

ozone layer. For over 40 years these measurements have been made with a Dobson spectrophotometer. A state of the art replacement for this instrument has been developed in Environment Canada's laboratories. It is known as a Brewer Spectrophotometer and is capable of measuring the overburden of ozone and sulfur dioxide automatically and with greater accuracy than existing instrumentation. It is currently under manufacture by Sci-Tec of Saskatoon and sales have been made abroad in Sweden, Germany, Belgium and Greece.

Marc Garneau, Canada's first astronaut, carried equipment aboard Shuttle Mission 41-G to take measurements of the ozone layer using a solar sunphotometer. These data are currently being analyzed to deduce profiles of ozone, water vapour and aerosol concentration for comparison with satellite instruments, which cannot be calibrated directly.

Canadian scientists regularly participate in U.S. stratospheric experiments conducted by NASA. Many of these involve measurements of stratospheric trace constituents on board large stratospheric balloons which get to altitudes of 30-35 km and rockets which reach altitudes of 50 km.

These measurements are used as inputs to the photochemical models of the stratosphere and to verify their results, which have pointed out the possibility of depletion of the ozone layer.