COMPARISON OF RESULTS OF STAGE II COMPUTATIONAL EXPERIMENTS FOR PCB-28

A comparison of results on computational experiments of Stage II for PCB-28 obtained by the participating models is presented in this Annex. Five models participated in this comparison: CliMoChem, DEHM-POP, EVN-BETR and UK-MODEL, SimpleBox, and MSCE-POP.

B.1. Distribution of PCB-28 mass between environmental compartments

B.1.1. Comparison of calculated values of PCB-28 mass in the atmosphere

According to the programme of Stage II results of computational experiments on mass balance include masses of PCB-28 contained in the atmosphere within layers of 1 km, 5 km and 10 km height.

Reference data set. Calculation results on PCB-28 mass contained in 1 km layer of the atmosphere (kg) calculated by models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.1.

Monthly values of PCB-28 mass contained in 1 km layer of the atmosphere calculated by participating models on the basis of "reference" data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.1 a and b, respectively.

Calculation results on PCB-28 mass contained in 5 km layer of the atmosphere (kg) calculated by models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.2.

Monthly values of PCB-28 mass contained in 5 km layer of the atmosphere calculated by the models on the basis of "reference" data set are compared in Fig. B.2.

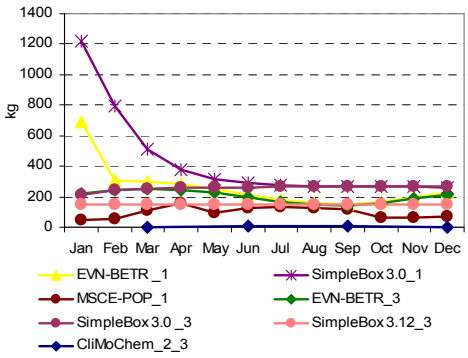


Fig. B.1a. *PCB-28 mass in the 1 km layer of the atmosphere (kg) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions*

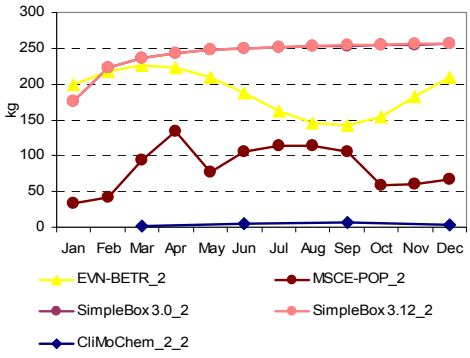


Fig. B.1b. *PCB-28 mass in the 1 km layer of the atmosphere (kg) calculated by the participating models on the basis of "reference" data set and zero-initial conditions*

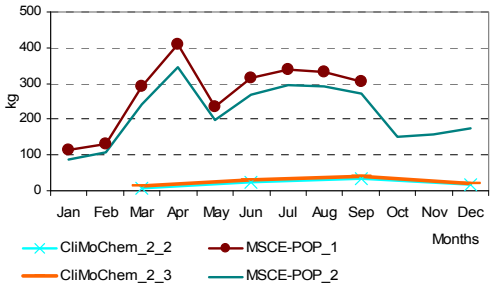


Fig. B.2. *PCB-28 mass in the 5 km layer of the atmosphere (kg) calculated by the participating models on the basis of "reference" data set*

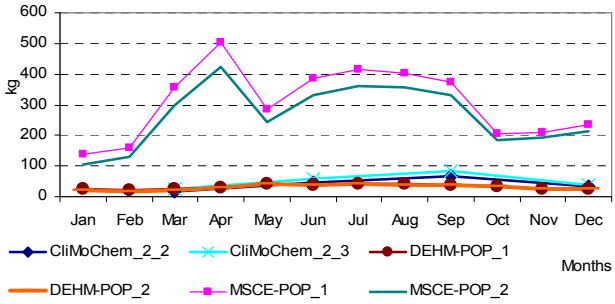


Fig. B.3. *PCB-28 mass in the 10 km layer of the atmosphere (kg) calculated by the participating models on the basis of "reference data set*

Table B.1. *Calculation results: PCB-28 mass contained in 1 km layer of the atmosphere (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data			Results obtained on the basis of historical emissions				*m*	σ	Month	Results obtained on the basis of zero initial concentrations					*m*	σ
	EVN-BETR_1[a]	SimpleBox 3.0_1[b]	MSCE-POP_1	EVN-BETR_3[a]	CliMo Chem_2_3	SimpleBox 3.0 _3[b]	SimpleBox 3.12_3[b]				EVN-BETR_2[a]	CliMo Chem_2_2	SimpleBox 3.0_2[b]	SimpleBox 3.12_2[b]	MSCE-POP_2		
Jan	689.41	1222.01	44.30	220.95		215.00	148.55	*423.37*	*449.94*	Jan	199.39		176.62	176.62	33.39	*146.51*	*76.17*
Feb	308.66	790.77	51.37	243.35		245.23	148.55	*297.99*	*257.63*	Feb	218.53		223.03	223.10	41.94	*176.65*	*89.83*
Mar	297.92	507.60	113.91	252.19		254.19	148.55	*262.39*	*138.97*	Mar	226.21		236.46	236.60	94.50	*198.44*	*69.47*
Seas_1	**432.00**	**840.13**	**69.86**	**238.83**	**2.45**	**238.14**	**148.55**	***281.42***	***282.47***	**Seas_1**	**214.71**	**1.57**	**212.04**	**212.10**	**56.61**	***139.41***	***102.57***
Apr	284.85	375.13	159.78	246.53		258.94	148.55	*245.63*	*84.00*	Apr	223.64		243.52	243.75	134.58	*211.37*	*52.05*
May	254.78	314.98	91.04	226.57		261.59	148.55	*216.25*	*82.04*	May	209.77		247.42	247.74	77.04	*195.49*	*80.96*
Jun	215.75	287.25	122.23	197.66		263.24	148.55	*205.78*	*63.81*	Jun	187.17		249.82	250.24	104.83	*198.02*	*68.83*
Seas_2	**251.79**	**325.79**	**124.35**	**223.58**	**6.02**	**261.26**	**148.55**	***191.62***	***106.71***	**Seas_2**	**206.86**	**4.63**	**246.92**	**247.24**	**105.48**	***162.23***	***105.42***
Jul	179.77	274.47	132.04	168.96		264.37	148.55	*194.69*	*60.26*	Jul	162.89		251.46	251.97	114.54	*195.22*	*68.16*
Aug	156.46	268.44	128.82	149.57		265.24	148.55	*186.18*	*63.16*	Aug	145.78		252.70	253.32	113.26	*191.27*	*72.53*
Sep	150.15	265.66	118.65	144.76		265.93	148.55	*182.28*	*65.69*	Sep	141.78		253.70	254.41	105.45	*188.84*	*76.76*
Seas_3	**162.13**	**269.53**	**126.51**	**154.43**	**8.19**	**265.18**	**148.55**	***162.07***	***88.85***	**Seas_3**	**150.15**	**6.90**	**252.62**	**253.24**	**111.08**	***154.80***	***103.76***
Oct	163.70	264.35	65.98	158.06		266.51	148.55	*177.86*	*76.56*	Oct	154.90		254.55	255.35	59.09	*180.97*	*93.95*
Nov	194.05	263.74	66.80	186.57		267.02	148.55	*187.79*	*75.19*	Nov	182.27		255.29	256.19	60.93	*188.67*	*91.94*
Dec	**226.56**	263.46	74.40	**215.74**		267.46	148.55	*199.36*	*74.77*	Dec	209.17		255.93	256.93	67.67	*197.43*	*89.33*
Seas_4	**194.77**	**263.85**	**69.06**	**186.79**	**3.80**	**267.00**	**148.55**	***161.97***	***97.41***	**Seas_4**	**182.12**	**3.37**	**255.26**	**256.16**	**62.56**	***151.89***	***114.57***
Annual	**260.17**	**424.82**	**97.44**	**200.91**	**5.11**	**257.89**	**148.55**	***199.27***	***134.57***	**Annual**	**188.46**	**4.12**	**241.71**	**242.19**	**83.93**	***152.08***	***104.90***

