Response to **Referee#1**

We thank the reviewer for their helpful comments on our paper. To facilitate the revision process we have copied the reviewer comments in black text. Our responses are in regular blue font.

The manuscript entitled "Estimating of total atmospheric water vapor content from MSG1-SEVIRI observations" (manuscript ID amt-2015-232), aims to present an operational algorithm for estimating total atmospheric water vapor content from the MSG1-SEVIRI data over land surfaces. This algorithm is based on a quadratic formula relationship between water vapor and the ratio of the two split-window channel transmittances. This topic is of interest for Atmospheric Measurement Techniques. However, 1).This paper does not bring new knowledge as compared to what is already published in the literature. The methods used in this paper are existing techniques. The authors stated that 'The main contribution of the present work is to consider that the relationship between TAWV and the ratio of the two split-window channel transmittances is a quadratic formula', but it seems like that we can use a quadratic formula or a linear formula or other polynomial depending on the fitting accuracy, and it is not so important in this point. Other authors also used a quadratic formula to build the relationship between TAWV and the ratio of the split-window channel transmittances, e.g. Ren, H., Du, C., Liu, R., Qin, Q., Yan, G., Li, Z., and Meng, J.. 2015. "Atmospheric water vapor retrieval from Landsat 8 thermal infrared images." Journal of Geophysical Research: Atmospheres, 120, doi: 10.1002/2014JD022619.

We thank also the reviewer who stated that "This topic is of interest for Atmospheric Measurement Techniques". Indeed, our work aims to present a new approach for estimating total atmospheric water vapor content from the MSG1-SEVIRI data over land surfaces. In the revised manuscript, we have made great changes. According to the referee#2, we have selected only 1531 atmospheric profiles under clear-sky from the TIGR dataset and we have rewritten the coefficients of Eq. (6) as functions of satellite zenith angle. We found in this case that the relationship between TAWV and the ratio of the two split-window channel transmittances ($\tau_{12}/\tau_{10.8}$) can be considered as a third order polynomial formula (for more detail, please see the response to the referee#2). The exception in our work (as compared to what is already published in the literature) is the use of the 'Roberts' approach and the 1531 atmospheric situations to create an algorithm for estimating the TAWV from MSG1-SEVIRI data.

2).It would improve the quality of the paper if the authors can give in-depth analysis and discussion.

Yes, in the revised manuscript we have added more analysis and discussion. For more detail, please see the response to the referee#2.

3).The radiosonde observations and the AERONET data acquired in 2006 were used as validation data in this study. It might be better to employ more validation data (especially newer validation data in recent years) to test the effectiveness of the algorithm.

In the revised manuscript, we have added more radiosonde data for validation. Also, we have added the comparison between the TAWV derived from MSG1-SEVIRI data using the algorithm proposed by Schroedter-Homscheidt et al. (2008) and that measured by radiosonde and AERONET (for more detail, please see the response to the referee#2), this comparison demonstrates the effectiveness of our algorithm and also that our results are reasonable. In regards to the newer validation data, we have not any data of MSG1-SEVIRI for the recent years and I think that this point is not interesting.