

Interactive comment on “A uniform, quality controlled Surface Ocean CO₂ Atlas (SOCAT)” by B. Pfeil et al.

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This is an very well-written paper about a global data set of ocean carbon dioxide. It covers basic information about Surface Ocean CO₂ Atlas (SOCAT), how the data set was assembled and processed, and how the data set is accessible to the public. I strongly recommend to publish the paper with only some minor technical corrections.

Minor suggestions to consider: 1) Based on equations on Page 748, only fCO₂ (at SST) is calculated. pCO₂ (at equilibrator temperature) was calculated, but not the pCO₂ (at SST). Should pCO₂ (at SST) also be reported? After all, some scientists do prefer pCO₂ to fCO₂. 2) Is there a need to correct the temporal trends and normalize all fCO₂ to a specific year, just like what Taro Takahashi did to his data set?

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Editorial: 1) Page 740, Line 15, 16: Most of the repeat hydrography studies are also surface observations. Clearly, here the authors were referring to time-series studies like those conducted on a mooring. I recommend to replace "surface ocean CO₂ observations" with "time-series CO₂ observations".

2) Page 748, Eq (3): please also explain the term X₂ wet Teq.

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