

of major significance. The eventual users of the system — fishermen, truckers, resource industries, law enforcement agencies, etc. — will derive economic benefits through increased efficiencies of operation. The hardware manufacturing industry and a new service industry will further distribute the economic gains. Telesat Canada anticipates an eventual doubling of its present revenue levels when MSAT is fully operative.

The MSAT program is not, however, a certainty at this time and some fundamental requirements must be met before the program can move ahead. First, to be viable, MSAT in Canada will have to be very closely coordinated with a similar (preferably identical) U.S. system. At present, there is no identified American operator and the U.S. Federal Communications Commission (FCC) is attempting to persuade a number of interested companies to form a consortium.

Second, the required frequencies in the radio spectrum must be allocated to MSAT and coordinated with other countries, particularly with the United States. Canada would prefer to use the UHF (ultra-high frequency) spectrum but the FCC is resisting this in the United States. An alternative spectrum is L-Band, but some South American countries are not at present sympathetic to this proposal. The issue of spectrum allocation will be discussed, and possibly settled, at the World Administrative Radio Conference (WARC) in Geneva in October of this year. Failure to resolve the problem at that time could place the MSAT program in serious jeopardy.

Estimated costs to the Federal Government for MSAT are \$15 million over five years (to FY 1990/91) and \$151 million over a 15-year period ending in FY 2000/01.

### **C. Remote Sensing and RADARSAT**

Canada is an acknowledged world leader in the reception, processing and analysis of remote-sensing data from satellites and aircraft. Both the Federal Government's Canada Centre for Remote Sensing (CCRS) and private industry will continue to be supported by funding from the Space Program.

The remote-sensing program of most interest to the Committee is RADARSAT, a Canadian satellite equipped with a new Synthetic Aperture Radar (SAR) system. RADARSAT is a Canadian-led international collaborative project involving the United States and the United Kingdom. The satellite was originally scheduled for a shuttle launch in 1990, but the proposed launch date has now been put back to at least 1993.

The SAR designed for RADARSAT is superior to any other presently developed. This microwave sensor will penetrate cloud and darkness to "view" the land and oceans underneath. RADARSAT will have a polar orbit and would therefore cover the entire globe. Canada's northern regions would be covered every 24 hours and southern Canada would be covered every three days.

The satellite would provide extensive data on agriculture because it can discriminate between fallow land and land under cultivation. Moreover, the radar responds to the structure of a plant and can indicate its moisture level, information which would permit a forecast of eventual crop yields. RADARSAT will also provide data in geology, and on non-renewable resources, mapping data for hydrology and detailed information on sea-ice