

Authors' response to the comments of the anonymous Reviewer #1 (RC1)

First, we would like to thank anonymous Reviewer #1 for the time and effort invested and the constructive feedback (<https://doi.org/10.5194/egusphere-2026-1696-RC1>). Your appreciation confirms the value of our study and “rewards” us for the extensive work we have done – from the measurements and analyses to this article. We hope that our last sentence in the “Acknowledgments” section now adequately conveys our gratitude to you.

To address your recommendations regarding text passages, figures, and tables, we respond to them point by point below. Unless otherwise specified, the page and line numbers refer to the revised manuscript. The reviewer's comments begin with “RC1:”, are reproduced verbatim, and are highlighted in gray, while our direct responses begin with “AC:”. All text changes made to the revised manuscript in response to RC1 are highlighted with cyan.

General comments

RC1: Aviation invariably uses ‘feet’ not metres for everything from runway length, to altitude and ‘Flight Levels’ and the critical information on Approach Charts ... The authors should note and accommodate ... The aviation world will totally ignore the paper and its valuable conclusions unless the relevant values are quoted in ‘feet’!

AC: In the revised text, figure and table captions, we generally place the values in feet in parentheses immediately after the values in meters (also Fig. 2(b)). Most of the figures (see “Detailed comments”) now show the height values in meters on the left y-axis and the corresponding values in feet on the right y-axis.

Finally, we rewrote the relevant sentence: “CBH and ceiling are commonly given in feet ... so in the following we provide the value for the aviation community alongside the SI unit.” in the “Introduction” section of our revised manuscript (p. 2, lines 35–36).

Detailed comments

Page 2, lines 37–38

- We have rewritten the sentence: “In contrast, the ... (VFR), as do the majority of private pilots.”

Page 2, lines 43–50

- We have added a new paragraph that underscores the importance of safety during flights in poor visibility conditions.
- Your text recommendation has been adopted with minor adjustments:
“The rules for ... and by Federal Aviation Administration (FAA) and Civil Aviation Authority (CAA) recommendations. ... For private pilots – the vast majority of whom do not hold an instrument rating and who may not fly as regularly as holders of an Airline Transport Pilot License (ATPL) or commercial pilots – the issue of landing when the slant range visibility or cloud base conditions are at or below recommended limits involve very serious matters of personal safety. Thus, the issue of the accuracy of cloud base determination and slant range visibility extends far beyond the financial considerations that are important for airlines and freight carriers into critical real-time life/death decision making.”

Page 6, line 158

- The hyphenation was probably overlooked. This sentence originally began at the end of the line before: "These measurements should help to evaluate ..."

Page 7, line 166

- The hyphenation was probably overlooked. This sentence originally began at the end of the line before: "If CBH was lower than 500 m (1640 ft) then ..."

Page 8, revised Fig. 2

- Height values in feet added in parentheses to subfigure (b)
- Height values in feet added in parentheses to figure caption

Page 15, revised Fig. 3

- The figure now appears without being rotated
- Height values in meters shown on the left y-axis of subfigure (b)
- Corresponding height values in feet shown on the right y-axis of subfigure (g)
- Height values in m and ft apply to all subfigures (b)–(g)
- The x-axis of Fig. 3(c) has been extended to "C and C₀ (1)"
- A vertical gray line has been added to Fig. 3(g) representing the threshold of 1000 m
- The figure caption has been rephrased and height values in feet have been added in parentheses

Page 18, revised Fig. 5

RC1: The two parts of this figure contain an enormous amount of highly relevant data. Part A (above) in particular is very hard to interpret, due to the large number of parameters and the great difficulty for the reader (i.e. me!) to distinguish between the varied symbols. I would strongly suggest making the symbols clearer and more distinguishable, perhaps by further subdividing the contents to separate displays (i.e. A, B, C, D??)

AC: In accordance with your suggestion, we have made the following changes:

