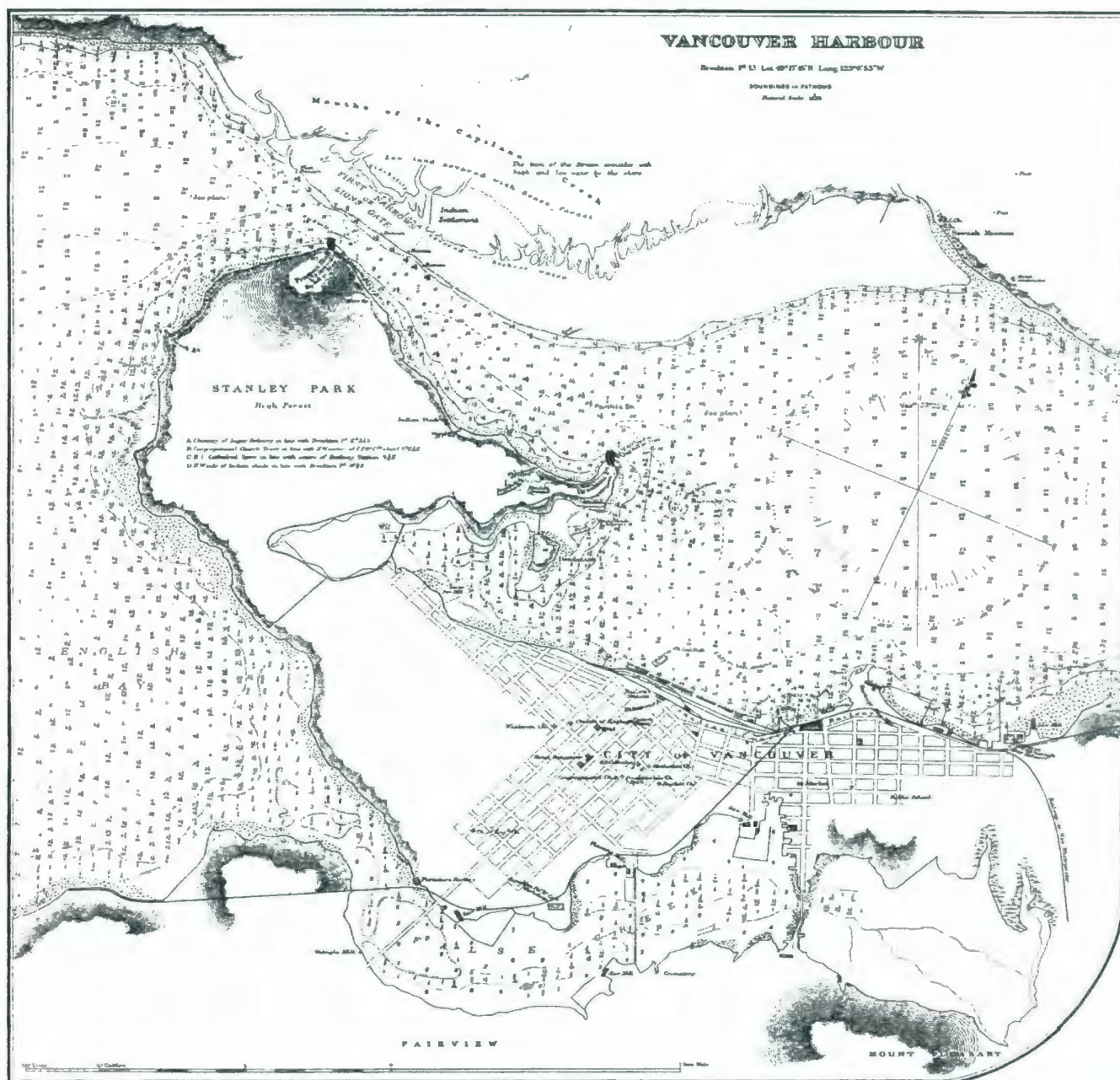


BULLETIN

ASSOCIATION DES CARTOTHÈQUES ET ARCHIVES CARTOGRAPHIQUES
DU CANADA



ASSOCIATION OF CANADIAN MAP LIBRARIES AND ARCHIVES / ASSOCIATION DES CARTOTHÈQUES ET ARCHIVES CARTOGRAPHIQUES DU CANADA

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Les opinions exprimées dans le *Bullein* sont celles des collaborateurs et ne correspondent pas nécessairement à celles de l'Association.

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ON THE COVER...

Vancouver Harbour. An Inset from British Admiralty Chart No. 922, London, 1893 (corrections to 1902). Reproduced from an original in the Vancouver City Archives, as ACML Facsimile Map Series No. 45 (ISSN 0827-8024).

Vancouver Harbour. Un carton de British Admiralty Chart No. 922, Londres, 1893 (corrections - 1902). Reproduit à partir d'un original des Vancouver City Archives, dans la Série de cartes facsimilés de l'ACC, carte No. 45 (ISSN 0827-8024).

PRESIDENT'S MESSAGE

How I spent my Sunday afternoon!

It is normal during the academic term to fall behind in my reading and thus find myself with a mitt-full of unread journals piled on my desk. I'm sure I'm not the only one. So, about a month ago, still buried under snow, I made a commitment to hibernate and "catch up". As much as academic reading can be a little dry at times, this indeed was not the case. Much to my delight it was a jam-packed Sunday afternoon!

I started with *Bulletin* 129 and 130. Well, with these two issues in hand who could possibly admit to missing football? Apart from the useful regular columns, *Bulletin* 129 had so much great content, one article after another, that the people I really felt sorry for were the Map Library staff who were to encounter my endless list of "new" projects the next morning.

I admit that I skipped to Hamilton's article on community outreach, anticipating my scheduled instruction session in a few days with the Faculty of Education's "wannabe" student geography teachers. I remembered the fun we had with some crazy-looking maps at the conference session in Montreal last year (Elizabeth and fun are analogous), and decided to give her idea a try. It was a hit! I then scanned the issue from the beginning. When I read GIS and CSI in the same sentence, Nicholson captured my immediate attention. Have to mention that article by Beard and Janzen! Pan & zoom? Piece of cake!

And the McAdam & Mowers survey says... that I'm not alone in coping with geomatics services issues. I would really like to know which institutions gross over 90 digital-related reference questions per month. A stellar stat! However, the jury is still out on the Canadian definition of "GIS".

My excitement mounted when I read the details of Dodsworth's Geospatial Literacy Program at Waterloo. If you do nothing else, at least bookmark http://www.lib.uwaterloo.ca/locations/umd/digital/geospatial_serv.html. It's all there. As an aside, another project worthy of mention is Eva's recent offering of a distance course "GIS in Academic Libraries" as part of the School of Library and Information Science curriculum at the University of Western Ontario. It is indeed satisfying to hear that GIS courses are starting to emerge in the library schools, adding to the likes of Dalhousie. Kudos to all who are pursuing this interest, and we'd like to hear more.

A new column on emerging technologies by Fichter—just the thing I need for an upcoming Faculty outreach workshop on mapping tools. The notes from the Ontario Library Assistants workshop are a clear indication that this program needs to be sustained. From cataloguing to reference to claiming their peers as the "most valued" resource, the LAs are just as passionate about our vocation. Their participation and contributions are indeed valued.

Although committee reports and efforts dominate *Bulletin* 130—must reading, of course—the better read is the article by Moulder that highlights the fabulous WWI air photo that captures a bomb in descent. A classic!

I congratulate Cathy, the *Bulletin* staff, and all the contributors for pulling together all the great content for the *Bulletin* issues, 129 being a favourite. Well done! Who needs Sunday football?

Colleen Beard
ACMLA President

By the way... have you met Temple and Harmony?

A NEW LIFE FOR OLD CHARTS

P Louise Buck, M.Sc. Candidate
Department of Geography, University of Western Ontario

Historic cartography provides a snapshot of historic and spatial data that frequently cannot be sourced from written documents. Visualizing and interpreting these snapshots of different sizes and scales can be challenging. Today's 'digitally visual' society appreciates vivid graphic representations of reality. Many find that history and geography are easier to perceive and understand if they are rendered to be entertaining and fun. Using historic artifacts and cartography in partnership with GIS software (HGIS) is one way of turning history into a contemporary reality.

Sault Ste. Marie: Local History and Cartography

The St. Marys River, a constricted passageway of rapids and islands connecting Lake Superior with Lake Huron, was designated a Canadian Heritage River in 2000. More than two thousand years of archaeological evidence indicates that the St. Marys Falls (long rapids dropping 6.1m, or 90% of the total river gradient) at Sault Ste. Marie was the hub of Ojibwa culture. Seventeenth and eighteenth century European explorers and entrepreneurs used this watery arterial link in their quest for

primary resources. The region was explored and mapped by Champlain's men long before Europeans were navigating Lakes Erie and Ontario. The local area was labelled Sault (French for rapids) de Gaston on Champlain's 1632 map, and French Jesuit Fathers Dablon and Claude changed the name to Sainte Marie du Sault after they arrived in 1641. The Fathers mapped the area during the 1650s. Louis XIV claimed the region as a Seigneurie in 1671. The St. Marys River became part of the British/American border in the 1794 Jay's Treaty, although the exact boundary was not demarcated until 1913. After America began enforcing its borders in 1796, British sympathizers and the North West Company (established 1783) relocated to the swampy north (British) shore.

The St. Marys Falls block all river transportation. During the fur-trade era, North West Company (NWC) canoes transported four tons (3700 kg) of furs and freight each, between Grand Portage MN and Montreal (Arbic, 2003). The voyageurs ran the rapids going downstream, but portaged freight when upbound. Ergo in 1797, the NWC built (on the British shore) a canoe lock and canal with a drag road for oxen to pull the canoes around the

Table 1. Chronology of Pre-1855 St. Marys River Channel Modifications.

Year	Event	Description
1797- 1814	NWC canoe canal, and portage road	Canal: 795m long; canoe lock: 11.5 x 2.7 x 2.7m deep. A drag road (3.7m wide) ran parallel to the lock and canal. Oxen dragged canoes up 3.7m of elevation change.
1822	Fort Brady MI	Water race used as transportation canal.
1839	State of Michigan canal	Construction was halted—it destroyed part of Fort millrace and the Ojibwa burial ground.
1850	Horse-drawn strap railway, Sault MI	Railway made of metal-sheathed wooden rails could not meet transport demand. In 1850, 6,000 tons of freight was portaged through; 1851 increased to 12,600 tons (\$1,000,000).
1855	Michigan Tandem State Locks	State Lock: 106 x 21m, 3.7m deep. Steamer locked through in 11 hours. Today a 302 x 32m lake freighter passes through the SOO Locks in 20 minutes.

rapids (Table 1). This first engineering marvel was destroyed in 1814, but is recorded with varying degrees of accuracy on most pre-1855 maps. Channel modifications occurred on the south shore with the establishment of Fort Brady MI, with a water millrace that doubled as a transportation canal. Cargos were floated up the race, unloaded, portaged around the rapids, and repacked at the head of the rapids onto waiting sailing vessels. Local historian, Dr. Bernie Arbic notes that more than one dozen ships (sailing and steam) were physically 'dragged' over the south shore around the rapids. By the late 1840s, the exploration and extraction of copper reserves on Lake Superior caused a monumental increase in freight volume past the rapids. Backlogs of 12,000 barrels of goods per season were common by 1851. Finally, the U.S. Congress approved the construction of toll-free shipping canals. The first tandem "State Locks" completed in 1855 (Table 1) evolved into the SOO Locks.

These engineering marvels and river bathymetry (water depths) are recorded on historic charts that are scattered across two continents and three

nations, and tend to focus on only one side or the other of the St. Marys River. The British Admiralty conducted the first complete hydrographic Survey of the [Great] Lakes between 1816-1825 for navigation purposes (Winearls, 1991). Lieut. Henry Bayfield completed two charts of the St. Marys River portion of the survey in 1825 (Figures 1, 2). The charts include many lines of sounding depths that transverse the river's channel, and record excellent shore details. Soundings are exact water depths measured in feet from the water surface to the bed (Woodford, 1994). Historically, sounding measurements were obtained as a crew traversed the area in a cutter, logging and measuring the depths using either a lead line in deep water (lead weight is attached to a line and dropped), or from a sounding pole that is used in shallow water. Point soundings are extremely accurate unless the morphology becomes rugged between sounding lines. Contemporary, remotely sensed soundings are still recorded in feet (Woodford, 1994).

The American Corps of Topographic Engineers (Corps) conducted the first detailed triangulation and hydrographic surveys of the entire Great Lakes

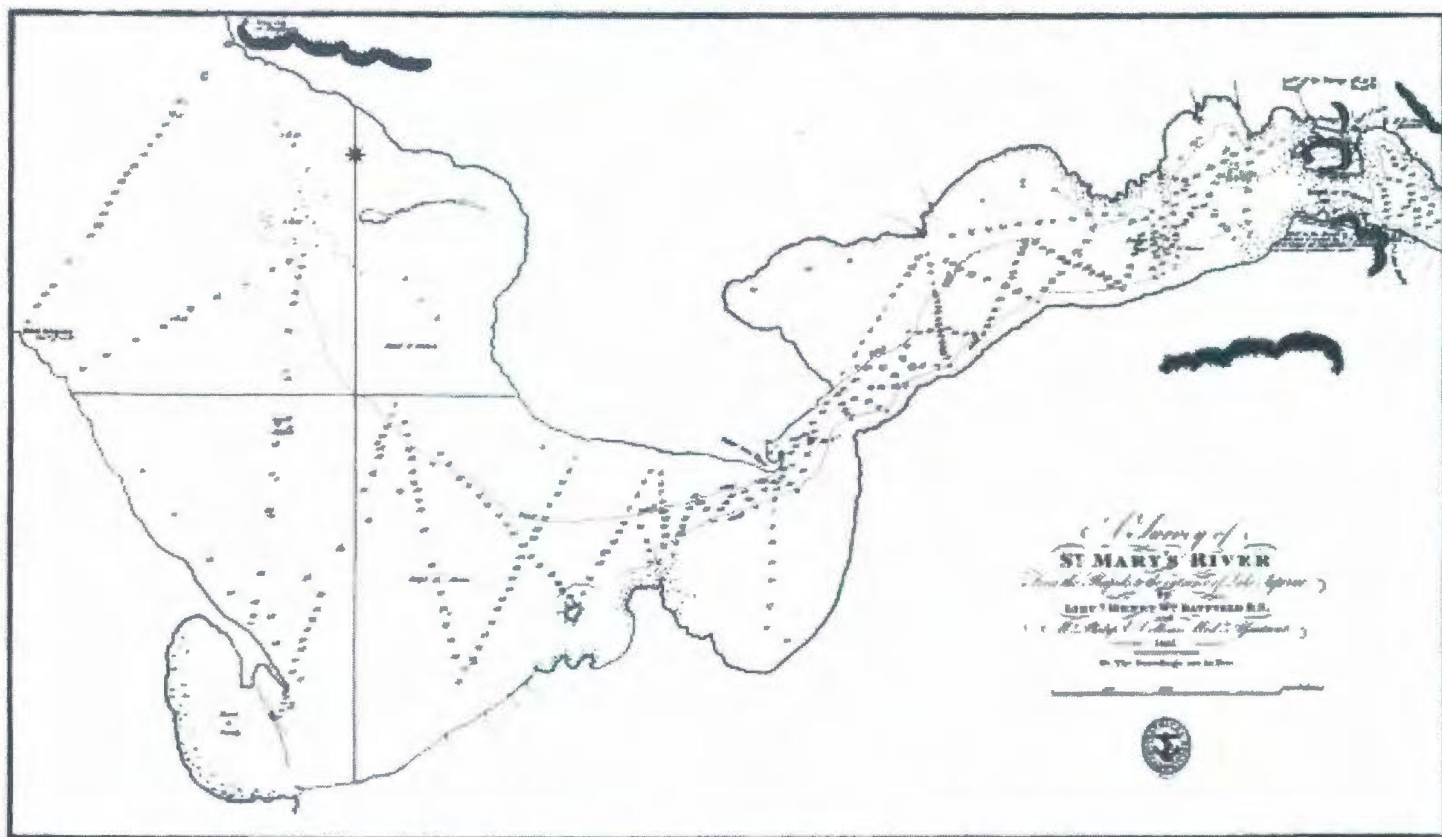


Figure 1. A Survey of St. Mary's River From the Rapids to the entrance of Lake Superior, 1825. The straight lines are survey lines of bathymetric data.

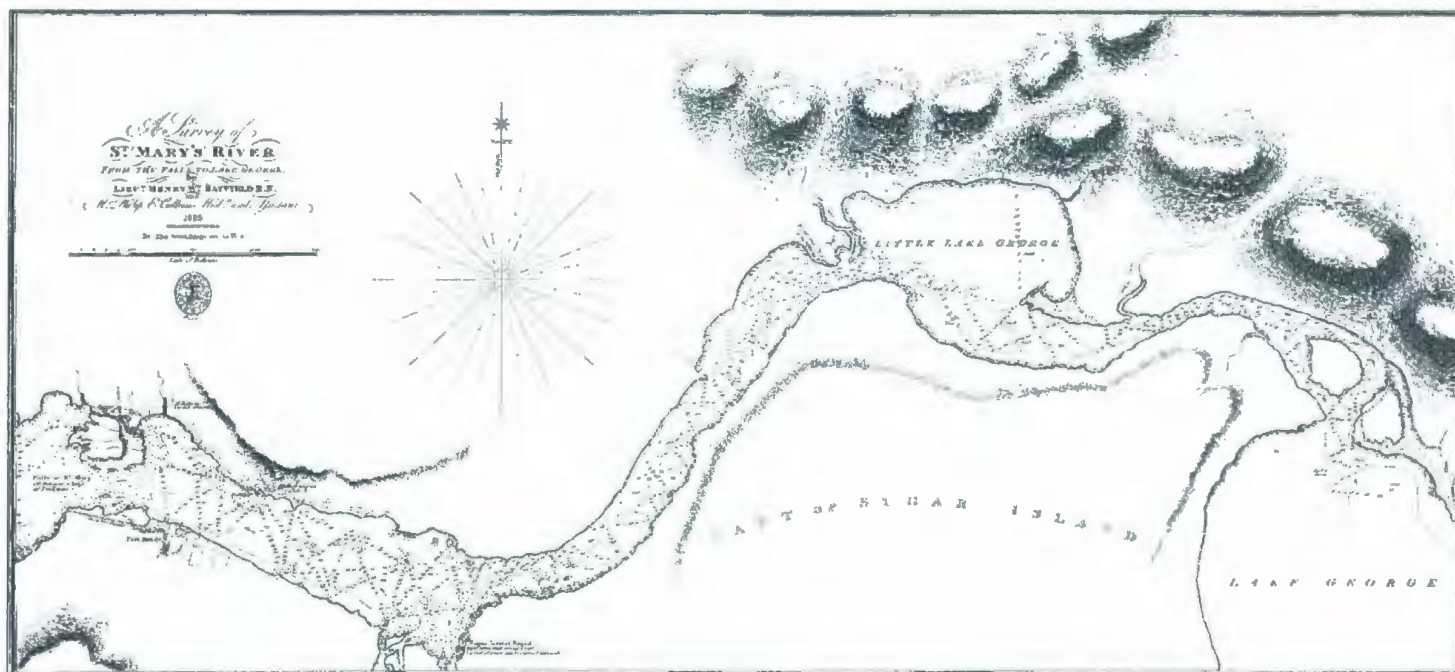


Figure 2. A Survey of St. Mary's River From the Falls to Lake George, 1825.



Figure 3. River St. Mary Field Sheet [American Corps of Topographic Engineers], 1855.

region from 1841 to 1882. The Corps completed the St. Marys River channel portion of the survey between 1853 and 1855, just prior to the opening of the Michigan Tandem State Locks (SOO Canal) (Figure 3). The 1908 Boundary Treaty between Great Britain and the United States authorized the accurate re-establishment of the International Boundary through the Great Lakes system. As a result, the St. Marys River channel and BOTH shores were intensively resurveyed in 1913 as a supplement to the surveys of the International Waterways Commission. All hydrographic surveys and navigation charts include shorelines, anthropogenic features, and sounding depths with contour lines shown in fathoms, or six-foot intervals (one fathom is six feet). Nearly 300 years of cartographic detail makes the St. Marys River an excellent area in which to reconstruct the original riverbed morphology using a HGIS database.

Historic GIS

A fundamental step in the visualization of historic documents is the creation of an HGIS database. The 1913 International Waterways Commission map *Sheet No. 25 Saint Marys Falls* provides good intermediate data linking contemporary and historical sources. Because it contains detailed up-to-date (1913) topographic and hydrographic survey data from **both** sides of the international river channel, it was used as the HGIS basemap. The 1913 map was georectified to 1998 ortho-imagery and shape files from Michigan, and 2000 Digital OBM

data using ESRI ArcGIS 9® software. Working backwards in time, the 1855 chart was georectified to 1913, and the 1825 charts were georectified to 1855. All were digitized and converted into interpolated raster Digital Elevation (DEM) and Triangulated Irregular Network (TIN) models to create a visual representation of the **first** surveyed bathymetric data. The 1825 charts were merged prior to the modelling process—with excellent registration.

When combining historical artifacts in HGIS one must be aware of the limitations. The accuracy of older maps cannot be improved. Historic maps can be difficult to spatially orient and interpret because the original features and environmental conditions usually have changed. In addition, georeferencing maps changes the original lines, shapes and distances (Knowles, 2002). In order to locate sufficient control points for georectification, the HGIS user must understand the local history and the historical significance of artifacts drawn on the map. Occasionally, the HGIS user must interpolate the location of an artifact using references other than historic maps. If landscape changes have occurred, or names have changed, intermediate maps may have to be used to georectify period maps with contemporary data. In fact, on the 1913 International Waterways Commission map, the streets of Sault Ste. Marie ON were drawn with three lines that include the surveyed street allowance and a 'centre line' that was the streetcar line. The 1998 digital data depicts streets with one



Figure 4. Interpolated TIN of merged 1825 Bayfield charts. There is no sounding data on the rapids.



Figure 5. Interpolated DEM of merged 1825 Bayfield charts. There is no sounding data on the rapids.

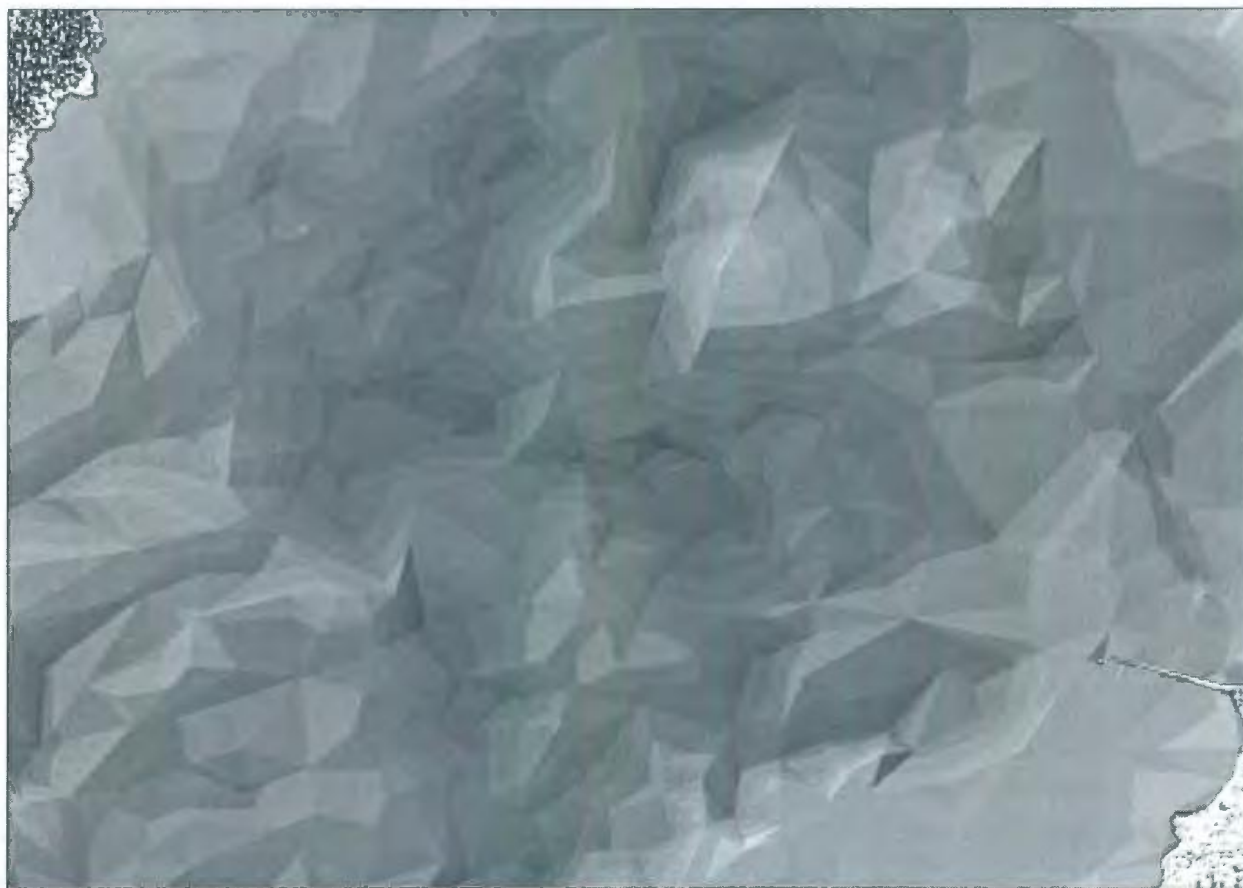


Figure 6. Zoom of 1855 TIN that dramatically depicts the riverbed morphology.

single thin line, and many older maps use very thick street lines—either one or two. Consistent interpolation was required when using intersections as control points.

A New Life for Old Charts

Interpolated models from 1825 and 1855 provide a visual rendering of the St. Marys River morphology, replacing the numerical representations of depth with colour. Even without a legend, water depth is made apparent by using the conventions of darker blue for deep cold water grading to light blue for shallows. All interpolated models show 'straight lines' of relief along the rapids because surveys were not conducted in the non-navigable area (Figures 4, 5, 7). TIN models are considered to be the most reliable method for representing irregularly spaced point data. The triangular representation of data creates a dramatic 3-D effect (Figures 4, 6). However, TIN exhibits a high inaccuracy in areas of high relief (Rumsey & Williams, 2002)—not a problem in the study area since the river channel has a maximum depth of 61 feet. Map viewers may prefer the look of interpolated DEMs that depict relief in the same manner as topographic maps (Figure 5).

The 1825 charts by Henry Bayfield (Figures 4, 5) provide the first snapshot of an unaltered channel bed. These maps also show the general geographic

location of local lots, Fort Brady MI; and the NWC canal and drag road—but not as accurately as earlier maps, which include the 1797 *Plan of the Falls of St. Mary between Lake Huron & Lake Superior, Surveyed by Order of the North West Company*. The 1855 Corps, *River St. Mary Field Sheet* (Figure 3, 7) depicts the altered south shore where the first lock and canal were constructed. The surveyed streets marked with individual buildings in Sault Ste. Marie MI are a contrast to the British side of the river. The poor representation of Sault Ste. Marie ON makes using control points difficult. Only one street is drawn—even though Alexander Vidal, Canada Land Surveyor, had completed a mapped survey of the village in 1845. The Hudson Bay Company post (former NWC) has a skeleton outline.

The interpolated models can be layered over the original map, masking the numerical text with colour (Figure 7). Conversely, the original map can be layered over the model with the transparency adjusted so that the original data can be viewed along with the colour (Figures 6, 8). The numerical and text information enhances the coloured depths. Where the chart has been labelled "Rocky", one sees 'rocks' that rise quickly and steeply from the riverbed—a definite navigation hazard. The bathymetry of the shallows has more meaning with this combination. These methods help the audience to understand the actual morphology of the historic



Figure 7. Interpolated DEM of the study area is layered over the 1855 chart.

