

The MapPlace

An award winning Internet exploration service for B.C.

(article from *GEOLOG Spring 2001, Vol. 30, Pt. 1*)

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The B.C. Ministry of Energy and Mines Internet site, the MapPlace, was honoured by the B.C. and Yukon Chamber of Mines at the 2000 Cordilleran Exploration Roundup meeting in Vancouver B.C. The MapPlace, featuring interactive mineral exploration datasets, won the award for providing exceptional, efficient and free access for B.C. explorationists. The award was presented to the creator and innovator Ward Kilby of the B.C. Geological Survey. This paper briefly describes what MapPlace is, how it evolved, how it works and what kind of GIS functionality is available.

What is it?

The MapPlace is an Internet based system that uses the world wide web (WWW) to provide free access to British Columbia mineral exploration information in a dynamic map format. The MapPlace provides interactive map access to most of the British Columbia Ministry of Energy and Mines geospatial data holdings including bedrock geology, surficial geology, metallic and industrial mineral potential ranking, regional silt and water geochemical surveys (RGS), mineral occurrences (MINFILE), assessment reports (ARIS) and mineral title locations that are useful to explorationists and landuse planners alike. These themes can be combined with other georeferenced datasets such as administrative boundaries, topographic features and other related map based information including raster images such as digital elevation model (DEM) shaded relief, satellite (LandSat) and aeromagnetics to produce user-defined map views. These can then be printed or pasted into common graphics packages. In addition, many of the features that can be displayed on MapPlace are linked to supporting database tables thus allowing the discovery, retrieval and reporting of valuable attribute data that is linked to individual map objects. For some themes clicking on an object links to a separate Internet site such as MINFILE or Mineral Titles allowing further search and retrieval capabilities.

How did it evolve?

The MapPlace has been operational for over four years now. Its development is linked to the release of Autodesk's MapGuide™ software in mid 1997. This product met our requirements for a cost effective and efficient method to display, retrieve and analyze vector and polygon based map information over the Internet. The site capabilities have met all our original requirements for data dissemination and have opened up the realm of online data analysis and distributed data input and maintenance. Use of web-based tools reduced our development costs and allows us to piggyback on evolving Internet tools and expertise.

How does it work?

The MapPlace website was developed around several off-the-shelf software packages. Autodesk's MapGuide™, Allaire's ColdFusion™ and Microsoft's Access™ are the packages used on the site in addition to the normal WWW server software. Databases are used to handle all the tabular information associated with the site. ColdFusion is used as a WWW database manager, report writer and sophisticated WWW toolkit. MapGuide Server, Author and Viewer software provide the map displays, GIS functionality and development environment for this style of web presentation. There are numerous different configurations of software and hardware that could be used to deliver the MapPlace. Figure 1 illustrates our current configuration. Both the MapGuide Server and ColdFusion run as services on Intel based PCs using the NT operating system.

Figure 1 illustrates the distributed nature of the system. Several of the datasets displayed on MapPlace, including the Tectonic Assemblage Map geology, reside on MapGuide servers at Natural Resources Canada. This integration of data from different sources and custodianships is one of the most powerful features of distributed systems.

The only requirement for end users of the MapPlace is that they have a Web browser (e.g. Microsoft Internet Explorer or Netscape) and a free viewer plug-in that can be downloaded from Autodesk. The MapGuide Viewer enables the client's computer to perform many of the display functions independent of any one server. Using toolbar buttons and popup menus to interact with simple or complex maps, you can zoom, pan, zoom out and get custom reports. Object display is controlled by the zoom scale so that increasingly complex map objects are only displayed when the scale is appropriate. Objects on the map may be linked back to the source database on the server or across the Internet. In addition to these links, one can download files and tables. Databases accessible this way include digital geological maps, mineral potential information, mineral occurrences (MINFILE), mineral and petroleum tenure, assessment report indexes (ARIS) and regional geochemical surveys (RGS). Other links will take you to map indexes, Geological Survey of Canada databases, terrain maps and more.

