

# The Future of Carbon Monoxide Measurements from Space

J.R. Drummond

Department of Physics, University of Toronto, 60 St. George Street, Toronto, Ontario, Canada, M5S 1A7 (james.drummond@utoronto.ca / Fax: +1 416-978-8905 / Tel: +1 416-978-4723)

It is now over 20 years since the Measurements of Air Pollution from Space (MAPS) instrument made the first measurements of tropospheric carbon monoxide from the shuttle. Since that time a number of instruments have flown including the Measurements Of Pollution In The Troposphere (MOPITT), Tropospheric Emission Spectrometer (TES) and SCanning Imaging Absorption SpectroMeter for Atmospheric CHartographY (SCIAMCHY) to name only three of many. Each of these instruments has a unique observing method and unique mission characteristics.

It is accepted that measurements of carbon monoxide provide a useful proxy of the pollution of the troposphere and contribute significantly to studies of various phenomena in the atmosphere and atmosphere-surface interactions. These measurements should therefore be continued – but in what form?

Technology has progressed significantly since the current generation of instruments was designed, and our ability to interpret the data from such instrumentation has likewise expanded. It is therefore fruitful to consider what is the “best” set of measurements that can be made, which parameters should be emphasized and which compromised on the way to the next generation of sensors.

The Measurements of Air Pollution Levels in the Environment (MAPLE) instrument is a study financed by the Canadian Space Agency to design a next-generation instrument and since instrument, spacecraft and mission are now intimately linked a consideration of the whole mission is appropriate.

This talk will outline some potential developments in the hardware – and some intrinsic limitations – and indicate how these might be used in resolving scientifically useful mission scenarios.