



# Federal Geomatics Bulletin

the official publication of the Inter-Agency Committee on Geomatics



Government  
of Canada

Gouvernement  
du Canada

Vol. 2 No 2 Autumn 1990

## EMR Minister Opens National GIS Technology Centre

On March 5, 1990, Energy, Mines and Resources (EMR) Minister Jake Epp officially opened the National Geographic Information Systems Technology Centre, which is located in the heart of the EMR complex at 615 Booth Street in Ottawa. The Centre will serve as a showcase for Canadian GIS technology.

"This research and demonstration facility will benefit Canadian industry by allowing potential GIS users to familiarize themselves with the quality of Canadian technology", said Mr. Epp. "The Centre will foster the development of GIS technology and it will provide a forum for coordinating GIS activities within the federal government and other interested groups."

This opening of the new technology centre was attended by numerous influential industry, academic and government officials from across Canada. The Honourable Dave Parker, Minister of Crown Lands, British Columbia was also present. The well attended opening coincided with the International GIS'90 Conference held at the Ottawa Congress Centre, March 5-8.

Because GIS technology development is in its infancy, the Canadian Government is dedicated to ensuring that it develops in a way that will be the most beneficial to all possible Canadian users. It is for this reason that the Geographic Information Systems Division was created in 1988 as part of the Surveys, Mapping and Remote Sensing



Jennifer Hum of the GIS Division explains GIS technology to The Hon. Jake Epp, Minister of Energy, Mines and Resources Canada, at the opening of the GIS Technology Centre in March, 1990.

Sector of Energy, Mines and Resources. The GIS Division will provide expertise and advice on geographical information systems to all levels of government and private industry throughout Canada.

For more information, please contact: A/Director, Geographic Information Systems Division, Energy, Mines and Resources Canada, 615 Booth Street, Ottawa, Ontario, K1A 0E9. Fax (613)952-0916.

## Inter-Agency Committee on Geomatics (IACG) User Needs Mini-Survey

The IACG would like to obtain an indication of the user community's requirements for digital geomatics data from the federal government. As a first step, we are asking Bulletin readers to complete and return the enclosed questionnaire concerning their existing or potential requirements for digital spatially referenced data. (Do not hesitate

to add additional comments). All information will be confidential. The results will be summarized in a future issue of this Bulletin. For further information, please contact: IACG User Needs Survey, IACG Secretariat, 615 Booth St., Ottawa, Ontario K1A 0E9 Fax: (613) 952-0916.



Surveys, Mapping and  
Remote Sensing Sector



## B.C. and Federal Governments Cooperate on Artificial Intelligence Research

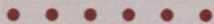


The Government of British Columbia and the federal government are cooperating on a \$2.3 million research program to develop a series of expert computer systems for use in forest resource management. The announcement was made jointly by Energy, Mines and Resources Minister Jake Epp and British Columbia Minister of Forests, Claude Richmond.

The project will develop specialized computer software to analyze geographic information systems data and remotely sensed images from satellites and aircraft to create and update forest inventories.

Presently, only a few foresters are skilled in the interpretation of digital remotely sensed imagery. The expert systems developed in this project will help other foresters analyze remotely sensed imagery. The use of expert systems will allow consistent data interpretation over the entire province, even though many individuals may have assisted in the interpretation of data from the various forest districts.

## Federal Geomatics Bulletin



This newsletter is intended as a vehicle for the communication of information on geomatics activities within the Canadian federal government. It is published several times a year under the auspices of the Inter-Agency Committee on Geomatics. Articles pertain to the methods, procedures and technology associated with systems for the collection, manipulation, display and dissemination of geographically referenced digital data.

Submissions for Volume 3 No. 1, which should be submitted before November 6, 1990, are most welcome. Subscription requests, queries, comments or submissions may be sent to:

Federal Geomatics Bulletin  
GIS Division, EMR  
615 Booth Street  
Ottawa, Ontario  
K1A 0E9.  
Fax: (613) 952-0916

For further information, please contact: Chief Research Scientist, Major Projects Office, Canada Centre for Remote Sensing, Surveys, Mapping and Remote Sensing Sector, Department of Energy, Mines and Resources, 1547 Merivale Road, Ottawa, Ontario, K1A 0Y7, Fax: (613) 952-9783.

