Both Canada's governments and private industry have made major contributions to leading-edge technology through research and development. The Canada Centre for Surveying has earned international attention through its work on the Active Control System, which combines the NAVSTAR (Navigation Satellite Time and Ranging) global positioning satellite navigation system with Canadian data communications and computer technology. Canada's private industry was one of the first to employ doppler satellite positioning, inertial surveying, and more recently, global positioning system technologies.

Canada's sheer size has presented problems for surveyors in the past as they travelled the country laying out a national precise elevation network. In response, Canadian surveyors have adapted motorized levelling techniques to the task. Canada is also working with international partners to design and build a motorized, trigonometric levelling system based on state-of-the-art laser and refraction determining technology.

Each of the country's 10 provinces is responsible for its own cadastral system, and there are several land registration systems in Canada. Most are based on the Torrens systems under Common Law, whereas Quebec's system follows the French Civil Code. Over the last few decades, several factors, such as rapid city growth, the need to protect farm lands, the depletion of non-renewable resources and environmental concerns, have greatly increased the need for land information. Traditional land records have been unable to meet the variety of needs and to supply the amount of information required. Today, there is a need for more comprehensive property rights information, which requires better land information systems. In response, survey and property rights data have been integrated with resource information to create public- and private-sector information systems for a wide range of applications through programs and initiatives co-operatively conducted by industry, government and academia.

Hydrographic Surveys

Hydrographic surveying also plays an important role in Canada's resource management as well as its export activities. Canadians have surveyed and charted such major systems as the Nile River in Egypt and the Mekong watershed in Southeast Asia. New Canadian-developed instruments have cut the costs of conducting such projects by speeding up data collection, the transfer of digitized data to cartographers, and the production of the highest-quality charts.

Moreover, the early partnership between the federal Canadian Hydrographic Service (CHS), a unit of Fisheries and Oceans Canada, and private firms has sponsored the transfer of these technologies and skills to other nations, and established a variety of high-technology commercial and export capabilities.

A hydrographic survey being carried out in the Arctic.

Terra Surveys Limited