- The various black symbols in the subfigures (a)–(e) still represent the same ceilometer data from CHM15k, CS135, CL31, and LD40
- Solid and (if applicable) long dashed lines in the new subfigures (a)–(d) separately show the results for the different methods according to Sect. 4, specifically for (a) CS VOR; (b) RW CONT and CS GRAD; (c) CS MOR and CS SOR; (d) VS MOR and VS SOR
- The new subfigure (e) shows the effect of different threshold values for the VS SOR method similar to the original subfigure (b)
- Height values in meters are now shown on the left y-axis and corresponding height values in feet shown on the right y-axis
- Times in UTC are displayed only below subfigure (e), but logically apply to the scale markings on the x-axis of all subfigures (a)–(e)
- Figure caption has been adjusted to reflect the new labels for the individual subfigures
- Corresponding changes in the text:
 - p. 15, line 346: "The comparison in Figs. 5(a–d) confirms ..."
 - p. 15, line 348: "... or ceilometer data (Fig. 5(a))."
 - p. 15, line 349: "... by all ceilometers (Fig. 5(b))."
 - p. 15, line 350: "... by the ceilometers (Figs. 5(c–d))."
 - p. 16, line 351: "As a side note but obvious in Fig. 5, ..."
 - p. 16, line 364: "Figure 5(e) illustrates ..."
 - p. 17, line 375: "Compared to Fig. 5 ..."
 - p. 22, line 430: "... CBH (see Fig. 5(d))."

Page 19, revised Fig. 6

- Height values in meters shown on the left y-axis of subfigures (a)–(b)
- Corresponding height values in feet shown on the right y-axis of subfigures (a)–(b)
- Axes labels were made consistent and corrected in terms of the AMT guidelines
- Height values in feet were added in parentheses to the figure caption

Page 21, revised Fig. 7

- Corresponding height values in feet were added to the title of subfigures (a)–(b)
- Axes labels were made consistent and corrected in terms of the AMT guidelines
- Height values in feet were added in parentheses to the figure caption

Page 22, new Table 2

- line 433: New first sentence in the third paragraph of Sect. 5.3: “Table 2 summarizes the statistical CBH values ...”
- Table 2 added with caption: “CBH mean and standard deviation (std) in meters and feet under good and restricted visibility below the cloud, based on Fig. 8.”

Page 23, revised Fig. 8

- Height values in meters shown on the left y-axis of subfigure (a)
- Corresponding height values in feet shown on the right y-axis of subfigure (b)
- Axes labels were made consistent and corrected in terms of the AMT guidelines
- A reference to Table 2 has been added to the caption: “The respective CBH mean and standard deviation are given (see also Table 2), ...”

Page 24, new Table 3

RC1: Lines 345 – 355: Perhaps the values given here – which are important – would be easier to follow if presented in a Table?

AC: In accordance with your suggestion, we have made the following changes:

- All values have been removed in the text
- Line 454: Reference to the table in the text: “As confirmation, Table 3 provides the ...”
- Table 3 added with caption: “CBH mean and standard deviation (std) in meters and feet for the plateau range from 10 UTC to 11 UTC in Fig. 9.”

Page 25, new Table 4

RC1: Same for Lines 360 +/-.

AC: In accordance with your suggestion, we have made the following changes:

- All values have been removed in the text
- Lines 471–472: Reference to the table in the text: “The differences between these values and the value derived from image analysis for CS SOR and VS SOR (last paragraph in Sect. 4) are summarized in Table 4.”
- Table 4 added with caption: “Differences between CBHs derived from KIM and from image analysis for 04 November 2018 at 10:30 UTC.”

Page 26, revised Fig. 9

- Height values in meters shown on the left y-axis
- Corresponding height values in feet shown on the right y-axis
- The color bar is now displayed at the bottom
- The threshold value in feet has been added in parentheses to the figure caption

Page 27, revised Fig. 10

- Height values in meters shown on the left y-axis of subfigures (a)–(f)
- Corresponding height values in feet shown on the right y-axis of subfigures (a)–(f)
- Axes labels were made consistent and corrected in terms of the AMT guidelines
- The threshold value in feet has been added in parentheses to the figure caption

Page 28, lines 516 – 517

RC1: Forecast for 'Operational'??

AC: The reviewer is likely referring to the last sentence in the "Conclusions" section. "Forecast" is not the correct term here, as we can only automatically determine and report the current CBH at the airport based on the backscatter signals from the ceilometers. A forecast is more like a trend.

Page 32, revised Fig. B1

- Height values in meters shown on the left y-axis of subfigures (a)–(d)
- Corresponding height values in feet shown on the right y-axis of subfigures (a)–(d)
- Axes labels were made consistent and corrected in terms of the AMT guidelines
- The threshold value in feet has been added in parentheses to the figure caption
- Correction of the reference to revised Fig. 5 in the caption: "... differences in Fig. 5(d)."

Pages 33 – 36, revised Figs. B2 – B5

- Same changes have been made as in the revised Fig. 3

In addition, we have updated or corrected some references in the bibliography. These changes are not highlighted in color. Please also note the changes made to the revised manuscript in response to the comments from anonymous Reviewer #2, which are highlighted in magenta.