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The Canadian Atmospheric Tomography System (CATS)

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C. Haley1, D. Degenstein2, R. Cooney3, and A. Bourassa2

1 Honeywell Aerospace
2 University of Saskatchewan
3 Canadian Space Agency

The Canadian Atmospheric Tomography System (CATS) is a UV/visible/near-IR spectrometer designed to measure limb-scattered sunlight to derive vertically-resolved concentrations of O3, NO2, and BrO and aerosol extinction from the Upper Troposphere through the Stratosphere. CATS is a follow-on to the Optical Spectrograph and Infrared Imager System (OSIRIS) instrument currently in operation on the Odin satellite. In addition to monitoring the stratosphere and extending the long time-series provided by OSIRIS, CATS will focus on the study of fine scale phenomena in the Upper Troposphere/Lower Stratosphere (UTLS) region. To accomplish this new goal, the current CATS design incorporates the following modifications over OSIRIS:
1) Increased spectral range, focussed on an improved aerosol product.
2) Better spectral resolution, aimed at improved NO2 and BrO data products.
3) Improved vertical resolution and sampling, important for measurements in the UTLS region.
4) Better horizontal (along-track) sampling, to allow a tomographic retrieval approach to be used.
The current status of the CATS instrument design and development will be reviewed, highlighting the changes from the OSIRIS instrument design, the main outstanding technical risks, and the current development activities. Mission implementation options on either a dedicated microsatellite or as a payload on a small satellite will also be presented.

Primary author: Dr HALEY, Craig (Honeywell Aerospace)

Presenter: Dr HALEY, Craig (Honeywell Aerospace)

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