

Validation of rotational temperature derived from the Arecibo Observatory Ebert-Fastie spectrometer with a co-located Potassium Temperature Lidar

Sukanta Sau¹, Pedrina Terra¹, Fabio A Vargas², Christiano G. M. Brum¹ and Jens Lautenbach¹

¹ Arecibo Observatory, University of Central Florida, PR, USA 1,

² University of Illinois at Urbana-Champaign, Urbana, IL, USA 2.

Abstract:

A one meter Ebert-Fastie Spectrometer (EFS) was routinely operated in the Arecibo Observatory, Puerto Rico for several decades starting from the 1970s. The EFS was used to record several airglow emissions in the optical and Near Infra-Red region. In the present study, we have utilized different vibrational-rotational lines of OH (6,2) Meinel band. In this presentation, first we shall discuss how the raw data files are processed with the help of different calibration data. Then, we shall describe how this processed data is used to estimate rotational temperatures and the corresponding errors. After that, the estimated rotational temperatures are validated with the help of a co-located Potassium Temperature Lidar data. Several days of EFS and Potassium Temperature Lidar data is used in this validation process. Methodology and outcome of this validation process will be discussed in details in this presentation. Following that, seasonal variation of the EFS derived temperature will be presented.

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References:

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