

## ***Interactive comment on “Improved method of estimating temperatures at meteor peak heights” by Emranul Sarkar et al.***

**Anonymous Referee #2**

Received and published: 25 January 2021

The authors apply Errors-in-Variables (EIV) modeling to the temperature-gradient (Hocking et al. [1997] and Hocking [1999]) method of estimating temperatures at meteor peak heights. The application of EIV is shown to improve temperature estimation without the ad-hoc calibration previously used. The authors recognize that the total variance (geophysical and parameter estimation error) needs to be used as the EIV model does not distinguish between the two sources of variability in the model equation.

I am surprised that no-one has done this previously. Thorsen et al [1997, Radio Science, V32, N2, pp707-726] applied total least squares (TLS – Van Huffel and Vandewalle [1991]), an equivalent technique to EIV (see Editorial Computational Statistics & Data Analysis 52 (2007) 1076-1079), to the estimation of the mean wind field in the

C1

middle atmosphere using estimates of radial velocity and angle of arrival of echoes in a similar manner to how MR data is analyzed. They came to the same conclusion that the model error included the geophysical variability as well as the parameter estimation error and that the geophysical variability was the larger contributor to the model error.

Remarks are shown in attached file.

Please also note the supplement to this comment:

<https://amt.copernicus.org/preprints/amt-2020-333/amt-2020-333-RC2-supplement.pdf>

---

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2020-333, 2020.

C2