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Atmospheric Chemistry and Physics Discussions

Interactive comment on "On the sensitivity of oceanic precipitation to sea surface temperature" *by* Jörg Burdanowitz et al.

Anonymous Referee #1

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Overall I felt the paper read well (barring a few issues noted below). The topic is timely and of great interest to a wide user/research community. Although there were a few minor issues, I believe that the paper is broadly acceptable as is.

Minor corrections/suggestions:

P1, L6: replace 'to constrain' with 'the constraint of the'

P1, L11: should there be 'decreasing' or 'increasing' before 'SST'?

P1, L15: wording, perhaps 'Overall, high resolutions in observations and climate models. . .'

P1, L19/20: omit 'and rises'

P2, L6: insert 'there is' before 'medium' and omit 'is found'

P2, L7: replace 'On' with 'At' and 'scale' with 'scales'

P2, L9: omit 'to' before strongly

P2, L32: omit first 'different'

P3, L1: replace 'Forth' with 'Fourth'

P3, L14: perhaps insert ':' after 'charge' and replace 'on' with 'at'

P3, L16: insert 'caused' after 'volume'

P3, L28: wording/clarification of date range of data – since currently it states 2010-2016, then back to 1950 to the present (which includes 2010-2016!).

P3, L30: should 'sst' and 'tp' be in parentheses?

P4, L2: remove ',' after 'SST is' (perhaps), replace 'by' with 'in' and 'steps' with 'increments'

P4, L4: replace 'from' with 'for' and omit 'well'

P4, L6: replace 'As' with 'Since'

P4, L7: insert 'also' after 'we'

P4, L8: omit 'as well'

P4, L14: first sentence is perhaps a little simplistic. Needs to be reworded ('according to' is an odd term) – perhaps 'Oceanic precipitation forms as a consequence of the global atmospheric circulation systems' – not quite, but better.

P4, L15: replace 'A sufficient' with 'Sufficient' – and again on line 17.

P4, L17: insert 'is possible' after 'sampling'.

P5: It would be useful to know the total number of observations – not just the raining ones. (this also relates to the 'sparse sampling' mentioned on P6 L11.

P6, L1: 'ice drift' or 'drifting ice'?

P6, L9: replace 'Minimal' with 'Minimum'

P6, L10: perhaps replace 'spare sampling' with 'low occurrence' ?

P6, L21: replace 'follows' with 'shows', 'to increase with' with 'of increasing'

P6, L22: replace 'grows' with 'increases'

P7: would be useful to have a larger gap between the upper and lower parts of the figures. Do the 'grey lines' noted in the caption only apply to (e) and (f)?

P10, L8/9: mentioned here and elsewhere – the vertical velocities <100 hPa day-1 – might be useful to provide a general (short) background on this at some stage.

P11, L8: replace 'enough' with 'sufficient'

P12, L1: insert 'that are' before 'mainly'

P12, L6: remove 'that' after 'sample' and replace 'contains' with 'that contain', and replace 'rates' with 'values'

P12, L10: replace 'about' with 'approximate'

P14: I was a little surprised by this figure and the precipitation time-scales: surely at mid-latitudes the precipitation events would be relatively long given the size of the precipitation systems?

P15, L7: '2000 bin-1' – presumably '2000 samples per bin'?

P16, L25: insert 'us' after 'allow'

P16, L34: replace 'resolution is' with 'resolutions are'

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