EVN-BETR _1 - EVN-BETR and UK-MODEL results calculated on the basis of initial concentrations given as input data;
EVN-BETR _2 - EVN-BETR and UK-MODEL results calculated on the basis of zero initial concentrations;
EVN-BETR _3 - EVN-BETR and UK-MODEL results calculated on the basis of historical emissions for 20-year period;
CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
[a] - EVN-BETR and UK-MODEL results were calculated with the help of a single box version of European model.
[b] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Table B.2. *Calculation results: PCB-28 mass contained in 5 km layer of the atmosphere (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data	Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations		*m*	σ
	MSCE-POP_1	CliMoChem_2_3				CliMoChem_2_2	MSCE-POP_2		
Jan	113.82				Jan		85.81		
Feb	132.01				Feb		107.76		
Mar	292.69				Mar		242.81		
Seas_1	**179.51**	**12.26**	***95.88***	***118.26***	**Seas_1**	**7.87**	**145.46**	***76.66***	***97.29***
Apr	410.57				Apr		345.81		
May	233.92				May		197.95		
Jun	314.07				Jun		269.37		
Seas_2	**319.52**	**30.08**	***174.80***	***204.66***	**Seas_2**	**23.14**	**271.04**	***147.09***	***175.30***
Jul	339.29				Jul		294.32		
Aug	331.01				Aug		291.03		
Sep	304.88				Sep		270.96		
Seas_3	**325.06**	**40.94**	***183.00***	***200.91***	**Seas_3**	**34.49**	**285.44**	***159.97***	***177.44***
Oct	169.54				Oct		151.83		
Nov	171.64				Nov		156.55		
Dec	191.16				Dec		173.87		
Seas_4	**177.45**	**19.00**	***98.22***	***112.04***	**Seas_4**	**16.84**	**160.75**	***88.79***	***101.76***
Annual	**250.38**	**25.57**	***137.98***	***158.97***	**Annual**	**20.58**	**215.67**	***118.13***	***137.95***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

Calculation results on PCB-28 mass contained in 10 km layer of the atmosphere (kg) calculated by models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table B.3.

Monthly values of PCB-28 mass contained in 10 km layer of the atmosphere calculated by the participating models on the basis of “reference” data set are compared in Fig. B.3.

Own/alternative data set. Calculation results on PCB-28 mass contained in 1 km layer of the atmosphere (kg) calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table B.4.

Monthly values of PCB-28 mass contained in 1 km layer of the atmosphere calculated by participating models on the basis of “own or alternative” data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.4a and b, respectively.

Calculation results on PCB-28 mass contained in 5 km layer of the atmosphere (kg) calculated by models on the basis of “own or alternative” data set together with statistical parameters used for evaluation are presented in Table B.5.

Monthly values of PCB-28 mass contained in 5 km layer of the atmosphere calculated by the models on the basis of “own or alternative” data sets are compared in Fig. B.5.

Calculation results on PCB-28 mass contained in 10 km layer of the atmosphere (kg) calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table B.6.

Monthly values of PCB-28 mass contained in 10 km layer of the atmosphere calculated by the participating models on the basis of “own or alternative” data sets are compared in Fig. B.6.

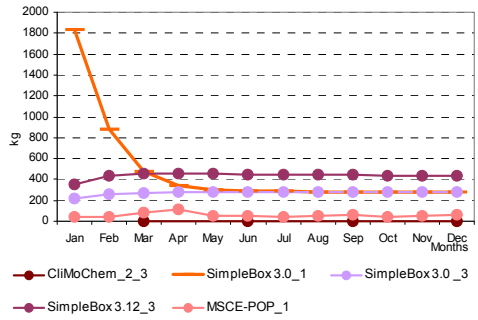


Fig.B.4a. *PCB-28 mass contained in 1 km layer of the atmosphere (kg) calculated by the participating models on the basis of “own or alternative” data set and non-zero initial conditions*

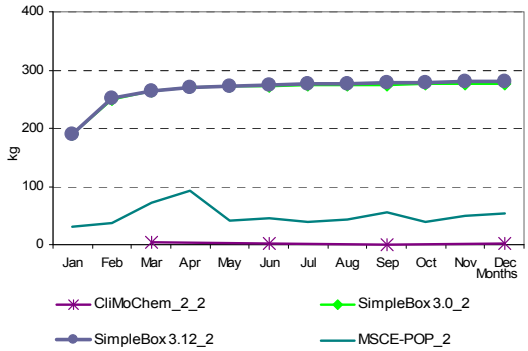


Fig. B.4b. *PCB-28 mass contained in 1 km layer of the atmosphere (kg) calculated by the participating models on the basis of “own or alternative” data sets and zero initial conditions*

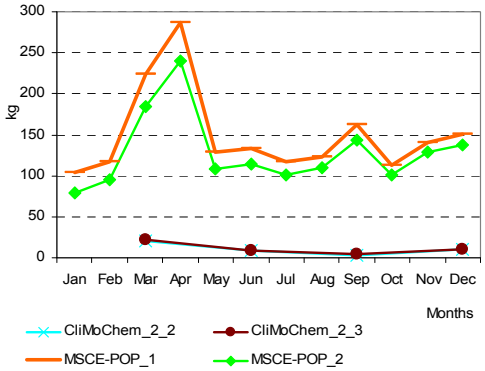


Fig. 3.5. *PCB-28 mass in 5 km layer of the atmosphere (kg) calculated by the participating models on the basis of “own or alternative” data sets*

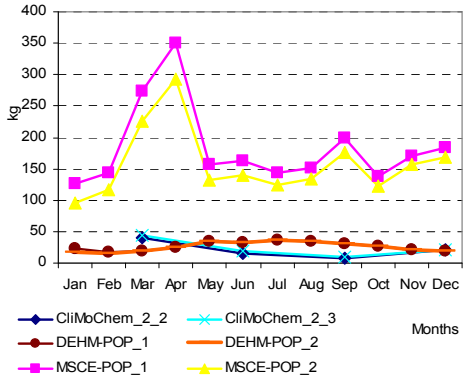


Fig. 3.6. *PCB-28 mass contained in 10 km layer of the atmosphere (kg) calculated by the participating models on the basis of “own or alternative” data sets*

Table B.3. *Calculation results: PCB-28 mass contained in 10 km layer of the atmosphere (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations			*m*	σ
	DEHM-POP_1[a]	MSCE-POP_1	CliMoChem_2_3				CliMo Chem_2_2	DEHM-POP_2[a]	MSCE-POP_2		
Jan	26.00	139.19		*82.60*	*80.04*	Jan		19.52	104.94	*62.23*	*60.40*
Feb	19.36	161.43		*90.40*	*100.46*	Feb		18.79	131.78	*75.29*	*79.90*
Mar	23.33	357.94		*190.64*	*236.61*	Mar		23.06	296.94	*160.00*	*193.66*
Seas_1	**22.90**	**219.52**	**24.51**	***88.98***	***113.06***	**Seas_1**	**15.74**	**20.46**	**177.89**	***71.36***	***92.28***
Apr	30.32	502.10		*266.21*	*333.60*	Apr		30.10	422.90	*226.50*	*277.75*
May	40.33	286.07		*163.20*	*173.76*	May		40.12	242.08	*141.10*	*142.80*
Jun	37.32	384.09		*210.71*	*245.21*	Jun		37.12	329.42	*183.27*	*206.69*
Seas_2	**35.99**	**390.75**	**60.16**	***162.30***	***198.21***	**Seas_2**	**46.28**	**35.78**	**331.47**	***137.84***	***167.77***
Jul	41.89	414.93		*228.41*	*263.78*	Jul		41.67	359.93	*200.80*	*225.05*
Aug	39.88	404.80		*222.34*	*258.04*	Aug		39.66	355.91	*197.79*	*223.63*
Sep	36.92	372.85		*204.89*	*237.54*	Sep		36.77	331.36	*184.07*	*208.31*
Seas_3	**39.56**	**397.53**	**81.87**	***172.99***	***195.61***	**Seas_3**	**68.99**	**39.37**	**349.07**	***152.48***	***170.90***
Oct	32.87	207.34		*120.10*	*123.37*	Oct		32.81	185.67	*109.24*	*108.09*
Nov	25.84	209.91		*117.87*	*130.15*	Nov		25.81	191.45	*108.63*	*117.13*
Dec	23.54	233.78		*128.66*	*148.66*	Dec		23.52	212.64	*118.08*	*133.73*
Seas_4	**27.42**	**217.01**	**38.00**	***94.14***	***106.54***	**Seas_4**	**33.67**	**27.38**	**196.59**	***85.88***	***95.93***
Annual	**31.47**	**306.20**	**51.14**	***129.60***	***153.26***	**Annual**	**41.17**	**30.75**	**263.75**	***111.89***	***131.62***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
DEHM-POP_1 - DEHM-POP results calculated on the basis of initial concentrations given as input data;
DEHM-POP_2 - DEHM-POP results calculated on the basis of zero initial concentrations;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
* - data of DEHM-POP are given for 15 km layer of the atmosphere.

