

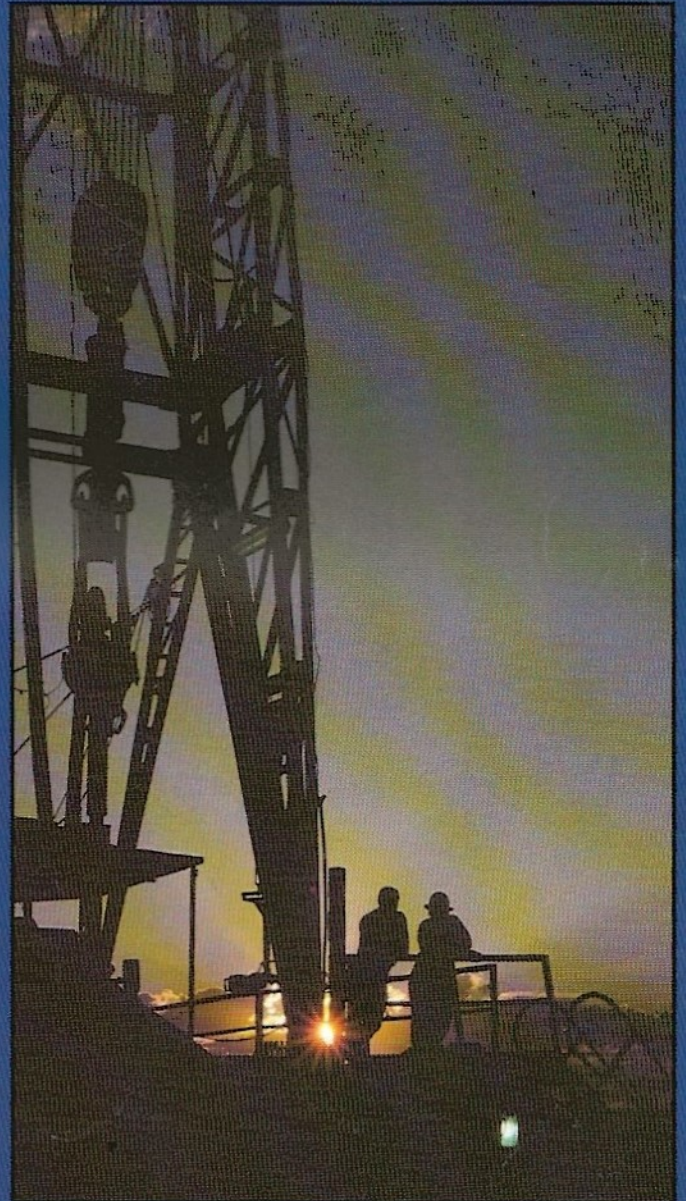
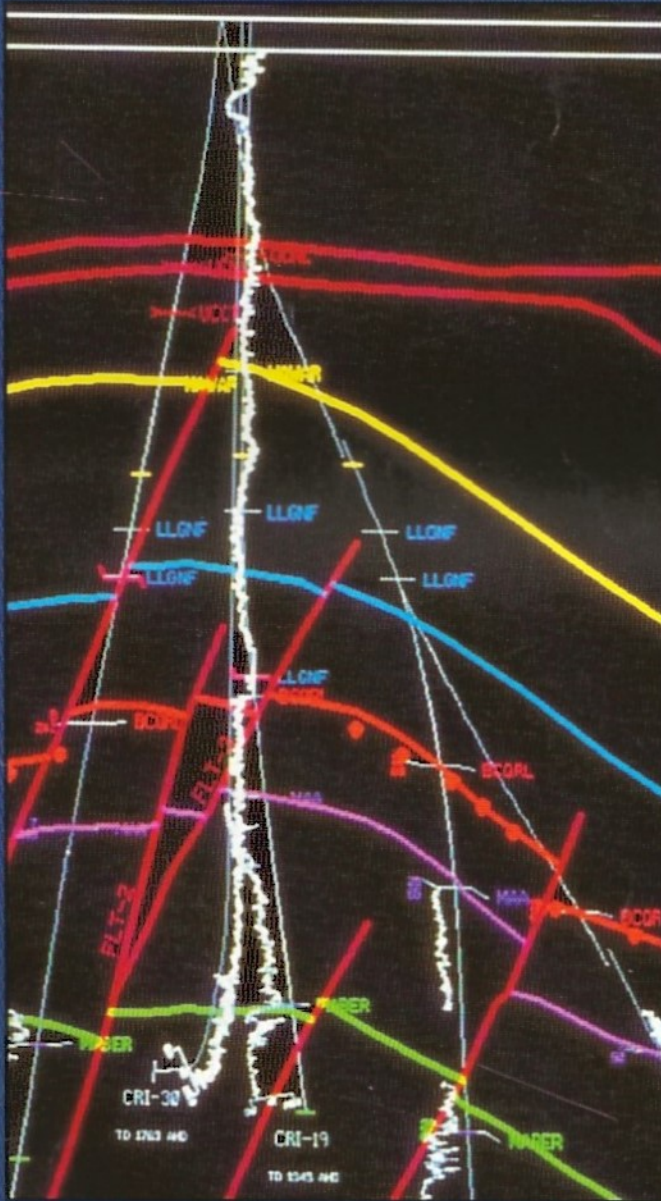


