

Interactive comment on “Discrimination of water, ice and aerosols by light polarisation in the CLOUD experiment” by L. Nichman et al.

Anonymous Referee #2

Received and published: 4 January 2016

This manuscript presents results obtained using a CASPOL instrument, aided with various other type of measurements, in the CLOUD chamber. The manuscript appears scientifically sound. However, the paper is very difficult to approach by the reader. Therefore, some major changes are needed before I can recommend the acceptance of this paper for publication.

Main comments

The purpose of this paper remain somewhat unclear for the reader. First of all, no explicit scientific goals are given in section 1. It is merely stated that "We propose this viscous that in this paper" (lines 21-22 on page 31437) and "In this paper we highlight results from. . ." (lines 12-14 on page 31438). Second, the title give a hint what might be the main purpose of this paper, yet the contents of the paper is not fully in line with

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the this title. Section 5 finally provides some concrete results obtained from this study. Maybe the authors could build on these main results, rather than giving the reader an impression of very general goal (title) or hardly no scientific goals at all (introduction).

I am not fully comfortable with the structure of the paper. The paper has a section "2. Methodology", yet the authors present methodological issues also in the introduction (introduction of the CLOUD chamber) and in the middle of results (short description of ACPIM model in section 3.2).

The result are given in 4 separate subsections (sections 3.1-3-4). While these results are probably somehow connected with each other, such a connection is very difficult to catch when reading the paper. The authors should do a better job in tighing up these apparantly separate results.

Minor comments

I do not see the agreement between measurements and modeling in Fig. 2c as convincing as stated in the paper (lines 15-24 on page 31445).

Lines 1-8 on page 31447: The authors use 3 times the word "this" without clearly specifying what "this" is referring to (something mentioned before these two paragraphs).

I do not undertand the purpose of the first sentence of section 3.4.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 31433, 2015.

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