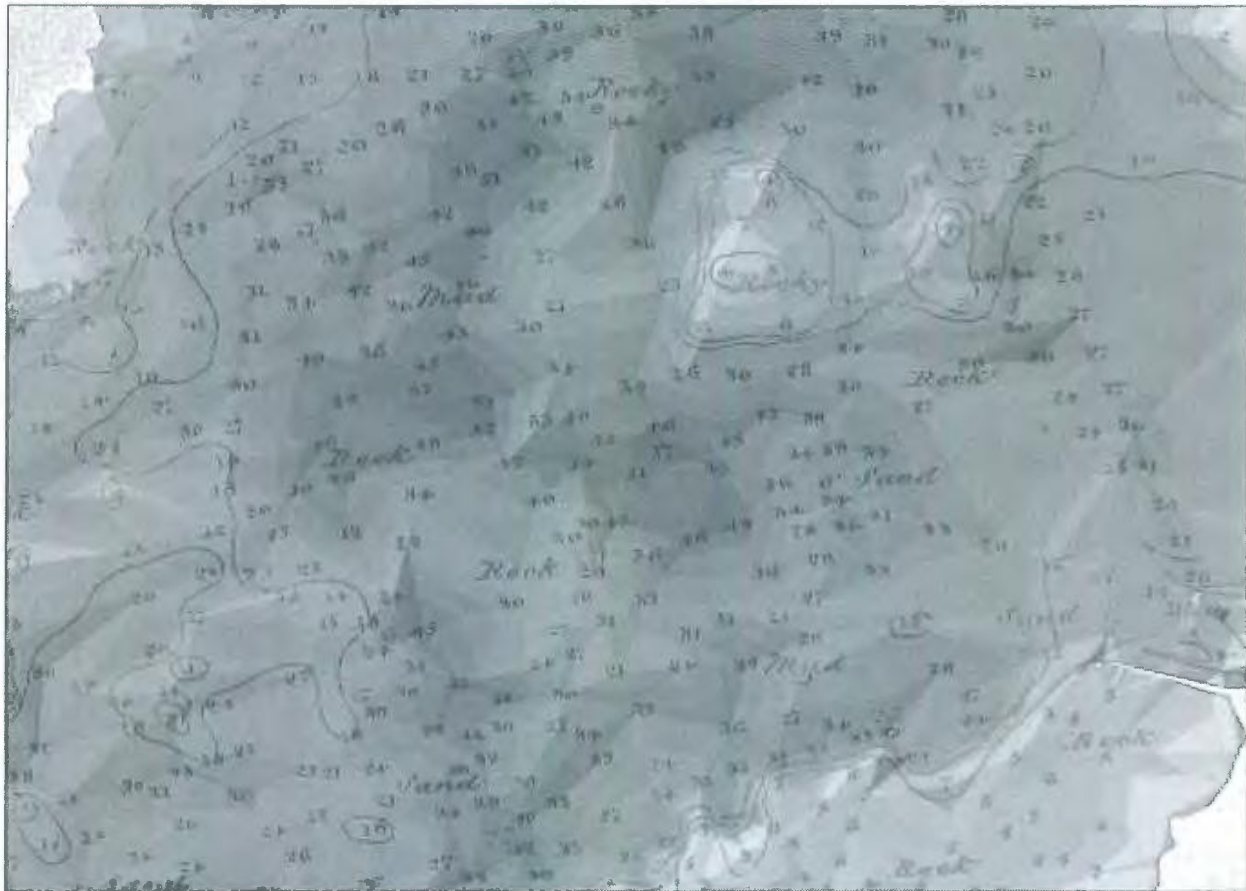


Figure 8. Zoom of 1855 TIN with original chart layered over the model.

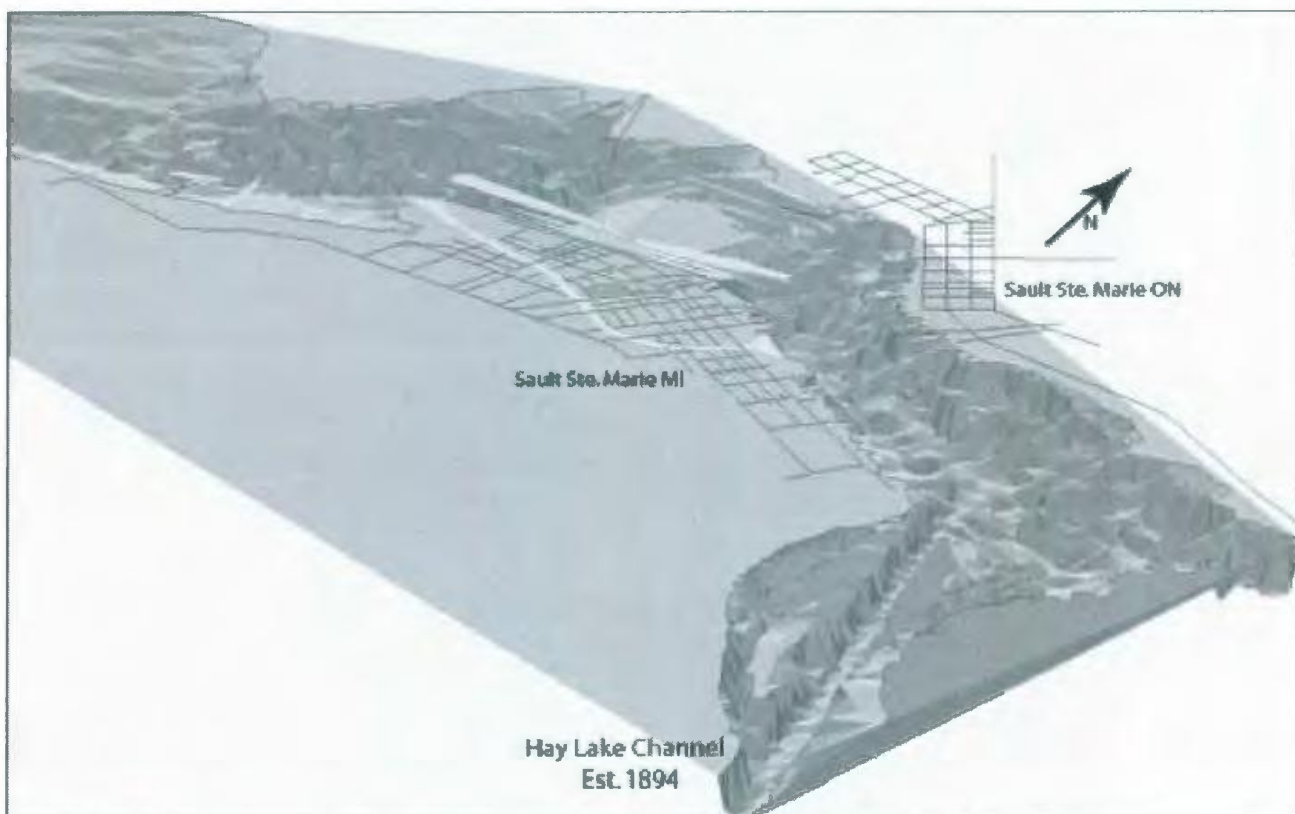


Figure 9. 3-D interpolated TIN of the International Waterways Commission map, Sheet No. 25 Saint Marys Falls, 1913.

channel. Taking into consideration that the 1855 *Field Sheet* has more sounding lines, one can observe qualitatively how the channel bed may have altered between 1825 and 1855.

Finally, virtual reality and 3-D representations that can be viewed from any angle enhance the underwater topography. Inputting the 1913 interpolated TIN at 10 times exaggeration into ArcScene software (sub-extension of ArcGIS 3D-Analyst) turns the 2-D bathymetry of the dredged Hay Lake Channel into a 3-D engineering marvel (7m deep, 183m wide) (Figure 9). Fun, fly-through software sends the viewer back in time. Imagine cruising along the bed of St. Marys River in 1825 and negotiating all those rocks! Combining historical cartography with GIS software can make history and geography an enjoyable contemporary reality.

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Notes

Portions of this article appear in *Proceedings of the ASPRS 2007 Annual Conference, Identifying Geospatial Solutions*, May 7-11, 2007. Tampa, Florida.

All maps are available at the Serge A. Sauer Map Library, University of Western Ontario. This article is part of a larger thesis that would not have been possible without the catalogued resources (including books) and fantastic personnel of the Serge A. Sauer Map Library.



*This paper is based on a Masters of Science thesis in progress, **GIS and Historic Maps: Modelling the St. Marys River Channel Topography**, to be submitted to the Department of Geography, University of Western Ontario, anticipated date June 2009.*



UPDATE ON ACMLA-NRCAN INITIATIVES

Steve Westley

Centre for Topographic Information | Centre d'information topographique
Mapping Services Branch | Direction des services cartographiques
Natural Resources Canada | Ressources naturelles Canada

Since the CARTO 2007 conference held in Montreal in May 2007, significant progress has been made in renewing the valuable relationship between Natural Resources Canada (NRCan) and the Association of Canadian Map Libraries and Archives (ACMLA). This issue of the ACMLA *Bulletin* includes responses to the questions posed to NRCan at last year's conference.

In addition, a working forum has been established comprised of members of the ACMLA's Map Users' Advisory Committee, the Canadian Cartographic Association and representatives from the Earth Sciences Sector of NRCan, including Ann Martin, Bill Voller, Yvan Désy and Steve Westley. This group has met four times since June 2007, and through productive on-going dialogue NRCan has developed a greater understanding of the requirements of the ACMLA and its broad base of map users.

Discussions have included briefings by NRCan on a program for targeted revision of topographic maps, updates on automated tools to generate updated topographic maps from vector data bases, an announcement of new maps available through the Depository Services Program of Public Works and Government Services Canada, and a review of various topographic map prototypes.

New Topographic Maps

Looking ahead, 2008-2009 will be a significant year for topographic mapping in Canada. NRCan will initiate the Topographic Mapping Initiatives (TMI) program to update and publish new topographic maps for various areas across the country, the first significant effort to update topographic maps since 1993. This new series of maps will be generated using the most current digital topographic data collected under the GeoBase initiative, including the National Road Network and National Hydrographic Network, and will include enhanced coverage from

satellite imagery to depict limited access roads in areas where this is necessary. Feedback from the ACMLA was instrumental in determining the extent of map revision by NRCan.

Geographic areas to be updated will be determined through input from map resellers and academic stakeholders, by analysis of the historical demand for topographic maps, and according to the needs of other federal departments. Over 900 map sheets are planned to be published over the next three years, the first of which will be released in the fall of 2008. Paper versions of updated maps will be available through distributors of the Canada Map Office (http://maps.NRCan.gc.ca/distribution_e.php) and plot-ready digital versions will be available on-line from the GeoGratis web site (<http://GeoGratis.gc.ca/>). Paper copies will also be distributed to participating map depository libraries through the Depository Service Program. Announcements concerning the areas of coverage of this new topographic map series and a release schedule will be made available in the coming months.

Future opportunities for collaboration between NRCan and the ACMLA include a survey of end-users of all NRCan geospatial products and services, both paper and digital, for the purpose of more precisely determining client groups and their requirements. NRCan will also participate in the CARTO 2008 conference in Vancouver in May 2008 where prototypes of the new topographic maps will be displayed.



QUESTIONS FROM ACMLA MEMBERS TOPOGRAPHIC PRODUCTS OF NRCAN

At the request of NRCan, questions were submitted in April 2007 by ACMLA members, primarily from Richard Pinnell, University of Waterloo.

PRINTED TOPOGRAPHIC MAPS

Q—What plans does NRCan have to print revised editions of 1:50k and 1:250k maps? What is the revision-cycle program? How does NRCan decide on the mapping update priorities?

NRCan reply—In 2008, Natural Resources Canada will initiate a program to update and publish new topographic maps for various areas across Canada. This new series of maps will be generated using our most current digital topographic data, including the National Road Network and National Hydro Network, as well as enhanced coverage from satellite imagery in areas where this is necessary.

We plan to produce 900 map sheets over the next three years. Geographic areas to be updated will be determined by historical demand for topographic maps, through input from map distributors and academic stakeholders, and according to the needs of other federal departments.

These new topographic maps will be available by the fall of 2008 through distributors of the Canada Map Office (http://maps.nrcan.gc.ca/distribution_e.php) as well as on-line from the GeoGratis web site (<http://GeoGratis.gc.ca/>). Announcements concerning the areas of coverage of this new topographic map series and a release schedule will be made available in the coming months.

Q—Will NRCan continue to print each and every new first edition? Will these paper maps be distributed to depository libraries?

NRCan reply—NRCan will continue to plot new editions of topographic maps. Copies of these maps will be distributed under the terms of a Memorandum of Understanding (MOU)

between NRCan and Public Works and Government Services Canada (PWGSC) to libraries participating in the Depository Services Program (DSP). This MOU was renewed for five years, commencing April 1, 2007. Several new editions of National Topographic System maps were released to map libraries participating in the DSP in early 2008.

Q—Will NRCan consult widely with the Canadian map user community, including the ACMLA, before making changes to map design/content or to its mapping program when these changes may impact on this community?

NRCan reply—NRCan has met with representatives from the ACMLA's Map Users Advisory Committee in regular teleconferences and meetings since the CARTO 2007 conference, and intends continue these meetings to discuss user requirements for new topographic maps, as well as to gather feedback on new map prototypes.

Q—How do I know the dates of the layers of the NTS maps? <http://maps.nrcan.gc.ca/cartospecs/ChapFeatureIndex/ChapFeatureIndexEF50/FeatureIndexE50.htm>

NRCan reply—Each National Topographic System map contains a statement describing the currency of the information depicted on the map. For example, 031G05 (Ottawa) states "Information current as of 1994" and this date applies to all layers of this map sheet. Other maps indicate if the map contains layers of information collected in different years. For example 041A07 (Markdale) states "Boundaries current as of 2000; road network current as of 1996; all other information current as of 1989."

Q—Will NRCan ensure that the paper stock used to print these maps has enough

weight to prevent tearing and fraying under normal use?

NRCan reply—NRCan presently uses 27lb water resistant coated plotting paper for NTS maps, upgraded from 24lb stock a few years ago. The 27lb stock is high quality paper, and under normal use provides durability at an affordable cost. Technical specifications such as the weight of plotting paper will be addressed through a certification program for the plot-on-demand of topographic maps.

Q—Will NRCan ensure the quality of the coloured inks? That is, features and text are printed using inks that distinguish features, doesn't smudge or run/bleed.

NRCan reply—NRCan presently uses high quality UV-resistant inks produced by Hewlett-Packard in the plotting of topographic maps. These inks have minimal smudge and run. Technical specifications such as inks will be addressed through a certification program for the plot-on-demand of topographic maps.

Q—What happened to Tyvek as a printing stock?

NRCan reply—Quantities of high-selling National Topographic System maps published on waterproof Tyvek material remain in stock and continue to be distributed by the Canada Map Office to Regional Distributors for sale to end-users. Approximately 75 titles are available, primarily covering recreational areas such as parks and "cottage country". In 2003, NRCan discontinued lithographic printing on Tyvek due to the expense of materials. Currently, some Regional Distributors are involved in the printing of NTS maps on materials similar to Tyvek, as there remains a market for waterproof topographic maps.

Q—Will NRCan continue to maintain a high standard of cartographic excellence in the production of its paper maps?

NRCan reply—NRCan will continue to maintain cartographic excellence, both in the cartographic production and the plotting of paper maps. Maintaining high quality of plotted paper maps will be addressed through a certification process for the plot-on-demand of

topographic maps.

Q—Does NRCan intend to keep the cost of printed maps at an affordable level, adjusting only for factors such as inflation?

NRCan reply—Currently the suggested retail price of topographic maps is \$11.45. Distributors and dealers have always been free to set their own retail price for maps based on local market conditions, including offering discounts to libraries and educational institutions.

When new maps are updated and released by NRCan, new costing studies will be carried out to ensure the price reflects publishing and distribution costs. Over the longer term, factors that may increase the retail price of maps include the shift away from high-volume press runs and bulk warehousing of maps toward the anticipated adoption of local plot-on-demand by distributors.

Q—What plans does NRCan have to ensure that its printed map production of current editions and earlier editions of NTS 1:50k and 1:250k maps are preserved and/or archived for posterity?

NRCan reply—Historically, all editions of National Topographic System maps have been sent to Library and Archives Canada for archival. New editions of topographic maps will be provided to LAC under Legal Deposit requirements. Copies of all current editions should also exist in the collections of libraries participating in the Depository Services Program.

Q—Will the historic 1:25,000 series be made available in digital format (raster or vector or both)?

NRCan reply—Maps of the National Topographic System series at 1:25,000 scale were last published in the 1970s. As these maps were produced using conventional methods before the development of digital mapping, vector data does not exist. Raster data could be made available by scanning these maps, however many stakeholders have emphasized the need for up-to-date maps, not historical data. There is historical value in this series, however resources are best utilized in the production of updated maps at 1:50,000 scale. NRCan would allow the

scanning of the historical 1:25,000 map series, along with previous editions of 1:50,000 and 1:250,000 NTS maps by libraries for academic use, however there are no internal resources to undertake scanning of the 1:25,000 scale maps at NRCan.

Q—Will NRCan ensure that surround information on its printed maps includes a full and complete disclosure of data sources and situation dates (remote sensing, GPS check, cultural (roads, landmarks, etc), field check, spot elevation, compilation, etc.)?

NRCan reply—Yes. The data sources and validity dates will be available as part of the

metadata, according to ISO standards, for the digital data, and they will be printed on the paper products derived from the digital data.

Q—What are the plans for continuing the print national topographic product?

NRCan reply—Natural Resources Canada (NRCan) is committed to the continued provision of topographic maps in both paper and digital form. Topographic maps will continue to be plotted-on-demand by NRCan, and available through distributors of the Canada Map Office. We anticipate distributors will become involved in local plotting and/or printing of topographic maps under a quality certification arrangement.



DIGITAL TOPOGRAPHIC DATA

Q—We liked the options available on the NRCan Subscribers site for NTDB data: choice of format (DXF is a popular choice), choice of projection, choice of which layers to download (selected or all layer classes), and scale. Will these format/projection/layer/scale choices be available on GeoGratis site?

NRCan reply—GeoGratis (<http://GeoGratis.gc.ca/>) offers NTDB data in Shape format and geographical projection. This choice of format and projection was made to facilitate the mass delivery of data. Before April 2007, NTDB data was available in MapInfo, DXF, and E00 formats, all of which required extensive server processing time which created delivery backlogs. NTDB data is now stored as files available for direct download, allowing faster delivery to end users. Multiple GIS software applications now offer the possibility to translate data into different formats and projections.

Q—We liked the resolution options available for the CanMatix product: i.e., 160 dpi and 300 dpi. For some clients, the higher resolution is problematic because of file size. Has NRCan decided to discontinue delivery of 160 dpi raster data? If yes, we would ask this be reconsidered.

NRCan reply—As with NTDB data, the choice of 300 dpi resolution for CanMatrix files was made for mass delivery of this data. Before April 2007, CanMatrix was available at 160 dpi and 300 dpi, which required server processing time creating delivery backlogs. CanMatrix data is now stored as files available for direct download, allowing faster delivery to users. End users may resample the 300 dpi CanMatrix data and create files with the resolution required.

Q—Selecting data by NTS tile number is awkward. Some clients have an AOI that is much smaller than one tiled area or that covers many tiled areas. Some clients have an AOI that is irregular in geographic extent. Some clients are unfamiliar with the NTS grid system. Will users be able to define their own AOI (eg., using drawing tools, gazetteer selection, identifying coordinates)? And related to this, will the data be held as seamless layers? If NRCan continues delivering data by tile, how about an NTS index map; find area of interest on the map, click on the NTS tile, and that selects the data.

NRCan reply—There are several different methods to access data from the GeoGratis portal (<http://GeoGratis.gc.ca/>), including searching by geographical name, postal code,

NTS number, and by bounding box using latitude/longitude coordinates. Index maps for the NTS grid have been added to GeoGratis to allow users to select the map sheets of interest. NRCan continues to develop and improve the GeoGratis portal.

Q—Why is the NTDB/CanVec data delivered through GeoGratis? My understanding is that framework data would be provided through GeoBase and that thematic and legacy datasets would be delivered through GeoGratis. CDED are on GeoBase... why not NTDB? Please explain the differences between these sites.

NRCan reply—The GeoGratis portal (<http://GeoGratis.gc.ca/>) is managed by NRCan's Data Management and Distribution Branch (DMDB), with the intention of creating a centralized portal for the distribution of all Earth Sciences Sector digital geospatial products.

Meanwhile, the GeoBase program is a federal/provincial/territorial initiative, and therefore has a separate web portal. NRCan serves as the host of this portal (<http://GeoBase.ca/>), however all decisions in regards to GeoBase are taken by the Canadian Council on Geomatics. For data to be distributed from the GeoBase portal, it must comply with the national standards accepted by all partners of GeoBase and maintained through partnerships.

Q—We want to add a direct link to NRCan digital products from our Map Library website. Is that permissible? Are there any licensing restrictions in terms of who may download and for what purposes?

NRCan reply—It is certainly permissible and encouraged for a map library to add a link to the GeoGratis portal (<http://GeoGratis.gc.ca/>) and any NRCan web site, with no formal permission required. The GeoGratis Licence Agreement for Unrestricted Use of Digital Data should also be referenced, as it describes the terms of use for all data downloaded from the site.

Q—We remain confused about the difference between the NTDB data and CanVec data. We learned that because CanVec consists of layers drawn from various sources (e.g., NTDB and NRN) that

these layers will not vertically integrate. It has been suggested that roads might stray into water bodies. Is this true? If so, what plans are in place to ensure that all layers integrate vertically (i.e., planimetric accuracy is ensured).

NRCan reply—NTDB is a digital vector dataset derived from conventional hardcopy maps at 1:50,000 and 1:250,000 scales. The process of creating vector data from hardcopy maps (1987-2007) was intended to satisfy users of GIS technology and allow NRCan to improve the accuracy of the entire dataset. The original NTDB 1:50,000 scale specification has been updated, but each version has been preserved. Two major data manipulations have improved the geospatial accuracy of the 1:50,000 data: all data has been converted to the NAD 83 (WGS84) datum, and through a planimetric correction process (using best available ground control data) the horizontal accuracy of the data has been significantly improved from an average of +/- 53 m to +/- 25 m. The 1:50,000 NTDB will remain a static legacy product after fall 2007 as it has been replaced by the CanVec product.

CanVec data is a new vector product that will be maintained and distributed by NRCan. CanVec incorporates new GeoBase layers including the National Road Network and National Hydro Network with selected NTDB data. In areas where GeoBase data exists, it is used in place of older NTDB data. CanVec follows international standards (OGC and others) to facilitate interoperability and dissemination, and ensures that NRCan is making available the most up-to-date and complete digital topographic dataset possible for end users.

Improvements to the content of CanVec continues in two streams. In the Northwest Territories and Nunavut, NRCan has updated more than 4,000 NTS files. NRCan is also compiling the remaining 1:50,000 scale coverage on Baffin and Ellesmere Islands. This new data will only be available as part of the CanVec product. In other parts of the country, new data layers are contributed through GeoBase, a national initiative (federal/provincial/territorial) governed by the Canadian Council on Geomatics (CCOG) to ensure the provision of, and access to, quality base geospatial data in the short and

long term. The CCOG is responsible for the selection of the framework data that will be part of GeoBase.

As for the vertical integration between layers of data, NRCan faces two issues when combining GeoBase data with the NTDB. The first issue is the differences in positional accuracy. Even after the planimetric correction process, there remain cases where GeoBase data (e.g. the National Road Network) is more accurate than the rest of the NTDB data, making it possible for roads to "cartographically" run into hydrographic features from NTDB. Secondly there are differences in content in that some NRN data contains either more or less data than the NTDB, either because it is based on a larger scale source (e.g. hydrology data at 1:20,000), or because a particular feature was not collected (e.g. limited access roads).

Q—Will Canadian (federal) data and American data integrate along the border. If not, are there plans to achieve data compatibility in North America?

NRCan reply—Maintaining data according to the ISO and OGC international standards will enable users to more easily assemble and use digital data from different mapping agencies in a GIS. NRCan digital topographic data and GeoBase data follow these international standards.

No work is being done at this time regarding the integration of the USGS 1:24,000 maps with the Canadian 1:50,000 maps along the Canada US boundary. On Canadian 1:50,000 map sheets, the US territory portions have been integrated as best as possible.

Cross border integration of some base layers, e.g., roads and hydrology, is underway at smaller scales of 1:1,000,000 and 1:10,000,000.

Q—Are there plans to work towards vertical integration (and other measures of compatibility) of GIS data from federal and provincial sources? (e.g., using the NRN model). We need to eliminate duplication of effort and to make data from various Canadian government sources more interoperable. What plans does

NRCan have to populate GeoBase/GeoGratis with provincial data? Will these data be scaled to national level or retain provincial scaling?

NRCan reply—The GeoBase program is involved in updating and improving the content of the national geospatial database and the elimination of duplication between the federal and provincial governments. GeoBase data layers follow national and international standards, thereby ensuring interoperability, they are collected closest to source i.e. provincial agencies rather than federal within provinces, and maintained by the contributor. Among the layers of cartographic significance, the National Road Network was first and the National Hydrology Network is underway. Other layers to be considered include land cover/forested areas, and municipal boundaries.

In all cases, newer provincial data contributed under GeoBase will replace older federal data within the CanVec product. The scale of the provincial data is retained in its original digital form. Representing the larger scale provincial data on a 1:50,000 scale map does pose some cartographic challenges which are currently being addressed.

Q—Metadata are always an issue. Clients are particularly interested in knowing the date of information for layers and/or features. I checked recent data and metadata for the Stratford sheet (40p/7) and noted that this is no date field in the attribute table. The metadata record includes: Valid_Date for the aerial photography and Valid_Date for digital data base and paper map and Valid_Date for field checking with GPS. No situation date or date of update for individual layers. And certainly no date information for individual features. Will NRCan do better? Will NRCan create metadata that is ISO compliant and that is as comprehensive as FGDC (or similar scheme)?

Is there a plan to keep track of when the layer information was compiled and updated? Right now GeoGratis only provides tile level metadata and not layer level metadata.

NRCan reply—The metadata is currently FGDC compliant, and will be transferred in the ISO North American Profile shortly. Metadata is offered at the data collection level, and at the dataset level (tile). The dataset metadata file contains some information about the layer updates. It is not yet possible to have access to the information on each of the different layers for each different product according to origin.

Q—Tell us about database updating. What are the plans for updating the NTDB/CanVec database? Will this be done on a layer by layer basis or based on geography or based on user demand? Does the concept of revision cycle apply?

NRCan reply—NTDB data will remain static and no updates will occur on this particular dataset. CanVec will be updated gradually by layers, with the inclusion of new GeoBase data. Revision of GeoBase layers will be conducted by the provinces according to their partnership agreements and resources.

Q—When does NRCan intend to complete its digital mapping of Canada at nominal scale of 1:50,000? Is there an orderly plan for this project?

NRCan reply—There are currently approximately 1,000 1:50,000 map tiles remaining to complete in Nunavut for areas on Baffin and Ellesmere Islands. No completion date has been set, and priorities are set by resource availability and client demands.

Q—Does NRCan intend to provide supplementary online help including tutorials, utilities (for viewing/visualizing, manipulating/converting), links to recommended or sponsored software (for GIS analysis, remote sensing analysis, 3D visualization), contact information for data experts, links to provincial data agencies?

NRCan reply—Links are provided on the GeoBase portal (<http://GeoBase.ca/>) for existing free application software. The GeoConnections Discovery portal (<http://geodiscover.cgdi.ca/>) also provides this type of information.

Q—Are there plans to offer access to NRCan data through WMS/WFS? That is,

will NRCan provide access in a more interactive way so that users can visualize the data online, turning on/off layers, zooming/panning/querying/downloading?

NRCan reply—NRCan presently offers a visualization tool called Toporama, available as part of the Atlas of Canada website, and a WFS service for Geographical Names of Canada. A visualization tool is also offered on the GeoBase portal for all GeoBase products. The visualization tools make use of underlying WMS services which are available for reuse by other applications.

Q—What plans does NRCan have to ensure that its digital data are archived for use by posterity? There is always the issue of archiving both the print and digital.

NRCan reply—The CanVec product will be released in versions, and each released version will be archived digitally and remain accessible. The corresponding cartographic files of each CanVec release will also be archived digitally. Print versions of new topographic maps developed from CanVec data will be provided to map libraries through the Depository Service Program.