## Remote Sensing Center Approved



The Atlantic Center for Remote Sensing of the Oceans has received government approval and is currently being established. It is the result of the initiative of the private sector to capitalize on the growing international interest in the commercialization of space and the ever-increasing number of satellite sensors, including Canada's RADARSAT. With start-up funding provided jointly by the Government of Canada and the Province of Nova Scotia, the Center will be located in the Halifax-Dartmouth area of Nova Scotia and will be operational in September, 1990. It will provide the infrastructure and expertise necessary to realize the transfer and advancement of remote sensing technology primarily for, but not limited to, oceanographic applications and for the development of remote sensing products and services.

Inquiries about the Center should be directed to: Interim Manager, Atlantic Center for Remote Sensing of the Oceans, P.O. Box 503, Station M, Halifax, Nova Scotia, B3J 2R7. Fax: 902-464-9602.

## Crop Condition Assessment Program



In 1989, the Agriculture Division of Statistics Canada initiated a program to assess crop conditions in the Prairie Provinces. The Crop Condition Assessment Program provides frequent, timely, quantitative and objective reports at the crop district and rural municipality levels. These reports are being produced on a weekly subscription basis during the 1990 growing season.

The crop condition reports use statistical information derived from NOAA satellite data. These data are incorporated into a vegetation index known as the Normalized Difference Vegetation Index, which is sensitive to vegetation stress resulting from conditions that could include drought, disease or insect

damage. The subscription products include maps, graphs, tables and visual images that can be integrated with historical crop condition information, conventional farm surveys, administrative, census, soil and weather data.

For further information, please contact: Remote Sensing Unit, Agriculture Division, Statistics Canada, Jean Talon Building, 12th floor, Ottawa, Ontario, K1A 0T6. Fax (613)951-3868.

## Developments in Geomatics



- The Institute of Land Information Management, University of Toronto, has completed a study of the scope and requirements for the implementation of GIS for major Canadian international airports. The IACG User Needs working group is reviewing the study and will provide comments. For further information, please contact the National Geomatics Advisor, Airports Group, Transport Canada, Place de Ville, Tower C, Ottawa, Ontario, K1A 0N8. Fax: (613) 957-4260.
- The IACG, through the Canadian General Standards Board, is developing standards for the exchange of geomatics data. The four working groups have been very active and have just concluded several productive meetings. There has been broad participation from the academic, industry and government sectors. Mr. René Gareau, chairman of the Committee on Geomatics, announced the appointment of Mr. Sylvain Latour as the technical secretary for the Committee. Mr. Latour will act as a technical coordinator between the working groups. For further information on the standards work, please contact: Committee on Geomatics, 2144 King Street West, Sherbrooke, Quebec, J1J 2E8. Fax: (819) 564-5698.
- The Research and Education Subcommittee of the IACG is conducting a series of seminars on geomatics-related topics to be given by eminent speakers. The IACG seminars are scheduled on an ad hoc basis and will be held in the Ottawa area. If you are interested in receiving notification of these seminars, please contact: IACG Seminar Series, GIS Division, EMR, 615 Booth Street, Ottawa, Ontario, K1A 0E9. Fax:(613) 952-0916.
- Statistics Canada (STC) recently signed a Memorandum of Coopera-



tion with the Geographic Information Corporation of the Province of New Brunswick. This agreement, signed by Victor Glickman of the Geography Division, STC, Joanne Hughes of the Atlantic Region, STC and Laurence Simpson of the Geographic Information Corporation, includes examining "joint opportunities for cost-saving and market development through cooperation in program areas, product development and marketing." For further information contact the Geography Division, Statistics Canada, Jean Talon Bldg., 3rd Floor, Tunney's Pasture, Ottawa, Ontario, K1A 0T6. Fax: (613) 951-0686.

