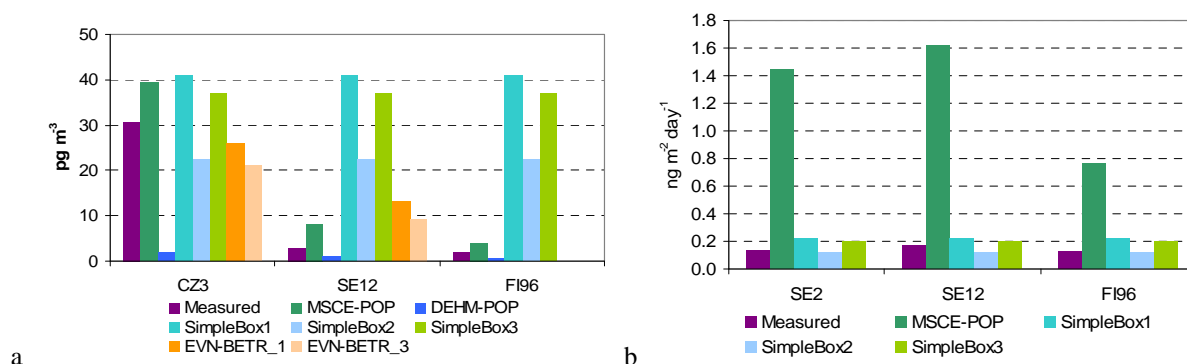


Computed and observed annual mean air concentrations and depositions of PCB-28 are presented in Fig. 3.168. Measured concentrations of PCB-28 decrease in the northern direction. This gradient is reflected in model results of EVN-BETR and UK-MODEL, MSCE-POP and DEHM-POP.

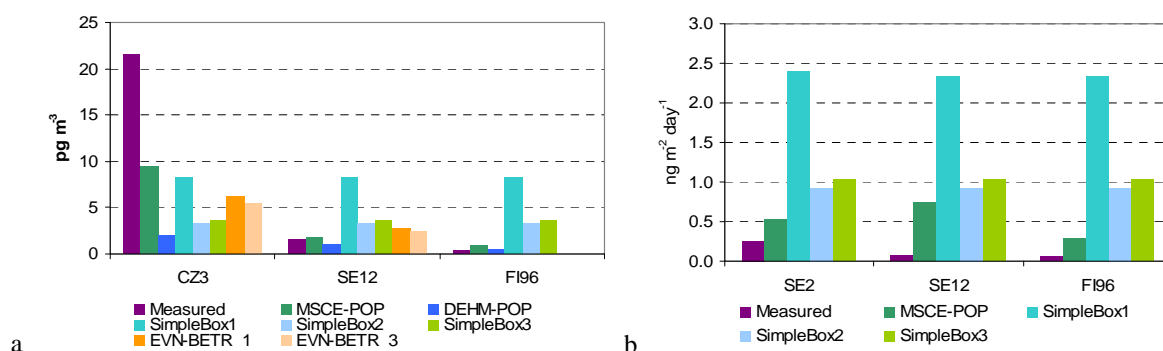


**Fig. 3.168.** Comparison of computed air concentrations (a) and depositions (b) of PCB-28 with measurements for 2000

Level of PCB-28 concentrations computed by SimpleBox model is close to the one measured at Kosetice (CZ3). The same value is obtained for Aspvreten (SE12) and Pallas (FI96) overestimating observed concentrations.

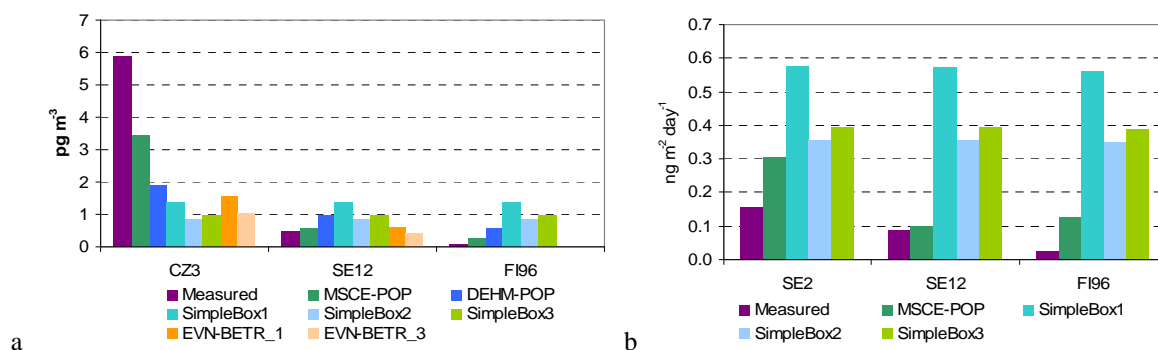
Comparison of bulk deposition (wet + dry) fluxes were done for MSCE-POP and three data sets of SimpleBox. It can be seen that SimpleBox provided close values of depositions in all three cases. At the same time deposition fluxes of MSCE-POP significantly overestimate observed fluxes.

