric and cartographic applications in digital topographic mapping.

Lead Society - ISP.

These groups would meet at the 1981 FIG Congress to discuss their preliminary progress and submit a written report for the 1982 ICA Technical Congress and for the 1982 ISP Commission IV Symposium.

List of Participants

Prof.D.F.S. O r m e l i n g, President ICA, Netherlands

Dean T. E d s o n, President Commission III/ICA, U S A

Neil M. A n d e r s o n, Member Commission III/ICA, Canada *)

Jean C r u s e t, President ISP, France

Dr.F.J. D o y l e, Secretary General ISP, U S A

Dr.J.M. Z a r z y c k i, President Commission IV/ISP, Canada *)

Dr. R. A d l e r, former President Commission V/FIG, Israel

J.-J. C h e v a l l i e r, Secretary Commission V/FIG, Switzerland

*) Program Committee, together with Jean R.R. Gauthier, Secretary of Commission IV/ISP, Canada (not participating at the Meeting)

Organizing Committee :

Prof.Dr.H.H. S c h m i d, Institut für Geodäsie und Photogrammetrie ETH

Prof. E. S p i e s s, Institut für Kartographie ETH Zürich

Z. P a r s i c, Institut für Geodäsie und Photogrammetrie ETH Zürich

Ch. H o i n k e s, Institut für Kartographie ETH Zürich

Ch. E i d e n b e n z, Bundesamt für Landestopographie Wabern/Bern

Other Participants :

Col. M. C a r l ã , Instituto Geographico Militare, Firenze Italy
J. D e n è g r e , Institut Géographique National, Paris, France
J. F u h r e r , Organisation de Géomètres Experts, Paris, France
Prof.Dr.H.-J. G o t t s c h a l k , Frankfurt a.M. F.R.Germany
K. H e i l a n d , Deutsche Gesellsch. für Photogrammetrie, F.R.Germany
Prof.Dr.O. K ö l b l , ETH Lausanne, Switzerland
Prof.Dr.G. K o n e c n y , TU Hannover, F.R.Germany
V.W. L a u r s e n , Danish Road Directorate, Herlev, Denmark
Dr.G.H. L i g t e r i n k , TH Delft, Netherlands
R. P e n n e y , Defence Mapping Agency, Washington DC, U S A
M. R i c h a r d , D.P.L.G., Salon de Provence, France
Dr.P. S t e f a n o v i c , ITC Enschede, Netherlands
Prof.H. S t e w a r t , Clark University, Worcester, Mass. U S A
Prof. L. S t o c h , Technion Haifa, Israel
Col. C.N. T h o m p s o n , Ordnance Survey, Maybush, England
Prof.Dr.K. T o r l e g a r d , Royal Inst.of Technology, Stockholm, Sweden
Prof.Dr.I.V a n T w e m b e k e , Wezembeek-Oppem, Belgium
Dr. W. W e b e r , IfAG, Frankfurt a.M., F.R.Germany
Lt.Col.R. W o o d , Mapping and Charting Est., Feltham, England
L. v a n Z u y l e n , Topographischer Dienst, Delft, Netherlands
