

# GeoConnections

Geomatics puts  
your world in a  
new perspective

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Canadian  
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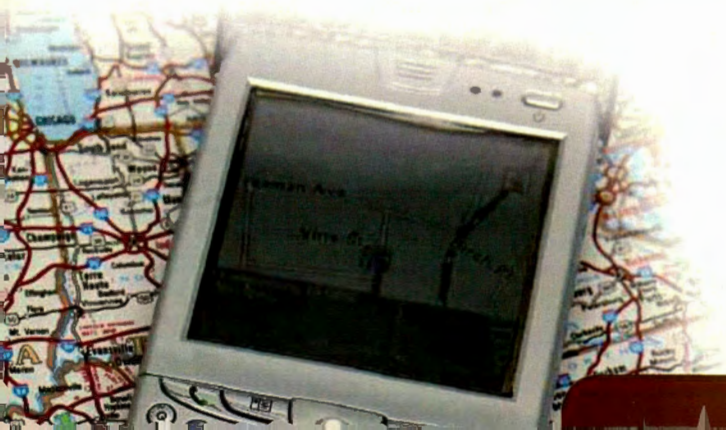
## **Fast-evolving technology poised to alter the way Canadians work and play**

Travelling by car to an unfamiliar big city does not have to be as stressful as it used to be. For less than \$200, you can pick up a portable Global Positioning System, type in your destination and be guided to that location by a friendly, computerized voice.

Or maybe your vehicle comes equipped with such a unit – in which case, you are already aware of its advantages.

Either way, these car navigation systems are but one handy innovation created under the banner of geomatics. Geomatics brings together surveying, mapping, remote sensing, geographic information systems (GIS) and the Global Positioning System to help us generate detailed pictures of our physical world and our place in it.

Hundreds of geomatics applications exist today. You will find geomatics applications in every sphere of government and industry. Each application offers distinct advantages – advantages that help Canadian decision-makers manage our environment, our health and our safety and provide other important benefits. Yet, despite their distinct advantages, geomatics applications share a common trait: they all employ location-based, or geospatial, data to help users learn more about their physical environments and make decisions quickly and effectively.







## **What are geospatial data and a geographic information system?**

**Geospatial data is location-based information that can be mapped or otherwise associated with a particular place, for example, the location of a river, the crime statistics for a neighbourhood or the spread of infectious diseases.**

**A geographic information system is a mapping system that uses computers to collect, store, manipulate, analyse and display data. For example, GIS can show where a fast-rising river is most likely to overflow its banks and which surrounding areas are likely to be flooded.**

## **A better understanding of what is really going on**

Every once in a while, a landmark technology changes – even disrupts – the way we live, work or play. Geomatics promises to be such a technology.

In fact, geomatics enjoys vast, almost unimaginable, potential. It enables us to perceive situations and issues from a host of angles – not just one. We can interweave information from various sources and develop perspectives that would be impossible to gain otherwise.

In short, geomatics helps us better understand what is really going on in our world. This insight can make our lives easier, safer, healthier and more fulfilling.

## Geomatics in motion

So who is using these geomatics applications, and how are they benefiting? Discussed below are a few applications. To read about other applications in such areas as public safety and security or matters of importance to Aboriginal communities, or to learn about the potential uses, visit the GeoConnections Web site at [www.geoconnections.org](http://www.geoconnections.org).

### Powering an integrated watershed strategy in the Okanagan River basin

The Okanagan River basin in British Columbia has the fastest-growing population among the 23 major Canadian watersheds (i.e. regions with interconnected rivers and streams). Does the Okanagan watershed have the capacity to serve its growing population? What effects could pollution and further development have on the growing human population and on wildlife? What areas should be protected? Which ones should be developed?

Unfortunately, the information required to answer such important questions is fragmented and held by numerous government, academic, non-governmental and private-sector organizations.



