## teleoperator

first flight unit, together with participation in evaluating its performance, after which NASA would purchase additional flight units to fulfil its requirements. Research and development costs would be borne by the agency's member countries and not passed on to NASA.

With this in mind, a group of Canadian aerospace companies, led by Spar Aerospace Products Ltd. examined the shuttle project to identify some self-contained element of the system which would be appropriate in scale and cost for Canada to undertake, and at the same time would provide the Canadian aerospace industry with the specialized expertise which could usefully be applied in other areas of related high technology. It was determined that the most suitable area for Canadian involvement would be that of the development of the Remote Manipulator System (RMS) — a 50-foot (15 m) articulated arm used for the deployment and retrieval of Orbiter cargoes in orbit. Industry then took the initiative by proposing to Canada's central coordinating body for space research, the Interdepartmental Committee on Space, that Canada undertake development of the remote manipulator system including its associated control and display sub systems. The Committee supported the proposal, as did the NRC's National Aeronautical Establishment. Although the system was to be designed for use in a zero "g" environment and could not be directly adopted to one "g" applications, the project would provide a strong technological base in Canada on which to build for future development of sophisticated manipulators, a specific area of high technology.

In early 1974, Mme Jeanne Sauvé, then Minister of State for Science and Technology, announced a new Canadian Space Policy which contained specific reference to the possibility of NRC acting as the sole agency in reaching an agreement with NASA for the possible development by Canadian industry of a remote manipulator system. As a result, NRC entered into negotiations with NASA which were concluded in July 1975 with the signing of a Memorandum of Understanding between the two parties. Under this agreement, NRC has full responsibilities, including funding, for the design, development and manufacture of the first flight unit of the RMS. NRC will also provide for the procurement by NASA of additional units to meet U.S. program requirements. With the signing of the Memorandum, it was possible for realistic estimates of the cost of the program to Canada to be made, and these estimates received final approval from the Treasury Board on 24 October, 1975.

The remote manipulator project is administered by the National Research Council's National Aeronautical Establishment whose Director acts as program director at the head of an NRC project management staff which maintains contact with NASA through a Joint Review Board linking NRC headquarters with NASA headquarters, and the Johnson Space Center in Texas and, through NASA with representatives from the companies involved. Within Canada, the program is kept under review by the Interdepartmental RMS Review Board comprising senior officers from the Department of Industry, Trade and Commerce, the Ministry of State for Science and Technology (MOSST), the Department of Communications, the Department of Supply and Services and Treasury Board as well as from NRC.

The Canadian industrial team comprises Spar Aerospace Products Ltd., Dilworth, Secord, Meagher and Associates Ltd., RCA Limited, and CAE Electronics Ltd. with Spar as the prime contractor. The project is no mean challenge – the RMS is a complex technological system and requires extensive development if it is to fulfil the requirements.

Conservation of forest resources, especially those in remote areas, is a potential application of earth satellites. Satellite-borne sensors could detect forest fires, tree diseases and pest infestation as well as providing accurate inventories of timber resources.

La conservation des ressources forestières, surtout dans les régions éloignées, constitue une application potentielle des satellites artificiels. Les capteurs à bord des satellites peuvent détecter les feux de forêt, les maladies et les parasites des arbres tout en permettant d'évaluer avec précision les richesses en grumes.



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