

Interactive comment on “Atmospheric organochlorine pesticides and polychlorinated biphenyls in urban areas of Nepal: spatial variation, sources, temporal trends and long range transport potential” by Balram Pokhrel et al.

Anonymous Referee #1

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This study demonstrates the application of electricity-free polyurethane foam disk samplers in 3 major Nepalese cities for surveillance, research and monitoring of persistent organic pollutants. The data are used to address data gaps for these compounds in Nepal and to highlight issues related to ongoing illegal use of some internationally banned chemicals (under the Stockholm Convention on POPs) and the role of urban areas as hot spot emission sources for some POPs and their potential for transport/deposition to more sensitive environments. In addition to investigating inter-city differences in POPs levels between the three cities the study also explores intra-city

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variability by deploying at multiple sites within each city; and in addition to this spatial assessment, seasonality of concentrations in air is also evaluated through sampling for consecutive 2-month periods over a full year. The sampling (e.g. deployment of duplicates at each site) and analysis methodology (e.g. using deuration compounds to assess site-specific sampling rates) and QA/QC all seem to be at the forefront of the field and lend confidence to the data. Overall I think the paper nicely demonstrates how passive air samplers can be deployed at multiple sites to generate new knowledge and understanding of the sources, levels and fate of POPs.

Comments: 1.) Although the authors do a good job at explaining how site specific sampling rates are determined using Depuration Compounds, there is no information on how the effective air sample volumes are calculated. I am specifically wondering about the more volatile compounds like HCB and α -HCH (and perhaps also γ -HCH) that will equilibrate or approach equilibrium during the 2-month deployment periods. This approach to equilibrium should result in reduced effective air sample volumes for these compounds relative to the other POPs. This effect may also have a role to play in observed seasonality since the sorptive capacity of the PUF disk is temperature dependent.

2.) There are several places in the paper (e.g. line 164) where results are reported to several significant figures. This should be reduced to 2 or at most 3 significant figures.

3.) should read "...Global Atmospheric Passive Sampling (GAPS) network..."

4.) line 347, Eq. 1 and related text and SI. Shouldn't these rate constant k -values be lower case?

5.) Figure 1 – what is the source (reference?) of the climate classification map?

6.) Figure 2 - please double check y-axis label. Also why does it end at 2640? The spacing seems strange 2600 to 2640 takes up almost a third of the figure (y-axis scale) yet 0 to 40 (the same 40 units) takes up much less space. I realize that this is a broken

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scale but something seems off with the spacing. 7.) Table 1 – use consistent number of significant figures throughout i.e. either 2 or 3 significant figures.

End//

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