.horizons

Observing the Big Blue Marble: A Policy Lever

Government of Canada
Policy Horizons Canada

Gouvernement du Canada
Horizons de politiques Canada

Canada

Thank you to the staff of the Canada Space Agency's Government Liaison Office and Communications Division for their contribution.

Policy Horizons Canada is a dynamic foresight organization within the Government of Canada whose mandate is to help anticipate emerging policy challenges and opportunities, explore new knowledge and ideas and experiment with methods and technologies to support resilient policy development. The views contained in Policy Horizons Canada documents do not necessarily represent the views of the Government of Canada or participating departments and agencies.

This document is available electronically on the Policy Horizons Canada web site at the following address: www.horizons.gc.ca

PH4-130/2012E-PDF
978-1-100-21504-4

.horizons

The first astronauts to see "the big blue marble" suspended in space described the moment as an epiphany and the pictures they sent back to Earth were no less transformative. From the beginning, viewing our planet from space has provided valuable insights. Earth observation is now seen as a unique tool that can serve a number of strategic objectives.

Canada's use of Earth Observation

Earth observation is the use of satellites to gather information on our planet including our land, oceans, ice, atmosphere and cities. It has become part of the critical infrastructure that allows us to monitor and manage our natural resources and environment and support human endeavors such as monitoring treaties and territorial boundaries. Figure 1 shows the numerous policy areas that are enhanced by gathering satellite data. Many of these policy areas are undergoing significant change, necessitating accurate, real-time data for evidence-based decision-making. These include key issues Canada will face over the next ten to fifteen years such as the global shift in power, human migration, water scarcity, extreme weather events and changing patterns of natural resource development.

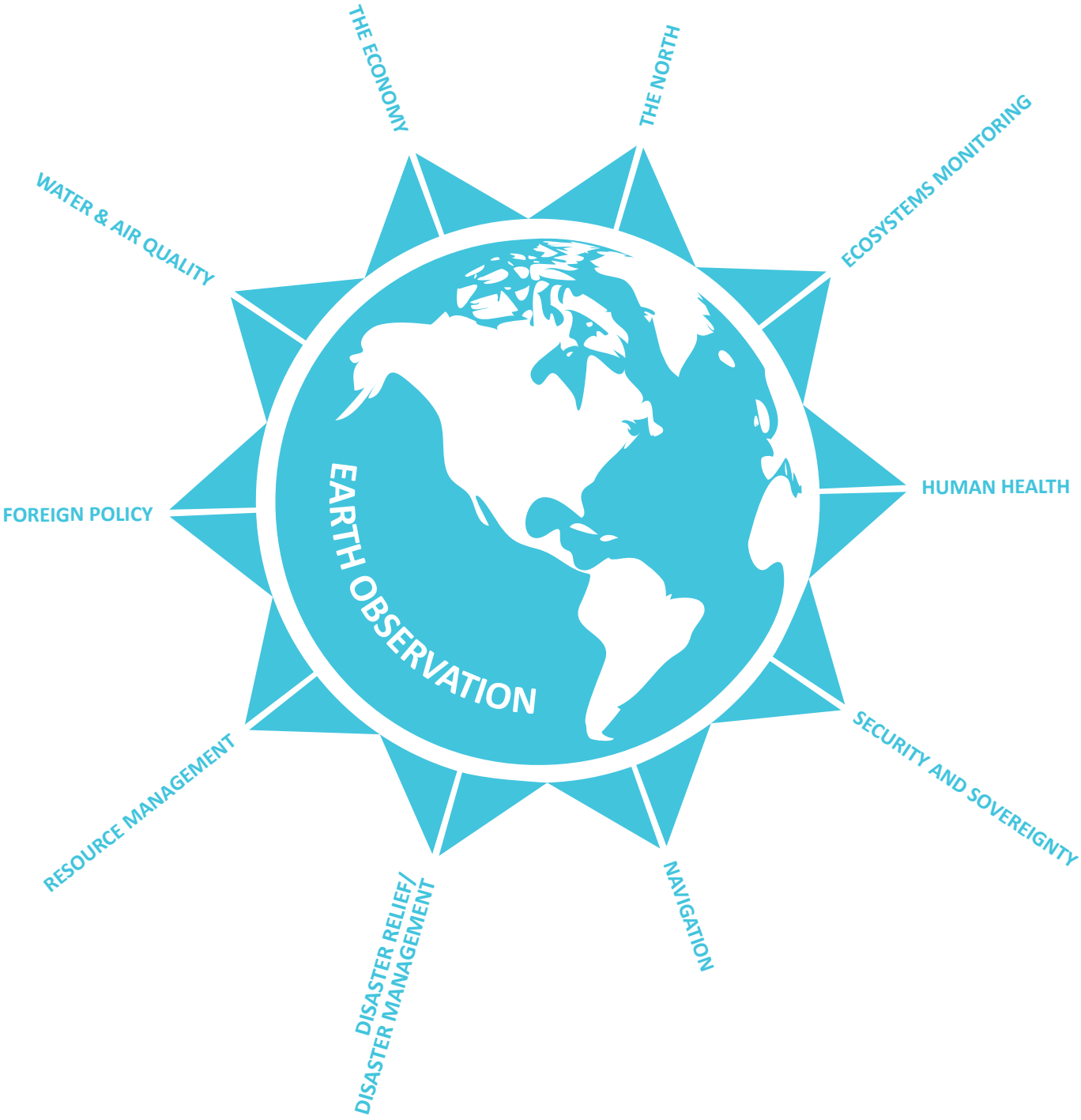

Figure 1: Policy Applications of Earth Observation

A Constellation of Actors

The Earth observation ecosystem is changing. Canada is a leader in this industry, and Canada has maintained its role as a valued space partner with other nation-states. International partnerships have enabled Canada to specialize in niche markets and gain access to international contracts and a broader range of information and facilities. New players such as India and China are applying downward pressure on aerospace cost structures and commercial operators are likely to play a much larger role in the future.