Table B.4. *Calculation results: PCB-28 mass contained in 1 km layer of the atmosphere (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation.*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	SimpleBox 3.0_1[a]	MSCE-POP_1	CliMo Chem_ 2_3	SimpleBox 3.0 _3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	1830.78	40.34		213.55	351.00	*608.92*	*824.43*	Jan		190.62	190.68	30.55	*137.28*	*92.44*
Feb	879.30	45.55		259.62	435.86	*405.08*	*354.14*	Feb		250.28	250.60	37.21	*179.36*	*123.11*
Mar	472.26	86.98		271.14	451.74	*320.53*	*180.02*	Mar		264.01	264.69	71.95	*200.22*	*111.09*
Seas_1	**1060.78**	**57.62**	**4.46**	**248.10**	**412.87**	***356.77***	***425.50***	**Seas_1**	**3.98**	**234.97**	**235.33**	**46.57**	***130.21***	***122.41***
Apr	342.50	111.46		275.48	454.51	*295.99*	*143.48*	Apr		269.19	270.26	93.41	*210.95*	*101.79*
May	302.61	49.90		277.41	453.13	*270.76*	*166.43*	May		271.48	272.95	42.20	*195.54*	*132.80*
Jun	289.81	51.88		278.50	450.65	*267.71*	*163.97*	Jun		272.78	274.65	44.62	*197.35*	*132.27*
Seas_2	**311.64**	**71.08**	**1.89**	**277.13**	**452.76**	***222.90***	***184.08***	**Seas_2**	**1.62**	**271.15**	**272.62**	**60.08**	***151.37***	***141.20***
Jul	285.48	45.38		279.26	447.91	*264.51*	*165.64*	Jul		273.70	275.96	39.44	*196.36*	*135.91*
Aug	283.80	47.91		279.86	445.16	*264.18*	*163.46*	Aug		274.44	277.09	42.52	*198.01*	*134.67*
Sep	283.04	63.13		280.35	442.54	*267.26*	*155.79*	Sep		275.04	278.06	56.00	*203.03*	*127.34*
Seas_3	**284.11**	**52.14**	**0.90**	**279.82**	**445.20**	***212.43***	***183.24***	**Seas_3**	**0.67**	**274.39**	**277.03**	**45.98**	***149.52***	***146.89***
Oct	282.61	43.61		280.77	440.02	*261.75*	*163.47*	Oct		275.56	278.94	39.06	*197.85*	*137.53*
Nov	282.35	54.46		281.13	437.62	*263.89*	*157.78*	Nov		276.01	279.75	50.00	*201.92*	*131.58*
Dec	282.18	58.51		281.45	435.35	*264.37*	*155.16*	Dec		276.41	280.49	53.45	*203.45*	*129.92*
Seas_4	**282.38**	**52.19**	**2.18**	**281.12**	**437.67**	***211.11***	***180.42***	**Seas_4**	**2.08**	**275.99**	**279.73**	**47.50**	***151.33***	***147.29***
Annual	484.73	58.26	2.36	271.54	437.12	***250.80***	***217.18***	**Annual**	2.09	264.13	266.18	**50.03**	***145.61***	***139.42***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
[a] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Table B.5. *Calculation results: PCB-28 mass contained in 5 km layer of the atmosphere (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data	Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations		*m*	σ
	MSCE-POP_1	CliMoChem_2_3				CliMoChem_2_2	MSCE-POP_2		
Jan	103.64				Jan		78.49		
Feb	117.05				Feb		95.60		
Mar	223.50				Mar		184.88		
Season_1	**148.06**	**22.30**	***85.18***	***88.92***	**Season_1**	**19.91**	**119.66**	***69.78***	***70.53***
Apr	286.40				Apr		240.03		
May	128.22				May		108.45		
Jun	133.30				Jun		114.65		
Season_2	**182.64**	**9.45**	***96.05***	***122.46***	**Season_2**	**8.08**	**154.38**	***81.23***	***103.45***
Jul	116.60				Jul		101.33		
Aug	123.12				Aug		109.25		
Sep	162.21				Sep		143.89		
Season_3	**133.98**	**4.48**	***91.57***	***91.57***	**Season_3**	**3.35**	**118.16**	***81.18***	***81.18***
Oct	112.06				Oct		100.36		
Nov	139.94				Nov		128.48		
Dec	150.34				Dec		137.34		
Season_4	**134.11**	**10.92**	***87.11***	***87.11***	**Season_4**	**10.41**	**122.06**	***78.95***	***78.95***
Annual	**149.70**	**11.79**	***80.74***	***97.51***	**Annual**	**10.44**	**128.56**	***69.50***	***83.53***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

Table B.6. *Calculation results: PCB-28 mass contained in 10 km layer of the atmosphere (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions	*m*	*σ*	Month	Results obtained on the basis of zero initial concentrations			*m*	σ
	DEHM-POP_1[a]	MSCE-POP_1	CliMoChem_2_3				CliMoChem_2_2	DEHM-POP_2[a]	MSCE-POP_2		
Jan	22.63	126.75		*74.69*	*73.62*	Jan		17.26	95.98	*56.62*	*55.67*
Feb	16.50	143.14		*79.82*	*89.55*	Feb		16.18	116.92	*66.55*	*71.23*
Mar	19.39	273.32		*146.36*	*179.56*	Mar		19.23	226.10	*122.66*	*146.28*
Seas_1	**19.51**	**181.07**	**44.61**	***81.73***	***86.94***	**Seas_1**	**39.82**	**17.56**	**146.33**	***67.90***	***68.83***
Apr	25.48	350.25		*187.86*	*229.65*	Apr		25.35	293.54	*159.45*	*189.64*
May	35.03	156.80		*95.92*	*86.11*	May		34.90	132.62	*83.76*	*69.10*
Jun	32.27	163.01		*97.64*	*92.45*	Jun		32.15	140.21	*86.18*	*76.41*
Seas_2	**30.93**	**223.36**	**18.91**	***91.06***	***114.73***	**Seas_2**	**16.15**	**30.80**	**188.79**	***78.58***	***95.73***
Jul	35.95	142.60		*89.27*	*75.41*	Jul		35.80	123.92	*79.86*	*62.31*
Aug	34.40	150.56		*92.48*	*82.14*	Aug		34.26	133.60	*83.93*	*70.25*
Sep	31.41	198.37		*114.89*	*118.06*	Sep		31.33	175.97	*103.65*	*102.27*
Seas_3	**33.92**	**163.85**	**8.97**	***68.91***	***83.16***	**Seas_3**	**6.70**	**33.80**	**144.50**	***61.67***	***73.00***
Oct	27.60	137.04		*82.32*	*77.38*	Oct		27.57	122.73	*75.15*	*67.29*
Nov	20.85	171.13		*95.99*	*106.27*	Nov		20.83	157.12	*88.98*	*96.38*
Dec	19.41	183.85		*101.63*	*116.28*	Dec		19.40	167.96	*93.68*	*105.04*
Seas_4	**22.62**	**164.01**	**21.85**	***69.49***	***81.85***	**Seas_4**	**20.82**	**22.60**	**149.27**	***64.23***	***73.65***
Annual	**26.74**	**183.07**	**23.58**	***77.80***	***91.18***	**Annual**	**20.87**	**26.19**	**157.22**	***68.10***	***77.23***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
DEHM-POP_1 - DEHM-POP results calculated on the basis of initial concentrations given as input data;
DEHM-POP_2 - DEHM-POP results calculated on the basis of zero initial concentrations;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
[a] - data of DEHM-POP are given for 15 km layer of the atmosphere.