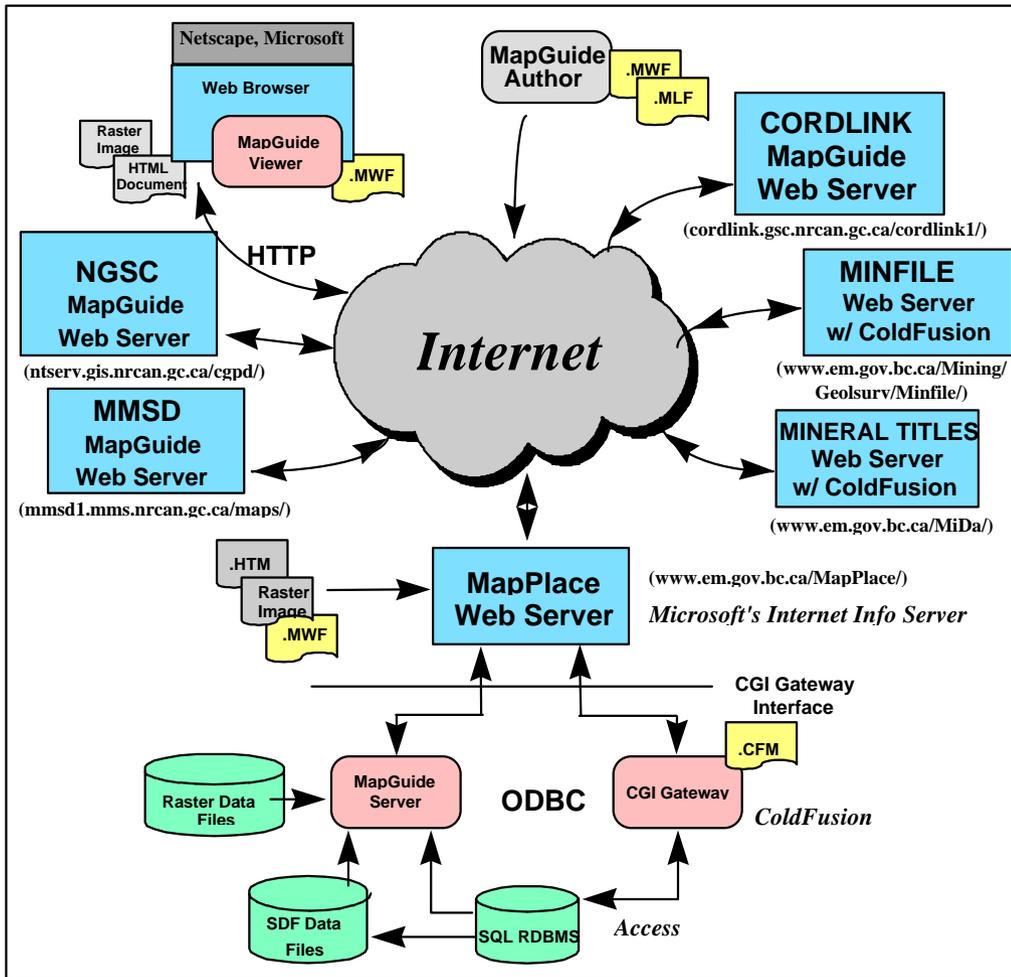


Figure 1. Diagrammatic view of the MapPlace configuration in relation to the Internet, geographic data, attribute databases, other websites and other MapGuide sites.

GIS Functionality

The power of the system is that it provides some near-GIS options, such as buffering around intrusions or faults, retrieving attributes for polygons or points and displaying different sized symbols or polygon fills based on object attributes. With the Mapguide Author software, the user has nearly complete control of how data is displayed thus allowing further customization of the resultant map. Further enhancements can be achieved by embedding the MapGuide window in a web page and accessing the Viewer's API through Javascript or VBscript. The B.C. Mapper application on the MapPlace site is one such application that

allows a user to input their own data on top of existing MapPlace themes by digitizing polygons, points and lines on screen. Another application is the 'Exploration Assistant' which allows the user to specify what features to display in the map window. For example, the user could display all Cretaceous age sedimentary rocks within a terrane, generate a map of mineral claims that may expire (anniversary date) in the next 30 days in any area of interest, or look for prospective areas favourable for VMS type mineral deposits.

Conclusion

The MapPlace has been operational for over four years, providing free Internet access to mineral exploration-related information to the mineral exploration industry, land use planners, government agencies and the general public. It has proven to be an efficient and effective way to disseminate map-based information and its flexibility gives users a powerful tool for building their own custom maps. For more information visit the MapPlace at <http://www.em.gov.bc.ca/MapPlace>.

References

Autodesk, Inc. (1998): "Network-centric GIS: A new application architecture for the Internet paradigm." (<http://www.autodesk.com/solution/gis/whtpaper/wpamg2.exe>).

Kilby, W.E. (1999): THE MapPlace – Web-Based GIS Access to British Columbia Mineral Exploration Information, *In Proceedings of the Thirteenth International Conference Applied Geologic Remote Sensing*, Vol. 1, pages 204 – 212.