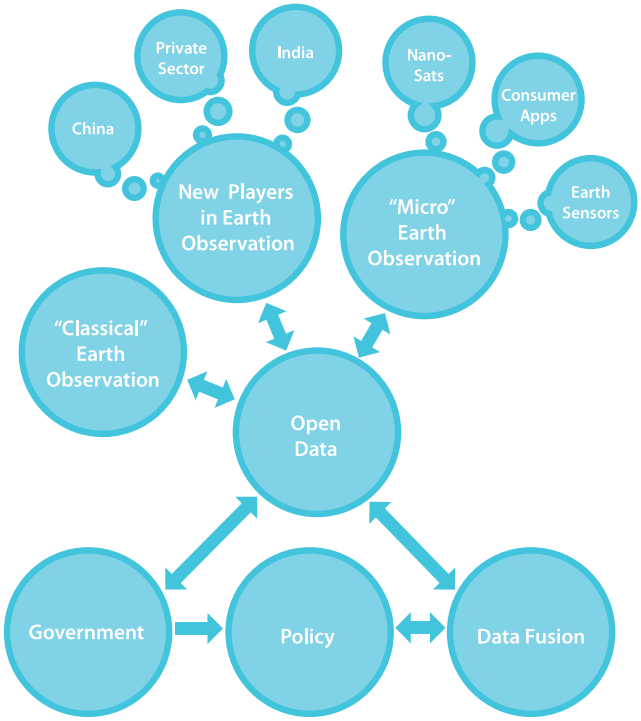

Figure 2:
The Emerging Earth Observation Constellation

Reusable launch models could open space to smaller countries and non-state actors such as universities. Improved reliability, accessibility and networking of Earth-based data sensors will increasingly create new suppliers and new customers of Earth observation data.

While the Earth observation ecosystem is opening up, there is still a role for "classical" Earth observation by governments to meet needs that won't be foreseeably met by markets because they are not monatizable. With this shift comes greatly increased data demands, so providing platforms and ways to integrate data across domains will be an important role for government. By facilitating open access to long-term data sets across diverse areas, governments can support a growing network of data providers and users, many of whom can add value as data sharing is supported. This will become particularly important, as cross-boundary policy solutions are increasingly sought to address growing complexity.

What's Next?

Space offers the opportunity to get out in front, but the current realignment of the stars raises several policy questions. How are these changes affecting Canada's ability to both co-operate and compete? What are the data-sharing and data compatibility implications of more private actors? How might governments co-operate with the private sector internationally to leverage our cumulative investment in space, and to address legal issues such as privacy, national security and liability? Closer to home, how could the federal government best co-ordinate its own departmental interests and ensure Canada is using Earth observation data to its fullest ? And finally, might providing license-free data to citizens and networks help maximize benefits?

Sources:

Canadian Space Agency. 2003. The Canadian Space Strategy: Serving and Inspiring the Nation.

Government of Canada[1]. June 2011. The Next Phase of Canada's Economic Action Plan: A low-tax plan for jobs and growth. p. 86.

Industry Canada. 2009. Canada's Space Sector: Leading the development of new knowledge and cutting-edge technologies.

Industry Canada, 2011. "Space" dated 2011-11-21.
http://www.ic.gc.ca/eic/site/ad-ad.nsf/eng/ad03864.html

OECD. 2011. The Space Economy at a Glance. www.oecd.org/futures/space.

Walter Mirczak. March 2, 2011. The Commercial Payload Market Beyond ISS. March 2, 2011. Space News International.

de Selding, Peter B. March 2, 2011. Cash-flush MDA Corp. Looks Beyond Canada for Growth. Space News International.

de Selding, Peter B. Space News International, September 2, 2011. Canadian Earth Observation Firm Buys Bankrupt RapidEye.

Brinton, Turner. August 6, 2010. Nanomissile Being Designed to Launch the Smallest Satellites Affordably. Space News International.

de Selding, Peter B. June, 2010. Space X Undercut Competition to Clinch Head-turning Iridium Deal. Space News International.

Rains, Lon and Leonard David. May 12, 2008. Canada Ponders Its Space Future After Collapse of MDA Sale to ATK. Space News International.

Sauser, Brittany. May 16, 2011. Nanosatellite will Look for Alien World. Technology Review.

Wigbels, Lyn D. 2011. Using Earth Observation to Improve Health in the United States. Centre for Strategic and International Studies.
http://csis.org/publication/using-earth-observation-data-improve-health-united-states

---

[1] The Government of Canada is conducting a review all its aerospace policies and programs over. For more information see Aerospace Review.