Q—ACMLA was told a few years ago that CanVec will be replacing NTDB. However, we see this on the NRCan website:

CanVec versus the NTDB

It is important to note that CanVec product is not a digital topographic map as the one of the National Topographic Data Base (NTDB). Unlike the NTDB, CanVec does not provide for the vertical integration of entities.

If this is the case, what is the purpose of this product?

NRCan reply—The purpose of CanVec is to allow GIS users to access the best topographic data available for Canada in a standardized vector format, in order to perform geospatial analysis, integrate other datasets and produce maps. Optimum use of CanVec requires some geospatial application knowledge. Non-GIS users may view the data through the Toporama application, as part of the Atlas of Canada website (<http://Atlas.gc.ca/>).

MISE À JOUR SUR LES INITIATIVES DE L'ACACC-RNCAN

Steve Westley

Centre for Topographic Information | Centre d'information topographique
Mapping Services Branch | Direction des services cartographiques
Natural Resources Canada | Ressources naturelles Canada

Depuis la conférence CARTO 2007 qui s'est déroulée à Montréal en mai 2007, le renouvellement de la précieuse relation établie entre Ressources Naturelles Canada (RNCan) et l'Association des cartothèques et archives cartographiques du Canada (ACACC) a considérablement progressé. Le présent bulletin de l'ACACC contient des réponses aux questions qui ont été posées à RNCan au cours de la conférence de l'année passée.

De plus, on a mis en place un groupe de travail formé de membres du Comité consultatif des utilisateurs des cartes de l'ACACC, de l'Association canadienne de cartographie (ACC) et de représentants du Secteur des sciences de la Terre de RNCan, notamment Ann Martin, Bill Voller, Yvan Désy et Steve Westley. Ce groupe s'est réuni quatre fois depuis juin 2007 et, grâce à un dialogue continu productif, RNCan connaît mieux les besoins de l'ACACC et de ses nombreux utilisateurs de cartes.

Les discussions ont comporté notamment des séances d'information, données par RNCan, sur un programme de révision ciblée des cartes topographiques; des mises à jour sur les outils automatisés qui permettent de produire des cartes topographiques à jour à partir de bases de données vectorielles; une annonce des nouvelles cartes offertes par le biais du Programme des services de dépôt de Travaux publics et Services gouvernementaux Canada; et un examen de divers prototypes de carte topographique.

Nouvelles cartes topographiques

Si l'on se tourne vers l'avenir, on peut considérer 2008-2009 comme une année importante sur le plan de la cartographie topographique au Canada. RNCan lancera le programme des Initiatives de cartographie topographique (ICT), afin de mettre à jour et de publier de nouvelles cartes topographiques pour diverses régions du pays. Il s'agit de la première initiative importante entreprise

depuis 1993 pour mettre à jour les cartes topographiques. Cette nouvelle série de cartes sera produite à l'aide des données topographiques numériques les plus récentes collectées dans le cadre de l'initiative GéoBase, notamment le Réseau routier national et le Réseau hydrographique national. La couverture cartographique sera meilleure grâce à l'imagerie satellitaire qui décrira les routes à accès limité dans les régions où cela est nécessaire. Les commentaires formulés par l'ACACC ont aidé RNCan à déterminer l'ampleur de la révision requise.

On déterminera les régions géographiques qui nécessitent une révision en tenant compte des commentaires formulés par les revendeurs de cartes et les intervenants universitaires, de l'analyse de la demande historique de cartes topographiques et des besoins d'autres ministères fédéraux. Plus de 900 feuilles de carte devraient être publiées au cours des trois prochaines années à partir de l'automne 2008. Les cartes à jour imprimées seront offertes par les distributeurs du Bureau des cartes du Canada (http://cartes.RNCan.gc.ca/distribution_f.php), et les versions numériques prêtes à tracer seront offertes en ligne dans le site Web GéoGratis (<http://GeoGratis.gc.ca/>). Les copies imprimées seront aussi distribuées par les bibliothèques participant au Programme des services de dépôt. On annoncera, au cours des prochains mois, les régions visées par cette nouvelle série de cartes topographiques, ainsi que le calendrier des publications.

Au nombre des futures possibilités de collaboration entre RNCan et l'ACACC, mentionnons un sondage auprès des utilisateurs de tous les produits (imprimés et numériques) et services géospatiaux de RNCan en vue de déterminer plus précisément les groupes clients et leurs besoins. En outre, RNCan participera à la conférence CARTO 2008 qui se tiendra à Vancouver en mai 2008, où les prototypes des nouvelles cartes topographiques seront exposés.

QUESTIONS DES MEMBRES DE L'ACACC PRODUITS TOPOGRAPHIQUES DE RNCAN

À la demande de RNCAN, des questions ont été soumises en avril 2007 par des membres d'ACACC, principalement par Richard Pinnell, université de Waterloo.

CARTES TOPOGRAPHIQUES IMPRIMÉES

Q—Que prévoit RNCAN pour l'impression des cartes à 1/50 000 et à 1/250 000 révisées? En quoi consiste le programme de révision? Comment RNCAN établit-il les priorités en matière de mise à jour des cartes?

Réponse de RNCAN—En 2008, RNCAN lancera un programme pour mettre à jour et publier de nouvelles cartes topographiques pour diverses régions du Canada. Il produira ces cartes à l'aide des données topographiques numériques les plus récentes, notamment celles du Réseau routier national et du Réseau hydrographique national, et améliorera la couverture à l'aide de l'imagerie satellitaire dans les régions où cela est nécessaire.

RNCAN prévoit produire 900 feuilles de carte au cours des trois prochaines années. Il déterminera les zones géographiques à couvrir en fonction de la demande historique de cartes topographiques, des commentaires formulés par les distributeurs de cartes et les intervenants universitaires et des besoins des autres ministères fédéraux.

On pourra se procurer les nouvelles cartes topographiques à partir de l'automne 2008 par l'entremise des distributeurs du Bureau des cartes du Canada (http://maps.nrcan.gc.ca/distribution_f.php), et par le truchement du site Web GéoGratis (<http://GeoGratis.gc.ca/>). On annoncera au cours des prochains mois les régions qui seront couvertes par cette nouvelle série de cartes topographiques et le calendrier de publication.

Q—RNCAN continuera-t-il d'imprimer chaque version originale? Ces cartes imprimées seront-elles remises aux bibliothèques de dépôt?

Réponse de RNCAN—RNCAN continuera de tracer les nouvelles versions des cartes topographiques. Des copies de ces cartes seront

distribuées aux bibliothèques participant au Programme des services de dépôt (PSD) en vertu d'un protocole d'entente conclu entre RNCAN et Travaux publics et Services gouvernementaux Canada (TPSGC). Le 1^{er} avril 2007, ce protocole d'entente a été renouvelé pour cinq ans. Au début de 2008, plusieurs nouvelles éditions des cartes du Système national de référence cartographique (SNRC) ont été remises aux cartothèques participant au PSD.

Q—RNCAN fera-t-il une vaste consultation auprès de la communauté canadienne des utilisateurs de cartes, notamment l'ACACC, avant d'apporter à la conception ou au contenu des cartes ou à son programme de cartographie des changements qui auront des retombées sur cette communauté?

Réponse de RNCAN—Depuis la conférence CARTO 2007, RNCAN a rencontré régulièrement, en téléconférence et en personne, des représentants du Comité consultatif des utilisateurs de cartes de l'ACACC. Il a l'intention de tenir d'autres rencontres pour discuter des besoins des utilisateurs en ce qui a trait aux nouvelles cartes topographiques, ainsi que pour obtenir leurs commentaires sur les nouveaux prototypes de cartes.

Q—Comment puis-je savoir la date des couches des cartes du SNRC? <http://maps.nrcan.gc.ca/cartospecs/ChapFeatureIndex/ChapFeatureIndexEF50/FeatureIndexF50.htm>

Réponse de RNCAN—Chaque carte du SNRC contient une indication de la date de validité de l'information décrite sur la carte. Ainsi, on trouve pour la feuille de carte 031G05 (Ottawa) l'indication « Renseignements à jour en 1994 »; cette date s'applique à toutes les couches de cette feuille de carte. Pour d'autres cartes, on indique si les renseignements ont été collectés dans des

années différentes. Ainsi, pour la feuille de carte 041A07 (Markdale), on trouve les indications suivantes : « Limites à jour en 2000 »; « Réseau routier à jour en 1996 »; « Tous les autres renseignements à jour en 1989 ».

Q—RNCAN veillera-t-il à ce que le poids du papier utilisé pour imprimer ces cartes soit suffisant pour prévenir les déchirures et l'effilochage dans des conditions normales d'utilisation?

Réponse de RNCAN—Actuellement, RNCAN utilise du papier quadrillé couché résistant de 27 livres pour les cartes du SNRC, comparativement au papier de 24 livres qu'il utilisait il y a quelques années. Le papier de 27 livres est de grande qualité, durable dans des conditions d'utilisation normales et abordable. Les spécifications techniques telles que le poids du papier quadrillé seront établies par le biais d'un programme de certification du traçage sur demande des cartes topographiques.

Q—RNCAN assurera-t-il la qualité des encres de couleur? En d'autres mots, les entités géographiques et les écritures seront-elles imprimées à l'aide d'encres distinctes qui ne font pas de taches ni d'éclaboussures?

Réponse de RNCAN—Actuellement, RNCAN utilise des encres résistantes aux ultraviolets de grande qualité produites par Hewlett-Packard pour le traçage des cartes topographiques. Les éclaboussures et les taches sont minimales avec ces encres. Les spécifications techniques telles que les encres seront établies par le biais d'un programme de certification du traçage sur demande des cartes topographiques.

Q—Qu'est-il arrivé au support d'impression en Tyvek?

Réponse de RNCAN—Les très populaires cartes du SNRC imprimées sur un support en Tyvek imperméable sont toujours fournies aux distributeurs régionaux par le Bureau des cartes du Canada à des fins de vente. Environ 75 titres sont offerts, qui couvrent principalement des zones récréatives telles que des parcs et des régions de villégiature. En 2003, RNCAN a cessé d'imprimer les cartes sur un support en Tyvek,

qui coûte trop cher. Actuellement, certains distributeurs régionaux impriment les cartes du SNRC sur un support similaire, parce qu'il y a encore un marché pour les cartes topographiques imperméables.

Q—RNCAN continuera-t-il de viser l'excellence dans la production de cartes imprimées?

Réponse de RNCAN—RNCAN continuera de viser l'excellence, tant dans la production cartographique que dans le traçage des cartes imprimées. Pour assurer la grande qualité des cartes imprimées, il mettra en place un programme de certification du traçage sur demande des cartes topographiques.

Q—RNCAN a-t-il l'intention de faire en sorte que le prix des cartes imprimées demeure abordable, ne l'ajustant qu'en fonction de facteurs tels que l'inflation?

Réponse de RNCAN—Actuellement, le prix de vente au détail suggéré pour les cartes topographiques est de 11,45 \$. Les distributeurs et les détaillants ont toujours eu la possibilité d'établir leur propre prix de vente au détail pour les cartes en fonction des conditions du marché local et notamment d'offrir des rabais aux bibliothèques et aux établissements d'enseignement.

Lorsqu'il mettra à jour et publiera de nouvelles cartes, RNCAN réalisera des études du prix de revient pour faire en sorte que le prix de vente soit proportionné aux coûts de production. À long terme, certains facteurs pourraient faire augmenter le prix de vente au détail des cartes, notamment le remplacement de l'impression et de l'entreposage de grandes quantités de cartes par le traçage local sur demande fait par les distributeurs.

Q—Que prévoit RNCAN pour assurer la conservation et l'archivage pour la postérité des versions imprimées actuelles et antérieures des cartes à 1/50 000 et à 1/250 000 du SNRC?

Réponse de RNCAN—Auparavant, toutes les éditions des cartes du SNRC étaient envoyées à Bibliothèque et Archives Canada (BAC) à des fins d'archivage. Les nouvelles éditions lui seront

remises conformément aux exigences du dépôt légal. En outre, les bibliothèques participant au Programme des services de dépôt (PSD) devraient recevoir des copies de toutes les éditions actuelles.

Q—La série historique de cartes à 1/25 000 sera-t-elle offerte en format numérique (matriciel, vectoriel ou les deux)?

Réponse de RNCAN—La série des cartes à 1/25 000 du SNRC a été publiée pour la dernière fois dans les années 1970. Comme ces cartes ont été produites à l'aide des techniques classiques, avant l'avènement de la cartographie numérique, il n'existe pas de données vectorielles pour elles. Il serait possible d'obtenir des données matricielles en numérisant les cartes, mais de nombreux intervenants ont souligné la nécessité d'avoir des cartes à jour et non des cartes basées sur des données historiques. Cette série a une valeur historique, mais les ressources seraient mieux utilisées si l'on produisait des cartes à jour à 1/50 000. RNCAN autoriserait les bibliothèques à numériser la série des cartes historiques à 1/25 000 du SNRC, ainsi que des éditions précédentes à 1/50 000 et à 1/250 000, mais il n'a pas les ressources internes pour entreprendre lui-même le travail.

Q—RNCAN veillera-t-il à ce que l'habillage des cartes imprimées contienne une description complète des sources de données et les dates de situation (télédétection, vérification par GPS, éléments culturels (routes, éléments-repères, etc.), vérité-terrain, points cotés, préparation cartographique, etc.)

Réponse de RNCAN—Oui. Les sources de données et les dates de validité feront partie des métadonnées des données numériques, conformément aux normes ISO, et seront imprimées sur les produits papier obtenus à partir des données numériques.

Q—Quels sont les plans en ce qui a trait à l'impression des cartes topographiques nationales?

Réponse de RNCAN—RNCAN est déterminé à continuer d'offrir des cartes topographiques en format imprimé et en format numérique. Il continuera de faire le traçage sur demande de ces cartes et de les offrir par l'intermédiaire des distributeurs du Bureau des cartes du Canada. Nous prévoyons que des distributeurs offriront un service local de traçage ou d'impression de cartes topographiques sous un régime de certification de la qualité.



DONNÉES TOPOGRAPHIQUES NUMÉRIQUES

Q—Nous aimions les options offertes dans le site des abonnés de RNCAN pour les données de la Base nationale de données topographiques (BNDT) : choix du format (DXF est un choix populaire), choix de la projection, choix des couches à télécharger (certaines catégories de couches ou toutes les catégories de couches) et choix de l'échelle. Ces choix seront-ils offerts dans le site GéoGratis?

Réponse de RNCAN—Les données de la BNDT sont offertes dans le site GéoGratis (<http://GeoGratis.gc.ca/>) en format Shape et en projection géographique. Ce format et cette

projection ont été choisis pour favoriser le téléchargement de grandes quantités de données. Avant avril 2007, les données de la BNDT étaient disponibles dans les formats MapInfo, DXF et E00 qui, en raison du long délai de traitement requis, créent des retards. Les données de la BNDT sont maintenant stockées sous forme de fichiers qui peuvent être téléchargés directement, ce qui permet d'accélérer leur transmission. De nombreuses applications logicielles SIG permettent maintenant de transformer les données en différents formats et projections.

Q—Nous aimions les options offertes pour

la résolution du produit CanMatrix, c'est-à-dire 160 dpi et 300 dpi. La résolution de 300 dpi cause des problèmes à certains clients en raison de la taille du fichier. RNCAN a-t-il décidé d'arrêter d'offrir les données matricielles d'une résolution de 160 dpi? Si oui, nous aimerions qu'il revoie cette décision.

Réponse de RNCAN—Comme pour les données de la BNDT, la résolution de 300 dpi a été choisie pour les fichiers CanMatrix afin d'assurer la transmission d'une grande quantité de données. Avant avril 2007, on offrait le choix des deux résolutions (160 dpi et 300 dpi) pour les données CanMatrix, ce qui nécessitait un temps de traitement considérable et créait des retards. Les données CanMatrix sont maintenant stockées sous forme de fichiers qui peuvent être téléchargés directement, ce qui accélère leur transmission. Les utilisateurs peuvent rééchantillonner les données CanMatrix d'une résolution de 300 dpi et créer des fichiers qui ont la résolution requise.

Q—Il est difficile de choisir les données à partir du numéro du feuillet du Système national de référence cartographique (SNRC). Dans certains cas, la zone d'intérêt du client est beaucoup plus petite que la zone d'un feuillet ou englobe de nombreux feuillets. Dans d'autres cas, elle a une étendue irrégulière. Certains clients ne connaissent pas le système de quadrillage du SNRC. Les utilisateurs pourront-ils définir leur propre zone d'intérêt (p. ex. à l'aide d'outils de dessin, des toponymes ou des coordonnées)? À cet égard, les couches de données seront-elles continues? Si RNCAN continue de transmettre les données selon le feuillet, pourquoi n'offre-t-il pas une carte-index du SNRC (le fait de trouver la zone d'intérêt sur la carte et de cliquer sur le feuillet du SNRC déclencherait le choix des données)?

Réponse de RNCAN—Il y a plusieurs méthodes d'accès aux données à partir du portail GéoGratis (<http://GeoGratis.gc.ca/>), notamment la recherche selon le nom géographique, le code postal, le numéro du SNRC et une boîte englobante basée sur les coordonnées en latitude et longitude. On a

ajouté au portail GéoGratis des cartes-index pour le quadrillage du SNRC, afin que les utilisateurs puissent choisir les feuilles de carte qui les intéressent. RNCAN continue d'améliorer le portail GéoGratis.

Q—Pourquoi les données de la BNDT et de CanVec sont-elles offertes par le biais du portail GéoGratis? Je croyais que les données-cadre seraient offertes par le biais de GéoBase et que les jeux de données thématiques et héritées seraient offerts par le biais de GéoGratis. Les données numériques d'élévation du Canada (DNEC) sont offertes dans GéoBase... pourquoi pas la BNDT? Veuillez expliquer les différences entre ces portails.

Réponse de RNCAN—Le portail GéoGratis (<http://GeoGratis.gc.ca/>), qui est géré par la Direction de la gestion et de la diffusion des données (DGDD) de RNCAN, est un portail central pour la diffusion de tous les produits géospatiaux numériques du Secteur des sciences de la Terre.

Par ailleurs, GéoBase est une initiative fédérale-provinciale-territoriale qui a un portail Web distinct. RNCAN héberge ce portail (<http://GéoBase.ca/>), mais toutes les décisions au sujet de cette initiative sont prises par le Conseil canadien de géomatique (COCG). Pour que les données soient diffusées par le biais du portail GéoBase, elles doivent être conformes aux normes nationales acceptées par tous les partenaires de l'initiative et tenues à jour en partenariat.

Q—Nous voulons ajouter un lien direct vers les produits numériques de RNCAN dans le site Web de notre cartothèque. Cela est-il possible? La licence d'utilisation impose-t-elle des restrictions sur le téléchargement?

Réponse de RNCAN—Il est certainement possible et même souhaitable d'ajouter dans votre cartothèque un lien vers le portail GéoGratis (<http://GeoGratis.gc.ca/>) et vers tous les sites Web de RNCAN. Il n'est pas nécessaire de demander une permission officielle, mais il faudrait consulter l'Accord de licence d'utilisation sans restriction de données numériques de GéoGratis, parce qu'on y décrit les conditions d'utilisation de toutes les données téléchargées

à partir de ce site.

Q—Nous ne comprenons pas bien la différence entre les données de la BNDT et les données CanVec. Nous avons appris que les couches de CanVec proviennent de diverses sources (p. ex. la BNDT et le Réseau routier national) et qu'en conséquence, il ne sera pas possible d'en faire l'intégration verticale. On a prétendu que les routes pourraient se retrouver dans des plans d'eau. Est-ce vrai? Si oui, que prévoit-on pour assurer l'intégration verticale de toutes les couches (c.-à-d. assurer l'exactitude planimétrique)?

Réponse de RNCAN—La BNDT est un jeu de données vectorielles numériques qui proviennent de cartes imprimées classiques aux échelles de 1/50 000 et de 1/250 000. La création de données vectorielles à partir de cartes imprimées (1987-2007) visait à répondre aux besoins des utilisateurs du SIG, ainsi qu'à permettre à RNCAN d'améliorer l'exactitude de l'ensemble du jeu de données. Les spécifications originales des cartes à 1/50 000 ont été mises à jour, mais chaque version a été préservée. Deux interventions majeures ont permis d'améliorer l'exactitude géospatiale des données à 1/50 000 : la conversion de toutes les données au système de référence géodésique NAD 83 (WGS84) et la correction planimétrique (à l'aide des meilleurs points de contrôle au sol disponibles). L'exactitude horizontale des données a été considérablement améliorée, passant d'une moyenne de +/-53 m à une moyenne de +/-25 m. La BNDT à 1/50 000 ne sera plus mise à jour après l'automne 2007, parce qu'elle a été remplacée par le produit CanVec.

Les nouvelles données vectorielles CanVec seront tenues à jour et diffusées par RNCAN. Elles comprennent les nouvelles couches de GéoBase, notamment le Réseau routier national et le Réseau hydrographique national, et certaines données de la BNDT. Elles sont utilisées à la place des anciennes données de la BNDT dans les régions pour lesquelles il existe des données GéoBase. Elles sont conformes aux normes internationales (consortium OGC et autres), afin de faciliter l'interopérabilité et la diffusion et de faire en sorte que RNCAN offre aux utilisateurs les jeux de données topographiques numériques

les plus à jour et complets possible.

L'amélioration du contenu de CanVec se poursuit sur deux plans. RNCAN a mis à jour plus de 4 000 fichiers du SNRC pour les Territoires du Nord-Ouest et le Nunavut. En outre, il est en train de compiler à l'échelle de 1/50 000 les dernières données pour l'île d'Ellesmere et l'île de Baffin. Il offrira ces nouvelles données par le biais de CanVec. Il fournit de nouvelles couches de données sur d'autres régions du pays par le biais de GéoBase, une initiative nationale (fédérale-provinciale-territoriale) dirigée par le COGC qui vise à donner accès à court et à long terme à des données géospatiales de base de qualité. Le COGC est responsable de la sélection des données-cadre qui feront partie de GéoBase.

En ce qui a trait à l'intégration verticale des couches de données, RNCAN a été confronté à deux problèmes lors de la combinaison des données de GéoBase avec celles de la BNDT. Le premier concerne les différences dans l'exactitude des positions. Même après la correction planimétrique, il reste des cas où les données de GéoBase (p. ex. le Réseau routier national) sont plus exactes que le reste des données de la BNDT. Ainsi, « cartographiquement », des routes pourraient traverser des éléments hydrographiques de la BNDT. Le deuxième problème concerne les différences dans le contenu, c'est-à-dire que certaines données du Réseau routier national peuvent contenir plus ou moins de données que la BNDT, soit en raison d'une échelle plus grande (p. ex. les données hydrologiques à 1/20 000), soit en raison de la non-collecte de données sur un élément particulier (p. ex. les routes à accès limité).

Q—Les données (fédérales) canadiennes et les données américaines qui concernent la frontière seront-elles intégrées? Si non, a-t-on mis en place des plans pour assurer la compatibilité des données en Amérique du Nord?

Réponse de RNCAN—Le fait de mettre les données à jour en fonction des normes internationales ISO et OGC permettra aux utilisateurs de réunir et d'utiliser plus facilement dans un SIG les données numériques provenant de différentes organisations de cartographie. Les données topographiques numériques et les données de GéoBase de RNCAN sont conformes

à ces normes internationales.

Pour l'instant, aucun travail n'a été entrepris pour harmoniser les cartes de la frontière à 1/24 000 de la USGS avec les cartes de la frontière à 1/50 000 du Canada. On a intégré du mieux qu'on a pu les parties du territoire américain aux feuilles de carte à 1/50 000 du Canada.

On est en train de réaliser l'intégration transfrontalière de certaines couches de base, par exemple les routes et le réseau hydrographique, à des échelles plus petites (1/1 000 000 et 1/10 000 000).

Q—A-t-on élaboré des plans pour favoriser l'intégration verticale des données des SIG provenant de sources fédérales et provinciales (p. ex. à l'aide du modèle du Réseau routier national) et prendre d'autres mesures pour assurer la compatibilité? Il faut éliminer le double emploi et améliorer l'interopérabilité des données provenant de diverses sources. Quels sont les plans de RNCAN en ce qui a trait à l'ajout de données provinciales aux portails GéoBase et GéoGratis? Ces données seront-elles converties à l'échelle nationale ou seront-elles offertes à l'échelle provinciale?

Réponse de RNCAN—L'initiative GéoBase vise à mettre à jour et à améliorer le contenu de la base nationale de données géospatiales, ainsi qu'à éliminer le double emploi entre les gouvernements fédéral et provinciaux. Les couches de données de GéoBase sont conformes aux normes nationales et internationales, ce qui en assure l'interopérabilité. En outre, elles sont collectées plus près de la source, c'est-à-dire auprès des organisations provinciales plutôt que des organisations fédérales œuvrant dans les provinces, et elles sont mises à jour par le fournisseur. On s'est d'abord attaqué aux couches importantes sur le plan de la cartographie, soit le Réseau routier national (terminé) et le Réseau hydrographique national (en cours). Les autres couches importantes sont notamment la couverture terrestre et forestière et les frontières municipales.

Dans tous les cas, les plus récentes données provinciales fournies aux fins de l'initiative GéoBase remplaceront les anciennes données

fédérales de CanVec. L'échelle originale des données numérique provinciales est conservée. Le transfert et la représentation des données provinciales à une plus petite échelle (1/50 000) pose certains problèmes cartographiques que l'on tente actuellement de régler.

Q—Les métadonnées font toujours problème. Les clients sont particulièrement intéressés à connaître la date de l'information qui concerne les couches ou les éléments. J'ai vérifié les données et métadonnées récentes pour la feuille de Stratford (40p/7) et remarqué qu'il n'y a pas de champ de date dans le tableau des attributs. Le dossier des métadonnées contient la date de validité de la photographie aérienne, de la base de données numériques, de la carte papier et de la vérification au sol avec le GPS. Il n'y a pas de date de situation, ni de date de mise à jour des couches individuelles. Et il n'y a certainement pas de date pour les éléments individuels. Est-ce que RNCAN fera mieux? Est-ce qu'il créera des métadonnées qui sont conformes aux normes ISO et qui sont aussi complètes que celles du FGDC (ou d'une organisation similaire)?

A-t-on mis en place un plan pour conserver la date de compilation et de mise à jour de l'information qui concerne les couches? Actuellement, GéoGratis ne fournit les métadonnées que pour le feuillet et non pour la couche.

Réponse de RNCAN—Actuellement, les métadonnées sont conformes aux normes du FGDC et seront converties sous peu au profil nord-américain de la norme ISO. Les métadonnées sont offertes pour la collecte et le jeu de données (feuillet). Les métadonnées de jeux de données contiennent des renseignements au sujet de la mise à jour des couches individuelles. Il n'est pas encore possible d'avoir accès aux renseignements sur l'origine de chacune des couches pour chaque produit.

Q—Parlez-nous de la mise à jour des bases de données. Prévoit-on mettre à jour la BNDT et CanVec? Pour ce faire, procédera-t-on couche par couche, par région ou selon la demande des utilisateurs? Le

concept du cycle de révision s'applique-t-il?

Réponse de RNCan—La BNDT demeurera statique, et aucune mise à jour ne sera faite. Le produit CanVec sera mis à jour graduellement, couche par couche, grâce à l'intégration des nouvelles données de GéoBase. Les gouvernements provinciaux feront la révision des couches de GéoBase en fonction des accords de partenariat et des ressources.

Q—Quand RNCan a-t-il l'intention de terminer la cartographie numérique du Canada à l'échelle nominale de 1/50 000? A-t-il élaboré un plan méthodique pour ce projet?

Réponse de RNCan—Actuellement, il reste environ 1 000 feuillets de carte à 1/50 000 à terminer pour l'île de Baffin et l'île d'Ellesmere au Nunavut. La date d'achèvement n'a pas encore été fixée, et les priorités sont établies en fonction de la disponibilité des ressources et des besoins des clients.

Q—RNCan a-t-il l'intention d'offrir de l'aide supplémentaire en ligne, notamment des tutoriels, des logiciels utilitaires (pour voir, visualiser, manipuler ou convertir les données), des liens vers des logiciels recommandés ou commandités (pour l'analyse par des SIG, l'analyse des données de télédétection, la visualisation 3D), les coordonnées des experts en données et des liens vers des organisations provinciales chargées des données?