GIS EUROPE

VOLUME 1 NUMBER 9

Europe's Geographical Information Systems Magazine

NOVEMBER 1992



Petroleum GIS: Integration of data and disciplines

Private-sector demands create dual role for cartographic agencies

Environmental modelling offers GIS research and development challenge



Wherefore art thou cartographer? Your GIS needs you!

During the past year there have been several indications that UK cartographers are at last beginning to show more of an active interest in GIS — and none too soon! Not only are they actively criticising the quality of map output, but they are beginning to become concerned about the design of maps in an electronic medium.

At the recently held British Cartographic Society (BCS) Symposium in Aberdeen, Scotland, evidence of the growing interest was presented in a number of papers examining the importance of cartography to GIS and digital mapping, and in several "hands-on" sessions with GIS software. A key session focused on "Map Design in an Electronic World."

From the content of these papers and discussions with individuals, it is clear that at least some cartographers are aware of the importance of cartography to GIS. Curiously, however, they seem to be amongst the minority; the majority prefer to remain silent on the matter. Indeed, many cartographers seem to have adopted a "fait accompli" stance toward the future of cartography rather than taking an increasingly active role in GIS. Perhaps they are apprehensive about the speed with which changes are taking place and the lack of a clear idea about what their role in the "world" of GIS should be.

An open discussion about "the future role of cartography" inevitably revolved around GIS. The most noteworthy outcome from this discussion was the expressed concern for:

- the current lack of pure cartographic research in the United Kingdom, particularly in relation to GIS;
- the feeling that cartography has been taken over by software

developers;

- the confusion over the level of skill now required in cartography; and
- a general feeling that the UK cartographic community has become far too inward looking, leading to the marginalisation of cartography.

Outside of that discussion, several people also seemed concerned with exactly how cartography currently fits into GIS. Others questioned whether, with all the powerful hardware and software now available, cartographers weren't a dying breed. Similar concerns about the future of map design have been surfacing in the journal of the Society of Cartographers. If nothing else, this discussion aired the growing concern amongst a small number of cartographers about the future of cartography, and it raised awareness about the need for a solution.

The failure of many cartographers to become involved with GIS is rather surprising. Anyone who has glanced through recent articles and "adverts" in *GIS EUROPE* probably is aware that the main output from a GIS is, in fact, a map: vector or raster, vectors overlaid on

an image or vectors draped on a DTM, complete with symbols, text, border, colors, legend and orientation. Viewed in a positive light, GISs offer new ways and environments in which to use spatial data, and visualise and communicate information cartographically. The powerful software tools available with GISs facilitate new ways to design and create maps and new opportunities to experiment. They also offer

considerable creative freedom. Viewed in a negative light, and from a purely cartographic perspective, many (though not all) GIS maps represent poor examples of cartography. They often are ill-designed and do not communicate information effectively. This isn't at all surprising. Few, if any, cartographic guidelines have been developed for use with an electronic medium. The software tools originated in graphic design, and powerful software in the hands of a growing body of users with little cartographic knowledge, training or experience are easily misused.

As long as cartographers keep their distance from GIS, then such maps probably will remain poor, at least in the foreseeable future. Without a fundamental cartographic background, GIS users will remain free to design, create and make maps which may or may not communicate the desired information.

Continuing interest and help is needed from the cartographic community to ensure the improvement of the quality of map

output from GISs. Ideally, this should take three directions: research, awareness and education. More research is needed into map design in

the electronic medium. Already there has been considerable research into color perception, the selection and use of color, and hard copy acquisition. Others have investigated the need to provide online guidelines for map design and expert systems for GIS users. More GIS courses need to place greater emphasis on the fundamentals of cartography as a compulsory component of GIS



education, system use and application.

