

Preliminary Comments on the ISA from Dr. Donna Kenski

Comments on Chapter 2 - Atmospheric Chemistry and Ambient Concentrations

The charge was to comment on revisions, but since I wasn't on the panel for the first round of ISA reviews, I can't comment on EPA's responsiveness. My comments are instead about the general adequacy of the Atmospheric Chemistry section and its coverage. Overall I find that the EPA staff has done an excellent job summarizing state of the science, both for the most recent data and material covered in the 2009 ISA and prior reviews. Considering the ISA's many authors and topics, it was remarkably easy to read and sounded mostly as if it had been written by one person. I commend the editor(s) who achieved this. My comments below are thus mostly minor requests for clarification or correction.

p. 2-2, lines 23-25: Occasionally there is a jarring qualifier in the stream of mostly straightforward text; for example, these lines 23-25 say, "Anthropogenic emissions of sulfur are...emerging from point sources in quantities that MAY substantially affect local and regional air quality". In a 600+ page document devoted to those effects, isn't the 'may' unnecessary?

p. 2-5, line 22; "four sites ~~is~~ located at the Port..." (delete in)

p. 2-10, Fig. 2-5. The 12 categories of emissions can't all be distinguished on this plot in either the printed document or screen version. Please avoid the temptation to squeeze too much information on one plot. The data are too important to obscure in this way. It could be reworked by combining some of the minor source categories and/or using simple lines instead of the stacked/filled lines, which don't really allow the user to compare among the categories accurately.

p. 2-16, Table 2-2: What order are these sources listed in? It's almost, but not quite, total sulfur. A rationale for the existing order, or reordering by total S mass would be helpful for making quicker comparisons. Also, the tire combustion numbers look wrong.

p. 2-18, line 19: rates -> rate

p. 2-21, line 6: glyoxyl -> glyoxal

p. 2-22, line 31: remove the extraneous comma after 'and'

p. 2-24, Table 2-3: The specified lag, rise, and fall times of current FRMs are fine for hourly data but less good for 5-minute average data. Presumably EPA and the health community will continue mining the 5-minute data more extensively in the future and filling in some of the gaps that now exist (e.g., reporting all 12 5-min averages each hour rather than just the max). It's not

1 clear to me what the impact of these response times might be on the future data analyses, if any.
2 It might be worth taking a closer look at comparing those series of collocated 5-min
3 measurements from FRMs to some of the faster-responding instruments described in Section
4 2.4.2 to see what, if any, differences arise.

5
6 p. 2-32, lines 6-7: Please justify the decision to exclude the negative values. They are included
7 in the database because they represent the monitors' response to real atmospheric variability.
8 Eliminating them thus introduces bias to your analysis. That bias may be small and most
9 apparent on the low end of the distribution, but it's still unnecessary unless you have a good
10 reason for eliminating the negative values.

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12 p. 2-56: Figs. 2-22, 2-23, and 2-24 should have the same explanatory note as Fig. 2-25 (or just
13 put it on Fig 2-22, the first of this series of graphs)

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