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The MAESTRO Spectrophotometer on Canada's SCISAT satellite: Advances in data processing and improved data products

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The ACE-FTS and MAESTRO instruments have now been operating on the Canadian Space Agency's SCISAT satellite as the Atmospheric Chemistry Experiment (ACE) for nearly 20 years. The ACE satellite is approximately 1 m in diameter and 1 m deep and has a mass of 150 kg. The Measurement of Aerosol in the Stratosphere and Troposphere Retrieved by Occultation (MAESTRO) spectrophotometer continues to measure ozone, water vapour and aerosol in the stratosphere and upper troposphere. Like the ACEDFTS, MAESTRO delivers results from nearly 30 occultation measurements per day, but with a higher vertical resolution of just over 1 km over a range as large as 5 to 40 km as meteorological conditions allow. It measures from 500 nm to 1000 nm with a resolution of 1 to 2 nm. The instrument design and performance will be briefly discussed and the algorithms developed to process the data and deal with peculiarities in the performance of the satellite will be described.

Significant progress has been made recently in improving the retrievals that has resulted in improved accuracy and a larger number of successful retrievals at lower altitudes. A new dataset with these improvements will be available for other researchers. Some examples which illustrate the improvements will be presented.

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