Comparison between results obtained on the basis of two data sets. The percentage difference between calculation results on PCB-28 mass contained in 1, 5 and 10 km layers of the atmosphere obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Tables B.7-B.9.

Table B.7. *The percentage difference between calculation results on PCB-28 mass contained in 1 km layer of the atmosphere obtained by models on the basis of two data sets: "reference" and "own or alternative" data sets*

Month	CliMo Chem_2_2	CliMo Chem_2_3	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0_3	SimpleBox 3.12_3	MSCE-POP_1	MSCE-POP_2
Jan			49.8%	7.9%	8.0%	-0.7%	136.3%	-8.9%	-8.5%
Feb			11.2%	12.2%	12.3%	5.9%	193.4%	-11.3%	-11.3%
Mar			-7.0%	11.7%	11.9%	6.7%	204.1%	-23.6%	-23.9%
Season_1	**153.0%**	**82.0%**	**26.3%**	**10.8%**	**10.9%**	**4.2%**	**177.9%**	**-17.5%**	**-17.7%**
Apr			-8.7%	10.5%	10.9%	6.4%	206.0%	-30.2%	-30.6%
May			-3.9%	9.7%	10.2%	6.0%	205.0%	-45.2%	-45.2%
Jun			0.9%	9.2%	9.8%	5.8%	203.4%	-57.6%	-57.4%
Season_2	**-65.1%**	**-68.6%**	**-4.3%**	**9.8%**	**10.3%**	**6.1%**	**204.8%**	**-42.8%**	**-43.0%**
Jul			4.0%	8.8%	9.5%	5.6%	201.5%	-65.6%	-65.6%
Aug			5.7%	8.6%	9.4%	5.5%	199.7%	-62.8%	-62.5%
Sep			6.5%	8.4%	9.3%	5.4%	197.9%	-46.8%	-46.9%
Season_3	**-90.3%**	**-89.0%**	**5.4%**	**8.6%**	**9.4%**	**5.5%**	**199.7%**	**-58.8%**	**-58.6%**
Oct			6.9%	8.3%	9.2%	5.4%	196.2%	-33.9%	-33.9%
Nov			7.1%	8.1%	9.2%	5.3%	194.6%	-18.5%	-17.9%
Dec			7.1%	8.0%	9.2%	5.2%	193.1%	-21.4%	-21.0%
Season_4	**-38.2%**	**-42.5%**	**7.0%**	**8.1%**	**9.2%**	**5.3%**	**194.6%**	**-24.4%**	**-24.1%**
Annual	**-49.3%**	**-53.9%**	**14.1%**	**9.3%**	**9.9%**	**5.3%**	**194.3%**	**-40.2%**	**-40.4%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations; CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period; SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data; SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations; SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period; MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data; MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

Table B.8.*The percentage difference between calculation results on PCB-28 mass contained in 5 km layer of the atmosphere obtained by models on the basis of two data sets: "reference" and "own or alternative" data sets*

Month	CliMoChem_2_2	CliMoChem_2_3	MSCE-POP_1	MSCE-POP_2
Jan			-8.9%	-8.5%
Feb			-11.3%	-11.3%
Mar			-23.6%	-23.9%
Season_1	**153.0%**	**82.0%**	**-17.5%**	**-17.7%**
Apr			-30.2%	-30.6%
May			-45.2%	-45.2%
Jun			-57.6%	-57.4%
Season_2	**-65.1%**	**-68.6%**	**-42.8%**	**-43.0%**
Jul			-65.6%	-65.6%
Aug			-62.8%	-62.5%
Sep			-46.8%	-46.9%
Season_3	**-90.3%**	**-89.0%**	**-58.8%**	**-58.6%**
Oct			-33.9%	-33.9%
Nov			-18.5%	-17.9%
Dec			-21.4%	-21.0%
Season_4	**-38.2%**	**-42.5%**	**-24.4%**	**-24.1%**
Annual	**-49.3%**	**-53.9%**	**-40.2%**	**-40.4%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations; CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period; MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

Table B.9. *The percentage difference between calculation results on PCB-28 mass contained in 10 km layer of the atmosphere obtained by models on the basis of two data sets: "reference" and "own or alternative" data sets*

Month	CliMoChem_ 2_2	CliMoChem _2_3	DEHM-POP_1	DEHM-POP_2	MSCE-POP_1	MSCE-POP_2
Jan			-13.0%	-11.6%	-8.9%	-8.5%
Feb			-14.8%	-13.9%	-11.3%	-11.3%
Mar			-16.9%	-16.6%	-23.6%	-23.9%
Season_1	**153.0%**	**82.0%**	**-14.8%**	**-14.2%**	**-17.5%**	**-17.7%**
Apr			-16.0%	-15.8%	-30.2%	-30.6%
May			-13.1%	-13.0%	-45.2%	-45.2%
Jun			-13.5%	-13.4%	-57.6%	-57.4%
Season_2	**-65.1%**	**-68.6%**	**-14.1%**	**-13.9%**	**-42.8%**	**-43.0%**
Jul			-14.2%	-14.1%	-65.6%	-65.6%
Aug			-13.7%	-13.6%	-62.8%	-62.5%
Sep			-14.9%	-14.8%	-46.8%	-46.9%
Season_3	**-90.3%**	**-89.0%**	**-14.3%**	**-14.1%**	**-58.8%**	**-58.6%**
Oct			-16.0%	-16.0%	-33.9%	-33.9%
Nov			-19.3%	-19.3%	-18.5%	-17.9%
Dec			-17.5%	-17.5%	-21.4%	-21.0%
Season_4	**-38.2%**	**-42.5%**	**-17.5%**	**-17.5%**	**-24.4%**	**-24.1%**
Annual	**-49.3%**	**-53.9%**	**-15.0%**	**-14.8%**	**-40.2%**	**-40.4%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations; CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period; DEHM-POP_1 - DEHM-POP results calculated on the basis of initial concentrations given as input data; DEHM-POP_2 - DEHM-POP results calculated on the basis of zero initial concentrations; MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data. MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

B.1.2. Comparison of calculated values of PCB-28 mass in soil

According to the programme of Stage II results of computational experiments on mass balance include masses of PCB-28 contained in soil within 5 cm and 10 cm depth.

Reference data set. Calculation results on PCB-28 mass contained in 5cm layer of soil (kg) calculated by models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.10.

Monthly values of PCB-28 mass contained in 5cm layer of soil calculated by the participating models on the basis of "reference" data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.3.7a and b, respectively.

