

It is perhaps less well-known that the Anik A system was based on established technology which had been developed in the United States for the Intelsat IV satellites. The later series of Aniks would be derived from new technologies developed through a new scientific spacecraft, the Communications Technology Satellite (CTS), also known as Hermes.

The Hermes program was started in 1970 as a joint Canada-United States initiative to develop advanced technology in high-powered satellite communications. A formal agreement between the Department of Communications (DOC) and NASA was signed in April 1971. A month later, the European Space Research Organization (ESRO), formally agreed to participate in the program. Canada's role was to design and build the Hermes spacecraft and to operate it in a geostationary orbit.

Hermes was launched in 1976 and operated for almost four years. It was then the world's most powerful communications satellite and was used to carry out communications experiments which led to the powerful direct-to-home communications satellites of the 1980s, both in Canada and the United States.

By 1985, Telesat had launched nine satellites in the Anik A, B, C and D series and, at present, five orbiting Anik satellites in the C and D series are owned and operated by the company. In addition, Telesat maintains more than 230 earth stations. In 1990, Telesat will launch two new communications satellites in the Anik series, Anik E1 and Anik E2. These satellites, being constructed by Spar Aerospace Ltd. at a cost of \$200 million, will replace the present Anik C and D satellites. The Anik E series will be the most powerful domestic communications satellites ever launched.¹

In addition to communications, Canada has had an enduring interest in natural-resource surveys to provide the necessary data base for effective resource exploitation and management. In the late 1960s, sensors were being developed for inclusion on weather satellites to study the earth's surface and, in 1972, LANDSAT-1 was launched by the United States.

In 1972 also, the Canada Centre for Remote Sensing (CCRS) was established within the Department of Energy, Mines and Resources as the central agency in Canada's national program of remote sensing. The Centre uses both earth observation satellites and airborne systems to collect data on Canada's environmental mosaic. Remotely-sensed data have applications in forestry, agriculture, land use, water resources, mineral exploration, oceanography, Arctic ice reconnaissance and various types of environmental quality control.

The CCRS operates ground stations at Gatineau, Quebec and Prince Albert, Saskatchewan to receive remote-sensing data from LANDSAT (operated by the U.S. National Oceanic and Atmospheric Administration) and from the SPOT satellite, launched by France in 1985. The international collaborative character of Canada's satellite remote-sensing program will be broadened further in 1989 when the European Space Agency (ESA) launches its first remote-sensing satellite, ERS-1. Canadian ground facilities and data-handling programs are presently being upgraded to make use of data from the ERS-1, and also from the new U.S. LANDSAT-6 satellite.

⁽¹⁾ For a more detailed history of Canada in space, see: Theodore R. Hartz and Irvine Paghis, *Spacebound*, Department of Supply and Services Canada, Ottawa, 1982, 188 pages.