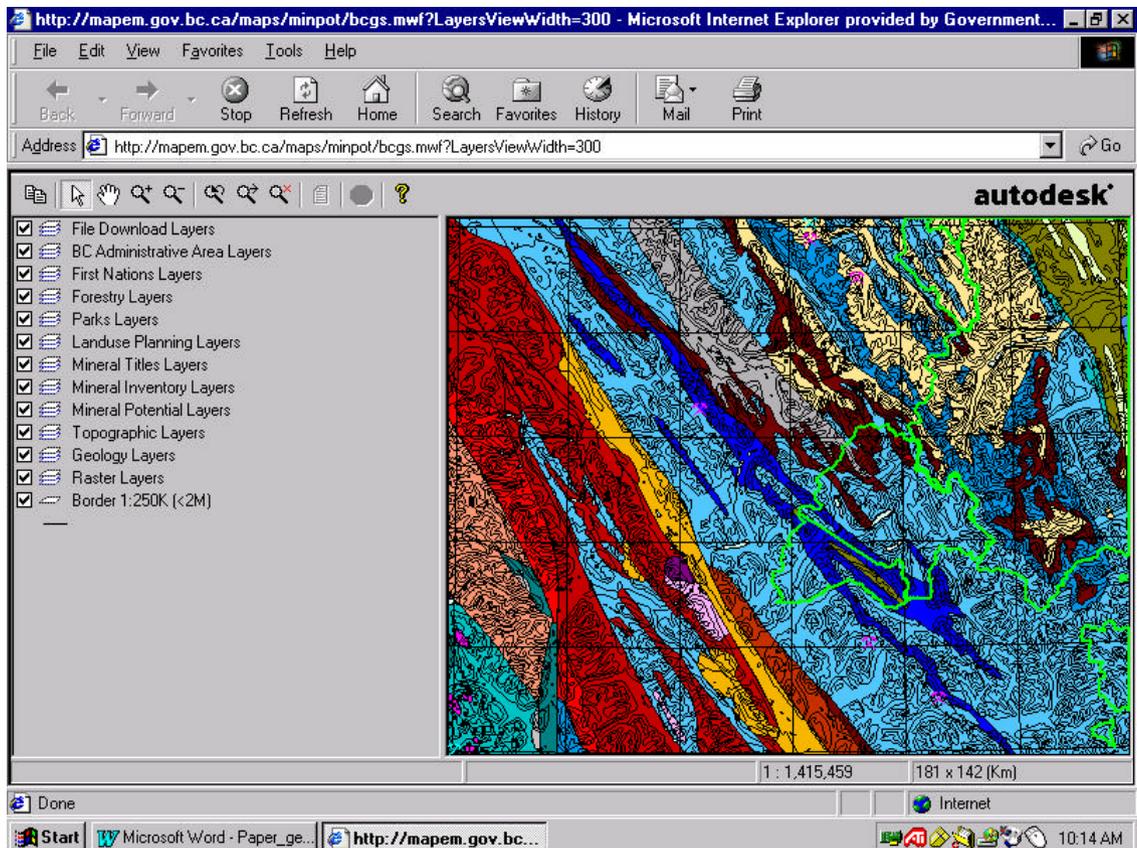


Figure 2. Screen image of a Mappguide window showing the geology and topography of the Rocky Mountains in northeast B.C. Also shown are park boundaries, mineral occurrences and towns. Layer groups (collapsed) are shown in the left hand frame. The top bar has icons for the common zoom and panning tools; the bottom bar shows the scale of the view and the height and width of the view in kilometres.

Table 1. Summary of major datasets accessible through the MapPlace.

Layer Group or Name	Object Type	No. of Objects / Coverage	Date Updated	Reports, Downloads and Links	Visible Scales (M=million, K=thousand)	Sources of Data*
Bedrock Geology (1:5M, 1M, 250K resolution)	Polygon, Line	72,000; 180,570	1994	legend reports	<1M, 2M incremental to 10M	MEM/GSB; NRCan
Geology Map Index	Polygon	298	1998	data report and download	all scales	MEM/GSB
Geology Download	Arcview files (e00)	100% (1:250K maps)	1998	E00 file downloads	all scales	MEM/GSB
Mineral Potential	Polygon	788	1998	data report and download	all scales	MEM/GSB
Aggregate	Point, Polygon	725 pts / Nanaimo, Okanagan, Prince George	monthly	table download	all scales	MEM/GSB
COAL Boreholes	Point	7,765	1990	table download	all scales	MEM/GSB
Mineral Occurrences - MINFILE	Point	12,067	monthly	data reports and downloads; links to MINFILE	all scales	MEM/GSB
Assessment Reports - ARIS	Point	25,800	monthly	data reports and downloads; links to ARIS	all scales	MEM/GSB
Regional Geochemistry - RGS	Point, Polygon	44,428	annually	complete data download	<1M	MEM/GSB
Mineral Tenure	Polygon	127,000	monthly	data report and links to MIDA	<1M	MEM/MTB
Crown Grants	Raster image	100%	periodically	TIFF file downloads	<200K	MEM/MTB
Topography (6M, 2M, 1M, 250K, 50K, 20K resolution; Colour Contours, TRIM Contours, Roads, Rail, Rivers, Lakes, Glaciers, Coast, Bathymetry)	Points, Polygon, Line	very large; 7000 TRIM maps	variable; TRIM 1996	none	variable scales for different resolutions	MELP; NRCan
Geographic Locations (Map Grids, Gazetteer)	Point, Polygon	41,500	1998	none	all scales	MELP
Administration Areas (First Nations, Parks, Forestry, LRMP areas)	Polygon	multiple	variable	none	all scales	MELP, MOF
DEM Shaded Relief	Raster image	100%	1999	none	all scales	MELP; NRCan
LandSat	Raster image	95%	1999	none	all scales	MELP; NRCan
Aeromagnetics	Raster image	85%	2000	none	all scales	NRCan
Gravity	Raster image	100%	1999	none	all scales	NRCan

*Abbreviations: MEM=BC Ministry of Energy and Mines; GSB=Geological Survey Branch; MTB=Mineral Titles Branch; MELP=BC Ministry of Environment, Lands and Parks; MOF=BC Ministry of Forests; NRCan=Natural Resources Canada