CSA activities of relevance to the CEOS virtual Atmospheric Composition Constellation

Current Missions

Support Science Operations of

- MOPITT on Terra (1999 to present) (University of Toronto)
- OSIRIS on Odin (2001 to present)
  - http://osirus.usask.ca/

    enabling use of OSIRIS vertical profile measurements of O3, aerosols, NO2, BrO for generation of Essential Climate Variable data sets and assessment reports
- SCISAT/ACE (Atmospheric Chemistry Experiment) (2003 to present)
  - http://www.ace.uwaterloo.ca/index.html

Potential Future Missions

Solar Occultation & Limb Scatter

- Mission studies for the Chemical and Aerosol Sounding Satellite (follow-on to SCISAT/ACE and OSIRIS)
- Technology development for:
  - improved vertical resolution and range of Occultation FTS
  - scanning to allow improved vertical resolution and horizontal sampling of OSIRIS-type instrument
  - new instruments: SHOW (water vapour), TICFIRE (ice clouds in Far IR)
  - completing assessment of the Doppler Asymmetric Spatial Heterodyne implementation for the SWIFT measurements of stratospheric winds and ozone flux

Nadir

- Instrument study for FTS on highly elliptical orbit for high-latitude observations of atmospheric chemistry

Validation, Modeling, Data Use

- Ground-based observations at PEARL (80N - NDACC, TCCON)
- Ongoing validation of SCISAT/ACE through arctic sunrise campaigns at PEARL
- Validation of GOSAT products
- CMAM-20: Canadian Middle Atmosphere Model reanalyses 1990-2010
- Support SPARC and related activities (e.g. SPARC Data Initiative, assessment reports)
- Support Environment Canada in developing the EC-Carbon Assimilation System
- Grants for research at Canadian universities: data exploitation, FTIR techniques, balloon-borne experiments