Reviewer #1: Interesting paper.

Good use of adequate language, just watch out for singular and plural from time to time. I suggest you have the paper checked by a native Speaker as some of the sentence structures and grammar may be improved.

To my understanding PTTL (Parabolic Trough Test Loop) is the name of a different test facility at PSA, one that has never actually been used yet because there is no collector field so far. Isn't the facility in question called "HTF Loop"? Of course it is a Parabolic Trough Test Loop but as I said I think this name refers to a different facility.
temperature transmittance sensors does not refer to the measurement principle used, I think they are PT100
please include the uncertainty of temperature measurements and Simulation results when comparing them in the Validation process

to my understanding the description of the simulation tool should stick to ist functionalities rather than saying what appears when clicking Buttons

Please be more explicit in saying what this validated tool will be useful for in practice in future

The paper has been checked by the authors. The syntax has been improved and the grammar errors corrected.
The comment stating that the test facility presented in the paper is the HTF Loop and not the PTTL one is correct. This has been changed throughout the paper.
The temperature sensors installed on the HTF Loop facility are the PT100, the following statement has been added in section 3.1:
"The temperatures at the inlet and at the outlet of the PTC were measured with PT100 (TT) sensors, characterized with an uncertainty of ±1K."

In Figure 7, The temperature uncertainty for the temperature at the outlet of the solar line $T_{ex,exp}$ has been added as black-dotted lines.

According to the reviewer suggestion the description of the simulation tool in section 4.4 has been summarized and modified to explain only its functionality as follows:

"Each one of the six operating days, discussed in section 4.3 (Day I - IV), can be simulated. Model parameters (see Table 3) can be also freely set. Once the simulation is complete, the user can evaluate the simulation result at any particular simulation time instant (see Figure 10b). Comparison between experimental data and simulation results is also given by the tool (see Figure 10a). Information about each CV is also provided, for instance Figure 10c shows the fluid, tube and glass temperatures for a particular point in time. The tool also includes a diagram of the process which graphically describes it and displays information about a particular point in time of the simulation (see Figure 10d)."

Furthermore, to better explain how the validated tool can be used, the following paragraph has been added in section 4.4.:
"The idea of developing this tool was for reproducibility reasons, because readers only need to download a single executable program, select the operating day, perform the simulation and inspect the results. Furthermore, the PTC configuration can be changed in the tool and the impact of such changes can be easily observed in the results."

Reviewer #2: The authors did a very significant and novel study in this article. Is it possible to add the solar intensity that the study based on in the graphs and calculations to make an analysis for the relation between the weather at the study area and the efficiency of the parabolic through?

The Direct normal irradiation (DNI) [W/m2] is plotted in Figure 7-8-9 as a non-dimensional number on the second ordinate axis. The reference DNI value used for scaling the experimental data has been added in the caption of the Figures.