Atmospheric Measurement Techniques Discussions

Atmos. Meas. Tech. Discuss., author comment AC2
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# Reply on RC3

Ramashray Yadav et al.

Author comment on "Intercomparison review of IPWV retrieved from INSAT-3DR sounder, GNSS and CAMS reanalysis data" by Ramashray Yadav et al., Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2021-4-AC2, 2021

**Reply of comments**

We are thankful for the valuable suggestions /comments of the learned referee for the paper Review of Inter-comparison of retrievals of Integrated Precipitable Water Vapour IPWV) made by INSAT-3DR satellite-borne Infrared Radiometer Sounding and CAMS reanalysis data with ground-based Indian GNSS data. Ramashray Yadav et al.

**Point wise reply is given below:**

**General observations:**

This paper presents a validation task of two IPWV (integrated precipitable water vapour) products (from INSAT-3DR and CAMS) using as reference ground-based data at 19 Indian GNSS stations. The novelty of the study is not high, but the obtained results are interesting to know more about the satellite and reanalysis uncertainties and to try to improve them. In this sense, the paper fits with the scope of the journal and it should be published after some revisions. The manuscript is full of errors and typos, e.g., the format of citations varies in the text, the tables appear all together at the end of Section 2, while all the figures appear at the end of Section 3, making the reading difficult for the reader. The introduction must be improved, since it is not clearly motivating the purpose of the objectives of the paper. The objectives should be moved from Section 3 to the introduction.

**Response:** We agree with the general observations raised by the learned referee and manuscripts is modified appropriately as per suggestions (line-84-88).

**RC#2:** Here some minor comments:

Title: Could be shorter? There is a lack of parenthesis in IPWV too.

**Response:** We have revised the title of manuscript and made it short. As per the suggestion the revised title may be changed as "Inter-comparison Review of IPWV retrieved from INSAT-3DR Sounder, GNSS & CAMS Reanalysis Data".

**RC#2:** L25: CASMS?

**Response:** Replaced with CAMS (line-25).

**RC#2:** L43, L51 and L84: IPWV has been defined before in Line 34.

**Response:** modified appropriately (line-34-37).

**RC#2:** L44: column

**Response:** modified as suggested.

**RC#2:** L77: the citation format (Perez-Ramirez, D. et al. 2014) is not appropriate.

**Response:** Modified as suggested (line-78).

**RC#2:** L84: Precipitable instead of perceptible.

**Response:** replaced with Precipitable (line-86).

**RC#2:** L107: If the reference value is the GNSS data, i.e. Mi, the MB should be calculated as the mean of the Oi-Mi differences instead of Mi-Oi differences.

**Response:** Replaced with $O_i$ - $M_i$ (Line-113-117) in manuscript.

**RC#2:** L206: how this interpolation is done?

**Response:** We use nearest neighbor interpolation techniques to interpolate CAMS with GNSS data. In this method we evaluate each station to determine the number of neighboring grid cells in 0.75 x 0.75 box that surround the GNSS station and contain at least one valid CAMS reanalysis data(line-236-242).

Please also note the supplement to this comment:
https://amt.copernicus.org/preprints/amt-2021-4/amt-2021-4-AC2-supplement.pdf