Comparison of computed and observed PCB-153 annual mean concentrations and depositions is presented in Fig. 3.169. Again similar decrease in measured concentrations of this PCB congener can be seen in northern direction. MSCE-POP and DEHM-POP also show drop of concentrations in this direction and good agreement for Aspvreten (SE12) and Pallas (FI96). Mean concentrations at Kosetice (CZ3) are underestimated by all models. In case of SimpleBox model results there is some underestimation for Kosetice (CZ3) and overestimation for other two sites. In addition to these three models data of EVN-BETR model obtained for PCB-153 on “reference” data set with the use of initial concentrations given as input data and historical emissions were also compared with measurements. Some decrease can be seen from Kosetice (CZ3) to Aspvreten (SE12) in concentrations computed by this model. Computed concentrations for Aspvreten (SE12) are in good agreement with measured and underestimated for Kosetice (CZ3).



**Fig. 3.169.** Comparison of computed air concentrations (a) and depositions (b) of PCB-153 with measurements for 2000

Values of measured bulk deposition fluxes of PCB-153 were compared with the results of MSCE-POP and SimpleBox models. Computed bulk deposition fluxes of all the models overestimate measured values. It can be seen that observed spatial trend in depositions do not captured by models. Close results were obtained in comparison of PCB-180 computed and observed annual mean concentrations (Fig. 3.170).



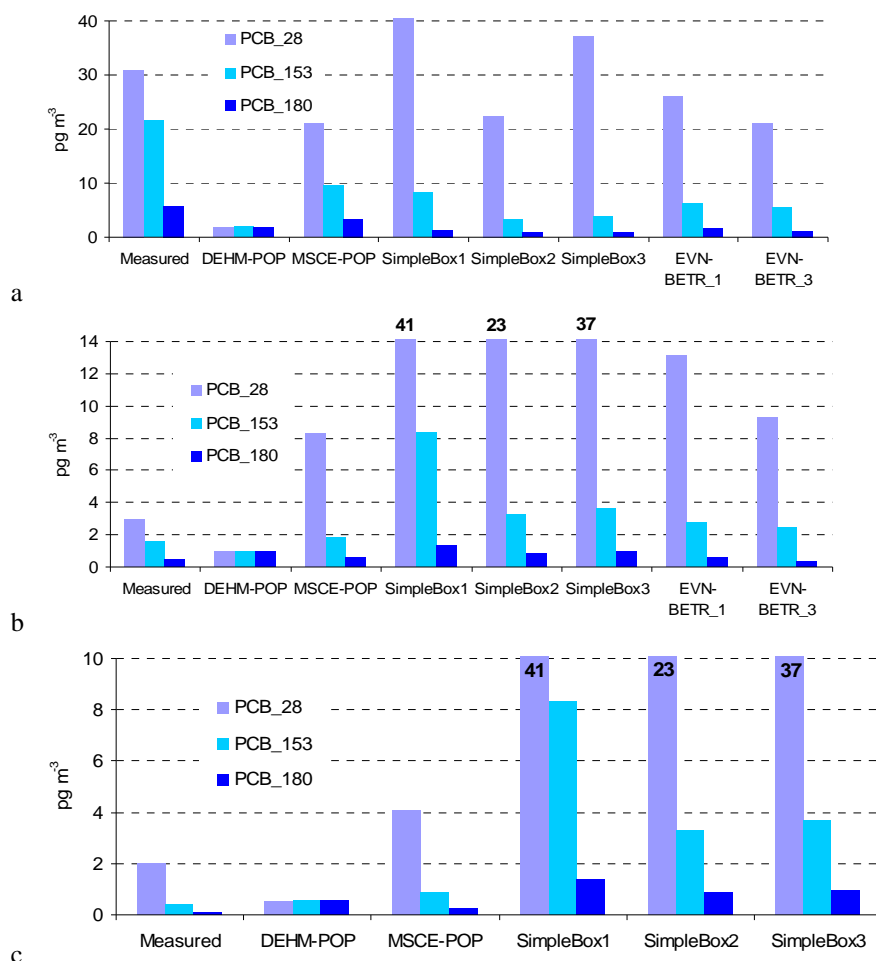
**Fig. 3.170.** Comparison of computed air concentrations (a) and depositions (b) of PCB-180 with measurements for 2000

Measured concentrations of PCB-180 in air are decreased in northern direction which is reflected in EVN-BETR and UK-MODEL, MSCE-POP and DEHM-POP model results. Mean concentrations at Kosetice (CZ3) are underestimated by all the models. Concentrations computed by MSCE-POP and EVN-BETR and UK-MODEL for Aspvrten (SE12) are in good agreement with measured value. Computed values of all other models overestimate slightly the measured value. At Pallas (FI96) for all the models more significant overestimation can be seen.

