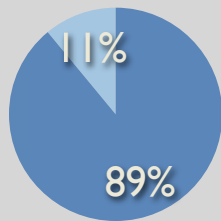


When surveyed, 89% of Canadians said that we should continue to fund space travel. The majority felt that space travel is important, and that Canada is a leader amongst other countries in the sector of space travel. It was said the Canadians still have a lot to discover about other planets and if life is sustainable in outer space.



- Should Fund Space Travel
- Should Not Fund Space Travel

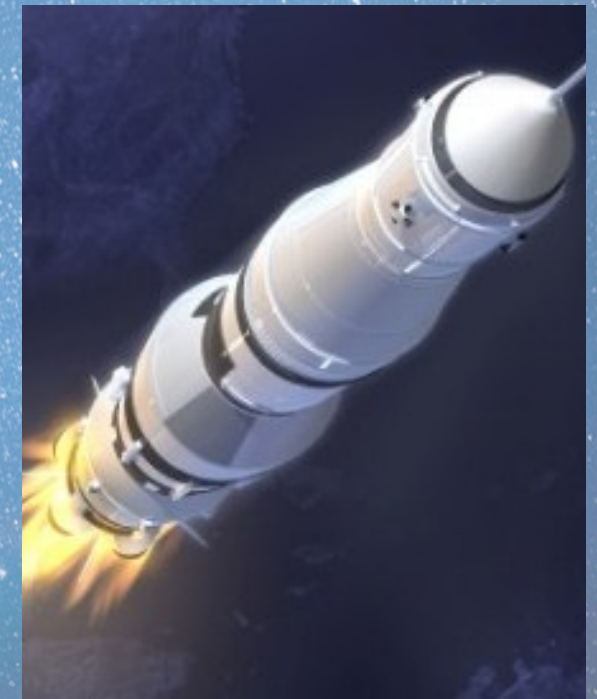
Those Canadians that feel we should not fund space travel felt that the money invested into space travel could be better spent on other institutions.



## THE FUTURE OF SPACE TRAVEL

### REFERENCES

- ANI. (2011). Astronauts could face serious heart issues with deep space travel. Radiation Research.
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- CSA (2013). CASSIOPE: Observing space weather with a hybrid satellite.





*The satellite CASSIOPE was launched by the CSA in 2013 and since then has made life easier for Canadians.*

### **CASSIOPE Case Study: Why Canadians should continue to fund space travel**

The CSA has been funding mission to space since 1989. While expensive, many of the missions that the CSA has funded have brought great academic and social benefits.

For example, in 2013 the CSA launched the CASSIOPE satellite. The satellite cost the CSA \$63 million, and its purpose is to gather information about space weather as well as researching high speed communications.

Because of CASSIOPE, we are now able to pick up large digital data files and deliver them anywhere in the world. Not only did this mission provide the CSA with important information about space weather, but it made life more convenient for individuals all over the world. CASSIOPE also provided information about the impact of solar storms on communications which will hopefully help prevent future damage to other communication satellites.

# A BACKGROUND ON SPACE TRAVEL

Space travel can be an expensive but yet rewarding frontier. Below are some issues that surround space travel, discoveries that space travel have made, and some technology that has been developed to aid in space travel.

## **MARINER 2**

The Mariner-2 is a space probe that travelled to Venus in 1962. It had a three and a half month flight, and was the first space probe that had a successful planetary encounter. Its primary mission was to perform temperature measurements on the planet and measure the planet's magnetic field. It discovered that Venus has cool clouds and an extremely hot surface. Information it provided allowed the CSA to make estimations on Venus's mass and size.



*A space probe is a robotic space-craft sent to explore celestial bodies. The Mariner-2 was a space probe that travelled to Venus in 1962.*

## **TRACE GAS ANALYZER**

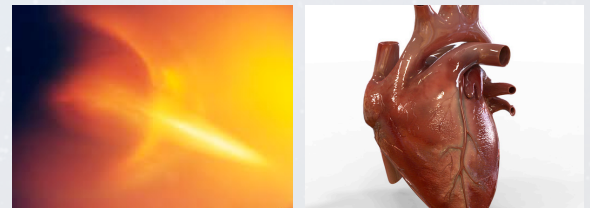
Gas or fluid leaks during space walks are common. For example, in 2001 a large leak of toxic ammonia gas could have jeopardized a space walk near the ISS. The CSA has developed a trace-gas analyzer that weight about 5 pounds and is about 2-inches long. Not only can it detect toxic gas, it can be pointed at areas to detect leaking water, rocket fuel, or oxygen. This tool allows astronauts to complete space-walks safely without worrying about toxic gas.



*Trace gas analyzers allow astronauts to detect leaking oxygen or toxic gas that could jeopardize space walking missions.*

## **ASTRONAUT HEART ISSUES**

A recent study has found that space travel can have long term effects on astronauts heart's. Space radiation can negatively effect human arteries, and similar radiation has been found to cause an accelerated development of atherosclerosis. Lead does not work as a shield on cosmic rays, so the CSA has suggested using other materials to shield astronaut's hearts from the radiation. It is currently being determined how to incorporate this material into existing space suits.



*Cosmic radiation may have serious long term health effects on the heart of an astronaut.*