Réponse de RNCan—Le portail GéoBase (<http://GéoBase.ca/>) présente des liens vers des logiciels d'application gratuits. Le Portail de découverte de GéoConnexions (<http://geodiscover.cgdi.ca/>) présente aussi ce genre de renseignements.

Q—Prévoit-on offrir un accès aux données de RNCan par le biais des services WMS ou WFS? En d'autres mots, RNCan offrira-t-il cet accès de façon plus interactive, afin que les utilisateurs puissent visualiser les données en ligne, désactiver ou activer des couches, faire un zoom, faire un panoramique, interroger ou télécharger?

Réponse de RNCan—Actuellement, RNCan offre un outil de visualisation appelé Toporama dans le site Web de l'Atlas du Canada, ainsi qu'un service WFS pour les noms géographiques du Canada. Il offre aussi un outil de visualisation des produits GéoBase dans le portail GéoBase. Les outils de visualisation sont basés sur les services WMS, qui peuvent être réutilisés par d'autres applications.

Q—Que prévoit RNCan pour assurer l'archivage de ses données numériques pour la postérité? La question de l'archivage des versions imprimées et numériques se pose toujours.

Réponse de RNCan—Il y aura plusieurs versions de CanVec, et chacune sera archivée en format numérique et restera accessible. Les fichiers cartographiques correspondant à chaque version de CanVec seront aussi archivés en format numérique. Les versions imprimées des nouvelles cartes topographiques créées à l'aide des données CanVec seront remises aux bibliothèques par le biais du Programme des services de dépôt.

Q—Il y a quelques années, l'ACACC a appris que CanVec remplacera la BNDT. Cependant, il est indiqué dans le site Web de RNCan que les données CanVec ne permettent pas d'obtenir des cartes topographiques numériques comme celles que l'on obtient avec la BNDT. Contrairement à cette dernière, elles ne permettent pas l'intégration verticale des entités. Si c'est le cas, à quoi servent les données CanVec?

Réponse de RNCan—Les données CanVec permettent aux utilisateurs des SIG d'accéder aux meilleures données topographiques disponibles au Canada dans un format vectoriel normalisé, afin qu'ils puissent faire une analyse géospatiale, incorporer d'autres jeux de données et produire des cartes. L'utilisation optimale des données CanVec nécessite une certaine connaissance des applications géospatiales. Les utilisateurs qui ne se servent pas de SIG peuvent visualiser les données à l'aide de l'application Toporama qui se trouve dans le site Web de l'Atlas du Canada (<http://Atlas.gc.ca/>).

GEOSUITE AS A TOOL IN CREATING CUSTOM .CSV FILES FROM BEYOND 20/20 TABLES

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Some of the data available through Statistics Canada's Data Liberation Initiative (DLI) program is in the form of IVT tables. Examples include the 2006 Census topic-based tabulations.¹ Researchers may view these files using the Beyond 20/20 Browser, which is available for download through the Statistics Canada Web pages.²

The Beyond 20/20 Browser is a very flexible tool, allowing researchers to select the data they want to view from a multivariate table and subset and export the data. For GIS users, data from these tables may be extracted in .csv format for use in spatial analysis. This may seem tedious to do if one wants to extract a particular geographic subset from a large dataset. For instance, one might just want data for all strong MIZs³ in Alberta, all urban areas in Manitoba, all Indian reserves in BC, or all communities of a particular size in Saskatchewan

Extracting these types of datasets is actually quite simple if one builds a profile in *GeoSuite* and then uses that profile to extract the data. Using *GeoSuite* and a 2006 Census topic-based tabulation (note that the IVT table format needed for this exercise is only available to current students, faculty, and staff at DLI-member institutions), this short article will describe how to extract data for communities in British Columbia with a population between 5,000 and 15,000 people.

The following steps will be used:

1. Use *GeoSuite* to build a profile of census subdivision (CSD) UIDs in British Columbia that have a population within a set range.
2. Import the profile into a B20/20 topic-based tabulation table.
3. Use the profile to create a data subset.
4. Select and save data as a .csv file.

To see the original handout for this exercise, with screenshots, go to https://ospace.scholarsportal.info/bitstream/1873/8666/1/GeoSuite_B2020.pdf.

Step 1: Using GeoSuite to Build a Profile

Statistics Canada's *GeoSuite* allows users to explore relationships between Census geographic areas and to obtain information on those areas.⁴ Researchers and students at DLI institutions may contact their Data Librarian to determine how to access this product free of charge. Users outside of DLI institutions may purchase *GeoSuite* from Statistics Canada.⁵

1. From the *GeoSuite* 2006 main screen, click on **Name Search**.
2. In the **Name** box, type in **British Columbia**. Select the entry for the Province (PR), and click on **Next**.
3. Select the **CSD (Census Subdivision)** radio button, and click on **Next**.
4. Select **CSDuid** (CSD unique identifier field), and use the > button to copy the selection to the **Selected Fields** box.
5. **Set Condition...** will now be used to select only CSDs of a particular size. Click on **Set Condition...**
6. From the **Fields** drop-down menu, select **CSDpop2006**. From the **Criterion** drop-down menu, select >=. Enter **5000** into the **Value** box. Click on **Add**.
7. From the **Fields** drop-down menu, select **CSDpop2006**. (This must actually be selected again for it to be entered.) From the **Criterion** drop-down menu, select <=. Enter **15000** into the **Value** box. Click on **OK**.
8. Click on **Next**. There are 49 CSDs within BC that have a population greater than or equal to

- 5,000 people and less than or equal to 15,000 people.
9. Select **Export** from the **Tools** menu.
10. Select the **Tab** delimiter (the default), and **deselect** "**Add double quotes to text fields as the Text Qualifier.**" Click on **OK**.
11. Name and save the file.

Step 2: Importing the Profile

For the purposes of this example, the following topic-based tabulation table will be used: *Period of Construction (11), Structural Type of Dwelling (10), Housing Tenure (4) and Condition of Dwelling (4) for Occupied Private Dwellings of Canada, Provinces, Territories, Census Divisions and Census Subdivisions, 2006 Census—20% Sample Data.*

1. Go to the 2006 Census topic-based tabulations on the Statistics Canada web site. (From the Statistics Canada web page at <http://www.statcan.ca/start.html>, click on **Census**, click on **Data products** under **2006 Census**, and click on **Topic-based tabulations**.)
2. Click on **Housing and shelter costs**, and then click on **Structural type of building**.
3. Click on **B20/20** next to **Cat. No. 97-554-X2006023**.
4. Save the file.
5. Open the saved B20/20 .ivt file. (Beyond 20/20 Browser required. See Note #2 at end of article for

link.)

6. It is possible to change the view of the table by dragging and dropping dimension labels. Drag the **Geography** dimension label on top of the **Period of const** dimension label and release. The Geography dimension should now be displayed and selected (i.e., the Geography dimension label should be yellow).

7. From the menu, select **File Utilities Import Profile**.

8. Click on the box with the three dots next to the **Import Filename** box to navigate to the **GeoSuite** profile file created in Step 1, and double click on the file name to enter it into the box. Enter **Geography** for **Dimension**, and name the profile. A description may also be entered if desired. Click on **OK**. (See Figure 1.)

Note that once a profile is imported, it is available to use with other B20/20 tables.

Step 3: Using the Profile to Create a Data Subset

1. To use the profile, select **Load Profile** under **Dimension**, and double click on the profile name.
2. The data for the 49 CSDs in BC that have a population greater than or equal to 5,000 people and less than or equal to 15,000 people should now be displayed.

Period of Construction (11), Structural Type of Dwelling (10), Housing Tenure (4) and Condition of Dwelling (5)

Period of const: Total - Period of construct

Structural type: Total - Structural type of dwell

Housing tenure: Total - Housing tenu

Condition of dw	Total - Condition of dwelling	Regular maintenance only	Minor repairs	Major repairs
Geography				
Canada (01) 20000	12,437,470	8,168,615	3,339,840	929,015
Newfoundland and Labrador / Terre-Neuve-et-Labrado	197,185	127,625	54,075	15,480
Division No. 1 (1001) 00000	97,015	66,280	24,405	6,330
Portugal Cove South (1001105) T 01000	80	45	25	10
Trepassey (1001113) T 00000	310	170	95	40
St. Sholt's (1001120) T 00000	50	25	25	0
Division No. 1, Subd. U (1001124) SNO 01010	640	385	175	80
Cape Broyle (1001126) T 01000				
Renews-Cappahayden (1001131) T 01000				
Fermeuse (1001136) T 00000				
Port Kirwan (1001140) T 01010				
Aquaforte (1001144) T 01010				
Ferryland (1001149) T 00000				
Division No. 1, Subd. W (1001155) SNO 0202				
St. Vincent's-St. Stephen's-Peter's River (1001160) T 01000				
Gaskiers-Point La Haye (1001174) T 01000				
St. Mary's (1001178) T 00000	185	105	75	0
Riverhead (1001181) T 00000	80	45	20	20

Import Dimension Profile

Import Filename: C:\Documents and Settings\curryg\Desktop\BC

Dimension: Geography

Profile Name: BC_CSDs

Description: Population between 5,000 and 15,000

OK

Cancel

Help...

Figure 1.

1. <http://www12.statcan.ca/english/census06/data/topics/Index.cfm>.
2. <http://www.statcan.ca/cgi-bin/relocate.cgi?l=E&loc=http://www2.beyond2020.com/SC/ProBrowser.exe>. A *QuickStart Guide* is available at <http://www.statcan.ca/english/concepts/PSIS/b20guide.pdf>.
3. A MIZ (census metropolitan area and census agglomeration influenced zone) refers to how much influence a census metropolitan area (CMA) or census agglomeration (CA) has on a outlying census subdivision (CSD). See http://geodepot.statcan.ca/Diss2006/Reference/COGG/Long_RSE_e.jsp?REFCODE=10&LANG=E&FILENAME=MetropolitanInfluencedZones&TYPE=L for a more complete definition.
4. Statistics Canada, *GeoSuite, Reference Guide: Census Year 2006*, Statistics Canada Catalogue no. 92-150-GIE (Ottawa: Statistics Canada, 2007), 7.
5. <http://www.statcan.ca/bsolc/english/bsolc?catno=92-150-X>.

The dataset is now ready to check, clean as necessary, and use for GIS purposes.

Figure 2.

CREATING CUSTOMIZED MAPS IN GOOGLE EARTH AND GOOGLE MAPS

Eva Dodsworth
University Map and Design Library
University of Waterloo

Google Earth is one of many online mapping programs that offers users interactive mapping capabilities. With world-level coverage of satellite imagery, aerial photography, streets, points of interest and more, this virtual globe is one of the most popular programs being used by both GIS and non-GIS users. Most take advantage of the current imagery that Google Earth offers and for many areas the resolution is impressively high (up to 7.6 cm). With a collection of imagery larger than most libraries can offer, Google Earth is being used by academic users as a source for reference or base maps.

What Google Earth can offer however, that most online mapping programs do not, is the ability for users to add their own features to online mapping programs. This combination of free and accessible imagery with customized GIS layers is intriguing many GIS users who don't necessarily need access to GIS software anymore. Some students at the University of Waterloo for example, are interested in aerial overviews of large areas such as the Greater Toronto Area. Using solely library resources, this would entail opening hundreds of imagery tiles in ArcGIS to satisfy the geographical extent. These students are finding it more convenient to use Google Earth for the aerial overview, while at the same time customizing and finalizing their map by adding their own GIS files to it. The same map can also be created in Google Maps, and then shared with the rest of the world—an advantage of online mapping.

Customized Mapping in Google Earth/Google Maps

Users can add geospatial data to Google Earth as *Keyhole Markup Language* (KML) files. KML is an XML-based language that manages the display of 3D geospatial data in both Google Maps and Google Earth. A compressed KML is KMZ. KML files in Google Earth can be customized in ways that shapefiles can be customized in ArcGIS. The user can specify symbols, labels, manipulate feature appearances, alter attribute information and more. Google Earth will display both vector and raster data in KML format.

User Guide for Displaying GIS Files in Google Earth/Google Maps

This guide was written using ESRI's ArcMap 9.2 software program. All files used in these examples were projected to UTM, NAD83 in Zone 17.

Creating KML/KMZ Files

KML or KMZ files can be created quickly and easily in ESRI's ArcGIS 9.2 program. All geospatial files that are supported by ArcMap can be converted into KML/KMZ files. This includes both raster and vector files. The user can convert just one file (such as a vector line file), or an entire .mxd consisting of several geospatial files.

1. In ArcMap, add the geospatial files you would like to convert to KML format.
2. Manipulate the files as you would like to see them displayed in Google (file name, symbol, colour, attribute information).

3. If you choose to convert all the files in your ArcMap session, save your project first. All files will be converted into one .kmz file; however in Google they will be displayed as individual layers.
4. Open ArcToolbox and navigate to the Conversion tools. You will see the option to either export an individual layer to KML or the entire map to KML.

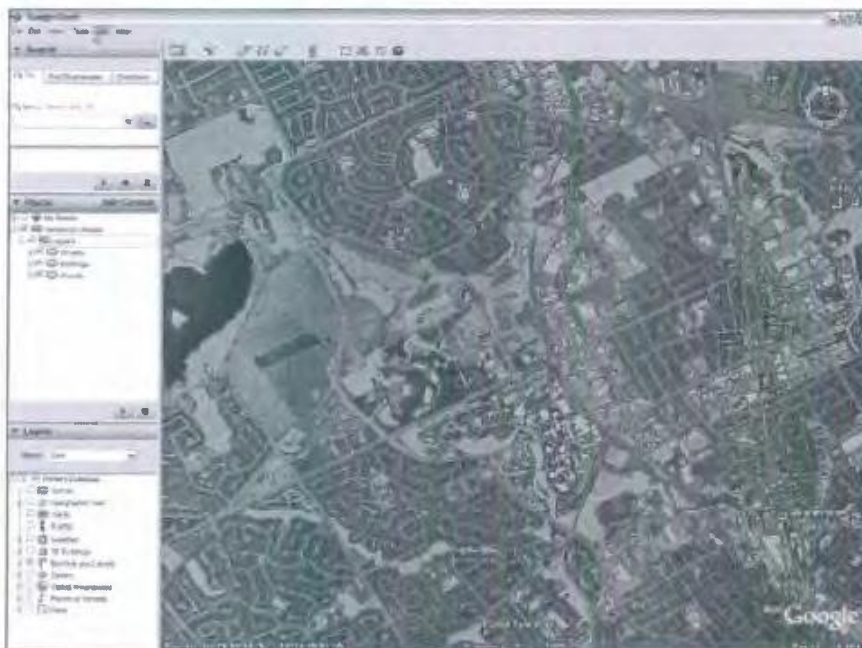


Select your layer or map document and choose a name for your .kmz file. You can click OK for the default properties or you can continue and go through the property options to customize your file.

5. The size of your KMZ will vary depending on the size of your input files.

Adding KMZ Files in Google Earth

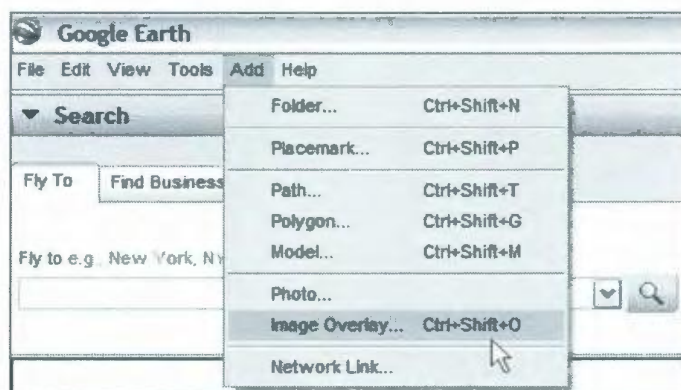
1. Open Google Earth
2. Open your .kmz file : File – Open
3. Google Earth will automatically zoom into the extent of your layers. Your features will display exactly the same as they displayed in ArcMap, but now you have imagery as your background. You can alter your .kmz files if you need to—change symbols, colours, attribute information, etc.



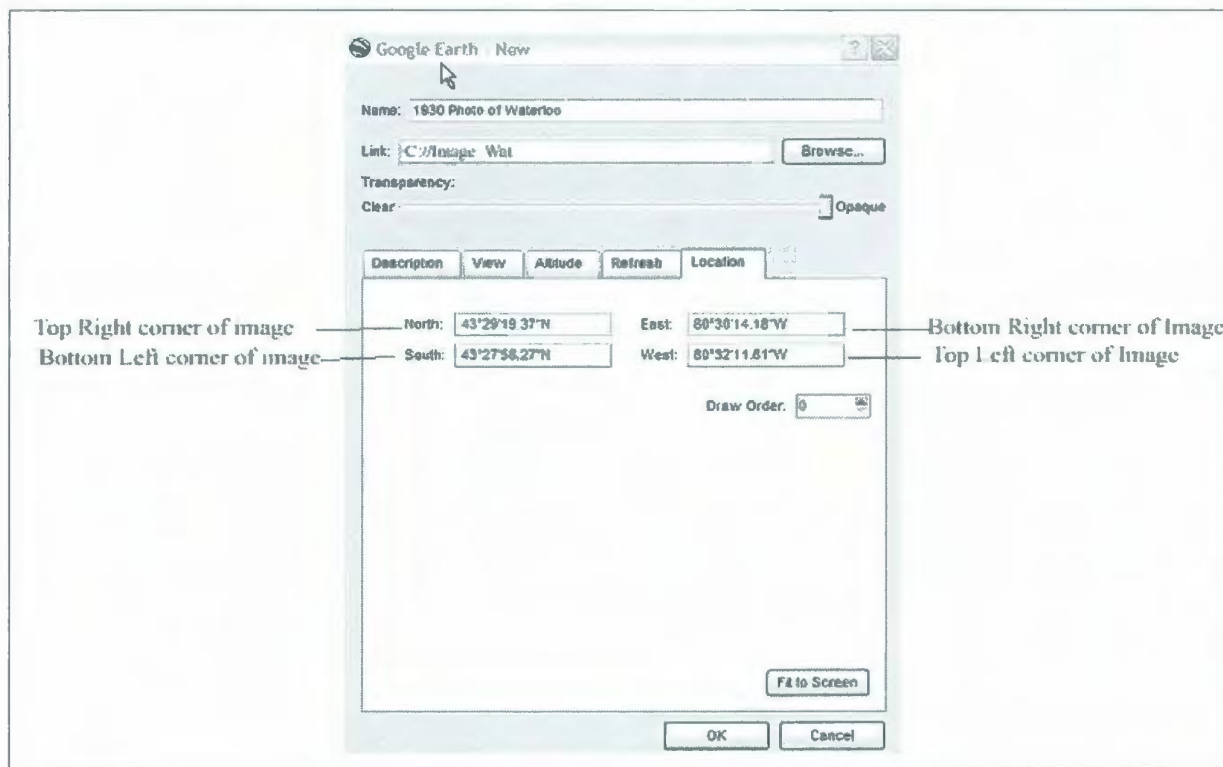
Adding Image Overlay Files in Google Earth

Although image data can be converted to KML in ArcMap, some users may wish to add ungeoreferenced imagery to Google Earth. Google will georeference the image overlay accordingly and will drape the image correctly on the earth's surface. This does however require the user's input of coordinate information. Some users may find that the image has been overlayed 'accurately enough' without coordinate input.

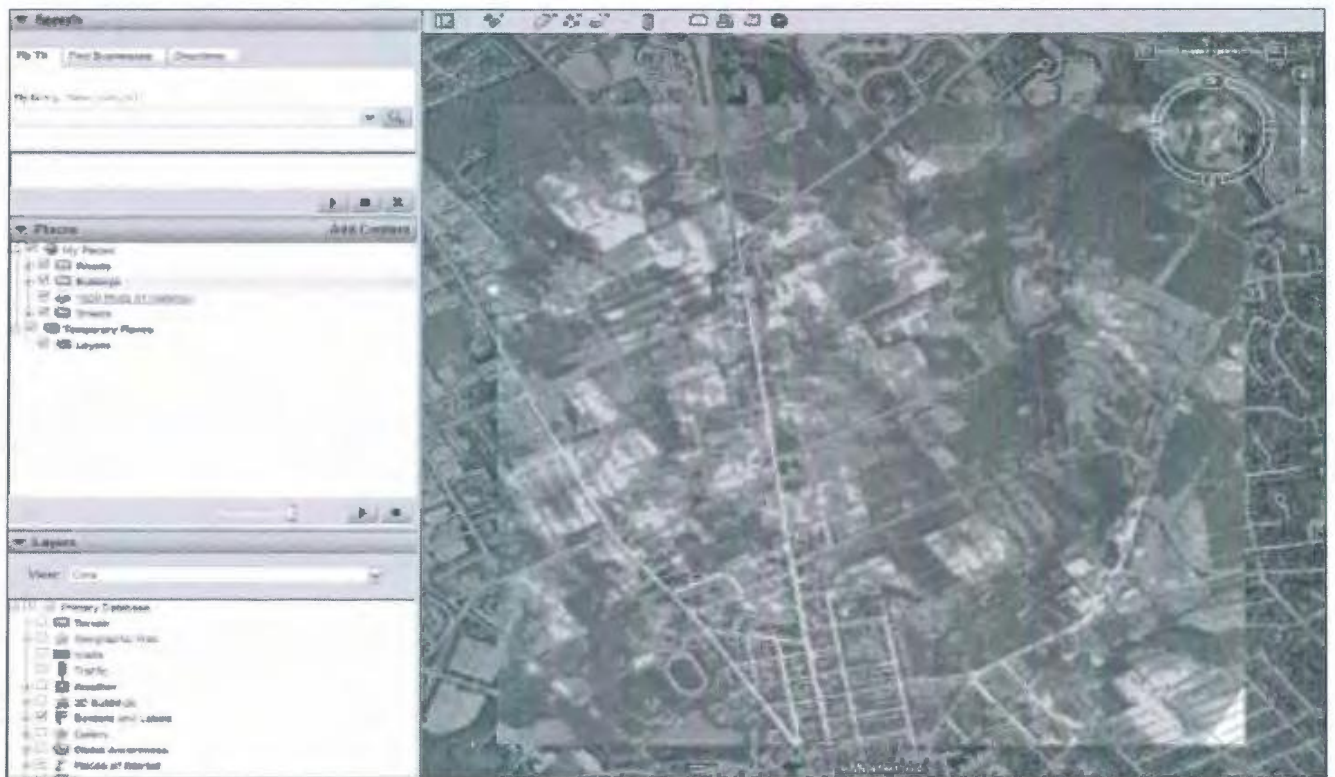
1. Zoom into the approximate area you want your image to be placed. Google Earth automatically inputs the coordinates of your geographical area of your image.



2. To add the image overly in Google Earth, click on Add - Image Overlay
3. You can modify the properties of your image, including the coordinates if you know them.



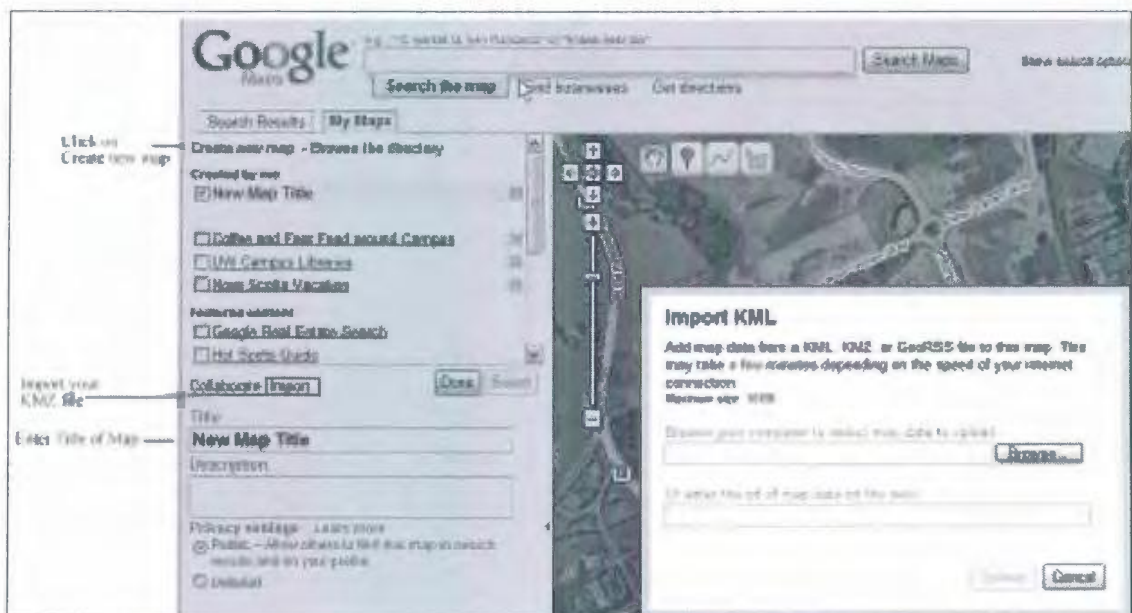
4. Your image overlay can now be combined with your .kmz files. This image has Google Earth's imagery in the background, with a scanned image overlay and .kmz vector files on top. The vector files have been made semi-transparent.



Adding KMZ Files in Google Maps

Google Maps also provides users with the ability to create custom maps without needing to download any special software. With Google Maps, users are creating their maps on the internet and subsequently can add their live maps on webpages, as well as share their map URL with other interested parties.

1. Connect to www.maps.google.com, and go to the 'My Maps' tab. If you haven't registered with Google already, you will need to set up a free account with them.
2. Click on 'Create new map'. You may enter a title and a description of your map.
3. To add .kmz files, click on Import.







This image consists of Google orthoimagery and two .kmz files: general buildings on campus at the University of Waterloo and buildings that contain libraries. The html code that connects users to this map can be added to websites such as blogs.

Friday, January 18, 2008

Customizing Google Maps

You can easily create your own custom map for the world to see using KMZ files. I created a map of buildings on campus and highlights all the libraries. Click on the highlighted buildings to gain access to the library's website. For best results, view larger map and have your website image framed as:





Blog Archive

▼ 2008 (8)

▼ March 4

City of Ottawa Vector map
[library data](#)

Recommended GIS Software
[City of Ottawa offers online](#)
[downloads of KML](#)
[data](#)

City of London 2007
[Orthoimagery](#)

► January (1)

FeedBurner FeedCount

USING ARCIMS SERVER FOR ORTHO IMAGE DISCOVERY AND DISTRIBUTION

Barbara Znamirowski
Maps, Data and Government Information Centre
Trent University Library

*Paper presented at the Joint CAPDU / ACMLA Conference Session
ACMLA Annual Conference, CARTO 2007, Montreal, May 13, 2007*

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Several persons were involved in this project. All members of the Maps, Data and Government Information Centre (MaDGIC) provided feedback and support. Glenn Nugent (MaDGIC) coordinated technical development and definition of ArcIMS/GIS procedures. His technical skills and exceptional talents brought this project from conceptual stages to a working model. Tracy Armstrong (MaDGIC) joined our project team after this paper was first given; she customized the HTML viewer and improved the overall appearance of the web site. My colleagues from the Ontario Council of University Libraries Map Group and the Sir Sandford Fleming Geomatics Institute provided generous advice and information. Trent Library Administration, Trent IT and Trent Library Systems provided financial and/or technical support. The Trent University Academic Innovation Fund approved the initial funding proposal for this project. Our partners from the Ontario Geospatial Data Exchange (in particular the Ministry of Natural Resources and the Ministry of Education) provided generous funding to ensure Ontario universities and colleges receive imagery. Without the talents and contributions of all these persons this project would not have been possible.

Introduction

The Province of Ontario is currently involved in several imagery acquisition initiatives that use diverse technologies, including traditional film, digital camera and satellite capture.

Much of the existing provincial mapping dates from the mid-1980s. Since then, a series of immediate challenges and policy concerns relating to

conservation of natural resources and the environment have led to the formation of various policy and management programs and activities. Examples of these include designation of the Greenbelt around the Greater Toronto Area, the Oak Ridges Moraine Conservation Plan, and source water protection activities required in the aftermath of the Walkerton incident. These programs and activities have, in turn, generated new requirements for up-to-date mapping information.