### Statistics Canada Merges Divisions

Statistics Canada's Geography and Geocartographics Divisions were merged to form the new Geography Division. The merger will spawn improved one-stop customer service with the establishment of a Client Services Subdivision. In the new subdivision, the Marketing and Liaison Section keeps clients abreast of the division's developments and products; the Special Projects and Services Section consists of staff who can quickly meet client needs and deadlines; the Planning and Training Centre provides planning and training services.

Four sections will be engaged in research and development of spatial concepts and data analysis techniques. The Geographical Content, Analysis and Infrastructure Section will develop and review geographic concepts such as census metropolitan areas, and will delineate urban and rural boundaries for the Census. The Cartography Section will develop and maintain Statistics Canada's cartographic database. In the Geography Division, the guardian of data quality is the Methodology and Systems Section. The Geocartographics Applications Research Section integrates new technologies, data, concepts and models into information products.

For more information on the new Geography Division, please contact: Director, Geography Division, Section 3-C6, Statistics Canada, Tunney's Pasture, Ottawa, Ontario, K1A 0T6. Fax: (613) 951-0686

### Ottawa GIS '90 Conference



At the opening of the exhibits at the "GIS for the 90s" conference held in March, 1990 are, left to right: J.R.R. Gauthier, Conference Director; Dr. Fraser Taylor, Director, Carleton International; Mrs. Jean Pigott, Chairman of the National Capital Commission and J.H. O'Donnell, Assistant Deputy Minister, Surveys, Mapping and Remote Sensing Sector, EMR Canada.

"GIS FOR THE 90s" was the theme of the second annual national GIS conference held March 5-8, 1990 in Ottawa. This conference was organized by the Canadian Institute of Surveying and Mapping, the Inter-Agency Committee on Geomatics and the Surveys, Mapping and Remote Sensing Sector of EMR. Approximately 1200 participants from Canada, United States, Australia, Scotland, England, France, Venezuela, India, China and Czechoslovakia attended.

The conference's opening address was given by The Honourable Jake Epp, Minister of Energy, Mines and Resources. Mr. Epp explained the role of government support for GIS in terms of surveying and mapping activities, economic development and environmental issues. The keynote address "A Capital for the 21st Century" was presented by Mrs. Jean Pigott, Chairman of the National Capital Commission.

Attendees had the option of participating in any of the seven workshops,

five technical tours, visiting the 39 exhibits or attending any of the 200 papers presented. Sessions concentrated on subjects addressing technology, applications, GIS implementation, role of governments, data standards, and data management.

This conference provided a forum for members of the private sector, government and the academic community to discuss the issues, challenges and applications of GIS for the 1990s.

Planning for the 1991 GIS Conference is well underway. As usual, the next conference will be bigger and better than ever. Several changes will make this conference the one to attend. For more information on the 1991 conference or for a copy of previous conference proceedings, please contact: The Canadian Conference on GIS, Canadian Institute of Surveying and Mapping, P.O. Box 5378, Stn F, Ottawa, Ontario, K2C 3J1. Fax: (613) 224-9577.



## Forestry Canada GIS Conference

Forestry GIS'90, cosponsored by Forestry Canada and Reid, Collins and Associates, under the Canada — British Columbia Forest Resource Development Agreement, attracted almost 1000 participants to the Vancouver Trade and Convention Center from March 14-16, 1990, making it the largest forestry-related computer show in the world. Utilizing the format of previous years, six workshops dealing with topics ranging from "Introduction to GIS" to "Artificial Intelligence in Forestry" and "Global Positioning Systems" were held on Tuesday, March 13.

Following this year's theme of "Making It Work", the symposium offered a broad range of forestry-related case studies in several concurrent streams as well as vendor-hosted "hands-on" tutorials on 3-D Applications, Data Synthesis and Thematic Mapping. This year's focus was broadened somewhat with the inclusion of specific discussions on GIS in agriculture, municipal applications and education considerations.

Keynote speakers included The Honorable Frank Oberle, Minister of Forests, Kenneth Copeland, Chairman of Digital Equipment of Canada and President of the Information Technology Association of Canada, noted author Peter C. Newman and Canada's former Ambassador to the United Nations, Stephen Lewis. A successful exhibition and trade show containing 48 display booths complemented the symposium.

