

## Review

Title: Characterization of Mediterranean hail-bearing storms using an operational polarimetric X-band radar

### General comments:

This paper describes two severe convective events observed by an operational X-band dual-polarization radar, in aspects of polarimetric radar observations and rainfall estimation. Especially applications of an X-band dual polarization radar such as hail identification and R-Kdp rainfall estimation have been examined. This study can be helpful for utilization of small X-band radars. However this paper needs improvement for writing. This paper needs major revision.

### Specific comments:

1. At title, "characterization" may not proper term. It is not described clearly how to characterize storms with a radar. This paper presents only radar observations and retrieved rainfall fields.
2. At abstract, line 9 of pp. 7202, are "A suitable processing" and "The crucial procedural step" same processes? What do "suitable" and "crucial" mean?
3. Introduction session is confusing and not organized well. Especially line 16-21 of pp. 7203 and line 2-11 of pp. 7205, sentences are very confusing.
4. At session 2.2 Processing methodology, what's the difference between  $K_{dp}$ ,  $K_{DP}$ ,  $K'_{dp}$ ?
5. Line 18 of pp. 7208,  $\gamma_H=0.048 \rightarrow \gamma_{DP}=0.048$
6. Line 18 of pp. 7209, number is missing at "temperature image at (??)  $\mu m$ ".
7. Line 1 of pp. 7210, what does "azimuth-average vertical profiles" mean?
8. At figure 4, why  $\rho_{hv}$  is lower and fluctuating?
9. Line 11 of pp. 7211, "about 60 mm in 1h and about 70mm in 1h and half". It is very confusing. Does it mean 60 mm (from 15 to 16 UTC) and 70mm (16 to 17:30 UTC)?
10. Line 24 of pp. 7211, typo "estearn"
11. Line 4 of pp. 7212, "they get merged abound 6:00 UTC". It is difficult figure out where they are merged. It will be good to indicate the area in the figure 9.
12. Line 16 of pp. 7212, "A.S.L" is used previous sentence (line 18 of pp.7206).
13. Line 20 of pp. 7212, is Figs.12-14 correct? According to text, I think Figs. 12-15 is correct.
14. Line 10 of pp. 7213, what does "absolute attenuation" mean? Please describe definition of "absolute" exactly, if it is not general term for weather radar.
15. Typos, line 12 of pp. 7213 : sintomatic, line 22 rain/hail misture, line 7 of pp. 7214 rain-hail mix

16. Line 27 of pp. 7213. As for azimuth 121 is correct? Or 122?
17. Line 17 of pp. 7214, "to satisfactorily reconstruct ... in a satisfactorily way...", two "satisfactorily"