Decisions on which geographic areas and types of imagery will be included within these acquisition initiatives are driven by diverse stakeholder needs and funding opportunities. Participants in these initiatives include: the Ontario Ministry of Natural Resources (the lead ministry) as well as other ministries and agencies within Land Information Ontario and the broader Ontario Public Sector; together with municipalities, conservation authorities, federal government agencies, the private sector, universities, colleges and boards of education.

These initiatives are in various stages of planning, implementation, and product release. The main projects include: the 2002 Greater Toronto Area (GTA) and Surroundings Orthophotography Project, 2005 Greater Toronto (GTA) Orthophotography Project, the Enhanced Forest Resource Inventory (eFRI), Ontario QuickBird (Digital Globe) Satellite Imagery Initiative, the South Western Ontario Orthophotography Project (SWOOP) and the Digital Raster Acquisition Project for the East (DRAPE).

This paper describes how Trent University Library is hosting some of these imagery data sets. We look forward to working further with members of the data community and to receiving your feedback.

Project Objectives

Our main objective was to manage and organize a large number of raster tiled data sets, thereby providing users with a discovery tool to search, view, and access spatial files and supporting information. More specifically, we determined that the tool should: support spatial query and geographic search (bounding box), support a broad range of query and navigation tools, provide immediate download capabilities, provide mediated access to meet license requirements, be compatible with scheduled backup and server security requirements, and assure 24/7 access from on or off campus.

Data Description

2002/2003 Orthophotography (Figure 1)

Approximately 20,400 raster tiles were included in the project.

Copyright: First Base Solutions Inc. (A Subsidiary of J.D. Barnes Ltd.)

All coverage areas:

Coordinate system: UTM - NAD83, Zone 17

Source format: SID 'World'

Average tile size: 3-5 MB

Greater Toronto Area (GTA), City of Hamilton, Niagara Region:

Aerial photography date: Spring, 2002

Aerial photography scale: 1:10,000

Ground pixel resolutions: 20 cm

Simcoe County, City of Kawartha Lakes, Peterborough County, Northumberland County:

Aerial photography date: Spring, 2002

Aerial photography scale: 1:20,000

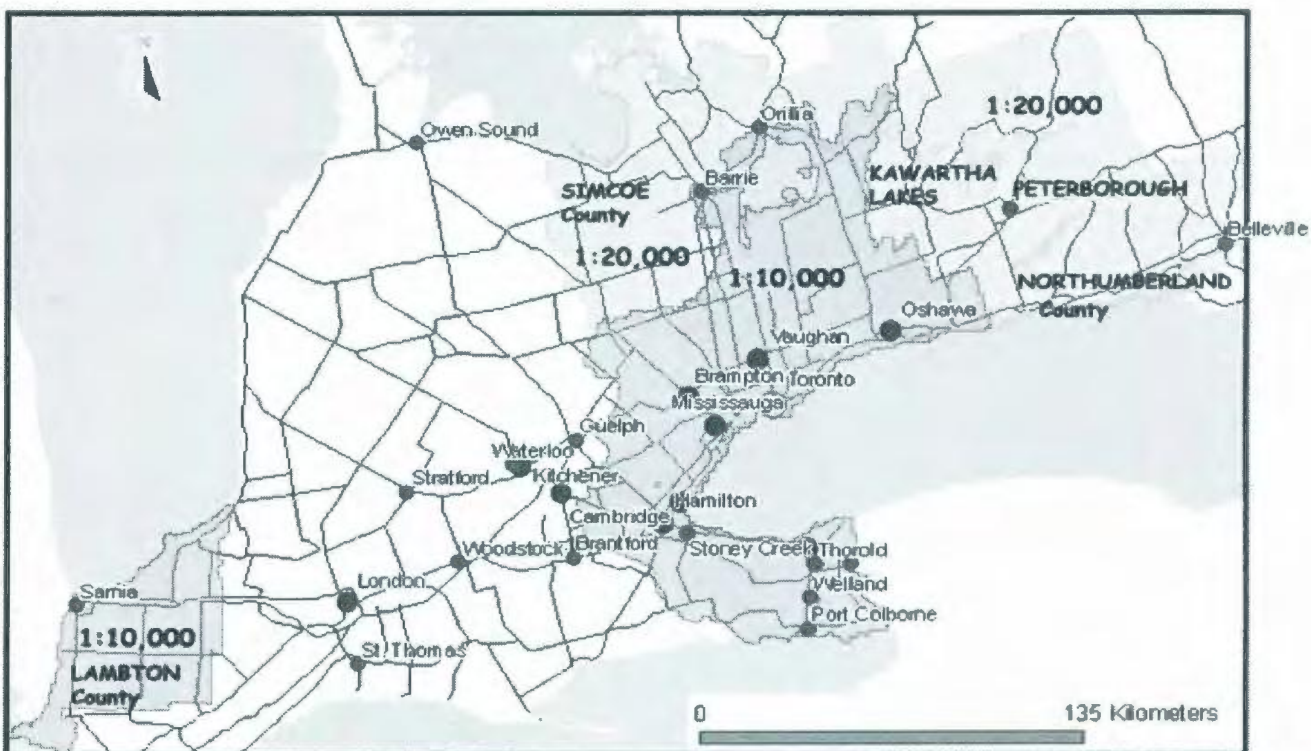
Ground pixel resolutions: all 50 cm with the exception of Simcoe County, City of Peterborough and Oak Ridges Moraine which were scanned at 30 cm

Lambton County Region:

Aerial photography date: Spring, 2003

Aerial photography scale: 1:10,000

Ground pixel resolutions: 30 cm



Software Used: ESRI LTD ArcGIS (ArcInfo) and Adobe Photoshop. Data Used: Ontario Min. of Natural Resources, Ontario Basic Mapping Layers. Received from the Ontario Geospatial Data Exchange in 2006.

Figure 1. 2002 and 2003 Orthophotography Coverage Map.

System Hardware Specifications

The project runs on a Proliant DL380 G3 Server, with 3.5 GB memory, using Windows 2003 SP1 platform and IIS version 6.0.

Technical Steps¹

Part One: Image Catalogue Preparation

One of the major design decisions in managing raster data is whether to store each raster tile individually, mosaic them into a larger (seamless) raster dataset, or store them as members of a raster catalogue.²

For the purposes of our project, an image catalogue was the only practical option, given the large number of orthophotos, and user display and access needs.

An image catalog is a database file, which manages a collection of images as an integrated set but keeps their individual states. Required fields include the file path and the X,Y extents of each image.

The steps involved for creating a catalogue were performed on a Windows XP power desktop computer, using ESRI ArcGIS 9.1 (ArcInfo) desktop software. A server is not required.

Several steps and scripts are required:

First, it is necessary to prepare your data. A spatial reference must be assigned to each raster tile. To accommodate over 20,000 tiles, we ran a batch process in ArcCatalogue using a VBA Script.

Second, an image index is needed. This involves creating a polygon index of all raster tiles in a directory. Final output includes one searchable and identifiable polygon layer. This process was completed in ArcMap using a VBA script.

Third, an image catalogue database is needed. This involves creating a database file (.dbf) which contains a record for each raster selected to be in your catalogue. For each raster, the path/ filename and lower left and upper right coordinates are listed. The process was completed in ArcCatalogue using a VBA script. Note that this application handles rasters in the

same projection only.

Finally, the raster catalogue (created in Step three) is added to ArcMap. This is done by adding the dbase file as a layer into your ArcMap document. At this stage, you can assign the scale threshold for determining whether imagery (Figure 4) or a wireframe (Figure 3) preview are rendered. This is an important step, as the settings you choose will influence the speed and appearance of your web site.

On completion of the above steps you are ready to create an ArcIMS web site which will host your imagery catalogue.

Part Two: Creating an ArcIMS Web Site

An ArcIMS site can be created using several different methods and options. A brief description of some of the main steps required and options we chose follows.

First, it is necessary to create an ArcIMS Service. This is done in ArcIMS Administrator. An ArcIMS Service delivers content to the client. To create a service you must first make a map suitable to orient the client. Known as the "Main Map", this map is displayed at the centre of the entry window and adjusts during the pan zoom process. The Main Map can be created in ArcIMS or in ArcGIS and inputted as an ArcMap document to ArcIMS. An "Overview Map" is also normally established (Figure 2). This map provides added orientation, and displays as a small box normally at the upper left hand corner of your site. The scale of the overview map remains the same and shows the full extent of your coverage area as well as a box around the area you are zoomed in on. It can be clicked off and on by the client when viewing your web site.

Second, you create an ArcIMS web site and customize the viewer (HTML or Java) as desired. This can be done from a template, or custom designed. The software graphic interface will prompt for some necessary fields. Once a basic web site is established there is abundant opportunity to customize your viewer if desired. To assist with adding functionality to your site, the ESRI Support Center web site is a good place to search for scripts posted by a variety of authors. For our purposes we hyperlinked our image

index, added logos and instructions, modified toolbars, introduced security measures and added options for exporting attribute information to Excel.

Below are a few screen shots of our system – shown in sequence from data discovery to delivery (as the search is narrowed).

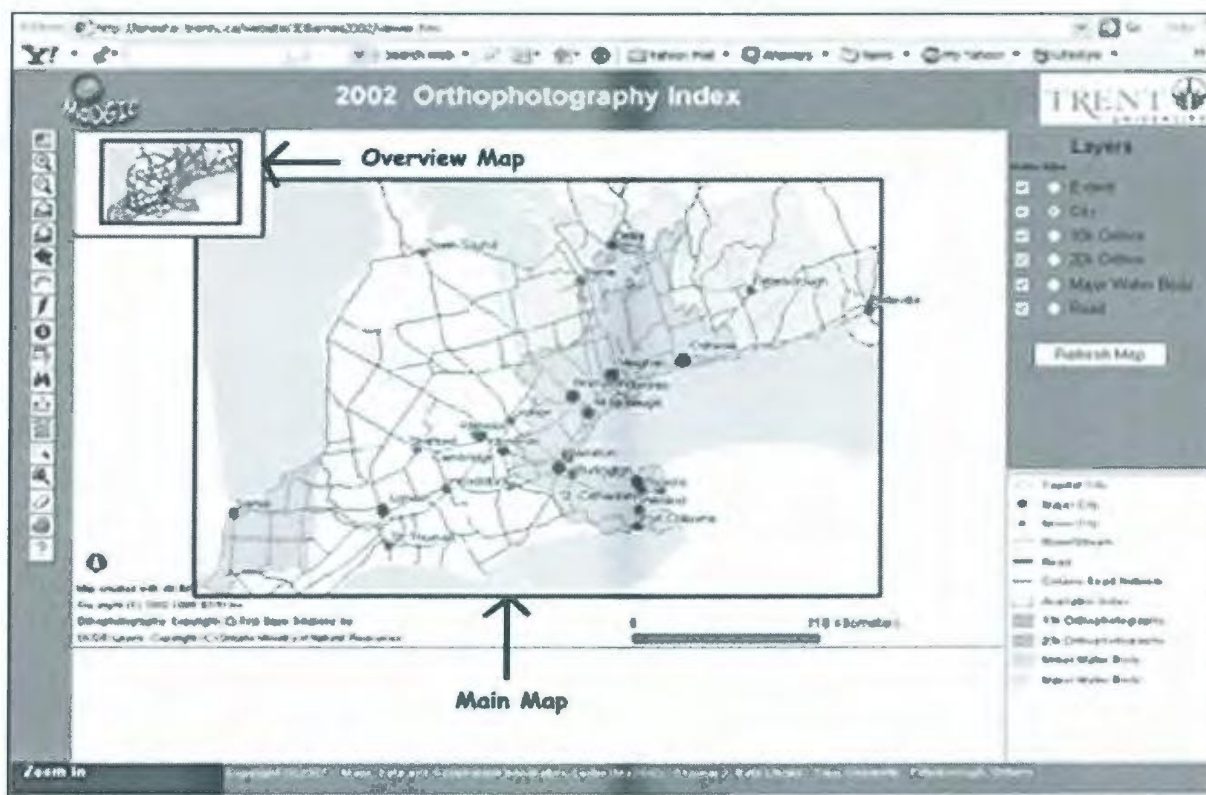


Figure 2. Entry page of our site: <http://lonestar.trentu.ca/website/JDBarnes2002/viewer.htm>

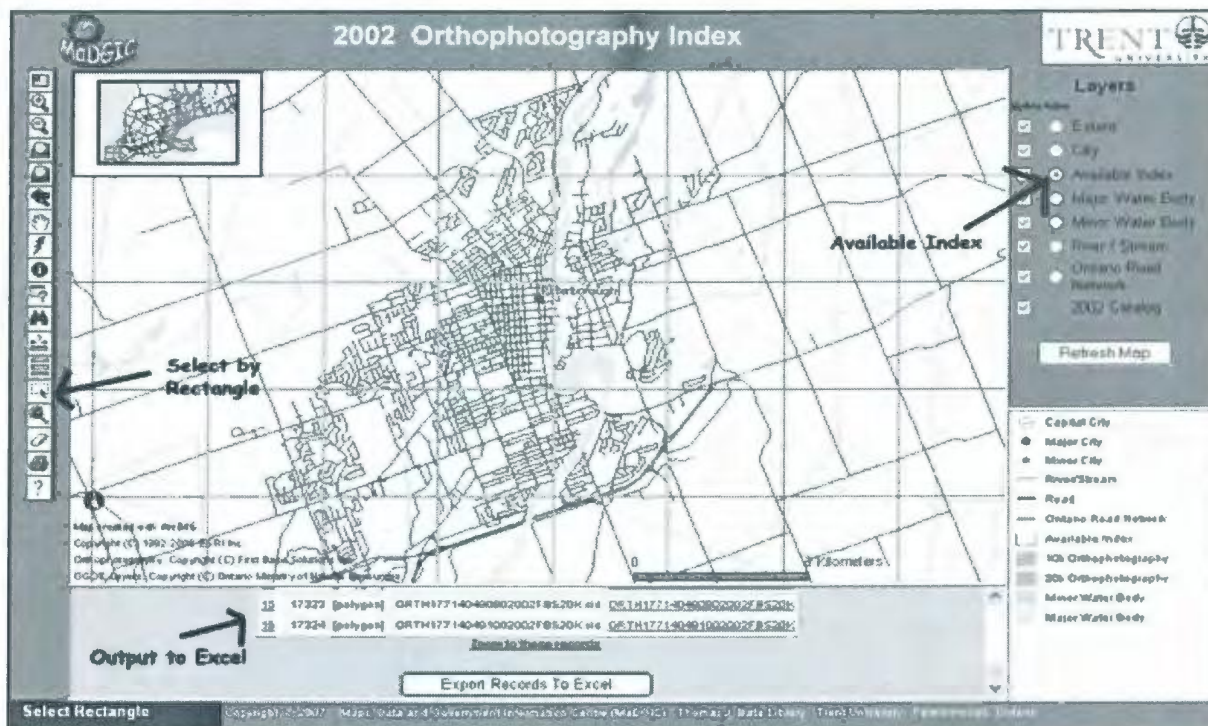


Figure 3. Export to Excel Feature is enabled. For optimum performance, the number of layers displayed in Table of Contents and View can be set to adjust to the scale factor as required – this is an important feature to consider when initializing your web site.

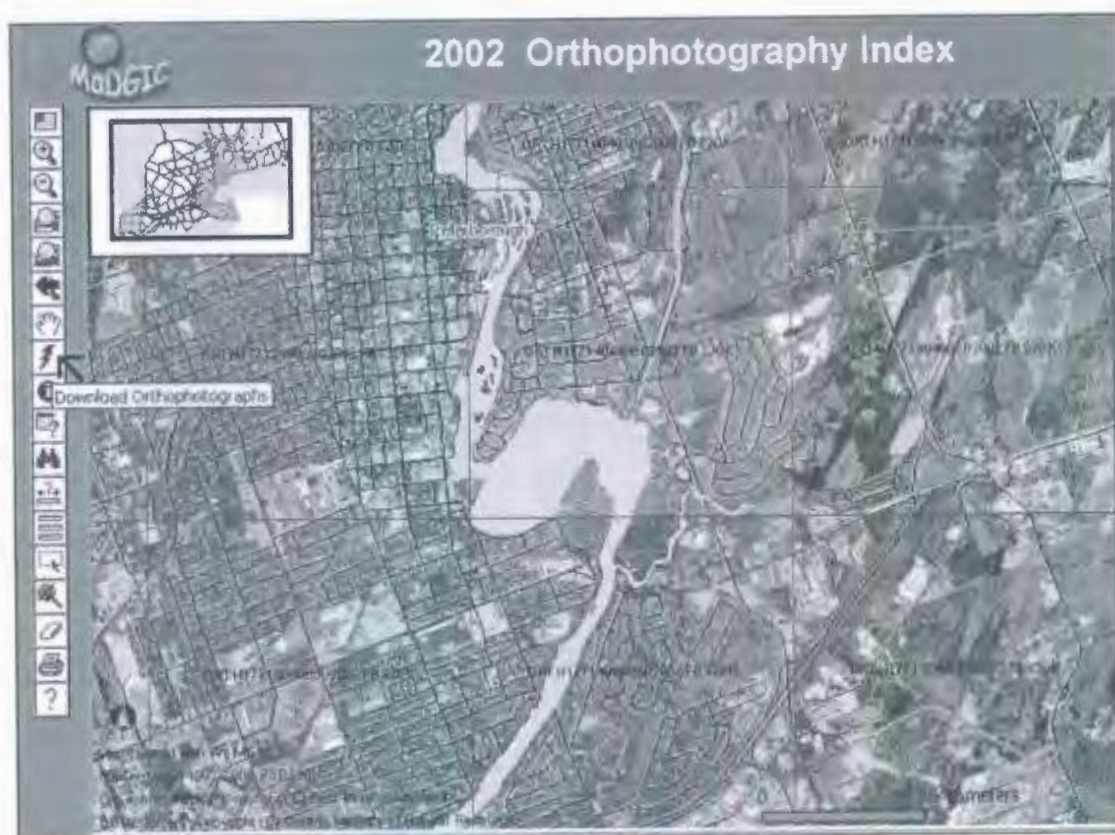


Figure 4. Once zoomed in to a specific scale, image files associated to the spatial extents are rendered to the view.

The image shows a web form for the "Thomas J. Bata Library, Trent University". The header includes navigation links: "TOPICAL", "SERVICES", "FACILITIES", "ABOUT US", "CONTACT", and "LINKS". The main heading is "Off-campus login:". Below this, a message states: "Only members of the Trent University community may access our licenced databases". A sub-message reads: "If you are not working from the campus network, you need to authenticate below. Please enter your Trent Novell Network username and password". There is a link for "Need help?". The form contains two input fields: "Username" with the example "bzmamowski" and "e.g. florajones", and "Password" with masked characters "*****" and the example "e.g. planet254". A "Login" button is at the bottom.

Figure 5. Mediated access is activated from our EZProxy server when clients select to download data (this form is activated both on and off campus).

Disclaimer: Terms of Use and Copyright

User Name:
 User Status:
 Title of Research or Course Number:

For Registered Members of Trent University

By clicking the the "I Agree" box below you agree to the following statement:

DATA RELEASE AGREEMENT
 Orthophotography produced by J.D. Barnes First Base Solutions Inc.

I am a Registered Member of Trent University

I understand and acknowledge that:

- The data provided to me contains mapping data licensed to the Ontario Ministry of Natural Resources and its part include the Ministry of Education and the Ministry of Natural Resources.
- First Base Solutions Inc. retains all copyright.
- The data provided to me is for the exclusive purposes of teaching or academic research and may not be used for any other purpose.
- I am prohibited from using the Data products in the pursuit of any commercial or entrepreneurial venture, either directly or indirectly.
- The Data is released to me as a working copy for my use only. The distribution, sale, donation, transfer or any other use of the Data is prohibited.
- The Data, and any written materials associated therewith, are provided "AS IS", without warranty of any kind either express or implied. The user assumes the responsibility for the accuracy, currency, and performance of the mapping data in all applications.
- The user acknowledges that the mapping data will meet the user's requirements or that the operation of the mapping data is not guaranteed.
- Scholarly communication must acknowledge explicitly the owner (First Base Solutions Inc.) and source of data. VA of the authorized user.
- Data obtained by this agreement remains the property of the owner of the data. All digital data must be returned to the owner or destroyed by the user.
- The user's use of this data may be subject to audit by the owner. In the event of audit, summary information on the use of the data may be required.
- The information may not be displayed on the Internet at a resolution that reflects a ground picture that is visible to the user.

By clicking the the "I Agree" box below you agree to the above statements:


☐ I Agree

Figure 6. Once User ID is authenticated, a client registration form is activated which includes accepting license terms. Client registration information provides useful information on systems use, and is sent back to a secure directory.

ORTH177140490802002FBS20K is now available for you to download

File Download

Do you want to open or save this file?

 Name: ORTH177140490802002FBS20K.zip
 Type: Compressed (zipped) Folder, 6.31 MB
 From: lonestar.trentu.ca:cat1.lib.trentu.ca

☒ Always ask before opening this type of file

Figure 7. Registered members of Trent University can download data to personal disk space assigned on campus servers or to their own hardware.

Conclusion

Although it is too early to quantify the overall success rate of the system, initial client feedback is very positive. This Spring we are adding a scalable disk array to our server to support required terabyte storage needs. We are acquiring more imagery, introducing new ArcIMS services, and evaluating the desirability and timing of ArcIMS to ArcServer upgrades or migrations.

Like many libraries, we are looking at geospatial metadata description standards, examining metadata management software tools and monitoring recent discussions on crosswalks between standards such as DDI and FGDC / ISO19115. The ACMLA CARTO 2007 conference "Metadata Idol" workshop given by Nancy Lemay (University of Ottawa) and Martine Rocheleau (NRCAN) provided participants with an excellent opportunity to explore and evaluate metadata creation and management tools including corporate (ESRI Geography Network), government (NRCAN GeoConnections Discovery Portal) and Open Source (GeoNetwork) solutions. We look forward to the release of a Canadian best practices guide for the North American Profile for ISO19115:2003 to guide the map community's record-making decisions.

The ACMLA/CAPDU Joint Conference Session provided participants with an excellent opportunity to learn about exciting projects and to share strategies and ideas on data literacy and numeracy initiatives. We look forward to working with all partners in applying these strategies and ideas to meet the research and teaching needs of our communities.

Notes

1. The description of these steps is drawn from in-house documentation written by MaDGIC staff, ESRI ArcScripts, discussion forums, WebHelp, technical papers, as well as trial-and-error experience. These procedures are by no means authoritative or comprehensive. They are intended to share some concepts and applied methodology as we explore and develop our system.

2. Although our technical procedures were different, the following sources are also useful for understanding definitions and concepts: "Raster Data Organization". ESRI Webhelp Topic. <<http://webhelp.esri.com>> and Mike Price, Entrada /San Juan, Inc. "Creating Accurate Footprints of Registered Aerial Images", *ArcUser* April-June 2005, pp. 46-49.

Letters to the Editor (re Second Life Data Reviews, *Bulletin* 130, pp.47-50:

"Thanks ever so, Cathy and Richard, for that Second Life article. I recently participated in a Web 2.0 workshop which, over 6 weeks, immersed us in everything but SL. At the same time, I learned that to take a librarianship degree online at U San Jose, you *have* to create an identity in Second Life, which presumably you'll use for your online classes. Interesting.

Of course, the most important thing I learned were the RL identities of Temple and Harmony. If I ever get there, I'll let you know in some cryptic fashion! Now that I've done Facebook and blogging, it may be sooner than I think!" —Lori Sugden

"Yesterday I received the paper edition of the journal, so I also had a chance to read your article and Richard's one. I agree with most of what you both say, especially about the potential educational and current networking possibilities of SL.

The technical problems that Richard describes, sound familiar. However, my computer isn't as good as his is, and I am not that much bothered by those problems all the time. For example, I hardly crash, only every now and then experience lag etcetera. It could depend on his graphics settings too (more details showed is less performance too, for example).

Indeed most places are empty when you will visit them, but when events are going on, they can be quite filled.

By joining groups you can attend to events, since you're notified about them, for example lectures about genealogical subjects. Maybe he will find these interesting, when he has another look at a later time again. (The genealogy group is relatively small though, and not the most active group around.)

Anyway, nice to read about your ideas and opinions!

Best regards"—Christian van der Ven

NET SIGHTINGS & WORLD WIDE WONDERS:

DATA 2.0—WHAT HAPPENS WHEN YOU COMBINE DATA AND SOCIAL MEDIA?

Darlene Fichter
University of Saskatchewan

Combining social networking with photos, news, maps, music, and books has created a wave of new connections, conversations and insights. Millions of people are creating, sharing and contributing by tagging, commenting, posting and linking. This column will explore a few of the collaborative data sites and data visualization tools that are popping up as Web 2.0 and data meet up online.

But first, what part of Web 2.0 am I talking about when referring to "Data 2.0"? Assigning software versioning nomenclature to the web or to data is simply a way to signal, "Hey something significant has changed in how we're using the web or data". When we think about Web 2.0, we often compare it to Web 1.0. In a nutshell, to be creator and contributor in the Web 1.0 era, one had to have a bit of a geek gene and be able to code in HTML. In Web 2.0 everyone can participate without any "coding" know-how. There are lots of other aspects to Web 2.0 that are relevant as well, but they lie beyond the scope of this column.

Giving anyone the ability to participate has led the rise of the "amateur" professional. What is an "amateur" professional? This is someone who is truly talented at what they do but isn't employed in that role. An amateur professional is often an enthusiast in a particular field and can be as expert as the true professional. The new breed of web tools allows the "amateur" professional to create, share and distribute their content to a wide audience. We have seen the rise of "citizen" journalists, "amateur" photographers, "amateur" cartographers and, within libraries' own bailiwick, the rise

of question-answer services¹. While most contributions to photo sharing sites, blogs or other user-generated content are not at the "amateur" professional level, there are enough truly remarkable contributions to create value for everyone. Web 2.0 tools and technologies lower the bar and make it possible for almost anyone to participate and learn together.

Sharing, manipulating, analysing and displaying data is starting on the same trajectory course as mapping on the web. There have been agencies sharing high quality data for years online, including international organizations, government departments, non-profit groups and corporations, but the users of these rich data sources have been few and far between. This is changing.



Charts, Graphs, Data Visualizations

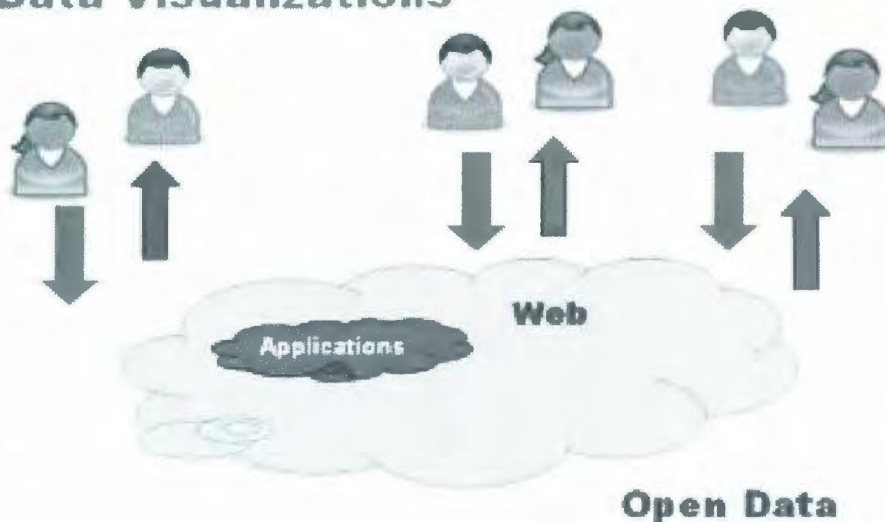


Figure 1. Rise of the amateur statistician.

Several ingredients are required for Data 2.0 to take root and hasten the rise of the “amateur” statistician (see Figure 1). There must be organizations that are willing to “open” up their data and provide access. This is happening. Then an effective distribution platform is required—voila, the web. For example, just recently the United Nations unveiled its UNData site (data.un.org) offering access to key global indicators and statistics on everything from agriculture to tourism. The data is available to anyone for non-commercial use. Next, a set of tools is needed to manipulate, analyse and display results. And last but not least, Data 2.0 will require an engaged group of people who will create and consume information this way.