Plans are already well underway for Forestry GIS'91, to be held from February 12-16, 1991. If you are interested in attending or presenting a paper, please write or call the Forestry GIS'91 Symposium Office, c/o Polaris Learning Associates, 720 — 845 Cambie Street, Vancouver, B.C. V6B 4Z9.

## GLOBE '90

Globe '90, held March 19-23, 1990 in Vancouver B.C., was hailed as the first fully integrated trade fair and conference to have addressed issues of economic development and environmental protection. It was officially sponsored by the Province of British Columbia, the federal government as well as major national and international associations and financial institutions.

The Trade Fair was an effective marketplace for the products and services of the international environment industry as well as technologies from six environmental management sectors. The six environmental management sectors include: air/noise abatement; land; water/waste water; solid waste/recycling; hazardous and toxic materials and, information and business services. The conference program integrated the six environmental management sectors through three central themes: policy and legislation, business development, and technology and research.

Globe '90 was a meeting place for experts from industry, government and finance along with environmental consultants, advocates and academics. It provided a hands-on approach to the practical application of sustainable development and promoted the business opportunities it represents.

At Globe '90, Energy, Mines and Resources Minister Jake Epp signed a Memorandum of Understanding on Surveying, Mapping, Remote Sensing and Geographic Information Systems with Dr. Arpad Bakonyi, Chief Commissioner of the Environment Protection Branch of Hungary's Ministry of Industry.

## Geological Survey Integrates Digital Datasets

The Geological Survey of Canada (GSC) collects and stores a variety of geographically referenced digital datasets. These datasets include point data pertaining to geochemistry, mineral deposits, gravity and fossil locations. Included are flight line data such as airborne radiometric and aeromagnetic measurements, polygonal datasets corresponding to digital geological maps, and gridded geophysical datasets.

Integrating these diverse datasets on a single system required a GIS that could handle both vector and gridded data. In particular, the GSC required a system that could be used for archiving digital geology in polygonal form, along with ancillary point and line information such as strike and dip data and fault lines. The system required vector capabilities for these datasets in order to retain the original positional integrity. Also required was the ability to handle geoscience datasets in gridded form, so that researchers could use all the major geophysical datasets for their own spatial analyses. The GSC chose a commercial GIS that had the ability to handle both vector and grid data. The

GSC does not, however, intend to standardize on any one particular GIS package, as other vendors systems are popular within GSC for their ease of use and analytic capabilities.

Currently, GSC is developing a user interface to input these datasets into the GIS using a simple menu-driven package. This integration project will facilitate the use of GIS technology by the scientific community within GSC by allowing scientists to concentrate on analysis rather than on data conversion. Data imported and catalogued on the system can be exported to other GIS packages.

For further information please contact: Geological Survey of Canada, Geoscience Information Division, Data Systems Group, 601 Booth Street, Ottawa, Ontario, K1A 0E8. Fax: (613) 996-9990.

## IACG Studies Federal GIS Network Requirements

The Networking and Communications Sub-committee of the IACG has contracted IDOM Corporation of Ottawa to assess the potential of communications technology to respond to the needs of the GIS community within the federal government. The study has the following principal objectives: 1) to determine and describe needs for GIS database access and sharing among a selected number of federal agencies; 2) to determine where those needs require data communications; 3) where necessary, to describe possible system implementation scenarios, and the benefits of providing such a service; 4) to identify communications-related issues such as protocols, standards, infrastructure and databases; 5) to describe a potential federal networking linkage and 6) to recommend initial demonstrator projects.

The agencies selected for the case studies are: 1) Environment Canada, Atmospheric Environment Service; 2) Energy, Mines and Resources, GIS Division; 3) Statistics Canada, Geography Division; 4) Energy, Mines and Resources, National Atlas Information Service and 5) Environment Canada, St. Lawrence Action Plan.

For further information, please contact: Networking Study, Communications Applications Directorate, Department of Communications, 300 Slater Street, Ottawa, Ontario, K1A 0C8. Fax: (613)957-8839.



