

# CHAPTER 1

## Introduction

It is appropriate that this Committee's study of Canada's Space Program should take place in 1987, inasmuch as this is the twenty-fifth anniversary of the launch of our first earth satellite, Alouette I, at Vandenberg Air Force Base in California on 29 September 1962. (In local California time, the date was 28 September; however, space activities are customarily recorded in Universal, or Greenwich, time.) With that successful endeavor, Canada became the third nation to establish a presence in space, after the Soviet Union's Sputnik in 1957 and the launch of the Explorer satellite by the United States in 1958.

It is important to recognize that Canada's space activities predated Alouette by many years. As early as the 1930s, Canadian scientists were studying the upper atmosphere using ground-based instruments. Because the North Magnetic Pole is located on Canadian territory, the Canadian north is the best place in the world to study phenomena produced by the interaction of particles from the sun (solar plasma) with the Earth's magnetic field. The effects of this interaction include the aurora, magnetic storms, ionospheric disturbances and probably changes in weather patterns.

Radio communications, particularly at high latitudes, can be disrupted during ionospheric disturbances; this became a critical problem during World War II and led to systematic studies of the ionosphere. Following the war, this work continued and expanded into rocket and balloon observations of the high atmosphere. The opening of the Churchill Research Range in Manitoba in 1957, and the development by Bristol Aerospace Ltd. in Winnipeg of the Black Brant series of rockets, allowed Canada to make major scientific contributions to the International Geophysical Year Program.

In 1958, the Alouette project was initiated by Canada in response to an invitation from the U.S. National Academy of Sciences. In 1959 a formal agreement was signed between Canada's Defence Research Board (DRB) and the U.S. National Aeronautics and Space Administration (NASA). Under that agreement, the DRB would design, build and finance the satellite and NASA would contribute a launch vehicle as well as pre-launch testing of the spacecraft. Further, Canada was to construct the ground stations (a technology in which Canada has since become a world leader) and NASA would make available its network of ground stations to receive the data. A third international partner joined the project when the United Kingdom agreed to provide telemetry stations in Singapore and the South Atlantic in exchange for access to satellite data.