

DATA BASES, LARGE SYSTEMS

There were three Large Data Base sessions. Dave Holland of the Defense Mapping Agency chaired all three sessions.

Kenneth Gordon of Western Washington University presented the paper "Computer-Assisted Environmental Data: Issues and Implications". Gordon discusses a survey of computer-assisted spatial data handling systems. The survey covered a variety of federal, state, regional, municipal, and corporate systems. It demonstrated that different types of applications require different systems configurations, software, and data characteristics and that geographic information systems are not being utilized to their full potential.

Ray E. Moses of NOAA and James L. Passauer of the Information Sciences Company presented a paper on the "National Ocean Survey - Automated Information System". This is a system developed by the Planning Research Corporation, Information Sciences Company to provide on-line storage for the features of nautical charts published by the National Ocean Survey. The main advantage of this system is its extensive interactive capabilities.

Jay R. Baker of the U.S. Bureau of the Census presented the paper "GEOMODEL - Integrated Data Structures for Representing Geographic Entities". The foundation of GEOMODEL is a non-redundant encoding of 0-cell (point), 1-cell (line), and 2-cell (area) topological atoms with appropriate linkages to represent their boundary/co-boundary relationships. An important point discussed in the paper is the transformation of a GBF/DIME file into the GEOMODEL representation.

David P. Bickmore of the Royal College of Art, London, and Graham J. Witty of the Experimental Cartography Unit gave a paper entitled "Ecobase of Britain: Status Report on a Digital Data Base of Britain". The digital data base of Britain is currently being digitized at scales of 1:50,000 and 1:200,000. A description of the system indicates the digital data base can not be as efficiently used as was hoped for.

Robert Haralick and Linda Shapiro of the Virginia Polytechnic Institute presented a paper entitled "A Data Structure for a Spatial Information System". Haralick and Shapiro present a detailed description of a data structure for a spatial information system. One advantage of their structure is that it can be used for both raster and vector format data. They describe ways the data structure can be used to do inferential reasoning with spatial data and they indicate the system can be used to logically store any of the spatial information in maps, line drawings, region adjacency graphs, or other geographic entities.

James Dougenik of the Harvard Laboratory for Computer Graphics and Spatial Analysis presented the paper "WHIRLPOOL: A Geometric Processor for Polygon Coverage Data". The primary purpose of WHIRLPOOL is to overlay two polygon coverages. It serves other purposes, including creating polygon identifiers for unlabelled (digitized) lines, determining point-in-polygon for large numbers of location points, and calculating polygon areas. Also, it is able to filter out unwanted data.

Timothy Nyerges of Ohio State University presented a paper entitled "A Formal Model of a Cartographic Information Base". Nyerges indicates map description analysis and generation can be considered a subset of a larger class of problems generally treated in picture processing. A linguistic approach is seen as a general method for organizing cartographic data with a conceptual hierarchy of information. The basis of this linguistic approach is a web grammar.

Scott Morehouse and Geoffrey Dutton presented a paper entitled "Extraction of Polygonal Information from Gridded Data". Basically, this paper describes an algorithm for converting from gridded (raster type data), to polygonal (vector type data).

Kenneth Duecker of Portland State University presented the paper "Land Resource Information Systems: Spatial and Attribute Resolution Issues". This paper describes the variety of land resource information systems which have been developed. It is noted that the single most important issue in developing such a system is the determination of the appropriate level of spatial and attribute resolution. System designers are also

concerned with the extent to which imaged data should be processed prior to capture and the amount of reduction and editing subsequent to data capture.

Robert T. Pelletier of the USDA Forest Service presented a paper "RIDS - Current Technology in Resource Management". RIDS is an overlay processing system that has been adopted for service-wide use by the Forest Service. The paper describes how RIDS is used in the collection, digitization, manipulation, and display of data for the management of natural resources.

Malcolm J. Stephens, Michael A. Domaratz, and Warren E. Schmidt of the U.S.G.S. presented the paper, "The Development of a National Small-Scale Digital Cartographic Data Base". This paper deals with the implementation of a national digital data base at a scale of 1:2,000,000.