## Metropolitan Atlas Series Available

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The 12 publications in the 1986 Metropolitan Atlas Series are now available from Statistics Canada. Data on key demographic, social and economic characteristics are presented for the census tracts of 12 Census Metropolitan Areas — areas approximately the size of a city neighborhood. The Metropolitan Atlas Series includes the following census metropolitan areas: St. John's, Halifax, Quebec City, Montreal, Ottawa-Hull, Toronto, Hamilton, Winnipeg, Regina, Calgary, Edmonton and Vancouver.

The Metropolitan Atlas Series displays the results of the 1986 Census of Population and Housing with maps, graphs, and explanatory text. Each Atlas contains 35 colour thematic maps, displaying information on population change, age, mobility, education, immigration, ethnic origin, family composition, housing, employment, occupation and income characteristics. Statistical charts showing comparative data for other census metropolitan areas and Canada are also provided. In addition to the thematic maps, the Atlases contain a three-colour census tract reference map and two transparent overlays identifying census subdivisions (municipalities) and Forward Sortation Areas (areas identified by the first three characters of the postal code). Additional information on data quality, derivation of map variables, definitions and map use is provided in a series of appendices.

For further information on these publications, contact Publication Sales, Statistics Canada, Jean Talon Bldg., Tunney's Pasture, Ottawa, Ontario, K1A 0T6, Fax:(613)951-1584.

## EMR Adopts NAD83

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Energy, Mines and Resources Minister Jake Epp officially announced that his Department will adopt a new reference system for all future surveys in Canada. The announcement was made at the Canadian Institute of Surveying and Mapping/Canadian Geophysical Union joint annual conference.

The North American Datum 1983 (NAD83) is the result of an international project to recompute and readjust the coordinates for survey markers across North and Central America.

The new system will provide utility companies, municipalities, surveyors, engineers, and other users with more accurate use of global positioning satellites to facilitate an integrated North American survey network.

NAD83 will replace a system that has been in use since 1927, and will eliminate the errors and distortions which have crept into the North American survey network. It is based on data collected by satellite surveys, such as the Global Positioning System (GPS), electronic distance measuring and triangulation.

NAD83 will not affect the location of boundaries but it will change the coordinates of latitude and longitude that describe these boundaries. The Canada Centre for Surveying, part of the Department of Energy, Mines and Resources, is developing computer software to allow users to convert coordinates from NAD27 to the new system.

In July 1990, NAD83 coordinates will be available in published format, as well as through the National Geodetic Data Base. All new surveys are to be based on NAD83 coordinates, although NAD27 coordinates will be available for five years to give users time to change over to the new system. NAD83 will provide the essential and consistent geodetic positional foundation for all geographical information systems.

For more information, please contact: Director General, Canada Centre for Surveying, Department of Energy, Mines and Resources, 615 Booth Street, Ottawa, Ontario, K1A 0E9. Fax: (613) 995-8737.

## Specifications for the National Topographic Data Base Published

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The Surveys, Mapping and Remote Sensing Sector recently published the first edition of the Standards and Specifications for the National Topographic Data Base (NTDB). This first version presents planimetric data specifications for the NTDB and is mainly intended for national digital topographic data producers, managers and users. These specifications describe data and characteristics of data sets, as well as their inherent rules.

Altimetric data specifications for the NTDB are presently underway. Once finished, these specifications will com-

plement the already existing planimetric data specifications.

The Canada Centre for Geomatics, along with the Topographical Mapping Division of the Canada Centre for Mapping, have worked together on these specifications, which, by design, ensure that NTDB data is adequate for GIS applications.

For further information, please contact the Secretariat, National Topographic Data Base, Canada Centre for Geomatics, 2144 King Street West, Suite 010, Sherbrooke, Quebec, J1J 2E8. Fax:(819) 564-5698.

## Protecting the Oceans

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Energy, Mines and Resources Canada (EMR) is concerned that there be a solid foundation for orderly, environmentally sustainable development of the Atlantic off-shore mineral deposits. The Ocean Mining Division (OMD) of the Mineral Policy Sector of EMR is developing a policy for the exploitation of Canada's off-shore mineral resources.

