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Interactive comment on "Total Atmospheric Mercury Deposition in Forest Areas in Korea" *by* Jin-Su Han et al.

Anonymous Referee #2

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Review of acp-2016-7, Total Atmospheric Mercury Deposition in Forest Areas in Korea By Han et al., 2016 ACPD General comments: Han et al. report mercury (Hg) deposition to forest in Korea. I read this study like a routine measurement with discontinuous time periods. The way this manuscript was written more like a data report without detail discussions and data analysis. Most references are also out of date. There is no cutting edge research in current manuscript. I suggest the authors re-consider the manuscript structure and investigate the data in more detail way than current data analysis.

Specific comments: Abstract is written in the way with number reporting, there is no significant conclusions and any new discovery. After reading the abstract, I am not attracted by this abstract. Most of these measurements have been done somewhere else on the earth, what is the significant finding here? What will the data help global or regional mercury research? If the authors just want to submit a routine report, they

should consider some regional environmental journals. Line 69-71, the original papers were not cited Line 72-74, re-write, PBM is particle-bound Hg, how can it be adsorbed on PM? You could say oxidized mercury or GOM. Line 77-79, add Selin et al., 2007 and Lindberg et al., 2007 Line 84-86, not clear, also update the reference here Line 88-89, please be more clear, how does uptake via roots impact Hg deposition. Also stomatal uptake of Hg0 emitted from soils? I don't understand this sentence. Line 133, please discuss problems from using KCl coated quartz surface. Lyman et al., 2010; Huang et al., 2013/2015, McClure et al., 2015, Lynam and Keeler 2006 Sampling method, what are the time periods? Analytical method, did the author develop the thermal desorption method? If not please cite references. If I understand this correctly, KCl QFF was heated to 525C and QFF was heated to 900C to separate GOM and PBM. Two questions here. 1. Is dry deposition collected up facing or down facing? and how up/down facing impact measurement? 2. Is this possible for GOM attach on QFF and quantified as PBM, and PBM attach on KCl-QFF and quantified as GOM? What is the recovery for the thermal desorption system? Recovery for Tekran 2537 direct injection 87% is too low usually from 93-107%. How many sampling time periods? Only 4 field blanks? Why? Volatilization from soil, what are MDL or blanks? Section 3.1, if you only have a short time period during each season, how can you really see the seasonal pattern? Please add more detail information for sampling plan. What statistical test are you using, please add information for every place you mention significant difference. Line 281, what is mechanical weathering?

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