Response of the authors:

The authors would like to thank the editor and the reviewers for the time investigated to review this paper. We addressed the suggested points. The current version contains all changes according to the reviewer suggestions.

Referee#3	**Response of the authors**
The objectives of the paper should be better explained. -	Abstract and introduction are modified.
The authors say they analyzed time series of PWV at the 84 GNSS sites but they only show the results at two sites and do not discuss the results of the global analysis Please add a more regional discussion of the results (the authors propose a regional analysis in future work but I think part of this analysis should be inlcuded in this paper).	We are still working on the entire network. It is early to make conclusions, but a preliminary results of the change at all stations is shown in the Fig.1 (below table).
The relationship between PWV and temperature trends shoudl be better assessed :does it follow Clausius-Clapeyron relationship? If not explain.	Please refer to Fig. 2 and table 1). We checked the rate of change of the PWV, vapor pressure, and saturation pressure, first using the total values and then looking only at the trend (seasonal and irregular component removed). For the first case, the rate of change in the saturation pressure follows Clausius-Clapeyron relation and the two sites show roughly consistent values. (For Garmisch, the values tend to be smaller, we think because it is located higher). If we look only at the trend component, however, we could not make conclusions, the sites behave differently. If the analysis we did does not answer the question of the reviewer, we would kindly ask him/her to recommend a reference we can refer to do the required analysis.
We do not know if the computed trends are significant or not. Errors are missing. -	Added
According to equation 15 or 16, it is not clear how you compute trends at the beginning and end of the time series. -	They are added.
Figs 7 and 8 :there are some differences between the three methods that are discussed. The black line is the fitting straight line of which dataset ? -	We estimate one trend for the entire interval without putting a difference near the edges.
Tm shows strong differences when using surface temperature or vertical profiles of ERA-interim. The authors do not explain the huge	Text modified with more explanation. Please see Fig. 3 (below).

bias at site 0285. They finally conclude that they can use equation 10 because the mean difference they generate in the computation of PWV is weak. However, I would like to see a scatter plots of these differences because a mean differnce is not enough to convince the reader it does not impact the value.	
- Another issue on the methodology is the use of a constant (in space and time if I Understood well) lapse rate of temperature. Isn't it a big approximation ?	Yes we agree with the reviewer that the lapse rate should not be constant in space and time and it will be adapted in future work.
- The part with snow and precipitation is too poor. Either you bette analyse the role of snow and precipitation (other sites, trend in the occurrence of T over 0°...), either you remove it from this study.	This part is removed from this paper

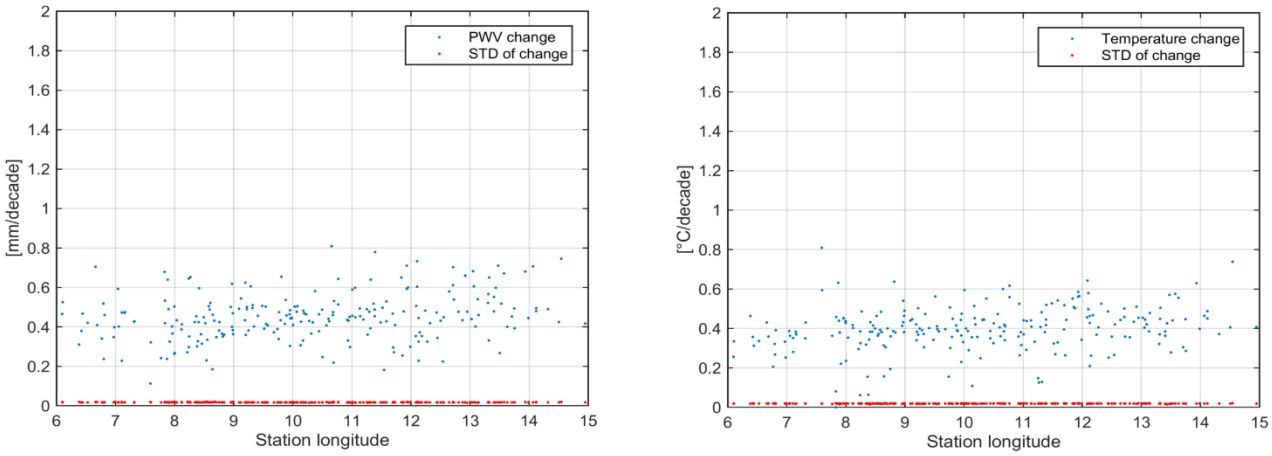

Fig.1: The change of PWV and temperature over the previous 30 years

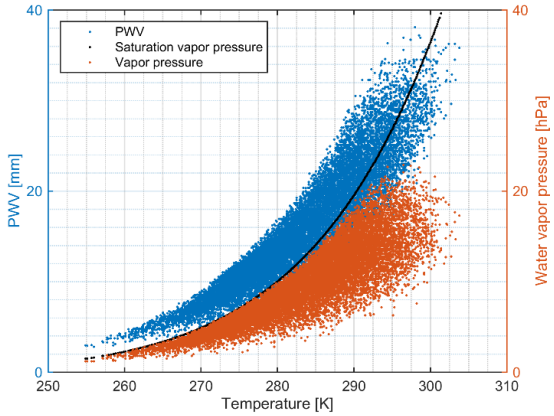

Fig.2: PWV and water vapor pressure against temperature

Table 1: Comparison of the rate of change of PWV and water vapor pressure for sites Berlin and Garmisch

	Site Berlin [%/K]		Site Garmisch [%/K]	
	Total	Trend only	Total	Trend only
Saturation vapor pressure	7.5	4.7	7.3	3.7
Vapor pressure	6.7	8.9	6.6	4
Column water vapor	5.9	9.3	5.6	6.5

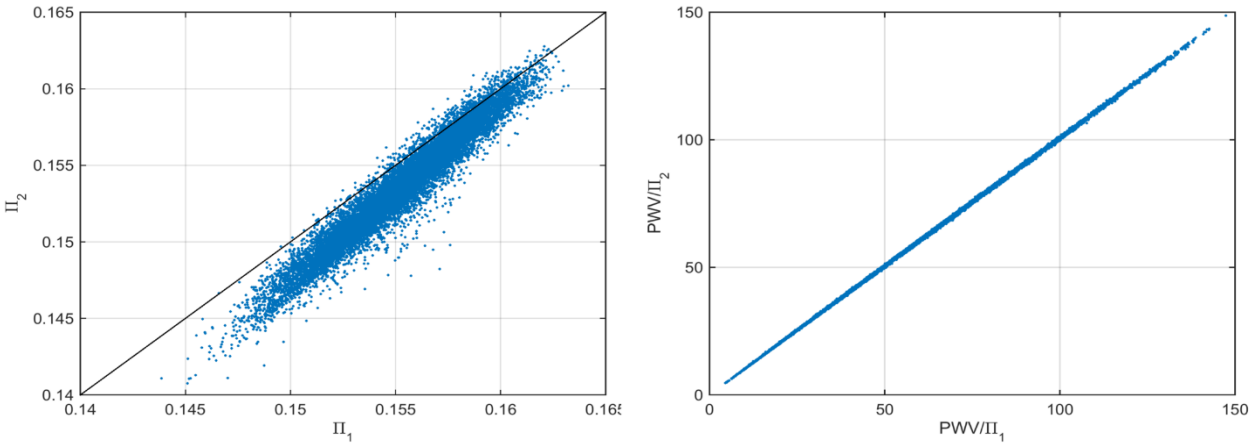

Fig.3: Π factor calculated using the Tm in Fig. 4 (in the paper) and the corresponding ZWD (Eq. 7)