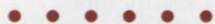
The Division is using the IRMIS (Integrated Resources Management Information System) software package, which is being developed by Earth and Ocean Research Ltd. of Dartmouth, N.S., under contract to the Mineral Policy Sector of EMR in co-operation with the Atlantic Provinces, the Department of Fisheries and Oceans, and Environment Canada. Much of the data used in IRMIS applications was generated or compiled under federal-provincial mineral development agreements, which were part of the overall economic and regional development agreements with the Atlantic Provinces.

The first IRMIS prototype, based on off-shore Prince Edward Island, is now ready for use by the federal and PEI governments. Meanwhile, other applications are being created for Nova Scotia, New Brunswick, Newfoundland and British Columbia. An IRMIS-like application is being used in conjunction with research for the Halifax Harbour clean-up project.

For more information please contact Energy, Mines and Resources Canada, Regional Manager Communications, Suite 102, Cogswell Tower, 2000 Barrington St., Halifax, Nova Scotia, B3J 3K1. Fax: (902) 426-8035.



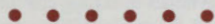
## Test Data Set Available



A data set designed for the Canadian geomatics community has been completed as a result of the joint efforts of the Canada Centre for Geomatics and the Canada Centre for Remote Sensing. The data set of the Sherbrooke area of Quebec consists of digital topographic data, digital elevation models, digital SPOT and Landsat imagery, control points and hardcopy topographic maps.

With this data set now available to interested users, the Surveys, Mapping and Remote Sensing Sector expects to encourage research and development of topographical applications of remote sensing within the Canadian academic community and the private sector. For further information, please contact Canada Centre for Geomatics, EMR, (Sherbrooke Data Set), 2144 King St., West, Suite 010, Sherbrooke, Québec, J1J 2E8. Fax: (819) 564-5698.

## Integrated Acquisition Procedures for Satellite Data



The complexity of mapping Canada at a scale of 1:50 000, combined with the increasing need to frequently update the populated areas of the country, provided the impetus for the Canada Centre for Geomatics to develop a procedure for the production of topographical data using digital methods and remote sensing. Tests will be conducted on a prototype system composed of hardware, software and specific procedures for data capture using satellite imagery.

The prototype will be integrated within the Centre's production configuration, including scanning and digital mapping, in order to produce data that will meet the National Topographical Data Base (NTDB) Standards and Specifications. This type of configuration will allow the Centre to evaluate and quantify the present and future contribution of remote sensing in topographical data production in terms of accuracy, effectiveness and efficiency. For further information, please contact: SINAPS Project, Canada Centre for Geomatics, EMR, 2144 King St., West, Suite 010, Sherbrooke, Québec, J1J 2E8. Fax: (819) 564-5698.

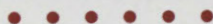
## Mapping Technology Agreement Signed with Ottawa



A new agreement on surveying, mapping and remote sensing between the Yukon Government and the Government of Canada, designed to enhance community and land planning in the Yukon, was announced by Energy, Mines and Resources Minister Jake Epp, Yukon Community and Transportation Services Minister Maurice Byblow and Renewable Resources Minister Art Webster. The agreement calls for cooperation in geographic information systems, to be developed in the Yukon, through several surveying activities and remote sensing experiments.

Data collected under the agreement will be added to the National Topographic Series Data Base (NTDB), which contains computerized information about Canada's geography. For further information, please contact: Regional Surveyor, Legal Surveys Division, Energy, Mines and Resources Canada, Room 208, 204 Range Road, Whitehorse, Yukon, Y1A 3V1. Fax: (403) 668-2383.

## GIS Calendar of Events 1990-91



### January-March

Forestry GIS'91  
Vancouver, British Columbia  
February 12-16.

Third International Conference on GIS  
Congress Centre  
Ottawa, Ontario  
March 18-21.

Auto-Carto 10, ASPRS & ACSM  
Baltimore, Maryland  
March 25-28.

### April-June

Canadian Hydrographic Conference  
Centre de Congrès  
Rimouski, Québec  
April 15-19.