To overcome this situation, these organizations and other stakeholders are creating a partnership that will contribute data and share it using a Web portal. Through this portal, complex watershed data will be translated into information that land-use planners, land developers and the public can understand and use.

This project represents the first step in fully integrated watershed planning. It could influence decision making and contribute to a sustainable future for the Okanagan River basin.





## **British Columbia to gain a spatially enabled population health framework for disease surveillance**

The British Columbia Ministry of Health is developing a Web-based health information tool to support communicable disease surveillance. This tool will enable health officials to analyse disease and population-health ecology and to better understand how a broad range of factors influence our health.

Traditional disease-surveillance approaches failed to recognize that disease occurs not randomly but as the result of many factors interacting in complex ways. Knowing the context in which a disease develops will allow health practitioners to identify and better understand important characteristics, including

- disease clusters
- patterns of disease distribution over time and space
- disease-diffusion paths
- potentially vulnerable communities

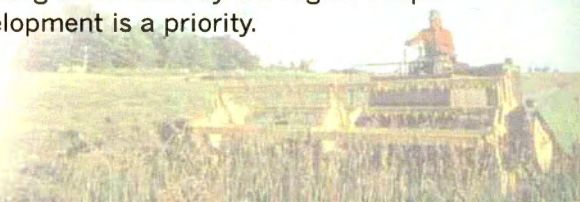
Understanding context will also help health practitioners control and prevent disease.



## **Sustaining development in the York Region of Ontario**

A sustainable-development atlas is helping York Region, Ontario, protect its natural environment while accommodating an expected 600 000 new residents over the next 20 years.

Home to some 900 000 residents today, York Region comprises farmlands, environmentally sensitive areas and significant woodlands, headwaters and areas of natural and scientific interest. All of these resources are being threatened by the region's rapid growth. So sustainable development is a priority.



The atlas will serve many users and offer various functions. York Region staff, other agencies, developers and the public will be able to access location-based information from all levels of government and from conservation authorities. The atlas will enable users to integrate land information from these overlapping jurisdictions. This integration will equip users to assess the impacts of land development and to share information for sustainable development and integrated planning in the Region.

*The examples provided above are just a few of the hundreds of geomatics applications in use throughout Canada and around the world. Ultimately, these applications enable us to make better policy and business decisions about our environment, economy and society.*

## **The foundation: the Canadian Geospatial Data Infrastructure**

Geomatics applications rely on accessing information and then integrating it into maps. This capability is made possible by the Canadian Geospatial Data Infrastructure (CGDI).

Comprising tens of thousands of data sets from Canadian and international sources, and hundreds of services and organizations, the CGDI is an online resource that gives decision-makers access to geospatial information. Often presented in the form

of detail-rich digital maps or satellite images, this geographic information enables decision-makers to spot trends, evaluate options, understand trade-offs, avert risks and assess emergencies, among others.

In short, the CGDI improves decision making by equipping people to better understand the situations, challenges and opportunities they face – and to evaluate potential solutions.





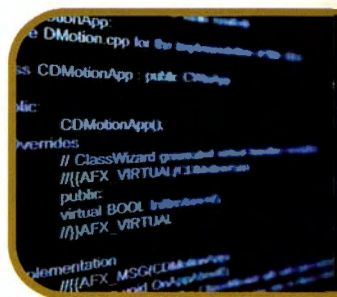


## Leveraging data standards

The CGDI also standardizes the way information in its multiple databases is stored, accessed and presented online. These same national standards are often consistent with geospatial data infrastructures in other countries. So the data from standards-based sources throughout Canada and around the world are compatible with other data sets available through the CGDI.

This compatibility, or interoperability, is important because it enables decision-makers to create online maps generated from more than one database. Combining different types of data to create one map often provides a more revealing and helpful view than producing two or more separate maps.

For example, someone interested in purchasing a home might be keen to know whether the home sits in a flood-prone area or whether surrounding properties are zoned for commercial use. Geomatics would enable this prospective buyer to “layer” these two data sets and better evaluate the property’s risks and value.



