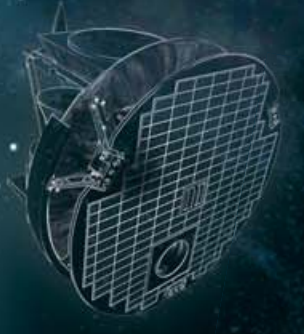


50

ANS • YEARS

VISION • PASSION • INNOVATION

Take a trip back in time to discover 50 outstanding facts about Canada's history in space. Delve into the work and achievements of passionate visionaries, scientists and engineers who pushed past the boundaries of knowledge to learn more about the Earth and the mysteries of the Universe.



2012

DECEMBER
Astronaut Chris Hadfield returns to space for a third time and will become the first Canadian Commander of the International Space Station during the second half of his six-month mission.

AUGUST 6
The Mars Science Laboratory (NASA) touched down on the Red Planet. The mission's rover, dubbed Curiosity, carries a Canadian instrument. Known as the Alpha Particle X-Ray Spectrometer, the device will probe the chemistry of rocks and soil on Mars.

JULY 30
Canada's contribution to the James Webb Space Telescope is delivered. Canada is providing Webb's Fine Guidance Sensor, which will keep the telescope on target, as well as the Near-Infrared Imager and Slitless Spectrograph, to help find the earliest and most distant objects in the Universe.

JUNE 15
The French Space Agency (CNES) has identified a Canadian site for the launch of space science balloons. The initiative will provide Canadian scientists and engineers with a new experiment platform.

MAY 25
Canadarm2 performed a cosmic catch by grappling the Dragon capsule and attaching it to the International Space Station. Dragon is the first commercial spacecraft to dock to the Station.

2011

JULY 6
Last mission of the Space Shuttle Program: *Atlantis* carries equipment for a new joint NASA-Canadian Space Agency robotic refueling test.

2010

SEPTEMBER 20
AuroraMAX, an initiative to monitor the intensity and frequency of the Aurora Borealis, is officially launched. The project features an online observatory that provides live access to images of the northern lights.

2009

SEPTEMBER 17
Canadarm2 successfully captured an unpowered, free-flying Japanese vehicle – the first Canadian cosmic catch.

JULY 15-31
For the first time, two Canadian astronauts, Julie Payette and Robert Thirsk, are aboard the International Space Station at the same time.

DECEMBER 1
Expedition 20/21: Robert Thirsk becomes the first Canadian to live and work on the International Space Station for a period of six months.

MAY 14
ESA's Herschel Space Observatory and Planck Space Telescope are launched. Four Canadian science teams make important contributions to these projects.

MAY 13
Jeremy Hansen and David Saint-Jacques join Canada's Astronaut Corps.

2008

MAY 25
Phoenix Mars Lander (NASA) touches down on the Red Planet. Canada's meteorological station and green lidar instrument detect snow crystals and help to accurately model Mars' climate and weather.

MARCH 11
Launch of Dextre. This two-armed Special Purpose Dexterous Manipulator completes Canada's contribution of a suite of advanced robots on the International Space Station.

2007

DECEMBER 14
RADARSAT-2 is launched, offering powerful technical advancements that enhance marine surveillance, ice monitoring, disaster management, environmental monitoring, resource management and mapping around the world.

AUGUST 6-21
Dave Williams performs three spacewalks and spends over 19 hours outside the International Space Station, setting a record for Canadian astronauts.

FEBRUARY 18
The Canadian Space Agency supports THEMIS (NASA) ground operation sites in Canada. This mission investigates what causes auroras in the Earth's atmosphere to dramatically change.

2006

SEPTEMBER 21
Astronaut Steve MacLean becomes the first Canadian to operate Canadarm2 in space.

2003

AUGUST 12
Launch of a Canadian micro-satellite, SCISAT, which improves our understanding of ozone layer depletion, with a special emphasis on the changes occurring over Canada, especially in the Arctic.

JUNE 30
Launch of the world's smallest astronomical space telescope, MOST. This Canadian telescope is capable of measuring the age of stars in our galaxy. It opens its eye to the cosmos on August 4, 2003.

2002

JUNE 5
The Mobile Base System, designed and built in Canada, is launched to the International Space Station. It is fully operational on June 10, 2002 and provides a moveable robotics work platform and storage facility.

MARCH 1
ENVISAT (ESA) is launched. Canadian partners play a key role by contributing significant scientific and technical components.

2001

APRIL 19-MAY 1
Canadarm2 is delivered to the International Space Station. Chris Hadfield becomes the first Canadian astronaut to perform a space walk and plays a major role in installing Canadarm2. During this mission, Canadarm2 and Canadarm performed the first robotic "handshake" in space.