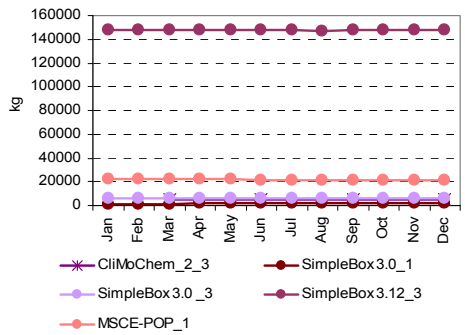


Fig. B.7a. *PCB-28 mass contained in 5cm layer of soil (kg) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions*

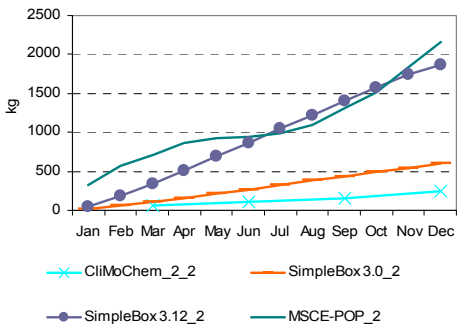


Fig. B.7b. *PCB-28 mass contained in 5cm layer of soil (kg) calculated by the participating models on the basis of "reference" data set and zero initial conditions*

Calculation results on PCB-28 mass contained in 10 cm layer of soil (kg) calculated by models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table B.11.

Monthly values of PCB-28 mass contained in 10 cm layer of soil calculated by the participating models on the basis of “reference” data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.8a and b, respectively.

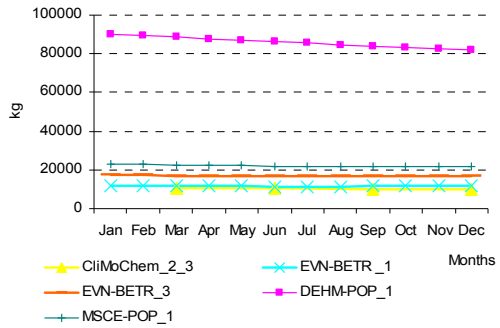


Fig. B.8a. *PCB-28 mass contained in 10cm layer of soil (kg) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions*

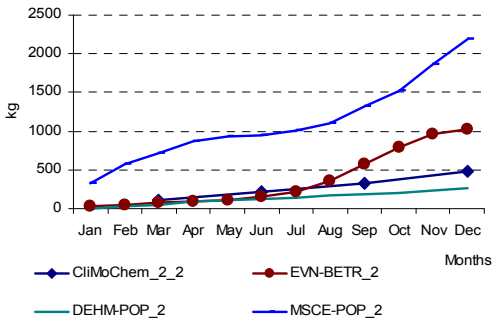


Fig. B.8b. *PCB-28 mass contained in 10cm layer of soil (kg) calculated by the participating models on the basis of “reference” data set and zero initial conditions*

Table B.10. *Calculation results: PCB-28 mass contained in 5cm layer of soil (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	SimpleBox 3.0_1[a]	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	Simple Box 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	923.8	22699.2		5956.0	148110.7	*44422.4*	*69749.4*	Jan		15.6	49.7	324.7	*130.0*	*169.5*
Feb	1239.6	22582.2		5970.0	148110.7	*44475.6*	*69693.6*	Feb		58.3	186.4	572.9	*272.5*	*267.9*
Mar	1414.2	22365.0		5988.6	148110.7	*44469.6*	*69677.0*	Mar		107.6	345.0	713.6	*388.8*	*305.4*
Seas_1	**1192.55**	**22548.8**	**5213.5**	**5971.5**	**148110.7**	***36607.4***	***62866.8***	**Seas_1**	**57.9**	**60.5**	**193.7**	**537.1**	***212.3***	***225.6***
Apr	1524.0	22200.5		6009.4	148110.7	*44461.2*	*69668.0*	Apr		160.7	508.8	859.9	*509.8*	*349.6*
May	1601.5	21953.5		6031.3	148110.7	*44424.2*	*69674.5*	May		215.0	690.4	922.3	*609.2*	*360.6*
Jun	1664.1	21671.5		6053.9	148110.7	*44375.0*	*69688.0*	Jun		270.0	866.7	933.9	*690.2*	*365.4*
Seas_2	**1596.54**	**21941.8**	**5128.0**	**6031.6**	**148110.7**	***36561.7***	***62848.3***	**Seas_2**	**107.0**	**215.2**	**688.6**	**905.4**	***479.1***	***380.2***
Jul	1719.6	21456.0		6076.4	148110.7	*44340.7*	*69696.1*	Jul		325.1	1043.4	995.2	*787.9*	*401.5*
Aug	1772.5	21300.4		6099.7	147330.3	*44125.7*	*69310.8*	Aug		381.2	1225.7	1090.8	*899.2*	*453.7*
Sep	1822.7	21306.3		6122.6	148110.7	*44340.6*	*69683.1*	Sep		436.3	1398.9	1305.7	*1047.0*	*530.9*
Seas_3	**1771.60**	**21354.2**	**5043.7**	**6099.6**	**147850.5**	***36423.9***	***62745.6***	**Seas_3**	**159.7**	**380.9**	**1222.7**	**1130.6**	***723.4***	***532.3***
Oct	1871.9	21305.9		6145.1	148110.7	*44358.4*	*69669.0*	Oct		491.2	1574.3	1512.6	*1192.7*	*608.3*
Nov	1920.5	21462.1		6168.1	148110.7	*44415.3*	*69637.7*	Nov		546.0	1749.0	1839.1	*1378.1*	*722.0*
Dec	1967.8	21622.0		6190.7	148110.7	*44472.8*	*69606.4*	Dec		599.7	1873.8	2165.6	*1546.4*	*832.7*
Seas_4	**1920.08**	**21463.3**	**4994.7**	**6168.0**	**148110.7**	***36531.3***	***62832.0***	**Seas_4**	**242.2**	**545.7**	**1732.4**	**1839.1**	***1089.8***	***814.2***
Annual	**1620.2**	**21827.1**	**5095.0**	**6067.7**	**148045.6**	***36531.1***	***62822.6***	**Annual**	**141.7**	**300.6**	**959.3**	**1103.0**	***626.2***	***475.8***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;

[a] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Own/alternative data set. Calculation results on PCB-28 mass contained in 5cm layer of soil (kg) calculated by the models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation. are presented in Table B.12.

Monthly values of PCB-28 mass contained in 5cm layer of soil calculated by all participating models on the basis of "own or alternative" data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.9a and b, respectively.

Calculation results on PCB-28 mass contained in 10 cm layer of soil (kg) calculated by models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.13.

Monthly values of PCB-28 mass contained in 10 cm layer of soil calculated by the participating models on the basis of "own or alternative" data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.10a and b, respectively.

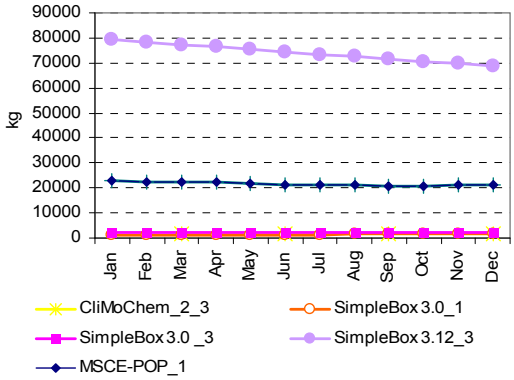


Fig. 3.9a. *PCB-28 mass contained in 5cm layer of soil (kg) calculated by the participating models on the basis of "own or alternative" data sets and non-zero initial conditions*

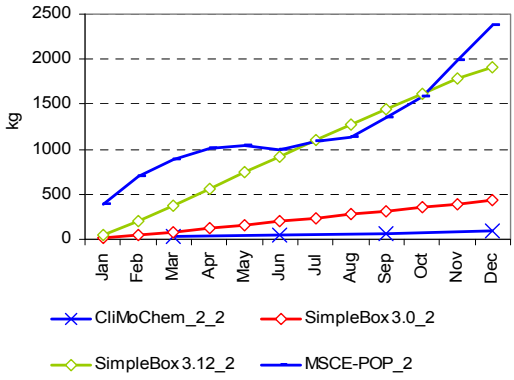


Fig. 3.9b. *PCB-28 mass contained in 5cm layer of soil (kg) calculated by the participating models on the basis of "own or alternative" data sets and zero initial conditions*