In a presentation at the IEEE International Conference on Data Mining, Joe Hellerstein

presented an optimistic view of what “open data” could do to improve the world. In Figure 2 Hellerstein shows our present situation (data analysis poor) and in Figure 3 he shows what could happen².

The efforts to make data available and workable, and to create tools so anyone can chip away at the raw data to reveal the stories embedded within have led to very optimistic statements about what Data 2.0 can do. For example, look at this statement from Timepedia:

“Soon, on Timepedia.org, you will be able to come join us in building the machine, or visualize, learn, and analyse our shared history, we hope for the betterment of the human condition. Sincerely, Timepedia’s Staff”³

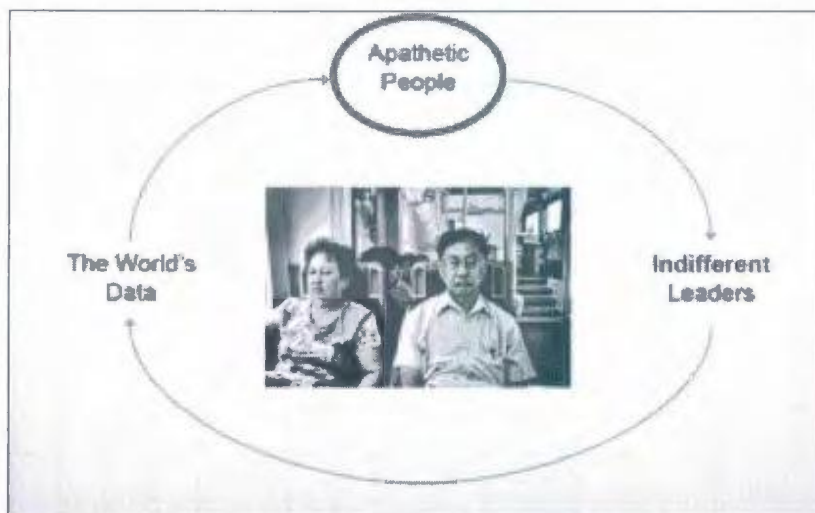


Figure 2. Our present situation.



Figure 3. How the future looks.

Not all the expectations of Data 2.0 are optimistic ones. Many of the pessimists and the critics raise issues similar to ones pointed out at the rise of “amateur professionals” in other areas. Most of these issues should sound pretty familiar:

- Garbage in, garbage out
- Where’s the authority?
- Provenance—who is doing what when things are repurposed?
- Falsified data designed to dupe and manipulate gullible users
- Unintended consequences such as privacy and security issues

What is really going to happen when we combine Web 2.0 technologies and data probably lies somewhere between the most optimistic and pessimistic predictions. What we do know is that we will definitely see some of these effects, and that there will be outcomes that we can’t even predict yet. Without a doubt, the number of people creating and publishing tables, charts, graphs, and other data visualizations will explode. Web publishing was once a plethora of text with almost no information-rich graphics or illustrations. But there will be a dramatic shift until the use of data

visualizations will become as commonplace and widespread as the use of maps and geospatial information. Even now, it's hard to visit a web site or blog and not see some use of mapping applications. The sophistication and the quality of some of the visualizations is outstanding and will improve as the technology evolves.

In a Data 2.0 era, it will be harder for leaders to go with "what their gut says" owing to the ease of rebuttal by the army of "statisticians" able to explore the data behind their statements. However, openly available data will be unevenly distributed across the countries of the world, with some nations tightly controlling all access.

More and more data will be harmonized and morphed into "workable" data that the average net citizen can manipulate, analyse and play with. Social data tools and sites will allow for reproducible results and an unprecedented degree of transparency. Borrowing from others and building on their work will be enhanced, encouraged; it will happen rapidly and be a grass roots, bottom-up endeavour. Expertise will disseminate rapidly throughout the community and informal communities of practice will pop up organically around particular problems, techniques

or areas of interest. One of the most profound shifts that is already underway is the levelling of the playing field between corporations and communities. "Socialized" data will be available and workable by more people. Communities can have many individuals who can look for insights and mine data sources to gain a better understanding of their community and the world.

Net Sightings of Data 2.0 Services

Insiders in the Data 2.0 field are predicting an explosion of new offerings, so keep your eye on this space. A sampling of the sites that provide tabular data and data visualization tools are described below to help guide your Data 2.0 explorations.

DataPlace™ dataplace.org

This site offers maps and data for communities in the USA. They have done a mountain of work to harmonize disparate data sources to make data "workable" by anyone. Anyone can assemble their own geographies, from neighbourhood to nation. The site's tools support connecting people, sharing and uploading datasets and files, and collaborative work. See Figure 4 for an example of a data page

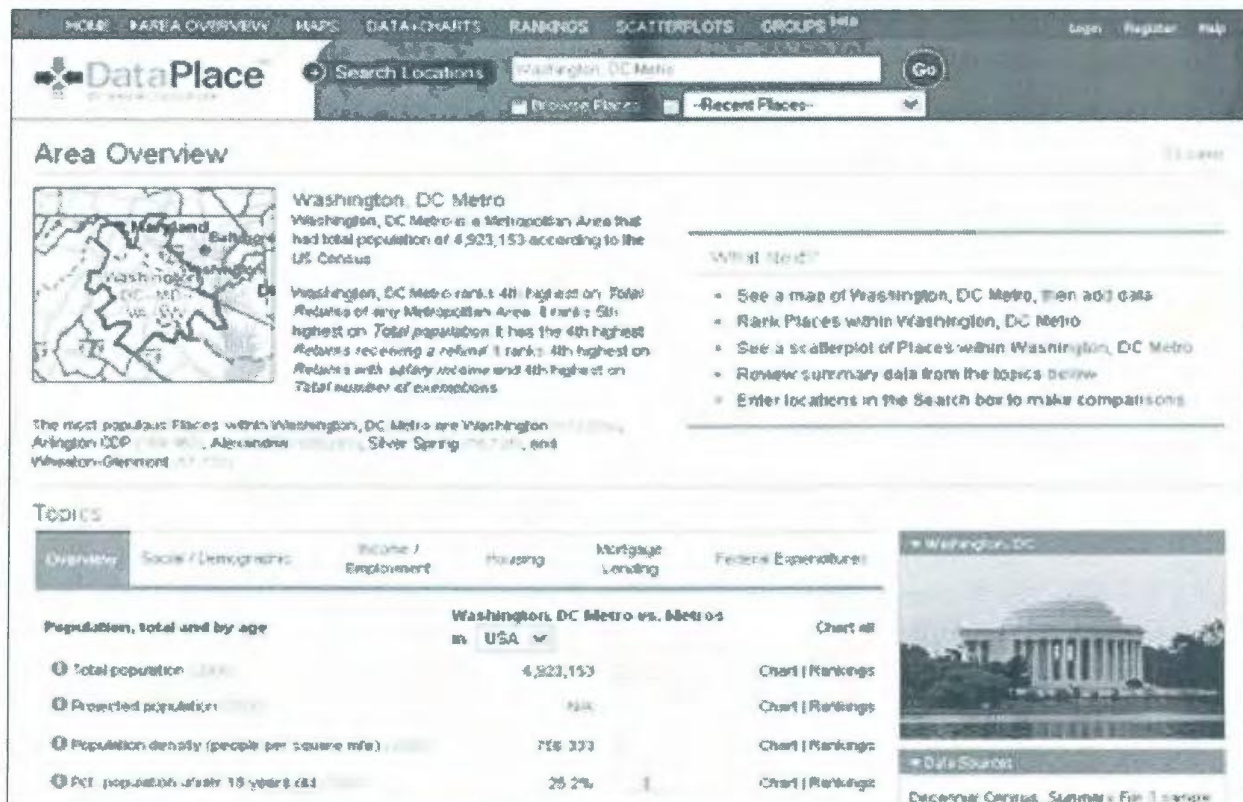


Figure 4. DataPlace™ page for Washington, DC Metro.

for a metropolitan area.

EveryBlock

everyblock.com

This is the go-to site for neighbourhood know-it-alls and tell-it-alls. So far, this resource only covers Chicago, New York and San Francisco. Their data sources include civic information such as new building permits, restaurant inspections, crimes, and so forth, as well as news articles and blog entries. The site also includes web site data sources such as classified advertisements from Craigslist and reviews and recommendations from Yelp.

TracknGraph

trackngraph.com

This site is for everyone who wants to track something. Leverage the work of others by looking for a template for a tracker and copying it into your area to use or customize. Here are a few examples of popular trackers:

- Walking Tracker
- Investment Tracker
- Mood Tracker
- Baby Sleep Schedule
- Breastfeeding Tracker
- Weight Tracker
- Child Growth Tracker
- Calorie Counter
- Workout Tracker
- Blood Pressure Monitor

You can control access to your tracker and choose to share it with friends, family or the world. You can allow group updating and publish it anywhere. Team trackers are supported.

Graphwise

Graphwise.com

This site is a search engine that indexes the web and identifies tabular data. The site has identified over 3 million tables. Tables include a link back to the

original source of the data. Visitors can upload tables, chart, graph and share results. Graphwise plans to add a number of social features by the end of 2008.

Swivel

Swivel.com

Swivel is one of my favourite sites. According to their site, Swivel's mission is "to liberate the world's data and make it useful so new insights can be discovered and shared." Swivel has imported data from a number of official statistical agencies and governmental organizations such as the OECD, World Health Organization and UNESCO. Take a moment to browse through their long list of official data providers. Swivel makes data easy to manipulate, chart and graph. Swivel has an active community of users who graph, share, discuss, debate, comment and form groups. Individuals can also contribute data. I had a chuckle at the chart in Figure 5 that shows Sports Calories Burned by Activity. Hmm, bowling (non-stop) burns the most calories? Take time to check the source of that data set. This is a great site to use in information literacy instruction sessions and as an example of a dynamic Data 2.0 site.

Gapminder

gapminder.org

Trendalyzer

Google Visualization API <http://code.google.com/apis/visualization/documentation/gadgetgallery.html>



Figure 5. Sports Calories Burned chart.

Trendalyzer software was initially developed to create animated statistical displays by Hans Rosling's Gapminder Foundation. Gapminder was acquired by Google. Web visitors can use Trendalyzer and the motion charts either via the Google Visualizations API or insert flash-based motion chart gadget in Google Spreadsheets.

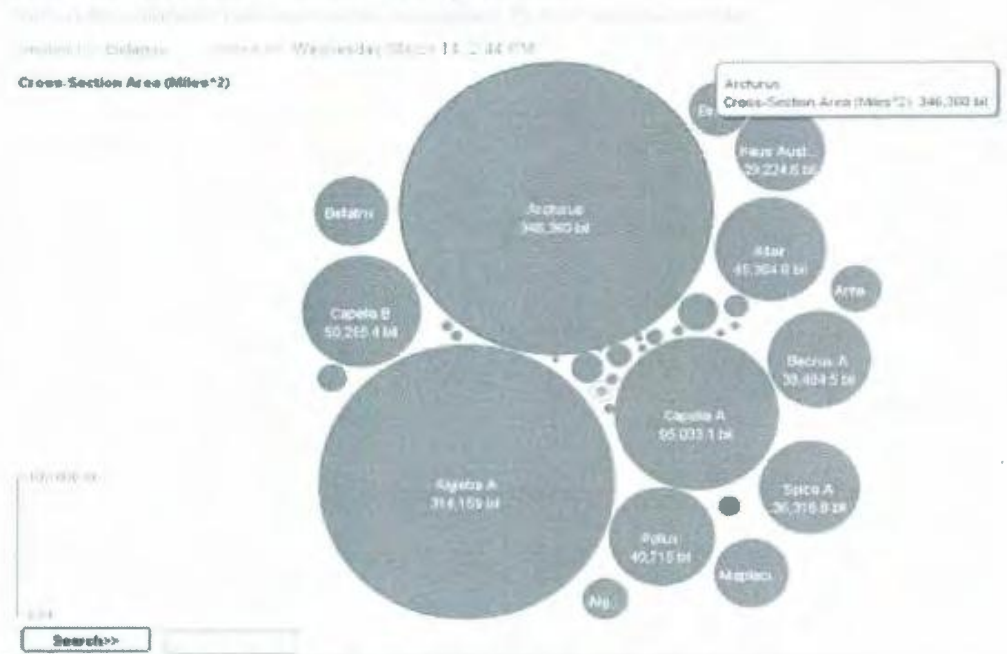
Many Eyes from IBM Alphaworks

<http://services.alphaworks.ibm.com/manyeyes>

IBM's Many Eyes' site is a collection of datasets and visualization tools that visitors can use to explore, rate, discuss, create, share, and track. Groups are supported around specific topic hubs. Anyone can upload their own datasets. Many Eyes has many of the same social features that Flickr™, a popular photo sharing site, offers. What sets Many Eyes apart from the other sites mentioned so far is the range of visualization types that they offer, including line and stack graphs, bar, bubble, matrix and pie charts, scatterplots and network diagram, treemaps, tag clouds and word trees (see Figure 6). The sun is a Dwarf Star; check out the small orange dot in the middle of the image—that's our sun.

Collaborative data manipulation and visualization sites are just starting to take off so expect to see more emerge in the coming months. Data visualizations provide a powerful means of communication. Data visualizations can spark insights and reveal patterns that the human eye can discern and understand that are buried in a pile of numbers. These sparks are the fodder for discussions, debates and connections. Through our conversations about visualizations, we arrive at new insights. By making data and visualization tools widely available, we make this powerful means of communication widely available and let everyone join in the conversation.

Visualizations : Star Size Comparisons



CARTO 2008: JOINT CONFERENCE OF ACMLA AND CCA PRELIMINARY PROGRAM

Carto 2008 will be taking place in Vancouver from May 13th to the 16th, 2008

The University of British Columbia, which turns 100 years old in 2008, is delighted to be hosting a joint meeting of the two national organizations in Canada concerned with cartography in all its complexities and with the access to and care of cartographic materials. The Association of Canadian Map Libraries and Archives (ACMLA) and the Canadian Cartographic Association (CCA) will be meeting together as CARTO 2008 in Vancouver from May 13-16, 2008. The organizing committee looks forward to welcoming you to our beautiful campus in the spring of 2008 and invites you to explore our dynamic city with its museums, art galleries, shops, restaurants, parks, beaches, and nearby mountains.

ACMLA and CCA are aiming to create a gathering place for students, educators, government workers, and those in the private sector, to network and share information on issues and topics related to the creation, preservation, management and access to cartographic and geospatial materials and collections in all formats.

The conference will be highlighted by a keynote address by David Rumsey, collector of historic maps and creator of the online David Rumsey Historical Map Collection containing over 13,000 digitized images from his collection of about 150,000 cartographic materials.

Along with technical sessions, workshops, and other presentations, there will be exhibits of recently published maps, maps prepared by students, and products useful to people in these fields. There will be a variety of social events, such as an ice breaker reception, a field trip, orienteering followed by a pub night, and a banquet with speaker.

Local Arrangements: Sally Hermansen, Dawn Mooney, Walter Piovesan, and Tim Ross
Program Committee: Dan Duda, Majella Gauthier, Diane Lacasse, Susan McKee, Roger Wheate, Alberta Auringer Wood, and Clifford H. Wood

Preliminary Program

Tuesday May 13th

- 9:30-11:30 GeoReferencing Workshop
- 9:00-12:00 ACMLA Executive meeting
- 1:30-3:00 Metadata Information session
- 3:30-5:00 CCA Executive meeting
- 6:00- Icebreaker, Walter C. Koerner Library

Wednesday May 14th

- 9:00-10:30 Opening Plenary Session Keynote
Speaker: David Rumsey
- 11:00-12:00 Session—History of Cartography I (Chair: Edie Punt, ESRI)
 - Historical Maps in Google Earth and Second Life (David Rumsey)
 - Canadian Century Research Infrastructure Project: Historical GIS in the service of modern census mapping and analysis (Byron Moldofsky, U of Toronto)
- 12:00-1:30 Lunch and ACMLA AGM
- 1:30-3:00 Session—Cartographic Research (Chair: Sally Hermansen, UBC)
 - Towards Audio-Visual Cartography (Glenn Brauen, Geog PhD candidate, Carleton U)
 - "Mapping-In-A-Shoe-Box"—A Grassroots Approach To Improving Graphic Literacy? (Jacqueline M. Anderson, Concordia U)
 - Map Mashups and the Rise of the Amateur Cartographer (Elise Pietroniro & Darlene Fichter, U of Saskatchewan)
- 1:30-3:00 Opening of Posters
 - National Atlas of Protected Areas of Iran (Ali Darvishsefat, U of Tehran)
 - Evolution of a Library Air Photo Collection: Lessons Learned from Air Photo Digitization Projects (Susan McKee, U of Calgary)

- Digital Historical Air Photo Project (Eva Dodsworth, U of Waterloo)
- Major Meteorological Station Network Map of Alberta (Gerald Stark et al, Alta Agriculture & Food)
- Circumpolar Map—Atlas of Canada (Andrew Murray & Peter Paul, Atlas of Canada Program, Natural Resources Canada)
- Global distribution of HBV genotypes (Mieke (nee Buller), Fraser BCCDC)
- Topographic Mapping Initiatives Program (Centre for Topographic Information, Mapping Services Branch, Earth Sciences Sector, Natural Resources Canada)

3:30-5:00 Concurrent Session 1—Community Projects (Chair: Ian O'Connell, U of Victoria)

- Community Mapping: Taking Theory from the Classroom to the Community (Rebecca Chaster, Samantha Scott, Dennis Senft, & Matthew Coyle, UBC)
- Geography of Water at the U of Victoria: Employing Community Mapping as an Aid to Sustainability Policies (Ian O'Connell & Lee Johnson, U of Victoria)
- Community Mapping with Youth in Whitehorse, Canada (Ian O'Connell & Erin Neufeld, U of Victoria)

3:30-5:00 Concurrent Session 2—Map Production Technology (Chair: Elise Pietroniro, U of Saskatchewan)

- Ontario Road Map GIS Project (Lori Martin, Ontario MNR)
- Map Generator Project (Yvan Désy, CTIO)
- The Good, the Bad and the Ugly: The Benefits and Struggles when Importing ArcMap Files into Adobe Illustrator (Karen Van Kerkoerle, UWO)

5:00-7:00 NRCan Consultation Session for New Topo Series

6:00- Orienteering and Pub Night

Thursday May 15th

9:00-10:30 Concurrent Session 1—Cartographic Education: Teaching Map Design (Chair: Majella Gauthier, U du Quebec à Chicoutimi)

- The Changing Face of Map Design: Teaching Map Design in the New Millennium (Elise Pietroniro, U of Saskatchewan)

- Teaching Map Design using Mapping Center (Aileen Buckley, ESRI)
- Teaching Cartography in Academia (Sally Hermansen, UBC)

9:00-10:30 Concurrent Session 2—History of Cartography II (Chair: Andrew Nicholson, U of Toronto, Mississauga)

- The Honourable Robert Edward Clifford (1767-1817): Maps and Mysteries (Cathy Moulder, McMaster U)
- The 1858 Gold Rush Routes in Maps, from Washington to the Fraser and Thompson Rivers (Kenneth Favrholt, Thompson Rivers U)
- Maps of "The Great Swivel Link" (Alun Hughes, Brock U)

11:00-12:00 Concurrent Session 1—Cultural Themes

- Hypermapping and Narrative: Using Geovisualization to Represent Cultural Information (Jesslyn Stoncius, FIS student, U of Toronto)
- From China to Canada: Mapping Chinese Head Tax Data (Jeremy Alexander, Mario Ho and Edith Tam, UBC)

11:00-12:00 Concurrent Session 2—Metadata / Geospatial Data Services (Chair: Marcel Fortin, U of Toronto)

- Guelph's Journey from Metadata to Metadata Explorer: Searching and Accessing Geospatial Data (Diane Boyd & Quin Shirk-Luckett, U of Guelph)
- Projets de numérisation en partenariat au Centre Géo/Stat (Stefano Biondo, Bibliothèque de l'Université Laval)

12:00-1:30 CCA AGM

1:30-3:00 Concurrent Session 1—Census Mapping (Chair: Susan McKee, U of Calgary)

- Product Demo of PCensus (Michael Simon, Tetrad)
- Experiences in using PCensus (Susan Greaves, Queen's U)
- SimplyMap Mapping Canadian Census Data the easy way: a web-based mapping application for the non GIS user (Trudy Bodak, York U & Suzette Giles, Ryerson U)

1:30-3:00 Concurrent Session 2—Cartographic Education (Chair: Roger Wheate, UNBC)

- Trying to Do What Hasn't Been Done Before: Faster and More Practical GIS Education at Malaspina University-College (Brad Maguire, Malaspina)
- Evolution or Devolution of Cartographic Education (Peter Kasianchuk and Aileen Buckley, ESRI)
- A University Course on Maps by a Non-Cartographer for Non-cartography Students (Will C. van den Hoonaard, UNB)

3:30-5:00 Session—GIS in Libraries (Chair: Jesslyn Stoncius, U of Toronto)

- GIS as a Science or Tool: a Map Librarian's Perspective (Dan Duda, Memorial U)
- GIS Librarianship in the age of Google Earth/Maps (Marcel Fortin, U of Toronto)
- Google Earth Meets Higher Ed (Cathy Moulder, McMaster U)

3:30-5:00 CCA 2nd Executive meeting

6:00- Banquet

Friday May 16th

9:00-10:30 Concurrent Session 1—National Themes (Chair: Dan Duda, Memorial U)

- Libraries & Archives Canada—Legal Deposit for Maps Update (Natalie LeBlond, LAC)
- CCoG National Mapping Strategy Working Group (Heather MacAdam, Carleton U & others)
- Report from Cartography, Architecture and Geomatics, LAC (David Brown, LAC)
- Brief Report on Fire Insurance Plan Project with Library and Archives Canada (Cheryl Woods, UWO)

9:00-10:30 Concurrent Session 2—Atlases (Chair: Lori Martin, OMNR)

- The British Columbia Atlas of Wellness (Peter Keller, Les Foster, John Fowler, Ken Josephson, Diane Braithwaite and Brian McKee, U of Victoria)
- On The People Visiting The Website Of A Regional Atlas In Quebec: The Case Of "Atlas Régional Du Saguenay-Lac-Saint-Jean" (Majella Gauthier, U du Québec à Chicoutimi)
- The Atlas of Canada—Future Challenges/Opportunities (Peter Paul, Atlas of Canada Program, Natural Resources Canada)

11:00-12:30 Concurrent Session 1—Potpourri (Chair: Gerald Stark, Alta Agriculture & Food)

- Mapping Early Childhood Development Outcomes (Ellen Larcombe & Jennifer Harvey (HELP), UBC)
- A Model Land Geographic Information System (LGIS) for Urban Parks (Andrew Millward, Ryerson U)
- Mapping the Glaciers of Western Canada (Roger Wheate, Nancy Alexander & Brian Menounos, UNBC)

11:00-12:30 Concurrent Session 2—Potpourri II (Chair: Teri Osborn (U of A))

- ACMLA Student Paper Competition Presentation
- Information Literacy Strategies for Embedding Geospatial Data Resources into the Curriculum (Jennifer Marvin, M.J. D'Elia, & Carol Perry, U of Guelph)

1:30-5:00 Optional Field Trip—Outing to Historic Steveston



CARTO 2008

May 13-15

Vancouver, British Columbia

**For complete conference details
see the website**

<http://www.rdl.sfu.ca/cartol/>

REGIONAL NEWS / NOUVELLES REGIONALES

Compiled by Andrew Nicholson

Newfoundland & Labrador

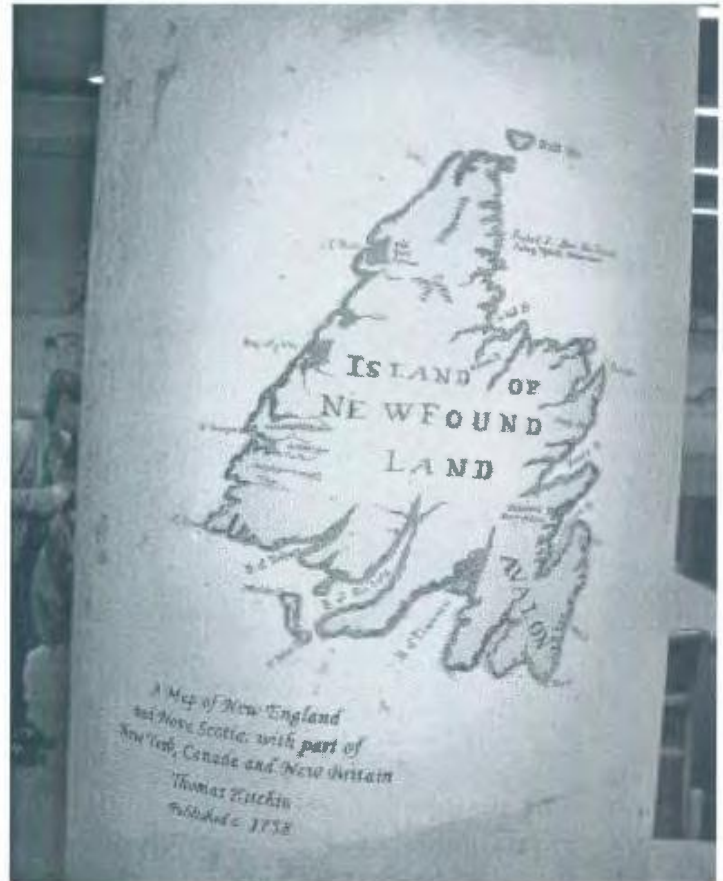
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It looks like spring has finally sprung...+10 in between some rain showers that aren't freezing is helping me believe that winter is finally leaving the North Atlantic, or so I hope! Our students are in the middle of their finals, so instead of the Map Library being used for research and labs, all space is being used for studying for their exams. I wish them and all students the best...

There are three newsy items from Memorial this issue. One is our Library Assistant, Joanne Costello, is having an art exhibit at Pollyanna Gallery in St. John's from May 4-June 4. She has been working on many of the pieces this past year and the Grand Opening of her event is Sunday May 4. The staff in the Map Library wish her all the best. It's great that more people will be seeing her wonderful work as we get to see it daily; Joanne hangs some of her work in our office space in the library and it's not unusual for someone to stop and admire it and then ask about the artist. All the best Joanne...

Related to Joanne's passion for art, she is painting maps of Newfoundland on the pillars in the Map Library. With the move of the Map Library from the fifth to the second floors 18 months ago, the new space "laid bare" the huge pillars needed to support the building floor loads. Several years ago, a student was hired to paint "library sayings/quotations" on the pillars out in our main reference area in the QE II Library. Joanne asked if we could do the same thing in maps but instead of text, paint the island of Newfoundland as it has been seen in five centuries of cartography. Besides adding some wonderful color to the area, it is a way to show the cartographic evolution of the province. Three are done with five more to be completed over the summer months.

The third newsy item is that in partnership with the Information Commons in the QE II Library, we have



Art in the Map Library. (Photo (and painting) courtesy of Joanne Costello)

purchased a plotter for our users' needs. The plotter will be temporarily held in the Map Library for the next 1-2 years, but when the Digital Media Centre has been moved into its new home elsewhere in the QE II Library, the plotter will be moved to their area. A student assistant in the Information Commons did a survey and study about the need/want of "plotter" services and with the conclusion being that it's a service that would be heavily used by our users, the decision was made to purchase one.

I want to thank our student assistants who have been a great help this past school year, Darlene Butler our shelve, and Jennifer Fowler our GIS helper. Their work and contribution to the Map Library are greatly appreciated and help things run smoothly. Thank you...good luck with your exams and your future endeavors.

Ontario

McMaster University
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Another year of challenge and change for the Map Collection! Perhaps our staffing story best epitomizes the crests and troughs of our journey. In January 2007, McMaster Library repositioned all cataloguers into public service positions. A superlative copy cataloguer, Doris Forget, was assigned to the Map Collection in a newly created Digital Access position, with responsibilities for public service and for cataloguing and metadata of cartographic materials. Doris catalogued a huge backlog of maps before her retirement in October. We were very short-staff through the busiest part of term. But in December, an outstanding original cataloguer, Silvia Halfon, was reassigned to the Map Collection. Silvia also works on the Science and Engineering Library research help desk, and has brought us invaluable exposure to the world of general reference services as well as a wealth of experience in cataloguing and classification. Unfortunately the University Library has offered an incentive package and tempted Silvia into early retirement, effective this July. At this moment, the Map Collection has the promise of yet another replacement cataloguer for the fall term, and again the cream of the crop. But there is some suggestion in the system that we are providing an enriching experience on the fast track to the exit!

