Atmos. Chem. Phys. Discuss., 14, C3585–C3587, 2014
www.atmos-chem-phys-discuss.net/14/C3585/2014/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Atmospheric occurrence, transport and deposition of polychlorinated biphenyls and hexachlorobenzene in the Mediterranean and Black Seas" *by* N. Berrojalbiz et al.

Anonymous Referee #1

Received and published: 13 June 2014

The manuscript posted a big dataset of the concentrations of PCBs and HCB in the atmosphere of the Mediterranean and Black Seas. The authors have discussed the spatial distributions, partitioning between gaseous and particle phase and certain factors controlling the atmospheric levels. Based on the atmospheric concentrations reported in this manuscript, atmospheric dry deposition fluxes with particles and air-water gas exchange have been calculated for PCBs and HCB in the Mediterranean and Black Seas. This work could lead a better understanding of the environmental fate of these pollutants in the regional marine environment after they have been banned internation-

ally for several decades. I would suggest it can be accepted after a moderate revision.

Specific comment

This manuscript is one of the series publications generated from the samples collected "on board the R/V Garcia del Cid during the two THRESHOLDS sampling cruises carried out in June 2006 and May 2007" with an general purpose to evaluate air-water-phytoplankton of several classes of organic pollutants. I am wondering what drives that the authors published the data of PCBs and HCB in seawater in a previous paper "Berrojalbiz, N., Dachs, J., Del Vento, S., Ojeda, M. j., Valle, M. C., Castro-Jiménez, J., Mariani, G., Wollgast, J., and Hanke, G.: Persistent organic pollutants in mediterranean seawater and processes affecting their accumulation in plankton, Environ. Sci. Tech., 45(10), 4315-4322, 2011", and intend to publish the atmospheric data in three years late? I guess the air-water exchange may significantly affect the atmospheric concentrations of these pollutants as there are limited direct sources exist in the study area.

"The air samples for OCl analysis were taken using a high-volume air sampler (MCV, Barcelona, Spain) operating at a flow rate of 40 m3 h-1" Have the authors checked breakthrough for both particle and gaseous phases when the air sampler was operated with such high flow rate? If the breakthrough of particle very uncertain, it will be not convenient to use these dataset for evaluating gas-particle partition, and further evaluating the relation of Kp-Koa in context.

The authors stated that "The Σ41PCB concentrations reported in this study are also in the same range of what was found by Iwata and coworkers (sum of 40 congeners) (Iwata et al., 1993). This comparison suggests a limited decline in PCB atmospheric concentrations for the last 15 years in the Mediterranean Sea region." While in this work, the atmospheric residence times over Mediterranean Sea were calculated for PCBs, "on average, R ranged from 1.2 days for less chlorinated compounds (PCB 18), to 3.9 d for more chlorinated congeners (PCB 187)", which could not support this

constant PCB levels in 15 years in the Mediterranean Sea. The authors may give more explanation for relatively high concentrations of PCBs reported in this work.

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 9747, 2014.