1998

OCTOBER 29-NOVEMBER 7
At 77 years-old, U.S. astronaut John H. Glenn returns to space. Aboard the Space Shuttle *Discovery*, he carries out two Canadian experiments, among them the OSTEO experiment designed to grow bone cells in microgravity.

APRIL 17-MAY 3
Aboard the Space Shuttle *Columbia*, Dave Williams becomes the first Canadian astronaut assigned as official crew physician.

1997

SEPTEMBER 14
RADARSAT-1 captures the first high-resolution radar images of Antarctica in support of the Antarctic Mapping Mission. A mosaic of the entire continent, the first of its kind, is created in 1999, after two years of compiling 8,000 images.

AUGUST 7-19
First space mission for Canadian astronaut Bjarni Tryggvason, aboard the Space Shuttle *Discovery*. He tests the Micro-gravity Isolation Mount. This Canadian technology will later become essential for research conducted in microgravity.

1996

JUNE 20-JULY 7
Second space mission for Canadian astronaut Robert Thirsk, aboard the Space Shuttle *Columbia*.

MAY 19-29
Second space flight for Canadian astronaut Marc Garneau, aboard the Space Shuttle *Endeavour*.

MARCH 8
Launch of Canada's first space science experiment on the International Space Station, H-Reflex. This experiment studies how the human body adapts to weightlessness.

FEBRUARY 20
Launch of the Canadian instrument OSIRIS aboard Sweden's scientific satellite, Odin. OSIRIS observes ozone layer depletion.

2000

OCTOBER 20
The Canadian Space Agency joins the European Space Agency and the French Space Agency (CNES) in founding the International Charter "Space and Major Disasters." From here on, satellite data supports rescue and humanitarian operations during major disasters.

NOVEMBER 30-DECEMBER 11
Marc Garneau, aboard the Space Shuttle *Endeavour*, sets a record among Canadian astronauts by carrying out a third space mission.

1999

DECEMBER 18
Canada's MOPITT sensor is launched aboard NASA's Terra satellite. MOPITT scans the Earth's atmosphere to track the origin and movement of carbon monoxide around the world.

MAY 27-JUNE 6
Julie Payette becomes the first Canadian astronaut to visit the International Space Station.

1995

NOVEMBER 12-20
Chris Hadfield becomes the fourth Canadian in space and the only Canadian to ever board the Russian space station Mir.

NOVEMBER 4
Canada's first Earth Observation satellite RADARSAT-1 is launched to monitor environmental changes and the planet's natural resources.

1992

OCTOBER 22-NOVEMBER 1
First space mission for Canadian astronaut Steve MacLean, aboard Space Shuttle *Columbia*.

JANUARY 22-30
Roberta Bondar becomes the first Canadian woman astronaut in space, aboard the Space Shuttle *Discovery*.

1991

SEPTEMBER 12
Canada's Wind Imaging Interferometer (WINDII) is among the instruments aboard the UARS satellite (NASA). WINDII is developed to improve our knowledge of wind circulation in the upper atmosphere.

1990

APRIL 29
Canadarm deploys the Hubble Space Telescope (NASA), removing it from the cargo bay of the Space Shuttle *Discovery*. Five Canadian universities gain access to the space telescope for their research.

1989

MARCH 1
Creation of the Canadian Space Agency.

1988

SEPTEMBER 28
Canada becomes a full partner of the International Space Station program.

1984

OCTOBER 5-13
Marc Garneau becomes the first Canadian astronaut in space, aboard Space Shuttle *Challenger*.

1981

NOVEMBER 13
Launched aboard Space Shuttle *Columbia*, the Canadarm makes its space debut. NASA awarded Canada the responsibility of designing, developing, and building the Shuttle Remote Manipulator System in 1974.

1979

JANUARY 1
Canada becomes the only non-European cooperating member state of the European Space Agency (ESA). This provides a unique opportunity for Canadian scientists and industries to participate in ESA-led space missions.

1976

JANUARY 17
Launch of the Satellite Hermes, the first satellite to be integrated and tested in Canada at the David-Florida Laboratory. Over four years of joint operations with the United States, Hermes explores new ways of using satellite technologies, notably for direct broadcasts.

1972

NOVEMBER 9
Anik A1 is launched. Canada becomes the first nation with a domestic communications satellite. This launch marks the beginning of an important series of communication satellites that connect communities.

1969

JULY 20
American astronaut Neil Armstrong becomes the first man to set foot on the Moon. The lunar module's landing gear had been built by a Canadian company.

1962

SEPTEMBER 29
Alouette-1 is launched. Canada becomes the third country to design and build its own satellite. Alouette-1 studies the ionosphere and inaugurates the partnership between Canada and NASA.