Gord Beck has been very busy this term with contributions to McMaster's first major digitization project, Peace and War in the Twentieth Century. Gord has been writing "case studies" which will provide a segue from the PW20C website to the website which will display our digitized collections of WWI trench maps and aerial photographs. He has also been working with a Multimedia student, Peter Organisciak, to animate a trench raid sequence, and has scripted and recorded voice-overs for this animation. The Peace and War website is scheduled for launch in June.

Gord is also participating on a committee charged with the development of digitization projects using McMaster's newly purchased Kirtas scanner. If you have not seen one, a Kirtas scanner is a "Rube Goldberg"-type machine that automates the process of digitizing books (see animation at [http://](http://www.kirtas-tech.com/)

www.kirtas-tech.com/). Gord's role will be to suggest materials that might be scanned using the Kirtas machine.

And me, I have been doing a lot of administrative things this year. I have worked closely with Karen Nicholson, Teaching and Learning Librarian, and Sergey Lobachev, a coop student from the Faculty of Information and Media Studies, University of Western Ontario, on a research project to define 21st century fluencies and the role of the academic library in addressing them. I was invited to contribute to three of the Library's seven strategic planning task groups (the disadvantage of broad interests!) I presented a session on emerging technologies with University Librarian Jeff Trzeciak at the Coalition for Networked Information Task Force meeting in Minneapolis in April. I participated in an experimental "Square Share" project to improve my teaching skills. I am working on an article with two faculty members regarding the role of wikis in teaching. Committees, Committees, such as Mentoring, Technology Operations Group, LibQual and Services heads.

Some of my most interesting experiences this year have been the result of the Library's change to a Liaison Librarian model. This of course has been the norm for years in other libraries, but was completely new for us. My portfolio is the School of Geography and Earth Sciences (whom I have worked with for years), Environmental Sciences, and GIS and numeric data in any discipline. The implementation of our Liaison Program, and coping with it's many changes, has been very well orchestrated and eased by Barbara McDonald, who has provided scores of learning opportunities, podcasts, guest speakers, readings, seminars and activities to help us all cope with new responsibilities like collection development, active learning and using new technologies. There has never been any year in my professional career when I have learned so much or had as many opportunities for creativity and growth.

Looking ahead, our next task will be the hiring of a GIS Librarian, who will hopefully be in place by the beginning of the fall term. Advertising for this position should be posted very soon. And in April I will be tackling my very first research leave—two weeks concentrating on Google Earth and its use in course assignments at the university level. More on this at the ACMLA conference.

University of Guelph
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Guelph is continuing to create metadata and publish to our Data Resource Centre Geospatial Metadata Explorer. Currently we have Ontario Soils Data, the City of Guelph, Ontario Physiography and some DMTI published. Jenny Marvin collaborated with the government publications and business librarians to embed a statistical/geospatial component into a large second year core Bachelor of Commerce course, Information Management. Using a marketing scenario, students were required to analyze data from Statistics Canada and present their findings on a map using ArcGIS. Quin Shirk-Luckett and Diane Boyd showcased the Data Resource Centre's GIS service, new Metadata Explorer and some samples of student GIS work from this semester in a poster session at ESRI User Conference in London, Ontario. The Data Resource Centre has also been fortunate in receiving a donation from Pitney Bowes MapInfo. We will be working with Business faculty to incorporate the Target Pro data into courses this fall

University of Toronto
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The Robarts Library has received \$15 million from the Ontario Government for renewal. One of the priorities is to revamp the GIS and Map and Data facilities. This will include a new service point, new reference area and possibly a new lab. This also means that government publications reference is moving to the 4th floor general reference in July of 2008 and we expect renovations to the Map Library to begin early in 2009.

University of Western Ontario
Cheryl Woods
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Another academic year at an end and a productive summer looms.

In December we launched a website with images of the London 1892, revised 1907 Goad fire insurance plan. The site has had many visitors. Please take a look at it and let us know what you think. http://geography.uwo.ca/maplibrary/london_FIP_1907/index.html

Work is now beginning to offer the same type of site for the London 1912, revised 1915 fire insurance plan.

Over the past term the work study students have been checking our atlas holdings against the catalogue for the 5-year inventory that we didn't get done last summer. With approximately 2050 atlases it is a very time-consuming undertaking. There is also progress on another project for online indices to our London air photo collection.

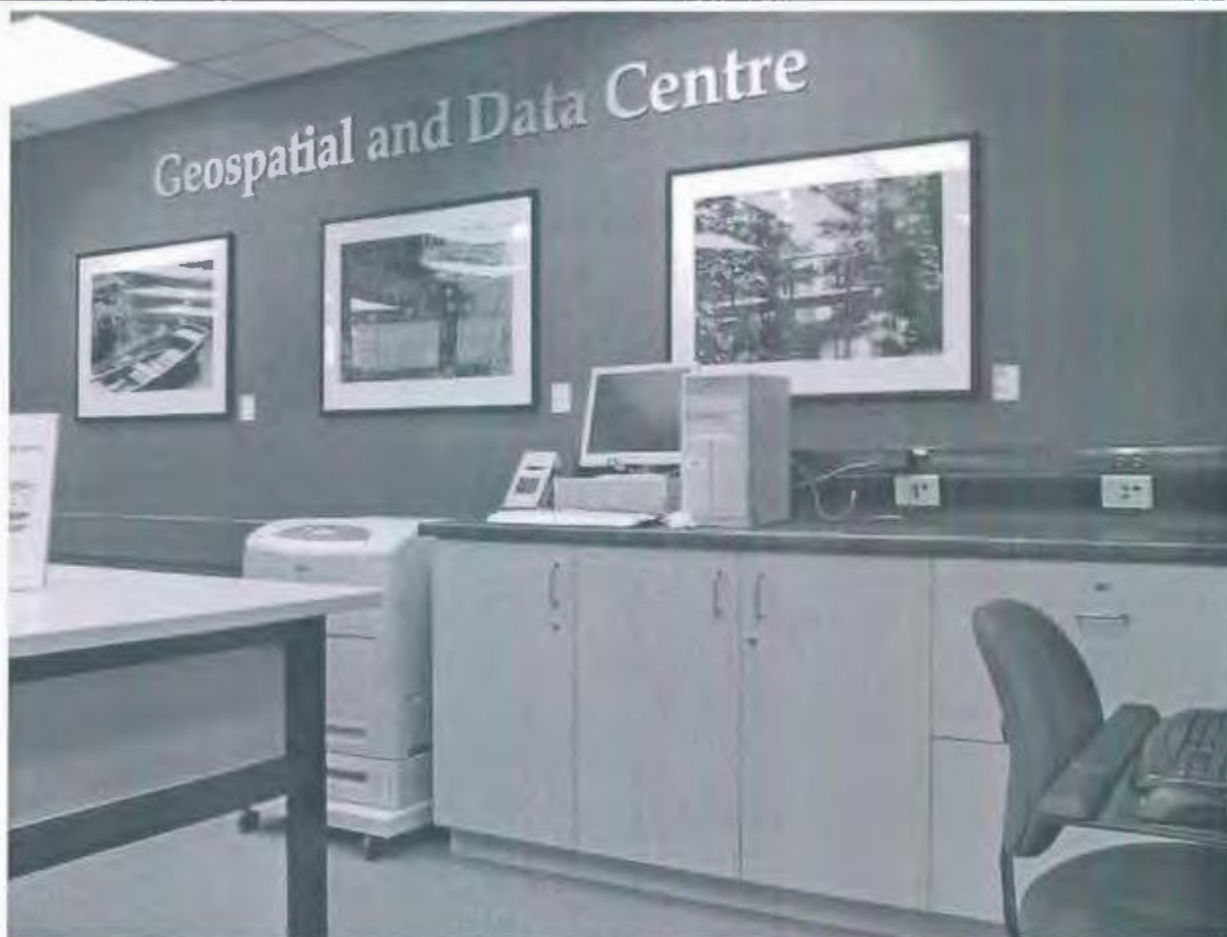
Through the Google Earth Education Initiative we received and installed free licensing to access Google Earth Pro on 3 workstations.

From the Social Science Student Donation Fund we have been able to order a Microtek 11" x 17" flatbed scanner for one of the public workstations, 1.5 TB external hard drive for storage and backup of geospatial data, several atlases, maps and software. This funding is in addition to our annual acquisition budget which doesn't allow for the purchase of equipment/software.

Wilfrid Laurier University
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On Monday March 31st, Laurier officially opened the brand new "Agnes and Jerry Hall Geospatial and Data Centre" (GDC). The facility will provide students, faculty, and staff access to specialized software for both statistical and geospatial data processing. It has five machines equipped with geospatial and statistical software packages, including ArcGIS and SPSS. Located within the facility is a high quality scanner and a colour laser printer which will also serve as the library's public colour printer. We expect that this centre will provide students and faculty access to software, data, and services not available in other computer labs on campus.

The GDC was made possible by a grant from an anonymous donor who is an alumnus of Laurier's Geography programme. It is named in honour of a former Laurier Geography Professor, Jerry Hall, and his wife Agnes. On March 31st, the library held a "Donor Recognition event", honouring our benefactors and highlighting three particular areas their donations have made possible: the Information Commons, the Digital Studio and the GDC.



Snapshots of Wilfrid Laurier's new Geospatial and Data Centre. (Photos courtesy of Peter Genzinger)



Alberta

University of Alberta
David Jones
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It is April in Edmonton, the days are getting much longer, the snow (which has been here since November) is disappearing, and so too will the undergrad students as the Winter semester wraps up.

The winter semester has been busy for the map folk here at the William C. Wonders Map Collection. We are finally getting settled into our new 'digs' on the 4th floor of the Cameron Library. The workroom, with two 8 ft x 12 ft worktables, 5 work stations, and other assorted equipment is becoming home for much of our processing that had been distributed around the building.

This year the WCW Map Collection is being involved in a number of special exhibits, combining its map resources with materials from the U of A's Bruce Peel Special Collections Library.

The first of these is **Mappae Mundi: Representing the World and its Inhabitants in Texts, Maps, Images in Medieval and Early Modern Europe** which opened in February and runs until late April. www.library.ualberta.ca/specialcollections/exhibits/mundi.html Since the focus of the exhibit is facsimiles of medieval and early modern books and maps we contributed examples from our Moliero facsimile of the Atlas Miller, our Torok editions of the Schedel 'World Map' from the Nuremburg Chronicle; the Munster 'America' map; the Etzlaub 'Romweg' map; and the 2-sheet Coronelli 'America' map, along with a number of other items.

From late May until July we will be participating in another exhibit at the Bruce Peel Special Collection Library. This exhibit, **A Most Dangerous Journey**, focuses on the Northwest Passage and features resources from across campus. It is timed to coincide with the Polar Libraries Colloquy <http://www.library.ualberta.ca/ocs2/index.php/plc/> and the 2008 meeting of the University of the Arctic Council. <http://www.uarctic.org/Frontpage.aspx?m=3> This will be an opportunity to feature some of our extensive arctic and polar holdings. Along with the exhibit I will be giving a session at the Polar Libraries

Colloquy about the WCW Map Collection's arctic and polar resources.

To wrap up the summer, in late August the WCW Map Collection will also be participating in **Legacy of Empire** an exhibit of the University's Austro-Hungarian and Central European resources in celebration of the 10th anniversary of the Wirth Institute for Austrian and Central European Studies. This will also provide an opportunity to salute J. Eugene Horvath who has donated over 80 early maps of Hungary to the Map Collection.

And beyond the U of A... We are delighted to welcome to the Edmonton map community Tom Anderson at the Provincial Archives of Alberta who is taking responsibility for their map collection. Tom has 'done the proper thing' and joined ACMLA. We're looking forward to seeing him at CARTO 2008 in Vancouver.

Welcome! New ACMLA Members

2008

Sylvie Lafortune (Full member)
J.N. Desmarais Library
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David J. Mercer (Full member)
Queen Elizabeth Library
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Tom Anderson (Full member)
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Jesslyn Stoncius (Student member)
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Université de Montréal
(Institutional member)

NEW BOOKS AND ATLASES

Compiled by Eva Dodsworth

- Blij, De Harm. 2008. *Atlas of the United States*. New York : Oxford University Press. 208 p. \$27.95 US. ISBN 9780195372366.
- Brewer, Cynthia. 2008. *Designed maps : a sourcebook for GIS users*. Redlands, CA : ESRI Press. 220 p. \$39.95 US. ISBN 9781589481602.
- Cartwright, William, et al. 2007. *Multimedia cartography*. New York : Springer. 546 p. \$169.00 US. ISBN 9783540366508.
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- Knowles, Anne Kelly and Amy Killier. 2008. *Placing history : how maps, spatial data, and GIS are changing historical scholarship*. Redlands, CA : ESRI Press. 336 p. \$49.95 US. ISBN 9781589480131.
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- Kranendonk van, Martin, et al. 2007. *Earth's oldest rocks*. Toronto : Elsevier. 1330 p. \$150.00 US. ISBN 9780444528100.
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- Levenson, Jay. 2007. *Encompassing the globe : Portugal and the world in the 16th & 17th centuries*. Washington, DC : Smithsonian Institution. 388 p. \$54.95 US. ISBN 9781588342454.
- Macleod, David. 2007. *Mapping in Michigan and the Great Lakes region*. East Lansing : Michigan State University Press. 377 p. \$69.95 US. ISBN 9780870138072.
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- Mitchell, Peta. 2008. *Cartographic strategies of postmodernity : the figure of the map in contemporary theory and fiction*. New York : Routledge. 192 p. \$95.00 US. ISBN 9780415955973.
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For more information about each item listed in this column, please visit:
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Robertson, C.J.R., et al. 2007. *Atlas of bird distribution in New Zealand 1999-2004*. Nelson, NZ : Ornithological Society of New Zealand (OSNZ). 533 p., 2100 maps, figs. \$130.00 US. ISBN 9780958248655.

Roolvink, R. 2007. *Historical atlas of the Muslim peoples*. New York : Routledge. 64 p., 56 maps. \$160.00 US. ISBN 9780415440943.

Sparrow, Giles. 2008. *The stargazer's handbook: an atlas of the night sky*. London : Quercus Publishing. 272 p. \$17.99 US. ISBN 9781847241450.

Stooke, Philip. 2008. *The international atlas of lunar exploration*. Cambridge : Cambridge University Press. 464 p. \$190.00 US. ISBN 052181930.

Teaford, Jon. 2007. *The American suburb : the basics*. 288 p. \$24.95 US. ISBN 0415951658.

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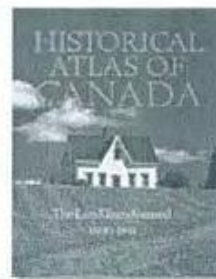
White, Cliff and Ted Hart. 2007. *The lens of time : a repeat photography of landscape change in the Canadian Rockies*. Calgary : University of Calgary Press. 200 p. \$69.95 CDN. ISBN 9781552382370.

Wylie, John. 2007. *Landscape*. New York : Routledge. 246 p. \$29.99 US. ISBN 9780415341448.

Have You Seen This?

guardian.co.uk

Charles Arthur, "Land Registry Holds Key to OS: A simple levy on property transactions could fund a freely available Ordnance Survey data service for all",
The Guardian March 27, 2008
<http://www.guardian.co.uk/technology/2008/mar/27/freeourdata>
(submitted to CARTA by Heather McAdam)



Historical Atlas of Canada
Online Learning Project
<http://www.historicalatlas.ca/website/hacolp/>
(forwarded to CARTA by Colleen Beard)

Help Wanted!

The ACMLA *Bulletin* needs a volunteer for the position of New Maps column editor, to replace the "retiring" Dan Duda!

The New Maps Editor compiles an ongoing list of newly published maps and submits to the *Bulletin* three times per year.

Task is probably easiest for someone who orders or processes incoming new materials.

Either Word or WordPerfect is fine.

Consistent form of entry makes the Bulletin Editor very grateful!

If you, or anyone in your institution, is interested in this task, please let me know.

Thanks, Cathy
moulder@mcmaster.ca

NEW MAPS

Compiled by Danial Duda

Chicago neighborhood map: home is where the hood is. 3rd ed.

Scale: Not given.

Published: [Chicago]: Eastlake Management & Development Corp., [2007?]

Description: 1 map; col.; 91 x 65 cm.

Notes: Includes index.

Cuba.

Scale: not given.

Published: [Havana?: s.n., 2007?]

Description: 1 map; col.; 41 x 51 cm.

Notes: Shows administrative divisions. Includes indexes and col. ill.

Éléonore area, mining and exploration activity: Opinaca Reservoir area, James Bay, Quebec, Canada.
Scale: [ca. 1:220,000] (W 77°25'--W 75°10'/N 52°55'--N 51°45').

Published: [Toronto]: Northern Miner, 2007.

Description: 1 map; col.; 58 x 80 cm. on sheet 69 x 99 cm., folded to 17 x 25 cm.

Notes: Map shows selected companies and highlighted areas/properties of interest. Includes location map, and advertisements. Accompanies *The Northern Miner*, March 2007.

Energy map of Algeria.

Scale: [ca. 1:2,564,000 (W 12°--E 16°/N 36°--N 20°)].

Published: London: Petroleum Economist, c2007.

Description: 1 map; col.; 84 x 123 cm. folded to 30 x 22 cm.

Notes: Relief shown by gradient tints and spot heights. Shows oil and gas fields, oil, gas and LPG pipelines, tanker and trans-shipment terminals, oil refineries and LNG plants. Includes gas and LNG export contracts, names of pipelines with distance, diameter and terminus. Also includes graphs of oil and gas production, reserves and exports.
ISBN: 1861862075/ 9781861862075.

Energy map of Egypt. 1st ed.

Scale: Not given.

Published: London: Petroleum Economist, 2007.

Description: 1 map; col.; 97 x 86 cm. on sheet 126 x 89 cm. folded to 30 x 21 cm.

Notes: Relief shown by gradient tints. Shows oil and gas fields, export and import terminals, pipelines,

refineries and power stations. Insets of Nile Delta basin and Gulf of Suez. Includes "Egypt data" (oil and gas for fiscal year 2005/2006), "Egypt LNG data," "BG Egypt" (key dates), and "Egypt field discoveries (2006)". Col. ill. on panel and verso of panel with text.

ISBN: 1861862466/ 9781861862464.

Energy map of the Middle East & the Caspian. 5th ed.

Scale: Not given.

Published: London: Petroleum Economist, c2007.

Description: 1 map; col.; 107 x 86 cm., folded to 29 x 21 cm.

Notes: Relief and depths shown by gradient tints. Shows oil and gas fields, export and import terminals, pipelines, shipping lanes, and refineries. Includes tables, text, and charts. Advertisement on verso.

ISBN: 186186227X/ 9781861862273.

Gaspipelines. [Europe and Russia]

Scale: [ca. 1:18,500,000].

Published: [Germany?: s.n., 2007?]

Description: 1 map; col.; 21 x 17 cm.

Notes: Also shows closed and producing gasfields.

LNG & gas map of the Atlantic. 1st ed.

Scale: Not given.

Published: London: Petroleum Economist, c2007.

Description: 1 map; col.; 89 x 126 cm.

Notes: Relief shown by shading. Ancillary maps of North East [sic] US and US Gulf of Mexico import terminals. Includes textual and graphic data on LNG importers and exporters in the Americas, Europe and Africa. LNG imports and exports (Atlantic Trough), export contracts and gas reserves.
ISBN: 1861862415/ 9781861862419.

Map of Malaysia: Malaysia physical map.

Scale: 1:750,000/ 1:840,000.

Published: [Pandan Jaya, Kuala Lumpur]: Maps & Globe Specialist Distributor, [2007?]

Description: 2 maps on one sheet; col.; 90 x 214 cm.

Notes: Shows the infrastructure, elevation, and depth tints of Malaysia. "Peta asa diterbitkan dengan kebenaran Pengarah Pemetaan Negara Malaysia ... JUPEM.BB.PR.24.04.1.Jld.58/77'." Includes index and 1 inset. Without legend.
In Malay and English.

ISBN: 9834152027.

Map of the Bahamas.

Scale: Not given.

Published: [Nassau?: s.n., 2007?]

Description: 1 map; col.; 56 x 72 cm.

Notes: Includes col. ill.

Mackenzie Delta.

Scale: 1:600,000; Lambert conformal conic projection.

Published: [N.W.T.]: Andr e Pr efontaine, 2007.

Description: 1 map; col.; 48 x 68 cm.

Notes: Shows population; 3 different types of roads; tundra; natural features; proposed gas pipeline. Also includes Trans Canada trail.

Quesnel Trough, British Columbia, Canada exploration and mining activity.

Scale: [ca. 1:560,000] (W 124 --W 118 /N 55 --N 50 ).

Published: [Calgary?]: Intierra Mapping: distributed jointly with The Northern Miner, c2007.

Description: 1 map; col.; 79 x 59 cm., folded to 25 x 18 cm.

Notes: "Intierra Mapping would like to thank Tom Schroeter ... for his help in editing the map, compiling the deposit table and writing the synopsis for this map." Includes text, notes, "Selected mines/deposits/targets (by type)" table, and advertisements. "The area between Prince George in the north and Kamloops in the south encompasses some 50,000 square kilometres in a northeasterly-trending belt 500 kilometres in length and 100 kilometres in width. It includes more than

10 major past producing lode and placer mining camps including: Alton... Together, these camps/mines have produced metals worth nearly \$50 billion at today's metal prices."

Toronto cycling map, 2007.

Scale: ca. 1:47,000.

Published: Toronto: Urban Development Services, 2007.

Description: 1 map; both sides, col.; on sheet 61 x 94 cm., folded to 20 x 10 cm.

Notes: Shows road; transportation; recreational and tourist features; streets named; cycling information; notes and col. ill.

United States commercial nuclear power plants--operable, under construction, or ordered--2007/2008.

Scale: Not given.

Published: La Grange Park, IL: American Nuclear Society, Inc., c2007.

Description: 1 map; col.; on sheet 69 x 101 cm.

Notes: Includes text, list of abbreviations, and power plant index and table. Produced by Nuclear News.

Worldwide commercial nuclear power plants--operable, under construction, or ordered--2007/2008.

Scale: Not given.

Published: La Grange Park, IL: American Nuclear Society, Inc., c2007.

Description: 1 map; col.; 33 x 61 cm., on sheet 69 x 101 cm.

Notes: Does not cover United States. Includes inset of Japan, ancillary map of Europe, list of abbreviations, and power plant index and table. Produced by Nuclear News.

New Maps Editor's Note: This is the last of the regular columns that I will be doing. I hope that the maps I've chosen for this list over the past few years have helped you find some different examples of maps from around the world for your collections. I want to thank David Jones and Cathy Moulder for their support and encouragement while I have been your New Maps Editor. I want to wish the next New Maps Editor all the best and hope that you will enjoy doing this column as much as I have. I still hope to produce and submit a Special Thematic Map column a few more times in the future, like the Literary Maps in Issue # 122 and this issue. Again, thank you for this opportunity.

Daniel Duda

Memorial University

Bulletin Editor's Note: On behalf of ACMLA, I'd like to thank Dan for his service to the *Bulletin* over the past five years in the role of editor of the New Maps column. He has found and reported some great treasures. And he is a joy to work with because of his enthusiasm for all things cartographic. We look forward to his continued contribution of lists of maps on special topics. Thanks, Dan, for all your hard work.

Cathy Moulder

SPORTS MAPS

Danial Duda
New Maps Editor

A few issues back, I prepared a list of maps dealing with literature (*Bulletin* 122). My hope for that list, for this list, and for future thematic lists, is to remind and inform us about the many themes that can be communicated through cartography, capturing a snapshot in time or to create ideas for future projects.

Ah yes...the time of year where blood pressure rises because you're a hockey fan and "praying and cheering and praying (or cursing!)" for your team, or a non-hockey fan cursing hockey and possibly all sports. Why? Because the baseball season has started, golf is in full swing after the Masters at Augusta, and the NBA playoffs are just around the corner. Then there's the Beijing Olympics around the corner, with the Vancouver Olympics just down the road. Yep...you've guessed it, the theme this issue is sports. Now the interesting thing about using the term "sports" in catalogues to discover maps, the hits received are dealing with sport fishing, hunting or resorts. You won't find those maps in this list. This list is of Olympic cities and sports such as hockey, football, soccer, baseball, etc. This is only a suggestive list. Many of the hits I looked at were tourist maps in nature, as some of these are. But sports have always been a part of western society on many levels, and sometimes a map shows just how important it is to some. The map of Mexico I included in this list caught my eye because you have your typical description and notes of the map with streets, indexes, boundaries, etc, but then the last phrase rang out..."soccer stadiums." Enjoy...!

Danial Duda

2001, North American baseball travel map: location and contact information for every major league, minor league, and independent professional baseball team in the US and Canada.

Scale: ca. 1:11,300,000.

Published: [Minneapolis, MN]: White Star Press, c2001.

Notes: Shows only southern Canada. Includes "Key to minor leagues," insets "Beisbol liga Mexicana (the Mexican Baseball League)," "Florida detail," ancillary map "East coast detail," and col. ill. Descriptive indexes and col. ill. on verso.

Baseball jigsaw puzzle: the official major league baseball ArtMap puzzle, featuring American and National league team logos and stadiums: [United States].

Scale: Not given.

Published: Tracyton, WA: World Impressions, c1992.

Description: 1 jigsaw puzzle (550 pieces): col., mounted on cardboard;

46 x 61 cm. in box 34 x 33 x 6 cm.

Notes: Pictorial map. Includes notes and ill. (some col.)

Baseball sites in America. [Panel title: World of baseball, a cultural geography of our national game].

Scale: Not given.

Published: [Minneapolis, MN]: White Star Press; Santa Barbara, CA: Map Link [distributor], c2000. Description: 1 map; col.; 45 x 88 cm. folded to 23 x 15 cm.

Notes: "Produced in cooperation with the National Baseball Hall of Fame and Museum, Inc." Includes descriptive indexes to teams, 11 insets, text, 3 ancillary maps, and ill. (some col.) Text, 8 maps showing baseball locations world wide, 6 maps showing the growth of base ball, and ill. (some col.) on verso.

ISBN: 188550831X.

Birthplace distribution of Canadian N.H.L. hockey players.

Scale: Not given.

Published: Edmonton: West Edmonton Reprographics, 1992.

Description: 1 map; col.; 66 x 93 cm.

Notes: Insets: Fraser Valley Region; Toronto and London Region; Montreal and Quebec Region. Map shows number of players born in a particular community by proportional circles. Period covered is from formation of the league in 1917 through the 1990 season. An alphabetical list of the names and

birthplaces is printed in the upper portion of the map.

College football conferences, plus independents and bowls: [United States].

Scale: [ca. 1:7,000,000].

Published: Jacksonville, AL: Bevis, [c1985].

Description: 1 map; col.; 47 x 70 cm.

Notes: Includes lists of conference members and independent members, list of "Division III colleges," inset of Hawaii, and calendars.

Games of the XXIIIrd Olympiad, Los Angeles, 1984.

Scale: Not given.

Published: San Jose, CA: H.M. Gousha Co., [1984].

Description: 1 map; col.; 26 x 37 cm. folded to 23 x 10 cm.

Notes: Includes index to events and inset of Ventura area. Text, events chart, distance chart, and 2 local insets on verso.

Football history map of England and Wales.

Scale: ca. 1:1,050,000.

Published: Edinburgh: Bartholomew [1971?].

Description: col. map on sheet 101 x 70 cm.

Notes: "Approved by the Football Association." Includes text and col. illus.

ISBN: 085152530X.

Greece: home of the Olympics past and present.

Scale: Scales differ.

Published: [Washington, DC]: The Washington Post, [2004].

Description: 6 maps on 1 sheet; col.; 26 x 30 cm. or smaller, sheet 56

x 64 cm. folded to 28 x 32 cm. Olympic venue overview [metropolitan Athens]; Athens Olympic sports complex; Helliniko Olympic complex; The ancient games-776 B.C. to 393 A.D.; Central Athens; Olympic cities [Greece].

