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Atmospheric Measurement Techniques Discussions

Interactive comment on "The Backscatter Cloud Probe – a compact low-profile autonomous optical spectrometer" *by* K. Beswick et al.

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This new instrument is interesting from several points of view. It has gained some acceptance already for installation on commercial aircraft so that more of that can be expected. Thus, more data will become available from globally diverse areas and from a large variety of clouds. The small size of the device will perhaps lead to installations on a great variety of aircraft and thereby broaden yet further the data collection possibilities.

The paper presents detail and discussion of the limitations of the instrument. These will certainly be further evaluated in the future, perhaps leading to quality control criteria.

Minor comments and questions:

At several places in the text where the non-uniformity of the beam is addressed only the across-beam variation in mentioned (e.g. 7383/5, 7384/25,7388/5) yet along the beam variation is referred to at 7385/15, and Fig. 4 clearly illustrates it. This is confusing.

The sample volume is quoted as 0.18 mm2. In Fig. 4 the beam is mapped over a larger area. Clearly, the sample volume is dependent on the detector threshold setting. Could the area used in the analysis be shown in Fig. 4?

The comparison of the size distributions in Fig. 12 is for a long averaging period ($\sim$20 minutes) and the conclusion of good match is based on this. Is such a long period needed for good statistics? How good is the agreement for shorter periods?

Are there signatures in the size distributions that would allow periods with ice crystals to be screened out?

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 7379, 2013.