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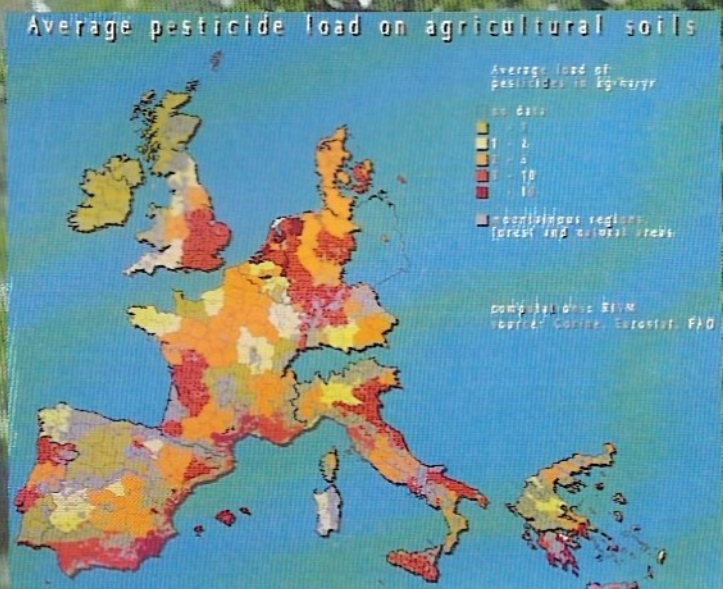


**Threats to European
Groundwater Analyzed with GIS**

**Mapping Awareness
Conference a Success**

**Italian GIS Projects Modernize
Transportation Management**

**Digital Imaging Systems Link
Airphoto Interpretation to GIS**





Topic of the Year? European Data Exchange, Formats and Standards

Data exchange between different GISs and users needs to be a straightforward task, one that can be undertaken with ease and a minimum of specialist knowledge. Conceptually, data exchange is simple, but in practice still quite difficult, and often unnecessarily complicated and time consuming.

The problem is that we are trying to "make do" with a wide range of existing data exchange formats developed in another place and time, for different purposes, and for the other GIS-related fields of computer-aided design (CAD), graphics and cartography. While these have since become a part of GIS, the nature of the data and the demands now being made of this data are far greater and more diverse than ever before. There are simply too many different exchange formats, many of them not supported by GIS software. As yet, there are no "truly comprehensive" GIS data exchange formats or standards.

Whatever the historical reasons for the proliferation and variety of formats and standards now available, the practical reality of the current situation is that they do not match the requirements of the future. Most users are not that knowledgeable about existing data exchange formats. Few sources provide adequate details of all the data formats currently in use with GIS. While such technicalities should not concern the average GIS user, the variety of data exchange formats now available and the lack of a standard necessitate that we have such knowledge at our fingertips. Perhaps in the short term, more comprehensive user interfaces for data exchange are needed for existing GISs. But what of the future? Comprehensive user interfaces are hardly a satisfactory long-term solution.

Standard Development

Ideally, the solution should be the development of a comprehensive, universally recognised standard for the exchange of all types of GIS data. As GIS technology continues to evolve and attract more users, and the range

of operational applications grows, so too will the need to be able to exchange data on an increasingly regular and routine basis. The creation of a standard will, therefore, become increasingly important in the future to facilitate both the availability and compatibility of spatial data sets for a wide range of interests and uses.

In defining a standard for GIS data exchange, one will need, at least temporarily, to accommodate all the existing formats via some sort of interface. The new format also will have to be flexible enough to permit future modification and adaptation. A single data exchange format to accommodate all the individual needs of users, inevitably, would be too complex. There are also the problems of being able to deal with the different data types, topology and so on. Maybe there is a need for some sort of "data exchange shell" or "toolkit" to provide a flexible framework within which a family of compatible data exchange formats could be developed and adapted for individual needs.

Beyond the practicalities of developing a "universal" data exchange format, there are also the difficulties of verification, testing, national and international consensus, and most importantly, deciding on who has responsibility for developing and maintaining the standard. Who will coordinate this and at what level? All of this will take time.

Any potential solution, therefore, also must be considered in light of the immediacy of the needs and demands of users. A quick and temporary solution may not be of any long-term value. Perhaps there is scope here for more research to develop new and better data models before we embark on the development of a new data exchange format. Nevertheless, a solution is required within a relatively short period of time. But is this practical in the near future? Will it require a gradual transition?

For those in the United Kingdom, the move towards European unity this

year undoubtedly will bring the question of data transfer formats and standards back into the "limelight" as a topic for discussion and action. Membership in the European Community (EC) should offer some key advantages as far as progress on this front is concerned: the potential for coordination, national and international communication, definition of common objectives, and, above all, agreement eventually leading to implementation.

In the short term, the EC seems to have settled on a transitional solution to the problem. Already, many European countries have taken the initiative to develop their own national transfer formats (NTFs). A European transfer format (ETF) will then form the interface to the country-level NTFs, while an international transfer format (ITF) will provide a higher-level interface for the ETF. Both the NTF and the ETF are to comply with the International Organization for Standardization (ISO) standards. At least

this is a step towards the long-term goal of improved compatibility whilst also facilitating the retention of short-term flexibility. It is also a step closer to a standard. Though it may not be a perfect solution, it is progress

in the right direction. What we in the United Kingdom and other member countries ultimately decide upon, whether at the national or the European level, may well have a significant influence on other standards for data exchange at the international level in the future.

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