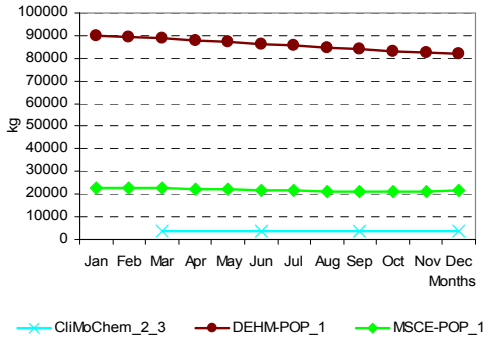


Fig. B.10a. *PCB-28 mass contained in 10cm layer of soil (kg) calculated by the participating models on the basis of "own or alternative" data sets and non-zero initial conditions*

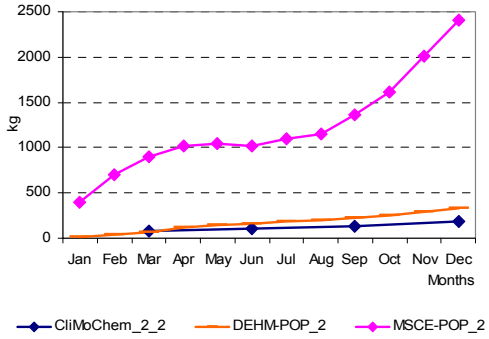


Fig. B.10b. *PCB-28 mass contained in 10cm layer of soil (kg) calculated by the participating models on the basis of "own or alternative" data sets and zero initial conditions*

Table B.11. *Calculation results: PCB-28 mass contained in 10 cm layer of soil (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data			Results obtained on the basis of historical emissions		*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	DEHM-POP_1[a]	MSCE-POP_1	EVN-BETR_1[b]	EVN-BETR_3[b]	CliMo Chem_2_3				EVN-BETR_2[a]	CliMo Chem_2_2	DEHM-POP_2[a]	MSCE-POP_2		
Jan	90190.0	22947.3	11828.5	17248.3		*35553.6*	*36706.1*	Jan	24.9		6.6	328.2	*119.9*	*180.6*
Feb	89390.0	22829.0	11767.9	17111.3		*35274.6*	*36358.6*	Feb	49.5		24.4	579.1	*217.7*	*313.3*
Mar	88600.0	22609.5	11683.3	16971.0		*34965.9*	*36033.3*	Mar	70.2		48.2	721.4	*279.9*	*382.5*
Seas_1	**89393.3**	**22795.3**	**11759.9**	**17110.2**	**10427.1**	***30297.2***	***33395.3***	**Seas_1**	**48.2**	**115.8**	**26.4**	**542.9**	***183.3***	***242.7***
Apr	87830.0	22443.2	11598.8	16832.1		*34676.1*	*35711.6*	Apr	90.9		87.5	869.3	*349.2*	*450.4*
May	87020.0	22193.5	11520.0	16699.5		*34358.3*	*35377.3*	May	115.7		108.1	932.4	*385.4*	*473.7*
Jun	86240.0	21908.3	11453.4	16579.5		*34045.3*	*35057.3*	Jun	150.8		125.4	944.1	*406.8*	*465.5*
Seas_2	**87030.0**	**22181.7**	**11524.1**	**16703.7**	**10255.9**	***29539.1***	***32482.5***	**Seas_2**	**119.1**	**214.1**	**107.0**	**915.3**	***338.9***	***387.2***
Jul	85460.0	21690.6	11421.1	16493.1		*33766.2*	*34716.6*	Jul	216.9		145.1	1006.1	*456.0*	*477.7*
Aug	84680.0	21533.2	11473.1	16488.5		*33543.7*	*34337.4*	Aug	361.7		163.3	1102.7	*542.6*	*495.1*
Sep	83920.0	21539.2	11596.6	16555.4		*33402.8*	*33921.9*	Sep	576.1		178.7	1320.0	*691.6*	*579.3*
Seas_3	**84686.7**	**21587.6**	**11496.9**	**16512.3**	**10087.4**	***28874.2***	***31527.2***	**Seas_3**	**384.9**	**319.3**	**162.4**	**1142.9**	***502.4***	***437.1***
Oct	83170.0	21538.8	11726.1	16629.7		*33266.2*	*33509.5*	Oct	797.0		200.8	1529.1	*842.3*	*665.3*
Nov	82430.0	21696.7	11790.8	16641.8		*33139.8*	*33108.1*	Nov	955.5		233.6	1859.2	*1016.1*	*814.5*
Dec	81700.0	21858.4	11764.7	16566.2		*32972.3*	*32745.7*	Dec	1026.4		260.1	2189.3	*1158.6*	*971.4*
Seas_4	**82433.3**	**21698.0**	**11760.5**	**16612.6**	**9989.3**	***28498.7***	***30492.8***	**Seas_4**	**926.3**	**484.3**	**231.5**	**1859.2**	***875.3***	***716.0***
Annual	**85885.8**	**22065.6**	**11635.4**	**16734.7**	**10189.9**	***29302.3***	***31974.3***	**Annual**	**369.6**	**283.4**	**131.8**	**1115.1**	***475.0***	***437.9***

EVN-BETR _1 - EVN-BETR and UK-MODEL results calculated on the basis of initial concentrations given as input data;
EVN-BETR _2 - EVN-BETR and UK-MODEL results calculated on the basis of zero initial concentrations;
EVN-BETR _3 - EVN-BETR and UK-MODEL results calculated on the basis of historical emissions for 20-year period;
CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
DEHM-POP_1 - DEHM-POP results calculated on the basis of initial concentrations given as input data;
DEHM-POP_2 - DEHM-POP results calculated on the basis of zero initial concentrations;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
[a] - data of DEHM-POP are given for 15 cm layer of soil;
[b] - EVN-BETR and UK-MODEL results were calculated with the help of a single box version of European model.

