General comments

Data on size distribution of CUPs are scarce. Results of size distribution of CUPs in this paper improve our understanding of the impact of CUPs on human health and also on the environmental fate of CUPs. Data of this work is in good quality. However, some data description or discussion parts are not attractive enough and purpose of few parts of the discussion is not clear, so I suggest to rephrase them (see details in the specific comments).

Specific comments

P2: The words 'certain compounds', 'other compounds', 'nine pesticides', 'four pesticides' make the abstract sounds like this paper only report data or phenomenon while there is a lack of an explanation of the data. I suggest to rephrase the sentence in a more attractive way.

P2 L16: I suggest to clearly state how is the “anomalous partitioning…suggesting the influence of current pesticide application on gas-particle distributions”.

P2 L19: Generally, ‘find particles’ means PM2.5 (<2.5 μm). Fine particles can reach lung via breathing. Here, if health effect of the size distribution of pesticides is emphasized, it is better to choose 2.5μm as the cut point.

P3 L14: “Finally, pesticides can volatilize from soils, plants and from old industrial sites.” Volatilization from water bodies (e.g. ocean, lake) should be included. Actually, that means volatilization of pesticides happen during all kinds of air-surface exchange of pesticides.

P5 L1: For study of gas/particle partitioning, why collect PM10 but not total suspended particles (TSP)?

P7 L20: what does “timing” mean? The seasonality of detection frequency?

P7 L21: “their persistence in the environment”. But this section “3.1 Detection frequency at the background site” don’t discussed the relation between detection frequency and the persistence of pesticides.

P9 L8-23: I am not clear this part of discussion is for explanation of which part of the data.

P10: “3.3 Seasonal variations at the background site”. Do the seasonal variations of pesticide concentration relating with air masses from different regions in different seasons? How about evaluating the air mass back trajectories (e.g. with the open software HYSPLIT).