

## ***Interactive comment on “The Community Cloud retrieval for CLimate (CC4CL). Part II: The optimal estimation approach” by Gregory R. McGarragh et al.***

### **Anonymous Referee #3**

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The manuscript “The Community Cloud retrieval for CLimate (CC4CL). Part II: The optimal estimation approach” by McGarragh et al. describes in details the optimal estimation retrieval of cloud optical thickness, effective radius and cloud top pressure based on the Optimal Retrieval of Aerosol and Cloud (ORAC) algorithm. The retrieval method is presented, uncertainties and limitations are discussed. This manuscript is well-structured and well-written and provides detailed description on the optical processes and the model used. I believe those results can make some important implications for understanding of the process and application and implementation for other satellite sensor. I recommend this paper can be published in ACP after addressing a few minor areas as follows.

1. Please add a short description on how the cloud phase (water or ice) is determined. 2. In the abstract, please, combine the statements from lines 8-9 and 11-14 to avoid the repetition. 3. P2, line 1: Please, add “characteristics of the instrument” 4. P19, line 31: Please, introduce the Stokes vector elements. 5. P11, line 15: “=” is missing. 6. P12, line 21 : which type of interpolation is used? 7. Figures 3 and 4. I suggest to use the opposite color scale (red for positive and blue for negative numbers). Please, specify  $\Delta(R)$  and  $\Delta(L)$  in figure caption.

Please also note the supplement to this comment:

<https://www.atmos-meas-tech-discuss.net/amt-2017-333/amt-2017-333-RC2-supplement.pdf>

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Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2017-333, 2017.

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Discussion paper

