Comment on essd-2021-50
Anonymous Referee #1

Review of "IWV observations in the Carribian Arc from at network of ground-based GNSS receivers during EUREC4-A, by Bock, Bosser, Flamant, Doerflinger, Jansen, Fages, Bony and Schnitt"

GENERAL
This is a nice paper on the quality of ZTD and IWV estimates, related to both processing speed, in the processing and type of auxiliary observations to reach to IWV. There’s also a small part discussing the relation the relation between IWV levels and patterns versus the occurrence of specific cloud patterns in the region.

The quality of the presentation is high. In fact I found only one thing that really ought to be changed: There is a lot on information about how various approaches to the processing impacts ZTD and IWV quality, but reading the title potential readers will not appreciate that. The remedy is to either come up with a longer more precise title, or split the material up in two. In the latter case with a short description of the processing and the discussion with respect to clouds patterns, leaving the detailed accounting about quality versus processing for another manuscript.

SPECIFIC
Early on tell that Grantley Adams airport is on Barbados.

Refer to BCON and BCOS already in section one, in order that all readers understand where Barbados is when you refer to fig 1.

Mention the proximity of BCO and the airport with the additional radiosone
early on.

On page 6, move the sentence starting in line 153 up above line 150. Consider if you later uncertainty assessment requires the text in line 150-153, and if so, the text should be placed elsewhere.

Line 199: Restrict the comment about ecmwf quality to the location. As you mention yourself later, ecmwf is grossly off wrt. topography at several of the other GNSS sites.

Line 253: Would it be healthy to relax the constraint?

page 17 and further. Several places you mention subpages of page 13 and 14, but they are not indicated on the figures. It should be OK just to refer to fig 13 and 14, otherwise introduce the a, b, c.. division somehow.

Section 5 appears to be partly discussion and partly conclusion.

Line 618 Antenna phase center models can result in a global bias I think. At least we saw a change in biases between GNSS and meteorological ZTDs when a significant change was made some years back.

fig 9 Consider adding the location names

fig 14 Enlarge the GNSS circles to make the figure easier to read.

Table 2: It would be good to introduce a blank row before the IWV part of the table.