

national programs. This will guarantee to Canada, in the long-term, continued access to the data obtained by these systems and their successors and generate within Canadian industry an activity commensurate with [its] contribution to their costs. For a resource-based and trading nation like Canada, the value of such data cannot be overemphasized, particularly in view of the fact that other nations — many of them our competitors in world markets — will have such data to use to advantage.

The total number of new projects is 15. These can be categorized as research- and development-intensive, which includes the majority of the proposals, and operations-oriented. A secondary breakdown into activity areas produces the following classification:

Research and Development

Remote Sensing

- Technical studies prerequisite to a Canadian radar development program.
- A Canadian radar development program (two projects subject to the above prerequisite).
- A joint Canada/U.S.A. meteorological satellite research program.

Space Science

- A joint NRCC/NASA Space Science Program.

Communications

- Engineering definition studies prerequisite to a *MUSAT*, multipurpose satellite system (two projects).
- Planning studies for a direct satellite broadcasting system (DBS).
- Extension of the *ANIK-B* experimental program.

Industry Support

- An increase of DOC's technology development program.
- Industry support in its bid for the *NATO-IV* satellite contract.
- Support of new international initiatives.

Operational

Remote Sensing

- Arrangements for receiving data from *LANDSAT-D* satellites.

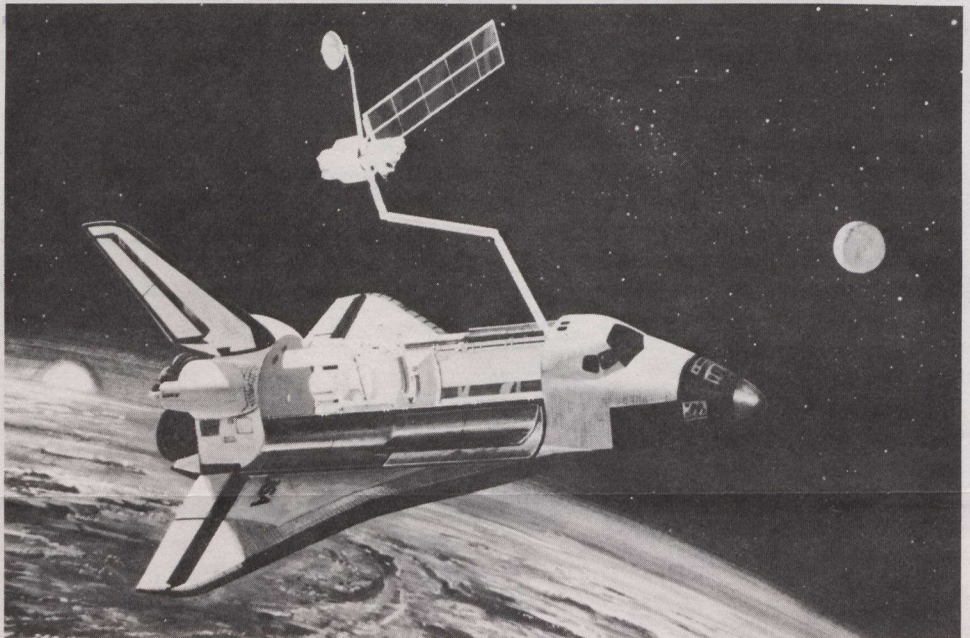
Communications

- The construction of the *MUSAT* system (subject to the results of the engineering definition study).

Project highlights

LANDSAT-D (EMR)

The *LANDSAT-D* satellite is scheduled to be launched by NASA in 1981, to replace



The remote manipulator system is the arm attached to the U.S. Space Shuttle.

LANDSATs 2 and 3 now in orbit. *LANDSAT-2* may cease to function anytime and *LANDSAT-3* is expected to last at least until 1981. Through the use of a new thematic mapper covering a much broader spectrum of measurements, this satellite will provide better colour discrimination and spatial resolution...and, consequently, greater detail and an improved identification capability over the present satellites. The total cost to Canada for this program is estimated at about \$13 million (1979 dollars) over the period 1980-83 including charges of \$250,000 (U.S.) to read out the *LANDSAT* satellites with the Canadian ground stations....

Satellite Radar Development Program

While Canada is a user of remote sensing satellites and has developed a capability in receiving, processing and utilizing data which has received world-wide recognition, it has not contributed to the actual design and construction of the satellites themselves.... The European Space Agency, following a planning phase in which Canada has participated to the extent of having responded to the Agency's request for comment and criticism, has now embarked upon a "Preparatory European Remote Sensing Satellite Program". Participation in this program could be of significant benefit to Canada in acquiring the technological expertise needed to build in Canada the Synthetic Aperture Radar package.... Since the European program is already underway, the option for Canadian participation should be ex-

ercised as soon as possible. The cost of such participation would be \$1.7 million over the fiscal years 1979-1980 to 1981-1982....

Multipurpose Satellite - *MUSAT* (DOC)

The Department of Communications has aggregated the needs of federal and provincial departments for press-to-talk voice communications with ships, aircraft and field parties in the Canadian North. Provision of these services over a common-user system would afford efficiency and cost-savings not available by other means; the Department of National Defence would use about half of the satellite's capacity. The ground stations working with *MUSAT* would be small, economical, flexible and easy to operate.... The DOC proposes an engineering definition study phase (EDSP), leading to the construction of a satellite by Canadian industry during the 1981-84 period. The cost of the EDSP is \$1.95 million.

Space Science Program (NRCC)

Canada's last scientific satellite, *ISIS II*, was launched in 1971. A new co-operative space science program has been negotiated with NASA. Its objectives are to sustain and improve Canadian research competence in the space sciences.... The program will consist of three separate contributions to the Shuttle/Spacelab missions; two ground-based observational systems in support of a NASA study of the origins of plasma in the Earth's

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