

Dear Yoav Rubin:

Thank you for your precious comments and advice. Those comments are all valuable and very helpful for revising and improving our paper, as well as the important guiding significance to our researches. The main responds to your comments are as follows:

**Major comments:**

1. - Section 2.2: It is not clear how did you choose the period for calibration. How and for how long do you choose the period for estimating the median before calculating the humidity? It seems that you choose the dry period of each season. If so, why did you choose this approach? have you tried different approaches/periods? I think there needs to be more information about the method you used for retrieving the humidity.

**Response:** Thank you for the comment. We use the reference value calculated from the attenuation value of the current drying period as the baseline for the next drying period. Because the change trends of the two adjacent drying periods are similar, the calculated baseline can extract the water vapor attenuation value more accurately and reduce the error. This is more accurate than calculating only one reference value as the baseline for all drying periods.

2. - In section 2.1 you mentioned a very interesting point regarding the differences between RSLm at different seasons. I think it is one of your main conclusion that you should pay more attention to it. What are the main causes for these inter-seasonal changes? When do you see the sharpest changes? This information can be very helpful in the future for operational purposes.

**Response:** We agree with the comment. There are many reasons for seasonal variation. For example, changes in atmospheric refractive index and hardware-related artifacts may cause millimeter wave ray bending and RSL changes. In addition, in Hebei, the humidity in summer is greater than that in winter, and water vapor has a greater impact on the link in summer. We have added a discussion section, in conjunction with Figure 5, to analyze the causes of seasonal changes in more detail. (Page 15 line 254-279)

3. \*This part of section 2.1 is related to the ref values for calibration in section 2.2. This order can be confusing. Maybe you should talk about it after explaining the "Principles of Estimating Water Vapor"

**Response:** Thanks for your comment. Because the received signal level RSL, pressure, temperature and other related data need to be used when explaining the principle of water vapor inversion, it is necessary to introduce the source of the data first. Second, the inversion method we use is based on the relationship between link attenuation and water vapor density, so we think we need to show the reader the trend of RSL and water vapor density changes before introducing the method.