

Responses to Reviewer #3 Donald Lenschow

This paper is an excellent overall summary of the VOCALS-REx field deployment and will be a very useful reference to all who plan to use the resulting data set. The emphasis is on description of the platforms, how they were deployed, under what conditions, and what kind of data were obtained.

We thank the reviewer for his constructive review, and provide a detailed response below.

There is almost nothing about the modeling component of VOCALS-REx.

This was also pointed out by both of the other reviewers, and has now been corrected, since we now include a description of the associated modeling work.

There is also little discussion of the data quality and limitations, so in that sense, this paper is a necessary but insufficient resource for potential data users.

Since there were so many instruments used in the campaign, a complete treatment of data quality we feel is beyond what a single research paper can cover. Many of the individual platforms have data quality summary documents available online to potential users (e.g. from RAF for the NSF/NCAR C-130: <http://www.eol.ucar.edu/about/our-organization/raf/data/vocals/vocals-documentation-summary>). In the revised manuscript, we attempt to provide more links to the QA documents for various platforms where available.

It is mostly well written, with tables and figures that should be very useful to those interested in using the data. There is some unevenness in the writing, as expected in a multi-authored paper of this type, and some sections need editing.

Attempts have now been made to make the writing more even and consistent across sections.

The tables will be very useful to users, and the figures give a good feel for the overall scope of the experiment and the conditions encountered.

I have the following minor editorial comments:

p. 20771, l. 15: The way this sentence is worded, it says what the two central themes are designed to do, but not what are the two central themes.

We have corrected this.

p. 20111, l. 22: ...and give a summary...

Done

p. 20773, l. 28: does "boundary layers" refer to both atmospheric and oceanic BLs? Otherwise, why is it plural?

Changed to singular

p. 20774, l. 3: What is TOA? More generally, there is an appendix for acronyms, but only a few are listed. My suggestion is to either forget about the appendix, or make it more complete.

Changed to reflected shortwave radiation. A comprehensive list of acronyms is now included in the Appendix.

p. 20774, l. 16: how about a reference for the 40 W m^{-2} , 1 m (should use abbreviation) evaporation, and ocean mixed layer thickness?

Now added reference to Colbo and Weller (2007)

p. 20774, l. 20: ...shallow ocean surface layer...maintained its temperature...

Done

p. 20774, l. 24: the sentence starting with "The supply mechanism..." and the sentence following that need some editing. In fact, the whole paragraph needs clarification. Does "eddy processes in the SEP" refer to ocean and atmosphere?

This sentence has now been edited to make it clearer. Eddy processes refers specifically to the ocean in this case.

p. 20775, l. 2: ...role in...

p. 20775, l. 23: ...requires a synergy...

p. 20776, l. 3: The sentence, "The VOCALS-REx hypotheses..." need editing. It seems to say that hypotheses are testing hypotheses.

Changed the above

p. 20777, top: Here again, lots of acronyms, not spelled out until later. Again, how about expanding the appendix?

Done, see above

p. 20780, l. 17: How about a subheading to separate the GAUS from the Jose Olaya?

But the GAUS was deployed on the Olaya ship, so I'm not sure that this is justified.

p. 20781, l. 7: ...airmasses...

p. 20781, l. 12: ...and soundings were made...

p. 20781, l. 24: ...during 4-15 November connected to the scanning...

p. 20783, l. 6: ...and the upper...

p. 20783, l. 10: ...on the WHO Upper Ocean Processes Group website...

p. 20784, l. 9: ...and can be used to study correlations among aerosols, cloud...

p. 20785, l. 3: VOCALS-REx...

p. 20787, l. 7: extra)

p. 20788, l. 3: radon

Corrected the above

p. 20788, l. 10: were to: (i) map... What is meant by "property distribution"? (also l. 24

Replaced property distribution with "structure"

p. 20788, l. 14: ...up to 2000 m depth...200 and 800 m depth

p. 20788, l. 18: instead of "fronts and eddies," how about small (or micro) scale structures? this sentence needs some editing.

The oceanographers seem to want to retain fronts and eddies. Sentence has received some editing.

p. 20788, l. 25: This sentence also needs some editing. It reads as if the ensemble of eddy measurements influences the upper ocean.

Edited.

p. 20789, l. 9: ...every half hour for the area bounded...W between11...

Figure 10: The scales in Fig. 10, panels c & d are hard to read without considerable magnification.

p. 20791, l. 8: Clouds are classified on all...

p. 20791, l. 13: A dedicated subset of imagery is available for browsing...

Corrected the above

p. 20792, para. starting with, "Forward simulations were..." needs editing. What is EDGAR?

Added definition and edited.

p. 20793, l. 1: ...at the aircraft location...

p. 20793, l. 4: inventory, and the

p. 20793, l. 7: last sentence seems redundant. See p. 20792, l. 10.

Corrected the above

p. 20793, l. 12: What does "directly" refer to?

This was a mistake. Now corrected

p. 20793, l. 19: ...available as a "browse" ...

Done

p. 20794, Conclusions: This section needs some editing. Also, the last two sentences seem unnecessary.

We have edited the conclusions. Last two sentences are perhaps unnecessary, but removing them leaves the manuscript ending rather abruptly

jp. 20794, Acknowledgements: It is not usually acceptable practice in publications to acknowledge coauthors.

We acknowledge Chris Fairall here not so much for his VOCALS work, but for the cruises that led up to it. I felt that it was appropriate to do so here. No other coauthors are acknowledged.

Table 1: add spaces (or lines) between hypotheses for separation.

Done

Table 2: Doppler. Also, did the C-130 have a surface radiation temperature sensor? short- and long-wave radiation sensors?

Capitalized Doppler. We already list the broad band irradiance sensors but add shortwave and longwave to aid clarity. Surface radiation temperature sensor added to list.

Table 11: ...conducted in VOCALS-REx.

Done