

Manuscript amt-2015-171 – Reply to Reviewer # 5

The Authors are grateful to the Reviewer for having appreciated the work.
The manuscript will undergo a thorough revision of English to address his/her main concerns.
In the following paragraphs, we reply item-by-item to the Reviewer comments, which are enumerated and copied in blue color.

General Comments

1. I would like the authors to comment on the influence of the backscatter co-polar differential phase, ΔZ_{dp} in their retrieved K_{dp} and $Phidp$. If understood correctly the methodology if ΔZ_{dp} is not filtered properly it may result in an overestimation of $Phidp$ all along the path after the area of significant ΔZ_{dp} .

REPLY. As we have pointed out replying to other Referees' comments, the backscatter differential phase is dealt with by means of the iteration scheme, as in Hubbert and Bringi (1995).

ACTION: This point will be discussed in the revised manuscript.

Specific comments

Through the article the language should be revised. I note here only some of the errors I have spotted.

2. Page 7203 Line 23: the same type of radar

REPLY. Agreed.

ACTION: The manuscript will be modified accordingly.

3. Page 7203 Line 24: discrimination between

REPLY. Agreed.

ACTION: The manuscript will be modified accordingly.

4. Page 7203 Line 25: : : : If the objective

REPLY. Based on other Referees comments we modified the statement as follows:

“Furthermore, to analyze the internal structure of hail-bearing convective cells to forecast their degree of severity and their evolution in time, differential phase measurements are not sufficient.”

5. Page 7205 Line 13: .. be used by the forecaster

REPLY. Based on other Referees comments we modified the statement as follows: *“be used by forecasters”*

6. Page 7208 Line 1: : : : for attenuation correction

REPLY. Agreed.

ACTION: The manuscript will be modified accordingly.

7. Page 7210 Line 15: : : : moved south-east

REPLY. Agreed.

ACTION: The manuscript will be modified accordingly.

8. Page 7210 Line 15: : : intense precipitation cores
REPLY. Agreed.
ACTION: The manuscript will be modified accordingly.
9. Page 7210 Line 19: : : which mainly affects the : : : (revise use of past and present through the text)
REPLY. Agreed.
ACTION: The statement will be modified as follows: “*They were responsible for the signal extinction which mainly affected the lower tilts.*”
10. Page 7210 Line 21: : : presence of a hail nucleus. Despite that the Adopted
REPLY. Agreed.
ACTION: The manuscript will be modified accordingly.
11. Page 7211 Line 25: : : originated around 04:00 UTC and lasted
REPLY. Agreed.
ACTION: The manuscript will be modified accordingly.
12. Page 7211 Line 25: : : Also in this case,
REPLY. Agreed.
ACTION: The manuscript will be modified accordingly.
13. Page 7212 Line 10: : : the storm reaches
REPLY. Agreed.
ACTION: The manuscript will be modified accordingly.
14. Page 7212 Line 19: : : of the polarimetric radar
REPLY. Agreed.
ACTION: The manuscript will be modified accordingly.
15. Page 7214 Line 17: : : possible to reconstruct the storm characteristics in a satisfactory way,
REPLY. Based on other Referees comments we modified the statement as follows: “...it has been possible to effectively reconstruct the storm characteristics”.

References

Hubbert, J. and V. N. Bringi, 1995: An interactive filtering technique for the analysis of copolar differential phase and dual-frequency radar measurements. *J. Atmos. Oceanic Technol.*, 12, 643–648.