

## ***Interactive comment on “Effects of ice particles shattering on optical cloud particle probes” by R. P. Lawson***

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One of the focal points of Fig.5 and the manuscript in general is that the performance of the original 2DS tips is better than the modified ones. This finding produces a conclusion that in order to improve performance of the tips, they should shatter more particles, which during post processing can be removed with the arrival time algorithm. This is a counterintuitive conclusion. I am wondering if this could be a result of statistically insignificant sampling presented in Fig.5 or some other reasons related to instrumentation malfunctioning (e.g. errors in the arrival time recording). In this regard, it would be relevant to show that with the original tips both 2DSs provide measurements of the same size distributions. Without such comparisons, the interpretation of the PSDs in Fig.5 is inconclusive. It would be more convincing if the author, instead of showing

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just comparisons of the particle size distributions averaged over three minutes, in addition to Fig.5 would present a time history of concentrations measured by standard and modified 2DSs before and after corrections for a longer period. Such comparisons provide a more convincing platform for the conclusion about the performance of the modified and original 2DS tips.

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