As for PCB-28 comparison of bulk deposition fluxes were done for the results of MSCE-POP and SimpleBox models. It can be seen that both models overestimate observed deposition fluxes of PCB-180 for all three sites. Results of MSCE-POP are closer to observed deposition values especially for Aspvrten (SE12).

### Comparison of PCB congener composition in measured and computed air concentrations and depositions

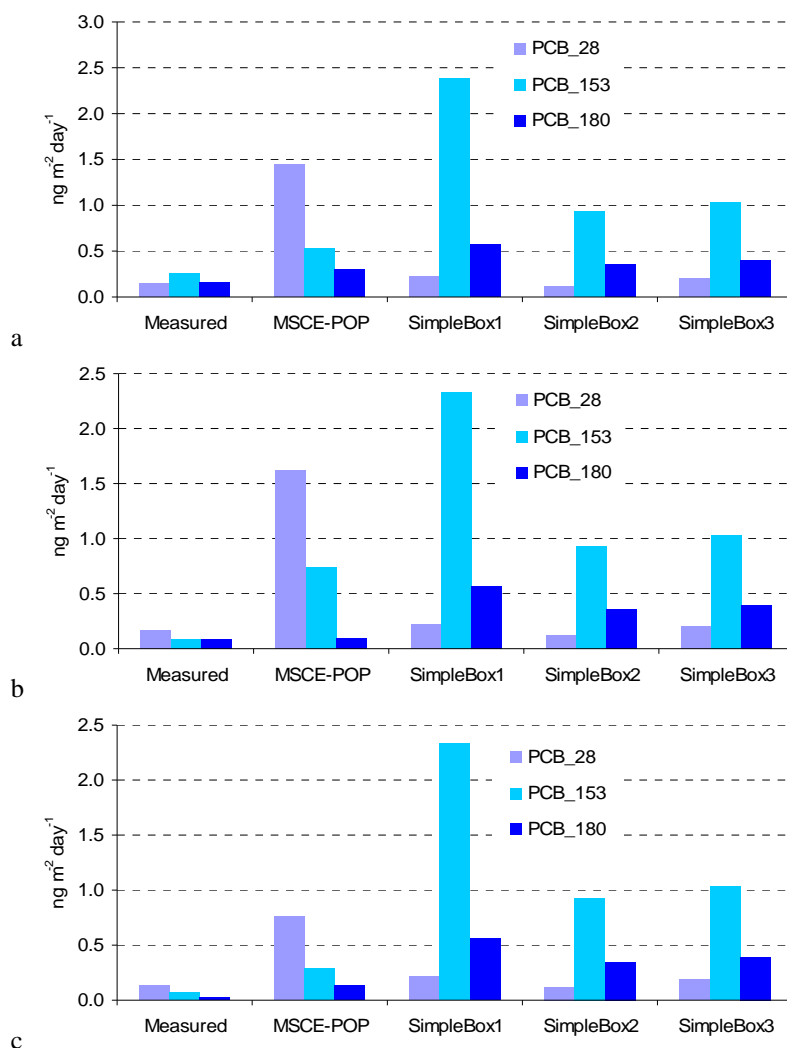
Comparison of computed and measured congener composition in air for the selected sites is presented in Fig. 3.171.



**Fig.3.172.** Comparison of PCB congener composition in measured and computed air concentrations for 2000, (a) – Kosetice (CZ3), (b) – Aspvreten (SE12), (c) – Pallas (FI96)

Practically the same composition of selected PCB congeners in air is observed at these sites. Lighter congener PCB-28 dominates for all the sites. Heavier congeners PCB-153 and PCB-180 have lower values of air concentrations. More significant difference between PCB-28 and heavier congeners is found for northern site Pallas (FI96). It can be seen that most of the models have captured measured congener composition. In case of DEHM-POP model same values of computed air concentrations of selected PCB congeners were obtained.

Comparison of computed and measured congener composition in bulk deposition fluxes for the selected sites is presented in Fig. 3.173.



**Fig. 3.174.** Comparison of PCB congener composition in measured and computed depositions for 2000, (a) – Rorvik (SE2), (b) – Aspvreten (SE12), (c) – Pallas (FI96)

As it can be seen PCB congener composition in bulk deposition fluxes is not well captured by the models. In case of Rorvik (SE2) higher value of observed PCB-153 flux was found comparing to other two congeners. Similar composition of congeners was obtained by SimpleBox model and different by MSCE-POP model. In case of Aspvreten (SE12) both models provided different pattern of congeners in comparison to observed one. For Pallas (FI96) MSCE-POP obtained close to observed congener composition while SimpleBox obtained different results.

### Conclusion remarks

Participated models reasonably reproduced observed levels and trends of PCB-153 mean annual concentrations. Comparison for other congeners has shown reasonable agreement for PCB-180 and larger differences for PCB-28. Observed levels of PCB deposition fluxes are overestimated by all the models.

PCB congener composition in air concentrations obtained by measurements is reasonably reproduced by the models. More discrepancies in found modelled and measured congener composition of PCB deposition fluxes.