

The authors would like to thank the reviewer for the careful evaluation of our manuscript and constructive comments. Our responses to specific comments are below.

*We are not told to what extent the uncertainties satisfy any predetermined design criteria but this paper will clearly be useful as a baseline document for later users of EPIC data.*

We thank the reviewer for the kind words, and note that it is difficult to identify any predetermined design criteria for EPIC, especially for clouds.

*I was perplexed to discover that (page 7 line 5) "An increase in the number of undetermined phase pixels is not necessarily detrimental.....". The following explanation may be correct but the sentiment could be better expressed.*

We agree with the reviewer that the sentiment could be better expressed; perhaps an adjective more appropriate than "detrimental" is "undesirable." We note that an incorrect identification of thermodynamic phase for a given cloudy pixel can not only result in a biased COT retrieval for the pixel itself, but can also introduce biases into global aggregations of retrieval statistics, particularly those statistics that are aggregated according to phase such as COT (e.g., mean liquid phase COT, etc.). Therefore, rather than forcing binary phase decisions (i.e., ice or liquid) for pixels for which the available information suggests ambiguous phase results, we leave these pixels in the undetermined category so as not to introduce biases into the aggregated statistics. We concede, however, that such an approach itself can cause a sampling bias if ambiguous/undetermined phase results are systematically associated with pixels having, for instance, a specific range of COT. We have modified the text to better express our reasoning (p. 7, lines 12-15).

*Units are generally clear and consistent except in line 13 of page 11 we see degrees (presumably Celsius) replacing "K" as the temperature unit.*

We thank the reviewer for identifying this inconsistency, and have replaced "degrees" with the correct unit "K" (p. 13, line 21)

*Acronyms are generally referenced and explained when introduced. DISORT, page 8, seems to be an exception.*

We note that DISORT was defined on page 5 (line 5) as being the "discrete-ordinates radiative transfer (DISORT) method." To eliminate any confusion, however, we have capitalized the relevant letters such that a clearer link between the acronym and full name can be made.

*It is fundamental, but the cloud optical thickness product (COT) must be at a particular wavelength. We should be clearly told what that is early on.*

We thank the reviewer for pointing this out. As is common practice in the cloud remote sensing community, COT here is referenced to the visible  $0.66\text{ }\mu\text{m}$  wavelength. We have included this specific detail in the Section 2 algorithm description (p. 4, lines 20-22).