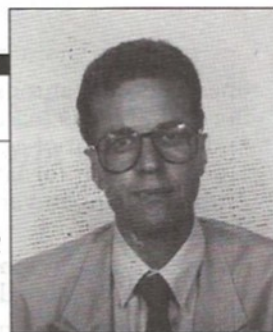
Cartographers are in the best position to initiate these proposed developments for the future. However, the GIS community also must indicate an equal willingness to become involved. GIS should be embraced by the cartographic community and vice versa. Far from spelling the demise of cartography it opens the door to a new future — one which builds upon the past whilst making progress. True, the tools and the environment for map design, creation and output may have changed, and some of the skill requirements as well, but the wealth of cartographic research and knowledge still is a vital part of the GIS domain. Likewise, GIS should welcome cartographers to aid in the production of not just maps, but "good" maps. Together, powerful software and cartographic expertise could lead to many exciting possibilities and opportunities.

Surely it is time that we all put our heads together and use the invaluable cartographic expertise at our disposal to benefit everyone. That would be a far more positive approach than continually expressing horror at the quality of map output from GIS whilst taking few steps to correct and improve it.

Cartographers need to be more outward looking. There is considerable scope to initiate GIS related research, to work with software developers for mutual benefit, and for cartographers to develop and acquire new skills. Wherefore are thou cartographer? Your GIS needs you! ☺

Sepe Cassettari, GIS EUROPE associate editor, United Kingdom, is principal lecturer at Kingston University, School of Geography, Penrhyn Road, Kingston upon Thames, Surrey KT1 2EE, England. David R Green, GIS EUROPE associate editor, United Kingdom, is with the Centre for Remote Sensing and Mapping Science, Department of Geography, University of Aberdeen, Elphinstone Road, Aberdeen AB9 2UF, Scotland.

GIS IN SWITZERLAND By Allan M Din



New cadastral service software emphasises data integrity

Many Swiss cadastral services are in the process of implementing the new official ordnance survey guidelines (in German, Reform der amtlichen Vermessung (RAV); in French, Réforme de la Mensuration Officielle (REMO)). While the need for modern GIS tools is clear, there exists no unique approach to the practical realization of RAV/REMO taking into account both regional differences and past experiences. But several technical lessons have been learnt which are of great interest to the cantonal and communal administrations still in the midst of evaluating systems and designing conceptual frameworks.

In the early 1980s, computerized management of maps and drawings was starting to be used extensively by cadastral services in Europe to provide greater flexibility in the storage and updating of graphical objects. Computer-aided design (CAD) software was the natural solution for the "graphics application" needs of the cadastre, but that had to be supplemented by a separate "administrative application" package. The concept involves two separate projects: one for alphanumeric administrative data and another for the geometry of parcels. In principle, the concept is simple to implement because there is little communication between its subparts.

In practice, however, several serious limitations of the concept arose due to the redundancy of descriptive terms and attributes, and to the lack of integrity and satisfactory updating of the data. Therefore, the need for an information system which offers a closer integration of administrative data and graphic objects was all too apparent. As a

consequence, development work on the basis of CAD was started by many cadastral services with the objective of integrating relational database management systems (RDBMS). For some inflexible CAD systems, the result was a complete halt to long and expensive projects, but for others, the development work opened the door to the versatile world of GIS.

Requirements of RAV/REMO

In 1987, the cadastral service of the Basel Land Canton presented a concept of a land information system (LIS) including technical specifications of the survey organization in the canton. Several administrative and technical aspects of this concept are reflected in RAV/REMO which now constitutes the framework of norms and recommendations for the development of LISs in Switzerland.

In the early 1980s, the cadastral service of Basel Land conducted a study of existing CAD solutions adapted to the requirements of the service and opted for the acquisition of CAD software from Intergraph Corp (Huntsville, Alabama, USA). Although it was not well known in Europe at the time, the CAD software was able to respond to most of the graphical needs of the service. Moreover, it was deemed that this CAD framework was flexible enough to justify in-house

development work towards a full-fledged GIS. The resulting software on the standard Intergraph CAD platform was Graphisch Interaktives Vermessungs-Informationssystem (GRIVIS).

The main concerns of the LIS concept in Basel are similar to

