Atmos. Meas. Tech. Discuss., 8, C5299–C5301, 2016
www.atmos-meas-tech-discuss.net/8/C5299/2016/

Atmospheric Measurement Techniques Discussions

Interactive comment on "Evaluation of cloud base height measurements from ceilometer CL31 and MODIS satellite over Ahmedabad, India" *by* S. Sharma et al.

S. Sharma et al.

somkumar@prl.res.in

Received and published: 4 February 2016

Authors are thankful to reviewer for reviewing our paper and for encouraging comments and very useful suggestions for our manuscript. Reviewer's comments and suggestions helped us greatly in improving quality of our manuscript. All the comments and suggestions are incorporated in the revised manuscript. Point by point responses for all comments are given below:

Specific Comments:

1. Authors should add some error statistics in the Abstract.

Reply: Comment is incorporated in the revised manuscript. (Lines 17-19 in the revised manuscript)

"CBH retrieved from MODIS is ∼1.955 and ∼1.093 km on 25 July 2014 and 01 January 2015 respectively, which matches well with Ceilometer measured CBH (∼1.92 and ∼1.097 km)."

2. Page 3, Line 65: Please brief about Nd: YAG and make it clear.

Reply: Nd YAG is Neodymium-doped Yttrium Aluminium Garnet Lidar. Abbreviation is included in the revised manuscript. (Lines 68-69 in the revised manuscript)

3. It would be better if authors can add paper structure at the end of Introduction part.

Reply: We have done needful in revision. (Lines 87-89 in the revised manuscript)

"Brief details about ceilometer observations and MODIS data are discussed in section 2. Methodology and results are discussed in section 3 and 4 respectively. Conclusion of paper is given in section 5."

4. P5, L104: What do you mean by CL view.

Reply: We have done needful in revision. (Lines 108-110 in the revised manuscript)

"CL view is an interface software which is a graphical presentation program for cloud height and backscatter profile information."

5. P5, L 167: strong cloud updraft and downdraft are supported by circulation (Vertical velocity)?

Reply: Ceilometer measured CBH is used to calculate speed using CBH measurements at different time interval. These values are used to observe cloud updraft and downdraft.

6. I found interesting results in the Section 5.1.1 and 5.1.2. This section can be elaborated by explaining cloud physical processes during monsoon and post monsoon sea-

sons.

Reply: Seasonal variation of measured CBH and cloud occurrence frequency revealed that the maximum cloud cover is found during Indian summer monsoon (June to September) and the minimum value is available in pre-monsoon (March to May) period. Based on CBH measurements, we found that during monsoon period all three CBH (viz. CBH1, CBH2, and CBH3) occurred over Ahmedabad, India, which miss during pre- and post-monsoon period. CBH1 is detected mainly in lower troposphere during monsoon period, CBH2 is detected majorly in summer monsoon, and CBH3 is measured in summer monsoon period only. Cloud physical properties are different during pre-monsoon, monsoon and post-monsoon as during monsoon, clouds are rather more pristine than during pre- and post-monsoon. This could be a very interesting future study and clouds can be further explored by studying cloud micro-physical properties using other suite of instruments.

Please also note the supplement to this comment:
http://www.atmos-meas-tech-discuss.net/8/C5299/2016/amtd-8-C5299-2016-supplement.pdf

---

Interactive comment on Atmos. Meas. Tech. Discuss., 8, 11729, 2015.