

Interactive comment on “Vertical air motions derived from a descending radiosonde using a lightweight hard ball as the parachute” by H. Chen et al.

Anonymous Referee #1

Received and published: 25 October 2013

General comments

This paper describes an interesting method to retrieve vertical air motions by a dropsonde, that it is well in AMTD field. This work is based on the method proposed by Wang (2008) and improved by using a hardball as parachute. The method used is well described. However, the presented technic has a lack of validation with other means. The comparison of vertical motions estimated by a radar and radiosondes are limited to one case, that is not enough to evaluate the accuracy of the technic. In the goal to an operational uses of this technic, some technical details about the separation device and the sphere are needed, and some limitations can be discussed.

C3065

I suggest that this paper can be published after major revision including some precisions about the following points :

- 1) Comparisons with VW measured by radar must be more consistents. The authors can present all VW soundings made with radar UHF.
- 2) Error estimates on the measured vertical velocities with this technic and radar are needed. Spatial resolution of the VW radar must be discussed.
- 3) Authors must indicates some technical details about the cutter (way to separation, weigh, cost, failure rates, if any), weight and materials for the ball.
- 4) The effects of icing about estimates VW, in convective layer, must be discussed.

Minors comments

Page 8108/L8 : This sentence seems to say that it is the string linking the ball and radiosonde that is cut. Please rephrase more clearly.

Page 8111/L8 : See previous comment, same thing.

Page 8111/L19 and L20: Write “descent rate”

Page 8111/L21. “Up to eigh. . . channel receiver”. What is the interest of this sentence ?. Did you made simultaneous launches ?

Page 8112/L1 : Indicate radiosonde and hardball weights.

Page 8112/L8 : Give the exact number of sondes released.

Page 8112/L14 to L19 : It is usefull to indicate the number of radiosondes launched when the radar is working.

Page 8113/L3 : Information on the horizontal distances traveled by the radiosondes would be useful.

Page 8114/L27 : What was the horizontal distance travelled by the sonde in this case

C3066

?

Page 8115/L21 : See first comment, same things.

Figure 3 and 6 : Write launches in the legend.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 8107, 2013.

C3067