I fully agree with both reviewers on the relevance of the generated product and the quality of the work and the paper itself,

However, I also agree with reviewers comments on the needs of keeping *f*CO2 together with its measurement temperatures. Figure GC1.3 shows a perfect unbiased fit between CMEMS and SOCAT SST but significant scatter is also present, with many values outside the +-1ºC range, so significative in terms pf pCO2 that recommends at least 0.02ºC precision on Temperature (Dickson 2007). A plot of diffs can show this better than the property vs property. However, I can also agree with authors that an extra NN step to fit this would add complexity and probably noise. In my opinion, the manuscript accuracy would be greatly improved by just re-scaling the fCO2 inputs at SOCAT temperatures to CMEMS temperatures according Wanninkhof et al., (2022) or using the MCS equations.
A basic conversion recipe (matlab):

```
co2=CO2SYSv3(400,2300,5,1,35,20,21,0,0,10,1,0,0,1,10,1,2,2); fCO2_out=co2(:,23)
```

or (python):

```
fCO2_out = pyco2.sys(par1=400, par1_type=5, temperature=20, temperature_out=21)['fCO2_out']
```

for example, for converting from 20ºC to 21ºC would be preferable to no conversion at all.

Another detail that I missed on the manuscript is the proper statement on the sets of constants used in the MCS, as well as the pH Scale and conditions. Including those details is a key point for solving the MCS thermodynamics, and so, key for future usage and proper understanding of the dataset. This is particularly needed when computing one parameter from a pair, as you do with pH from fCO2, AT pairs. Apart from the Lewis and so cites that you use, it's convenient to cite the actual toolbox and exact version you are using, be CO2SYS (ven Heuven), v2 (Orr) or v3 (Sharp), or python (Humphreys), as implementations vary. The matlab example in the paragraph above uses CO2SYS v3.2.1, K1&K2 from Lueker, KSO4 from Dickson, KF of Perez and Fraga and TB from Lee, which can be considered the prefered default set to many authors for common oceanic waters right now (but differs from the default set in python version)

And just as final remark, I ask you to review the notation on symbols. Whether the IUPAC would encourage to use pH, pCO_2, fCO_2, A_T, C_T, *SSS*,*T*,.. i.e. the first in italics and the later straight except for common abbreviations, it's also common the usage of A_T, C_T, pCO2,... but is quite unusual to read *p*H or A_T as I've seen in the manuscript. It's also preferable to use just only acronym for a specific parameter, say C_T or DIC, but not both in same manuscript.