## The best decisions capitalize on up-to-date data

The CGDI’s success depends not only on data owners and custodians sticking to CGDI data standards, but also on their sharing data with others online – either by selling licences for its use or by offering it to users for free. But sharing alone is not sufficient. People need to share **data that are accurate and up-to-date**.

When users rely on copies of an original data set, as soon as that original data set is updated, the copies becomes outdated – even slightly – and therefore lose value. Over time, after numerous updates, copies can become obsolete and valueless.

If you are working with outdated data, the decisions you make based on this data may be equally outdated. But if you can access your data in real time from its source, you do not have to worry about the data being or becoming outdated. You will have more confidence in your decisions, too.

Data owners and custodians who allow people to access data online in real time from the source help everyone work with the most current, accurate data. This characteristic lessens the overall cost and effort of managing data, and it improves decision making.

For these reasons, data owners and custodians are urged to make their data available to users online in real time. To read about licensing or to obtain free data, visit the GeoConnections Web site at [www.geoconnections.org](http://www.geoconnections.org).

## **Working with developers and suppliers**

Although the CGDI shines as a decision-making resource for users, it also serves as a vehicle to advance Canada's geomatics technology and expertise, at home and abroad. Those who develop location-based data applications (developers) or supply data (suppliers) can all gain from the CGDI.



Developers and suppliers can export their technologies, knowledge and data services around the world. Exporting geomatics technology and expertise can create jobs for Canadians, improve companies' bottom lines, and enhance the country's reputation as a worldwide leader and innovator in geomatics.





## The catalyst for advancement: GeoConnections

The Government of Canada recognizes the importance of location-based information and has set up a program to promote the CGDI's use and growth. Led by Natural Resources Canada, this program is called GeoConnections. It is a national partnership initiative that helps decision-makers use online location-based information to tackle some of Canada's most pressing challenges.

Now in its second five-year phase, the program works with partners in geomatics technology development and in four priority areas:

- public health
- public safety and security
- the environment and sustainable development
- matters of importance to Aboriginal peoples



GeoConnections co-funds projects that encourage decision-makers in these priority areas to work with the Canadian geomatics sector in developing or enhancing technologies that meet their specific needs.

### Driven by partnerships

GeoConnections relies on its partners to develop services, establish data standards and create policies that simplify data licensing, access and sharing. GeoConnections collaborates with private companies, government agencies at all levels, non-government organizations, academic institutions and, sometimes, a combination of these partners.

By acting as a coordinator, GeoConnections assists Canada's geomatics stakeholders in working together and thereby achieving more in less time at less cost. *In short, GeoConnections is helping to pave the way for Canada's geomatics innovations and successes well into the coming decades.*



## **Promoting standards**

Domestically, GeoConnections negotiates and develops data standards and policies with government agencies at the federal, provincial, territorial and regional levels. Internationally, GeoConnections performs the same functions with other governments and standards bodies.

## **Serving as an international model**


Recognized around the world for building the CGDI, Canada can serve as a model for other countries creating their own national geospatial data infrastructures. In this light, GeoConnections has enhanced Canada's reputation as an international geomatics leader and innovator, one well positioned to influence and inspire other nations around the globe.

GeoConnections is governed by a management board, operated by a secretariat and guided by numerous advisory committees that represent the interests of all stakeholders.


## **The next step . . . is yours**

Twenty years ago, did you think that an in-car computer would calmly talk you to your destination in downtown Vancouver, Winnipeg or Toronto – or indeed any city in Canada or elsewhere? Since we see these kinds of geomatics applications today, where will we be in 20 years? Or even five?

No one knows for sure. But we do know that geomatics technology is evolving quickly. We also know that it promises great economic and social dividends. Chances are that this evolving technology can help your organization be more productive and effective.







For more information on how you stand to gain by putting new perspectives on your world, visit the GeoConnections Web site at **[www.geoconnections.org](http://www.geoconnections.org)**.

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