Notes: Shows 2004 summer Olympic Games venues in metropolitan Athens and at other sites in Greece. Relief shown by shading on some maps. Includes text, source-materials note, and ill. (some col.). Text and col. ill. on verso.

Hockey leagues of North America: professional minor-pro major-junior collegiate.

Scale: 1:7,300,000 (W 130°--W 50°/N 55°--N 25°).

Published: Jacksonville, AL: SportsMaps, c2000.

Description: 1 map; col.; 53 x 83 cm.

Notes: Includes table and shows locations of teams and leagues.

Host to the 1988 Winter Olympics, Calgary.

Scale: [ca. 1:35,000].

Published: [Calgary, AL]: Calgary Tourist and Convention Bureau, [1987]

Description: 1 map; col.; on sheet 97 x 61 cm. folded to 25 x 11 cm.

Notes: Indexed for points of interest. Indexes on verso.

Map of Lake Placid: including Saranac Lake, Wilmington, Keene, Keene Valley, Whiteface Mt., High Peaks Trails, and 1980 Olympics sites.

Scale: ca. 1:15,400.

Published: Lake Placid, NY: Macromedia, c1977.

Description: 1 map; on sheet 46 x 61 cm. folded to 23 x 16 cm.

Notes: Includes inset of city center and ill. Map of Lake Placid region and distance list on verso.

Map, world, centennial olympic games: Atlanta 1996.

Scale: 1:40,988,000. 1 in. = 646.90656 at equator.

Published: Comfort, TX: H.M. Gousha Co., [1996].

Description: 1 map; col.; 42 x 83 cm. folded 23 x 10 cm.

Notes: Includes list of "Host cities for summer olympic games" and col. ill. of flags with information. Olympic records, lists of "Summer olympic games medal standings," col. ill., and publisher's advertisement on verso.

ISBN: 0671558099.

Mille neuf cent quatre-vingt-dix-huit--la France accueille le monde. Ed. 1.

Scale: [ca. 1:1,200,000].

Published: Paris: IGN : Espace IGN [distributeur], 1998.

Description: 1 map; both sides, col.; 81 x 85 cm. on sheet 46 x 100

cm. folded to 12 x 8 cm.

Notes: Shows soccer-match venues of the 1998 World Cup international championship, June-July 1998, on road-map base. Relief shown by spot heights.

Also shows stadium locations, express/TGV rail lines, and tourism sites.

Includes notes, tables, 11 ancillary maps of cities hosting World-Cup matches, ancillary world map showing locations of participating counties, blank score-card diagrams. Legend in French, English, and 4 other languages.

Montréal.

Scale: [ca. 1:46,886].

Published: [Montreal: City of Montréal, Public Relations Department], 1976.

Description: 1 map; both sides, col.; 59 x 93 cm. folded to 21 x 11 cm.

Notes: On verso: Accès de la ville de Montréal = Access to the city, scale approx. 1:300,960, 59.0 x 38.5 cm.; Downtown Montréal = Centreville, scale 1:12,000, 59 cm. x 43.9 cm. Streets named & indexed. Locations of building for the Olympics. Transportation, parking, places of interest. In French/English.

Plano de la ciudad de Mexico.

Scale: [ca. 1:70,000].

Published: [Mexico]: Guia Roji, 1970.

Description: 1 map; col.; 113 x 79 cm.

Notes: Streets named (& indexed on verso); subway system; 3 classes of boundaries; soccer stadiums.

Professional baseball leagues, majors and minors: [United States].

Scale: [ca. 1:7,000,000] not "1:5,000,000".

Published: Jacksonville, AL: Bevis, c1990.

Description: 1 map; col.; 47 x 69 cm.

Notes: Includes indexes and list of Mexican leagues.

Professor Pathfinder's baseball travel map: [United States]: majors, minors, independents: essential information for the roving fan.

Scale: ca. 1:11,300,000.

Published: Minneapolis, MN: Hedberg Maps, c2005.

Description: 1 map; col., laminated; 25 x 43 cm. folded to 26 x 11 cm.

Notes: Includes detail maps of the Los Angeles area, Florida, and the east coast.

Descriptive indexes on verso.

ISBN: 159353017X.

Rand McNally summer games guide and wall map.

Scale: Not given.

Published: [Chicago]: Rand McNally & Co., c1983.

Description: 1 map; col.; 47 x 75 cm. folded 23 x 11 cm.

Notes: Relief shown by spot heights. Includes col. ill. of national flags.

Text, indexed map of "Olympic game sites, Los Angeles area," schedule of events, advertisement, and col. ill. on verso.

Roses Bowl.

Scale: [1:38,500].

Published: [Los Angeles]: Automobile Club of Southern California, [1983].

Description: 1 map; 20 x 28 cm. folded to 23 x 11 cm.

Notes: Maps of "Major routes to and from Rose Bowl area" and "Rose Bowl seating plan" on verso.

Salt Lake 2002 Olympic Winter Games: official sites for the 2002 Olympic Winter Games.

Scale: Not given.

Published: [Salt Lake City]: SLOC, c1998.

Description: 1 view; col.; 23 x 33 cm. on sheet 46 x 41 cm. folded to 23 x 11 cm.

Notes: Bird's-eye view. Relief shown by shading. Includes index to sport facilities, Olympic Winter games information, Winter Olympics venues, and col. ill. Text and col. ill. on verso.

The Scottish football map.

Scale: Not given.

Published: Edinburgh: Bartholomew, c1977.

Description: 1 map; col.; on sheet 102 x 78 cm.

Notes: Shows professional soccer club locations. Includes text, inset, and ill. (some col.). Text by Ken Gallacher of the Daily Record; sponsored by Mackinlay's Old Scotch Whisky; approved by the Scottish Football Association.

ISBN: 0702801364.

Tourist map, Seoul, Korea: host city of the 1988 Olympics and the 1986 Asian games.

Scale: 1:50,000.

Published: [Seoul, Korea]: Seoul Metropolitan Government, 1985.

Description: 1 map; col.; 47 x 62 cm. folded to 25 x 9 cm.

Notes: Based on map, scale 1:50,000, by National Geographical Institute, 1984.

Includes indexes and insets of "Central Seoul" and "Seoul subway." Maps of Korea, "International air routes to Seoul," and "Near the Seoul area," indexes, and tourist information on verso.

Underground railway network in "Moskva" [map] = Réseau du metro en "Moskva", Olympiade 1980.

Scale: [ca. 1:95,000].

Published: [Budapest: Cartografia], 1980.

Description: 1 map; col.; 37 x 27 cm.

Notes: Railways & underground lines; roads; Olympic sport event locations; inset: [Central area]; map VII of Cartactual, no. 82, 1980, no. 2.

The world of baseball: a cultural geography of our national game.

Scale: Not given.

Published: Minneapolis, MN: White Star Press, c2000.

Description: 1 map; col.; 45 x 88 cm. on sheet 68 x 99 cm. folded to 23 x 15 cm.

Notes: Produced in cooperation with the National Baseball Hall of Fame and Museum, Inc. Includes indexes, 6 inset detail maps and 4 other ancillary maps, color photographs and historical text. 14 ancillary maps, a baseball diagram, color ill. and historical text on verso.

GEOSPATIAL DATA AND SOFTWARE REVIEWS

Compiled by Richard Pinnell

Canadian Vector Data (CanVec). Natural Resources Canada Earth Science Sector – Version 1.0, 2007. [downloadable data]. Free from GeoGratis portal (<http://GeoGratis.gc.ca>).

CanVec product is a set of vector data files produced by Natural Resources Canada (NRCan). According to NRCan, CanVec “aims to provide a standardized and actualized representation of topographic phenomenon for the entire Canadian landmass”.¹ The launch of CanVec in March of 2007 marked the release of a quality topographic data set that meets international standards and is available to the public free of charge.

CanVec is intended as a replacement for the National Topographic Data Base (NTDB), and the structure of this new product mirrors that of its predecessor closely in terms of themes and entities. CanVec provides a total of 90 topographic entities organized into 11 themes, while the NTDB provides 122 entities organized into 13 themes. Many of the original topographic events available through the NTDB were directly transferred to CanVec. Other entities were renamed, merged into new or existing themes, or eliminated altogether. CanVec themes include Administrative Boundaries, Buildings and Structures, Energy, Hydrography, Industrial and Commercial Areas, Places of Interest, Relief and Landforms, Toponymy, Transportation, Vegetation, and Water Saturated Soils.² These themes encompass framework features such as roads, railways, buildings, hydrological features, contours (10 metre intervals, in both metric and imperial units), wetlands, and other physical and cultural events. With the exception of approximately 15 entities (ski jump, entry cavern, fish pound, etc.) virtually all of the data once available through the NTDB has been transposed in some way to CanVec. Notable changes include the addition of transportation data from the National Road Network (NRN), a proponent of the GeoBase initiative. The NRN is an ongoing project aimed at providing “a common, current, homogeneous and standardized representation of Canada’s National Road Network”.³ The project has introduced new

and updated transportation entities to CanVec (i.e., junction) that are not available through the NTDB.

CanVec is free vector data and is downloadable via http or ftp transfer from the GeoGratis portal at <http://GeoGratis.gc.ca>. All data are in geographic coordinates (decimal degrees, NAD83 according to the Canadian Spatial Reference System (CSRS)) and are available in ESRI Shape and Geography Markup Language (GML) file formats. Data sets are delivered in compressed form using the National Topographic System (NTS) 1:50 000 tiles; the option to download tiles at 1:250 000 available through the NTDB is markedly absent in CanVec. The compressed files have an average size of 6 MB, while decompressed files range between 10 and 25 MB.

CanVec is a multi-source product generated mainly from 1:50 000 NTDB data. Numerous NTDB data sets were corrected using Landsat 7 Orthorectified Imagery. This correction has improved the planimetric accuracy of the CanVec product from 150 metres or better (NTDB accuracy) to 30 metres or better (Landsat 7 Orthoimage accuracy).⁴ Another major source in the generation of CanVec data comes from the GeoBase initiative. GeoBase encompasses a number of projects implemented through partnerships among various levels of government; the NRN is an example of these partnerships and thus comes from a number of different data sources. A second GeoBase project called Mapping of the North is also a source of CanVec data and is generated through combinations of stereodigitization, creation, and correction using Landsat 7 Orthorectified Imagery.⁵

CanVec is scheduled for release every six months, in April and October of each year. Dates of creation and time coverages vary greatly among entities; legacy data from as early as 1984 have been integrated with data from more current sources. This multi-source approach ensures the continual update of data obtained through GeoBase partners, but does raise concern regarding cultural entities that are not the focus of current initiatives. Entity revision schedules are vague at best, and thus it is

Title and Size	ISO Standard	Description
CanVec Release Notes (94 KB, 12 pages)	N/A	An overview of CanVec product, coverage, and information regarding datasets created through Mapping of the North
CanVec Data Product Specifications (175 KB, 16 pages)	ISO 19131: Data product specifications	Data content and structure; reference systems; data quality, capture and maintenance; product delivery
CanVec Product Distribution Formats (129 KB, 18 pages)	N/A	Entity names; name and data type of attributes; file names for each distribution format (Shape and GML)
CanVec Feature Catalogue (954 KB, 124 pages)	ISO 19110: Feature catalogue	Detailed description of entities, attributes, associations and relations between entities; specification codes
Transition Guide: NTDB to CanVec (578 KB, 24 pages)	N/A	A guide to inform NTDB users about the changes and improvements of CanVec as related to the legacy NTDB product.

Table 1. CanVec product supporting documentation.

unknown if cultural entities will fall victim to neglect in favour of physical features such as the transportation and hydrologic networks.

NRCan Data Management and Dissemination Branch staff reported to this reviewer that the CanVec releases will involve the entire data collection and include some new additional data sets. A release note, to describe the changes made to CanVec, will be sent to all registered users (<http://geogratis.gc.ca/geogratis/en/user/register.jsp>). Presently most modifications will be attributed to the metadata only, while some data sets will have received content corrections. In the meantime one can view some of the discrepancies that are already flagged for this product. (http://www.cits.rncan.gc.ca/cit/servlet/CIT?site_id=01&page_id=1-005-010-003).

There are a number of supporting documents available for CanVec product, however they are not included with the data sets and must be downloaded separately from the GeoGratis portal. Table 1 provides the title and size of each document, its corresponding ISO standard (to which the documentation conforms, if applicable), and a brief description of its content.

There are four metadata files distributed with each

CanVec dataset; two in FGDC/XML format, and two in FGDC/HTML format (both formats are provided in English and French). There is also a readme text file that warns the user to validate the XML metadata using the English file only, as a number of the French field values do not respect FGDC XML schema domains. Thus, metadata currently conforms to FGDC CSDGM standards and supporting documentation states that it will also comply with ISO 19115 metadata standards in the near future.⁶

As is the case with any quality topographic data set, CanVec has the potential to serve as a valuable resource throughout many application areas. Figure 1 shows an example of some of the framework features including residential areas, roads, railways, waterbodies, and wooded areas provided through CanVec for the area of Peterborough, Ontario (Figure 1).

Despite the inherent usefulness of CanVec data, there are a number of issues of which first-time users and distributors should be aware. Of particular interest are the changes applicable to file naming conventions. Where the NTDB provided descriptive and intuitive file names, CanVec exhibits a much different approach. Provided below is an example



Figure 1. CanVec framework layers: Peterborough, Ontario.

of a CanVec shape file name as it appears to the user, followed by an explanation of each individual component.

031d08_1_0_HD_1460019_0.shp

031d08: NTS identifier

1: Data set edition number

0: Data set version number

HD: CanVec theme code. In this example HD represents the Hydrography theme of CanVec product. Regular users of CanVec will likely have no trouble memorizing the 11 themes and their corresponding codes, but for new or irregular users it will be necessary to access the theme listing through the CanVec Feature Catalogue.

1460019: This 7-digit code is known as a specification code, and likely marks the point of confusion for most users. The specification codes

represent specific entity/attributes combinations. They are structured [AAABBBG], where AAA identifies the entity, BBB identifies a combination of attribute values, and G indicates geometry (0=point, 1=line, 2=polygon, and 9=generic geometry code). For the example above, the CanVec Feature Catalogue indicates that 146 is the code representing a Hydrographic Obstacle Entity. There are 12 possible domain values to represent the 12 different types of hydrographic obstacles; -1 represents an unknown type, 1 represents falls, 2 represents rapids, 3 represents reefs, and so on. Thus, the code 1460019 indicates a hydrographic obstacle entity of type falls with a generic geometry code.

0: The final number in each file name represents the geometry of the entity; 0 for point, 1 for line, and 2 for polygon.

The complicated structure of the file names requires effort on the part of the user to identify entities prior to data manipulation and analysis. To facilitate use

of the data in ArcGIS 9.2, it was necessary to enter descriptive names in the ArcMap Table of Contents. With this complete, various geoprocessing functions including clips, buffers, overlays and merges were performed on selected tiles without incident. Inspection of the attribute tables revealed more information than previously available with NTDB data. This is important, as the generalization of various themes and entities (e.g. Roads and Rail Network combined into the Transportation theme, Hypsography into Relief and Landforms) places more emphasis on attribute values to identify various features. All CanVec entities (excluding those from GeoBase) contain a set of base attributes that includes Dataset name, Feature identifier, Planimetric accuracy, Provider, Specification code, Theme, and Validity date. GeoBase entities include many, but not necessarily all, of these base attributes. In addition to these mandatory columns, an attribute table may contain any number of other attributes to identify characteristics of the entity. GeoBase entities are continually updated, which indicates that both roads and waterbodies will eventually have fully populated name fields. These additions will greatly increase the value of CanVec data over the legacy NTDB product.

The transitional guide entitled *NTDB to CanVec* outlines the improvements and differences in product composition between the two data sets. The cited improvements include a better revision cycle, increased planimetric accuracy, better data sources, and compliance with international geomatics standards, most of which have been previously

addressed. These are all obvious advantages that serve to increase the usefulness and applicability of CanVec data. However there are key differences in composition between the two products that are important to address.

The first issue deals with vertical integration. NTDB data were generated from one source, the digitizing of topographic maps and this ensured that the data were vertically integrated; that is, free of spatial inconsistencies such as a waterbody running over a road. Due to the fact that CanVec data comes from multiple sources, NRCan is unable to guarantee vertical integration. This will result in spatial inconsistencies such as the one shown in Figure 2. However, NRCan states that these inconsistencies are less important in CanVec due to the fact that planimetric accuracy is 30 metres or better.⁸

A second issue that has caused concern for both users and distributors of CanVec is the elimination of product distribution formats in the transition to GeoGratis. Although this has more to do with download options than the data itself, it is likely to be an important change for many in the user community. NTDB data were available for download in UTM projection and a variety of formats, including Shape, DXF (AutoCAD), and MID/MIF (MapInfo). CanVec product no longer offers the option of UTM projection, and is available only in Shape or GML file formats. NRCan has claimed that 90% of its users download in Shape format, and also argues that fewer options improve the speed of the data delivery service. However when one considers that the push for ISO compliance marks an effort to distribute the product worldwide, the imposed limitations do not make sense. Increasing the user base while at the same time decreasing format options are actions that are in direct contradiction to one another. Although there has been and will likely be a great deal of discussion regarding this change, NRCan currently has no plans to offer CanVec data in other file formats.

Despite these issues, CanVec still promises to provide a valuable resource to geospatial communities throughout Canada and the rest of the world. Topographic data can be used in base and thematic mapping, or as foundations upon which further analyses can occur. These analyses may include land use planning, wildlife tracking, network analysis or watershed studies to name only a few.

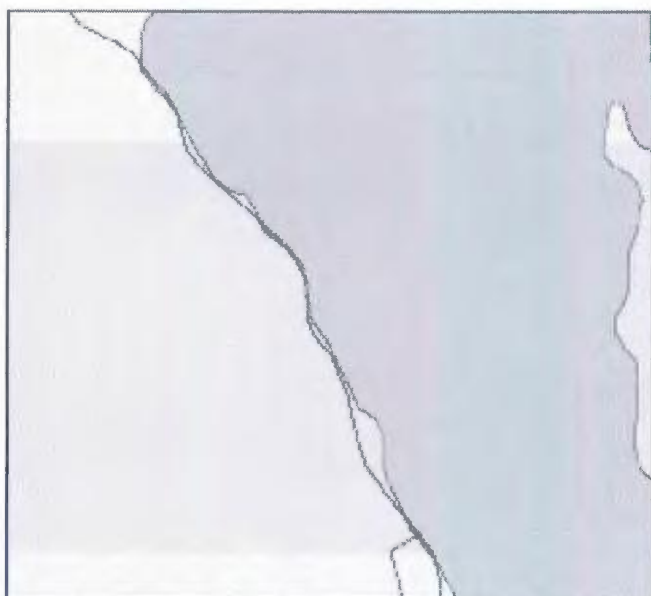


Figure 2. CanVec extract displaying spatial inconsistency.⁷

CanVec users will likely require assistance from the library despite the fact that the data is freely available through GeoGratis. Essential documentation such as the CanVec Feature Catalogue is not bundled with the data sets and thus many users will lack the necessary tools to decipher CanVec file names. NTDB users who previously downloaded data in formats that are no longer available may not possess the knowledge or resources to effect data conversions. It would be effective to provide accessible user guides to address the various issues that will arise both for new users as well as those attempting to transition between the two products.

Licensing: CanVec product is available free of charge and is subject to an unrestricted end-user licence agreement. Commercial and royalty fees no longer apply as they once did in the distribution of topographic data. Full terms and conditions of this licence agreement can be found at <http://www.geogratias.gc.ca/geogratias/en/licence.jsp>.

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Notes

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GeoBase Orthoimage 2005-2010: [High resolution SPOT images from coast to coast to coast]. SPOT orthorectified satellite images from Natural Resources Canada, Centre for Topographic Information, Sherbrooke. Distributed through www.geobase.ca. Available since January 2008, free download.

Satellite imagery has become commonplace since the Clinton administration removed copyright on Landsat 7 in 1999. Landsat multispectral data can be viewed on Google Earth and downloaded at no cost from GeoGratis (Canada) and the Global Land Cover Facility, with a resolution of 30 metres. The GeoBase Orthoimage program, providing SPOT orthoimagery, aims to make higher resolution data for Canada available to promote its use in geomatics and education. This is funded through GeoConnections as a joint effort between multiple agencies - Natural Resources Canada, Agriculture, Environment, and Parks Canada, along with provincial and territorial interests.

Panchromatic and multispectral imagery with 10 and 20 metre resolution respectively, have been gathered starting in 2005 from the SPOT 4 and SPOT 5 satellites, launched respectively in 1998 and 2002. These cover Canada as far as 81° N, excluding only the northern tips of Ellesmere and Axel Heiberg Islands which are beyond the satellite's coverage. Each scene is 60 x 60 km, angled at 8 degrees from N-S towards the SW corresponding to the satellite orbit. So far some 1194 of the 5000 anticipated images have been loaded, roughly evenly distributed across Canada but with a surprising void in southern Quebec (see Figure 1 and Table 1).

BC	107	PEI	7
AB	78	NS	16
SK	112	NL	31
MB	149	YK	28
ON	206	NWT	212
QC	148	NT	259
NB	19		
TOTAL 1194			

Table 1. Number of SPOT scenes provided through GeoBase by province / territory (as of April 15, 2008).

These are all summer images north of 60, and from May-October south of 60, with less than 4% cloud cover for a minimum 40 x 40 km area. Documentation also cites a 2% threshold, perhaps



Figure 1. Availability of SPOT images as of 5 March 2008.

because any cloud conceals an equal area of shadow. However all scenes I have examined so far have been completely cloud free. Rectification uses a combination of previously orthorectified Landsat 7 imagery, Canadian Digital Elevation Data (CDED) files and the national road network. The quality is excellent: I could not see any misregistration with either National Topographic Database (NTDB) vectors or provincial 1:20,000 data. Data are stored as zipped tiff files projected in either UTM or the Lambert Conformal Conic projection (centred on 95°W). Scenes crossing UTM zones can be acquired for either zone and the geotiff files can be imported into any viewing or design package, GIS and image processing software. Each set of panchromatic and multispectral files is downloaded as 25mb zipped files, which decompress to ~56mb (PAN) and 4 x 14mb (MS). Also included are two shapefiles plotting the scene footprint and selected zone (where cloud cover limits the total scene utility).

Full metadata are included as html and xml in both English and French.

Data are downloaded from www.geobase.ca by selecting: data -> satellite imagery-> orthoimage 2005-2010. There are three download options: graphical search by map selection, advanced search by location and ftp for massive download. The graphical search is generally the most convenient, enabling a quick appraisal of the area covered, with successive zoom-ins to 1:1,000,000 and 1:250,000 map feature backgrounds. The last zoom-in reveals scene ID numbers, which are listed by satellite number (4 or 5), longitude (5 digit degrees/minutes), latitude (4 digit degrees/minutes) and date (8 digits), e.g. S5_05541_5119_20060531.

I found it useful to simultaneously display Google Maps, for a more detailed map image of the area to be downloaded. This showed for example that a

scene for the northern tip of Newfoundland (annoyingly) clips off the headland containing L'Anse aux Meadows.

The graphical search also carries the following confusing message as, to the user, image date is important, but delivery date is not:

"Due to the unpredictability of weather conditions and also the 26 day data capture cycle, it is not possible to get a delivery date for the new images. There are approximately 100 new images available at the beginning of each month on the portal. You can easily find the image list with the option 2 available on this page."

For the benefit of non-remote sensing specialists, the multispectral bands cover green, red, near- and mid- infrared (IR) wavelengths, which can be used to create optimal colour composite images (RGB-bands 432), as the near-IR highlights vegetation health and biomass, and the mid-IR moisture. Bands 3-4 give the best land-water and vegetation contrast, while bands 1-2 display urban details. The only difference between SPOT 4 and 5 data for these data, results from the SPOT 5 panchromatic band covering a broader bandwidth across green and red (0.48-0.71 micrometres), whereas the SPOT 4 panchromatic band (0.61-0.68) is within the red visible wavelengths. The GeoBase Orthoimages (2005-10) can be compared with the Landsat 7

orthoimagery also available from GeoBase and earlier Landsat data. SPOT bands 1-4 are comparable to Landsat Enhanced Thematic Mapper bands 2-5, although the ETM panchromatic band is wider than SPOT 5, extending into the near IR (0.52-0.91), and its resolution is lower at 15 metre pixels. Application areas in addition to image map overlay include forest cover change and fragmentation, agricultural practices, urban development and glacier recession (see Figures 2, 3, and 4). An example showing land cover changes in Victoria (1991-2006) can be viewed at: <http://www.gis.unbc.ca/courses/geog432/projects/2008/ranta/index.htm>

In summary, satellite image acquisition has never been simpler, nor has such high quality resolution data previously been freely available. This is a far cry from the old days of the 1980s when we paid \$5000+ for a Landsat scene, delivered on 3 magnetic reel tapes, that usually crashed mounting between tapes 2 and 3 (.. and we had to walk 10 km through the snow, uphill both ways, to get the tapes). New data users today just don't know how lucky they are.

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Figure 2. Rocky Harbour (top) and Neddy Harbour (centre), Gros Morne National Park, Newfoundland. 49.5°N, 58°W (approx. centre). Panchromatic.



Figure 3. Victoria, Vancouver Island, BC. Image shows Oak Bay (bottom), University of Victoria (centre right), Mount Douglas Park (top), and Swan Lake (west). 48.5°N, 123°W. Panchromatic.

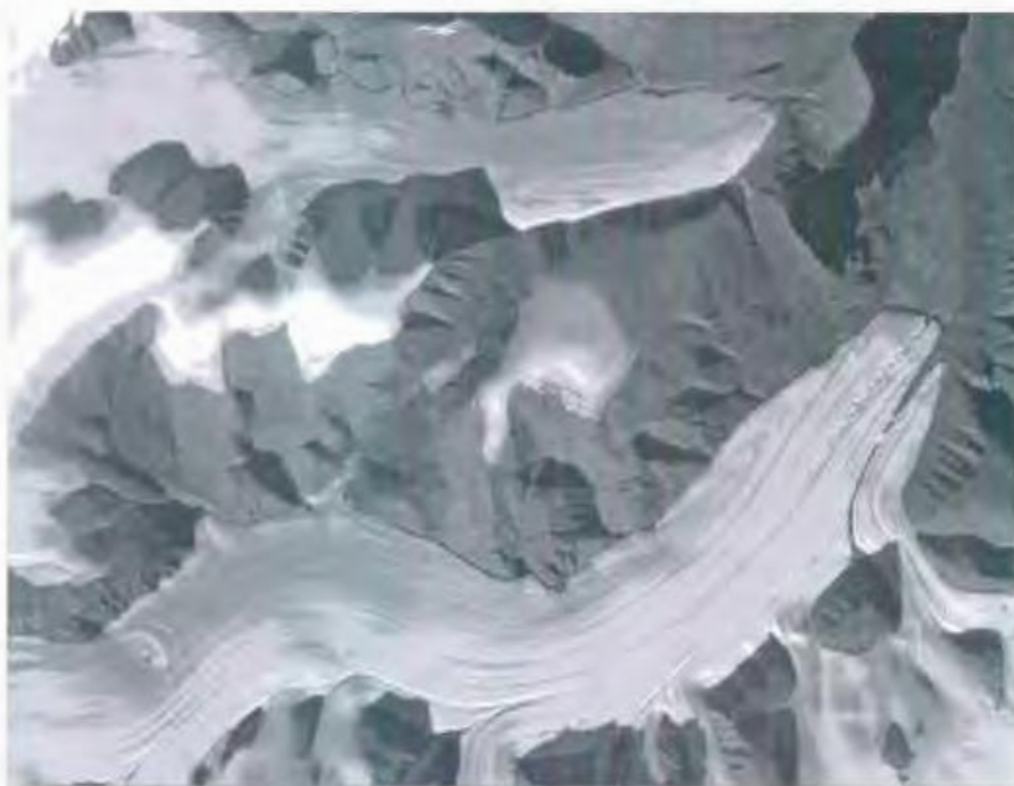


Figure 4. Alexandra Fjord, Ellesmere Island, Nunavut. 79°N, 76°W. Panchromatic.



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