Table B.12. *Calculation results: PCB-28 mass contained in 5cm layer of soil (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	SimpleBox 3.0_1[a]	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	859.1	22735.9		1989.1	79437.1	*26255.3*	*36853.3*	Jan		11.4	53.1	386.1	*150.2*	*205.3*
Feb	1111.4	22636.4		2006.7	78322.6	*26019.3*	*36258.7*	Feb		43.9	204.4	694.1	*314.1*	*338.8*
Mar	1213.3	22427.7		2028.5	77281.4	*25737.7*	*35736.4*	Mar		81.2	378.1	888.0	*449.1*	*408.0*
Seas_1	**1061.3**	**22600.0**	**1861.4**	**2008.1**	**78347.0**	***21175.6***	***33225.1***	**Seas_1**	**37.6**	**45.5**	**211.9**	**656.1**	***237.8***	***290.2***
Apr	1268.0	22181.0		2051.8	76347.7	*25462.2*	*35277.5*	Apr		120.5	552.9	1010.7	*561.4*	*445.2*
May	1306.9	21840.0		2075.5	75279.0	*25125.4*	*34760.1*	May		160.1	741.1	1036.0	*645.7*	*445.6*
Jun	1340.7	21459.5		2099.2	74320.6	*24805.0*	*34298.3*	Jun		199.7	920.7	1001.3	*707.2*	*441.4*
Seas_2	**1305.2**	**21826.8**	**1829.9**	**2075.5**	**75315.8**	***20470.6***	***31870.8***	**Seas_2**	**54.0**	**160.1**	**738.2**	**1016.0**	***492.1***	***460.9***
Jul	1372.6	21228.2		2122.8	73384.7	*24527.1*	*33842.9*	Jul		239.0	1098.0	1084.4	*807.1*	*492.1*
Aug	1404.2	20986.9		2146.8	72526.0	*24266.0*	*33425.0*	Aug		278.8	1280.5	1140.7	*900.0*	*542.5*
Sep	1434.8	20946.4		2170.2	71563.3	*24028.7*	*32951.0*	Sep		317.6	1447.9	1344.9	*1036.8*	*625.0*
Seas_3	**1403.9**	**21053.8**	**1778.3**	**2146.6**	**72491.3**	***19774.8***	***30630.0***	**Seas_3**	**65.7**	**278.5**	**1275.5**	**1190.0**	***702.4***	***619.5***
Oct	1465.1	20955.7		2193.5	70687.9	*23825.5*	*32518.0*	Oct		356.2	1617.5	1590.2	*1188.0*	*720.4*
Nov	1495.0	21155.9		2216.6	69828.5	*23674.0*	*32087.9*	Nov		394.6	1784.5	1983.8	*1387.6*	*865.8*
Dec	1524.1	21359.6		2239.2	69005.6	*23532.1*	*31677.0*	Dec		432.0	1907.9	2378.1	*1572.7*	*1015.5*
Seas_4	**1494.7**	**21157.0**	**1775.9**	**2216.5**	**69840.7**	***19297.0***	***29469.4***	**Seas_4**	**93.1**	**394.2**	**1770.0**	**1984.0**	***1060.3***	***955.0***
Annual	**1316.3**	**21659.4**	**1811.4**	**2111.7**	**73998.7**	***20179.5***	***31298.4***	**Annual**	**62.6**	**219.6**	**998.9**	**1211.5**	***623.1***	***567.0***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
[a] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Table B.13. *Calculation results: PCB-28 mass contained in 10 cm layer of soil (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations			*m*	σ
	DEHM-POP_1[a]	MSCE-POP_1	CliMoChem_2_3				CliMoChem_2_2	DEHM-POP_2[a]	MSCE-POP_2		
Jan	90190.0	22984.4		*56587.2*	*47521.6*	Jan		10.5	390.3	*200.4*	*268.6*
Feb	89400.0	22883.8		*56141.9*	*47034.1*	Feb		34.4	701.7	*368.1*	*471.9*
Mar	88630.0	22672.8		*55651.4*	*46638.8*	Mar		65.4	897.7	*481.5*	*588.5*
Seas_1	**89406.7**	**22847.0**	**3722.8**	***38658.8***	***44977.1***	**Seas_1**	**75.3**	**36.7**	**663.2**	***258.4***	***351.1***
Apr	87880.0	22423.5		*55151.7*	*46284.7*	Apr		118.3	1021.8	*570.0*	*638.9*
May	87090.0	22078.8		*54584.4*	*45969.9*	May		143.4	1047.3	*595.3*	*639.1*
Jun	86300.0	21694.0		*53997.0*	*45683.3*	Jun		162.8	1012.2	*587.5*	*600.6*
Seas_2	**87090.0**	**22065.4**	**3659.8**	***37605.1***	***43832.2***	**Seas_2**	**107.9**	**141.5**	**1027.1**	***425.5***	***521.3***
Jul	85540.0	21460.2		*53500.1*	*45311.2*	Jul		184.2	1096.3	*640.2*	*644.9*
Aug	84760.0	21216.3		*52988.1*	*44932.2*	Aug		202.8	1153.1	*678.0*	*672.0*
Sep	83990.0	21175.4		*52582.7*	*44416.7*	Sep		220.0	1359.6	*789.8*	*805.8*
Seas_3	**84763.3**	**21283.9**	**3556.6**	***36534.6***	***42697.4***	**Seas_3**	**131.3**	**202.3**	**1203.0**	***512.2***	***599.3***
Oct	83240.0	21184.7		*52212.4*	*43879.7*	Oct		250.2	1607.5	*928.9*	*959.8*
Nov	82520.0	21387.1		*51953.6*	*43227.5*	Nov		295.4	2005.4	*1150.4*	*1209.2*
Dec	81790.0	21593.1		*51691.5*	*42565.7*	Dec		333.0	2404.1	*1368.5*	*1464.5*
Seas_4	**82516.7**	**21388.3**	**3551.7**	***35818.9***	***41413.1***	**Seas_4**	**186.1**	**292.9**	**2005.7**	***828.2***	***1021.1***
Annual	**85944.2**	**21896.2**	**3622.7**	***37154.4***	***43229.8***	**Annual**	**125.2**	**168.4**	**1224.8**	***506.1***	***622.8***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
DEHM-POP_1 - DEHM-POP results calculated on the basis of initial concentrations given as input data;
DEHM-POP_2 - DEHM-POP results calculated on the basis of zero initial concentrations;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
[a] – data of DEHM-POP are given for 15 cm layer of soil;
[b] - in CAN/POPs results the second layer of soil is applied as 5cm.

Comparison between results obtained on the basis of two data sets. The percentage difference between calculation results on PCB-28 masses contained in soil within 5 and 10 cm layers obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Tables B.14-B.15.

Table B.14. *The percentage difference between calculation results on PCB-28 masses contained within 5 cm soil layer obtained by models on the basis of two data sets: "own or alternative" and "reference"*

Month	CliMo Chem_2_2	CliMo Chem_2_3	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0_3	SimpleBox 3.12_3	MSCE-POP_1	MSCE-POP_2
Jan			-7.0%	-26.9%	6.8%	-66.6%	-46.4%	0.2%	18.9%
Feb			-10.3%	-24.8%	9.6%	-66.4%	-47.1%	0.2%	21.2%
Mar			-14.2%	-24.5%	9.6%	-66.1%	-47.8%	0.3%	24.4%
Season_1	-35.0%	-64.3%	-11.0%	-24.8%	9.4%	-66.4%	-47.1%	0.2%	22.2%
Apr			-16.8%	-25.0%	8.6%	-65.9%	-48.5%	-0.1%	17.5%
May			-18.4%	-25.5%	7.3%	-65.6%	-49.2%	-0.5%	12.3%
Jun			-19.4%	-26.0%	6.2%	-65.3%	-49.8%	-1.0%	7.2%
Season_2	-49.6%	-64.3%	-18.2%	-25.6%	7.2%	-65.6%	-49.1%	-0.5%	12.2%
Jul			-20.2%	-26.5%	5.2%	-65.1%	-50.5%	-1.1%	9.0%
Aug			-20.8%	-26.9%	4.5%	-64.8%	-50.8%	-1.5%	4.6%
Sep			-21.3%	-27.2%	3.5%	-64.6%	-51.7%	-1.7%	3.0%
Season_3	-58.9%	-64.7%	-20.8%	-26.9%	4.3%	-64.8%	-51.0%	-1.4%	5.3%
Oct			-21.7%	-27.5%	2.7%	-64.3%	-52.3%	-1.6%	5.1%
Nov			-22.2%	-27.7%	2.0%	-64.1%	-52.9%	-1.4%	7.9%
Dec			-22.5%	-28.0%	1.8%	-63.8%	-53.4%	-1.2%	9.8%
Season_4	-61.6%	-64.4%	-22.2%	-27.7%	2.2%	-64.1%	-52.8%	-1.4%	7.9%
Annual	-55.8%	-64.4%	-18.8%	-26.9%	4.1%	-65.2%	-50.0%	-0.8%	9.8%

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

Table B.15. *The percentage difference between calculation results on PCB-28 mass contained within 10 cm soil layer obtained by models on the basis of two data sets: "own or alternative" and "reference"*

Month	CliMoChem_2_2	CliMoChem_2_3	DEHM-POP_1	DEHM-POP_2	MSCE-POP_1	MSCE-POP_2
Jan			0.00%	58.4%	0.2%	18.9%
Feb			0.01%	40.9%	0.2%	21.2%
Mar			0.03%	35.7%	0.3%	24.4%
Season_1	**-35.0%**	**-64.3%**	**0.01%**	**39.2%**	**0.2%**	**22.2%**
Apr			0.06%	35.3%	-0.1%	17.5%
May			0.08%	32.7%	-0.5%	12.3%
Jun			0.07%	29.8%	-1.0%	7.2%
Season_2	**-49.6%**	**-64.3%**	**0.07%**	**32.3%**	**-0.5%**	**12.2%**
Jul			0.09%	26.9%	-1.1%	9.0%
Aug			0.09%	24.2%	-1.5%	4.6%
Sep			0.08%	23.1%	-1.7%	3.0%
Season_3	**-58.9%**	**-64.7%**	**0.09%**	**24.6%**	**-1.4%**	**5.3%**
Oct			0.08%	24.6%	-1.6%	5.1%
Nov			0.11%	26.5%	-1.4%	7.9%
Dec			0.11%	28.0%	-1.2%	9.8%
Season_4	**-61.6%**	**-64.4%**	**0.10%**	**26.5%**	**-1.4%**	**7.9%**
Annual	**-55.8%**	**-64.4%**	**0.07%**	**27.7%**	**-0.8%**	**9.8%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
DEHM-POP_1 - DEHM-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data.

