

Interactive comment on “Primary and secondary sources of formaldehyde in urban atmospheres: Houston Texas region” by D. D. Parrish et al.

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There is another, though less flagrant omission besides the one I pointed out in my earlier comment, and that concerns the lack of any mention of Imaging (I-) DOAS measurements during the 2009 Study of Houston Atmospheric Radical Precursors (SHARP). (The SHARP campaign for some strange reason is not referred to by name, though I am certain the authors were all aware of it, including those who were not direct participants in that study.) The report by Stutz et al. (2011) referenced by the authors was cited to at least admit the presence of an agreed upon large source of primary formaldehyde, that is the FCCU regeneration unit on May 13, 2009. However, the paper only mentions the use of a mobile van and does not refer to the I-DOAS at all, an instrument that can directly measure emissions of HCHO from individual combustion

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sources, and even visualize the HCHO plume coming directly out of the source. Here is a quotation from the Stutz et al. (2011) report referenced by the paper:

"In summary, most of the observed burning flares emitted HCHO directly. This determination is based on the fact that HCHO enhancement relative to the background for burning flares, was observed at the end of the stack... HCHO emissions from flares varied greatly. The range for HCHO flux from different observed flares was between 0.2 – 2.2 kg/hr... Emission inventories did not reflect or underreported the majority of HCHO emissions observed by the I-DOAS instrument."

The flares observed by the I-DOAS in Texas City were likely routine flares, and not emergency flares associated with major process upsets, which can release an order of magnitude or more of HCHO. After all, a flare is a combustion source, so if we admit that cars and stationary engines can emit HCHO, why not flares? The official emissions inventories in Houston do not generally report flare emissions of HCHO, so something is definitely missing in these inventories!

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