**Fults paper\_Sara\_v02.docx**

**Line 255 - 257**: Two monomodal ASDs, one with a mode < 0.055 μm and the other with a mode > 0.055 μm diameter are used to illustrate the concept (Fig. 11a – b). The former has *F* = 0.95 and the latter has *F* = 0.05.

-Remove. Let the reader figure it out form the wordage and removal of the figure will keep our images as data and results based.

**Line 265 – 271:** This explains what Clarke et al (2003) did to prove that D > 1 micron is sea salt. It is serving as justification for this method and why I used it in the thesis. Based on the author guides, which all stressed not publishing work that has already been published, I recommend this be eliminated. We just need to give a reference for our classification of Sea Salt Aerosol, such as:

264 In field studies conducted 265 at a coastal site, Clarke et al. (2003) demonstrated that particles sizing in the middle of the 266 LS04 small fraction - those with a dry diameter larger than 0.5 μm or a RH = 80% wet

267 diameter larger than 1 μm - were composed of sea salt.

-end of paragraph.

Rewriting **362 – 367 to** Remove N and S correlation section

In addition to the analyses noted above, this section also investigates correlations of the fraction of particles smaller than 0.055 μm (*F*; Eq. 6) and *S*. These statistics provide insight into the processes that shape the ASD at Arauco during winter. Throughout this analysis, the focus is on two-hour intervals centered on the arrivals of marine trajectories at the Arauco Site. There are 22 arrivals in the dataset (section 4.2); 17 of these are sea-surface marine trajectories and 5 are marine trajectories originating from aloft.

**Remove 436-454** N and S correlation section. I fought to keep this in my thesis, but for a publication in a journal, I do not feel this is quite as interesting as the N vs V section or small particle section.

**Introduction:**  I’m in favor of shortening this! So many publications I read all tried to find a new way to state the same information about the uncertain effect of anthropogenic aerosols on climate, how they influence the climate, etc. However, I feel like that was the goal when I worked on this section: keep it concise! So, I’m not sure how to shorten it yet. I need to think on it. It would be a good section to shave off some length, though. Thoughts?

**Snider – paper\_v03.doc**

I shortened one of the sentences in the **Introduction**. I am also in favor of shortening this section even more. References/citations are needed to strengthen the key points.

I think that this section “CPC Concentrations at Arauco and THD” can be shortened. Currently there are four figures (PDFs). My edit is only one PDF (all sector Arauco THD comparison), and that the marine-sector comparison be limited to discussion.

**Fig. 17 –** I removed this figure from the text. Seems too elementary/pedantic.

**Fults – paper\_v04.doc**

In the Correlation of ND >0.5 and Sea-surface Wind Speed section, I shortened the discussion regarding Fig. 23, which was reproduced from LS04.

Fig. 23 – I removed this so we do not have to worry about copyright for an already published figure.

Fig. 24 – I removed. I recall we discussed how Fig. 22, the fit of ln(ND>0.5) = aN⋅U + ln(N0) over my data points is demonstrably more powerful on a linear plot than a semi-log plot. The visual representation of the exponential growth of N\_D>0.5 is stronger in this linear plot.

Fig. 25 – Hmmmm…This is an image that will need to be replotted in a smaller box, like fig. 22 for publication. Perhaps it would be better to also relabel my turquoise “Fults” line as “CCOPE.” Haha! I wanted it labeled with my name for my thesis but, for a publication, it will be less hubristic to replace “Fults” with “CCOPE”

**Snider – paper\_v04.doc**

Good that you are sticking with the Fig./Tab./Eqn. numbering in the thesis. At least until we zero in on the figures/tables/equations/sections that will make it into a complete first draft of the manuscript submission.

We need to get the figure count below ~12. That’s experience; otherwise there is not enough room to explain everything under the word limit (~7000).

I reworked Figure 22. Included what the statisticians refer to as the upper- and lower-“confidence limits” or some such. Also the Purango and the O’Dowd fit lines. I think its meaningful that O’Dowd falls within the confidence limits on your fit line. Maybe we will try to present this without Purango (to keep the plot simple) and state in the text that other fits are reasonable with your result. There is some discussion to this already in the text.

I did not make any changes to the text v04, but will in a few days. Here is the plot:

