

HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Governmental Human Spaceflight Programs (Overview) (1)

Author: Mr. Pierre Jean
Canadian Space Agency, Canada

Mr. Timothy Braithwaite
Canadian Space Agency, United States

CANADA'S HUMAN PRESENCE IN SPACE: PAST, PRESENT AND FUTURE

Abstract

Canada's history in human spaceflight traces from the inception of the US Space Shuttle Program with the design of the first Shuttle Remote Manipulator System (SRMS), known as the "Canadarm". The Canadarm program was a success at many levels. It demonstrated the capability and ingenuity of Canadian industry; established space robotics as a niche technology for Canada; provided the Space Shuttle with an unprecedented and strategic capability; and forged a long-standing relationship between Canada and the United States in space which resulted in the birth of the Canadian astronaut corps and a series of Canadian astronaut flights on the Space Shuttle.

The flexibility, capability and success of Canadarm operations on the Space Shuttle led to the US inviting Canada to participate in the International Space Station (ISS) Program, leading to the next generation of space robotics. Since being launched into space in 2001, the Canadarm2 has handled most of the major ISS elements on the US segment, effectively assembling the ISS. Other emerging Canadian signature technologies, like the Space Vision System also contributed to ISS assembly.

Today the US commercial vehicles, Dragon and Cygnus, fly regularly to the ISS and "free flyer captures" have become Canadarm2's regular workload. Dextre, the Space Station's Canadian 2-armed dexterous "handy-man", is increasingly in demand to support ISS maintenance, visiting vehicle cargo operations, payload servicing, and technology development programs like the "Robotic Refueling Mission".

Canada's 2nd long-duration crew expedition to ISS completed in 2013 with Chris Hadfield serving as ISS commander. The mission was a great success with record-setting crew productivity, significant Canadian science content, and a public outreach campaign that touched millions world-wide.

Canada announced its new Space Policy Framework in February 2014 setting the direction for future Canadian achievement in space. This paper will provide an overview of Canada's Human Space Flight program past and present, and assess Canada's human space flight future in the context of Canada's Space Policy Framework.