

## ***Interactive comment on “A novel technique for extracting clouds base height using ground based imaging” by E. Hirsch et al.***

### **Anonymous Referee #2**

Received and published: 7 December 2010

Overview: The proposed technique to derive cloud bottom altitudes from cloud motion tracking in IR images of the sky in combination with vertical wind profiles offers an interesting new approach. But the authors provide only 3 examples for the success of this technique. An intensive discussion of the limitations and the applicability is missing.

Comments to the paper:

P4234, top: In my opinion the main limitation of a ceilometer measurement is the extremely small field-of-view of the lidar. The range limitation is due to the usage at airports, as high clouds are of no interest there. Modern ceilometers can provide a much wider range.

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P4235, I 18: If the wind information is provided by a wind lidar, also the information for the cloud base height is available from the backscatter information.

P4237, top: Is there any calibration for the positioning of the camera and on the quality of the mapping? The impact of these geometrical considerations on the quality of the cloud motion vectors should be discussed.

P4237, I 10: Not every reader knows the distance between the site and the Beit-Dagan station.

P4238, I 5: The 'low bias' of cloud motion vectors in comparison to the real wind is widely known. In particular the cloud motion vectors of low level clouds deviate substantially.

P4239, top: How does this method of feature selection compare to the traditional methods applied to satellite data? How does such a rank selection work, if there are no clouds?

P4239, eq. 2 and 3 without further explanation these equations do not make much sense.

P4240, I 26: The error in deriving the motion vector is larger.

P4241 and 4242: From 54 days of observation the authors provide only 3 examples without any information on the performance in the rest of the time. This leaves the reader with the impression, that the 'novel technique' was not applicable on a regular basis.

P4243, I 12: I would avoid the term 'validated' in the context with only 3 examples.

P4244, I 1: The necessity to use wind profiles for the determination of the cloud base height is the main obstacle for the usage at 'remote locations'. Is it possible to check the performance of the technique in combination with vertical wind profiles from weather model data?

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References: I miss references to the techniques applied for cloud motion vector determination from satellite data. See also referee #1

Figs 7,9,11, 13 and 14: It is very hard to read the labels. The zoomed version does not add information.

Answers to the questions:

1. Does the paper address relevant scientific questions within the scope of AMT? yes  
2. Does the paper present novel concepts, ideas, tools, or data? yes  
3. Are substantial conclusions reached? no  
4. Are the scientific methods and assumptions valid and clearly outlined? can be improved  
5. Are the results sufficient to support the interpretations and conclusions? no  
6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? yes  
7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution? no / yes  
8. Does the title clearly reflect the contents of the paper? yes  
9. Does the abstract provide a concise and complete summary? yes  
10. Is the overall presentation well structured and clear? yes  
11. Is the language fluent and precise? yes  
12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? not all, see above  
13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? yes, see above  
14. Are the number and quality of references appropriate? see above  
15. Is the amount and quality of supplementary material appropriate? does not apply

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Interactive comment on Atmos. Meas. Tech. Discuss., 3, 4231, 2010.

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