

Performance Model for the SWIFT Instrument on Chinook

Authors: Peyman Rahnama (York University, Canada), Yves J. Rochon (Meteorological Service of Canada) and Alan Scott (EMS Technologies Canada Ltd)

Presenter: Yves J. Rochon (Meteorological Service of Canada)

Brief Abstract:

The Stratospheric Wind Interferometer For Transport studies (SWIFT) is a satellite instrument designed to measure stratospheric winds and ozone concentration to improve our knowledge of the dynamics of the stratosphere, and the global distribution and transport of ozone. The SWIFT instrument recently completed a successful Phase B Study and is about to enter Phase C Study by the Canadian Space Agency (CSA) for deployment as the primary instrument on their Chinook Mission scheduled for launch in late 2010. The SWIFT instrument is an imaging, field-widened Michelson interferometer and the measurement technique is known as Doppler Imaging Michelson Interferometry. This paper describes the current instrument model, the optical technique and the wind and ozone retrieval algorithm. The simulations of science and calibration measurements and error analysis results are presented. The simulations and error analyses are used to optimize the design of the instrument and to assess the instrument performance.