B.1.3. Comparison of calculated values of PCB-28 mass in water

According to the programme of Stage II model results of computational experiments on mass balance include masses of PCB-28 contained in sea within a layer of 200 m depth.

Reference data set. Calculation results on PCB-28 mass contained in 200 m layer of seawater (kg) calculated by models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.16.

Monthly values of PCB-28 mass contained in 200 m layer of seawater calculated by all participating models on the basis of "reference" data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.11a and b, respectively.

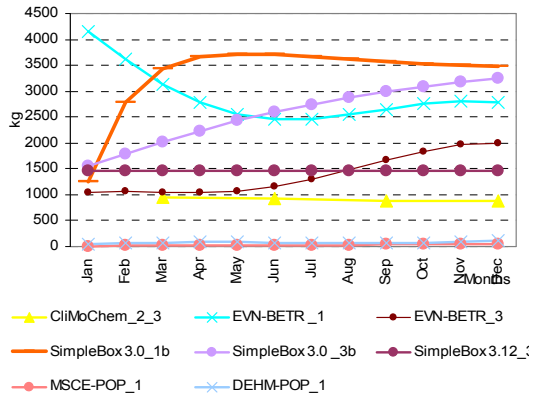


Fig. B.11a. *PCB-28 mass contained in 200 m layer of seawater (kg) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions*

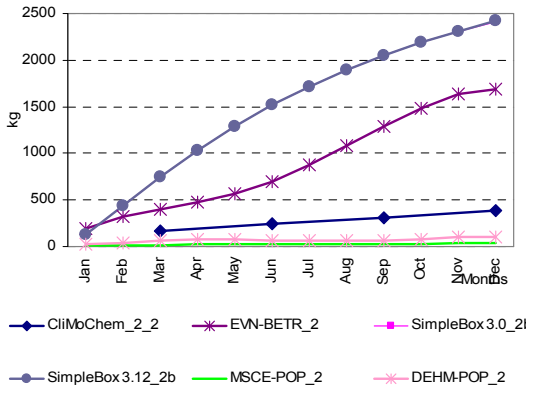
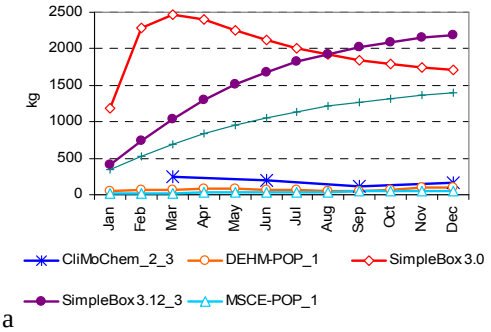


Fig. B.11b. *PCB-28 mass contained in 200 m layer of seawater (kg) calculated by the participating models on the basis of "reference" data set and zero initial conditions*

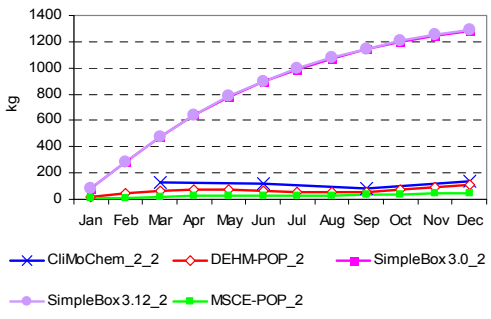
Own/alternative data set. Calculation results on PCB-28 mass contained in 200 m layer of water (kg) calculated by models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.17.

Monthly values of PCB-28 mass contained in 200 m layer of water calculated by all participating models on the basis of "own or alternative" data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.12a and b, respectively.



a

Fig. B.12a. *PCB-28 mass contained in 200 m layer of water (kg) calculated by the participating models on the basis of "own or alternative" data sets and non-zero initial conditions*



b

Fig. B.12b. *PCB-28 mass contained in 200 m layer of water (kg) calculated by the participating models on the basis of "own or alternative" data sets and zero initial conditions*

Table B.16. *Calculation results: PCB-28 mass contained in 200 m layer of seawater (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data				Results obtained on the basis of historical emissions				*m*	σ	Month	Results obtained on the basis of zero initial concentrations						*m*	σ
	DEHM-POP_1	MSCE-POP_1	EVN-BETR_1[a]	SimpleBox 3.0_1[b]	EVN-BETR_3[a]	CliMo Chem_2_3	SimpleBox 3.0 _3[b]	SimpleBox 3.12_3[b]				EVN-BETR_2[a]	CliMo Chem_2_2	SimpleBox 3.0_2[b]	SimpleBox 3.12_2[b]	DEHM-POP_2	MSCE-POP_2		
Jan	43.36	10.20	4142.35	1263.44	1047.47		1559.78	1459.29	*1360.84*	*1381.65*	Jan	189.63		126.72	126.70	20	7.73	*94.16*	*77.79*
Feb	60.10	12.21	3623.45	2781.32	1068.35		1796.66	1459.29	*1543.05*	*1335.46*	Feb	322.27		439.17	439.15	44.74	9.73	*251.01*	*210.14*
Mar	70.90	16.25	3139.81	3426.74	1054.85		2025.44	1459.29	*1599.04*	*1357.22*	Mar	404.07		746.53	746.64	60.77	13.48	*394.30*	*355.16*
Seas_1	**58.12**	**12.89**	**3635.20**	**2490.50**	**1056.89**	**960.71**	**1793.96**	**1459.29**	***1433.44***	***1217.17***	**Seas_1**	**305.32**	**163.28**	**437.47**	**437.50**	**41.84**	**10.31**	***232.62***	***189.66***
Apr	84.56	23.64	2781.34	3665.44	1047.65		2237.17	1459.29	*1614.16*	*1364.58*	Apr	475.10		1032.88	1033.17	77.85	19.91	*527.78*	*493.38*
May	82.25	29.20	2551.89	3719.85	1076.08		2425.59	1459.29	*1620.59*	*1362.83*	May	565.02		1288.66	1289.34	78.01	24.89	*649.18*	*620.85*
Jun	71.20	27.70	2450.71	3700.80	1159.94		2592.01	1459.29	*1637.38*	*1362.24*	Jun	695.66		1515.21	1516.35	68.59	23.67	*763.89*	*735.98*
Seas_2	**79.34**	**26.85**	**2594.65**	**3695.36**	**1094.55**	**926.00**	**2418.26**	**1459.29**	***1536.79***	***1283.65***	**Seas_2**	**578.59**	**247.95**	**1278.92**	**1279.62**	**74.82**	**22.82**	***580.45***	***575.13***
Jul	63.86	25.57	2460.53	3656.73	1301.56		2738.31	1459.29	*1672.26*	*1364.87*	Jul	872.74		1714.79	1716.48	62.13	21.92	*877.61*	*836.93*
Aug	59.62	24.85	2544.69	3607.61	1482.96		2869.04	1459.29	*1721.15*	*1373.44*	Aug	1081.99		1893.44	1895.79	58.41	21.29	*990.18*	*928.90*
Sep	61.06	36.47	2654.78	3563.82	1671.14		2982.31	1459.29	*1775.55*	*1384.56*	Sep	1293.79		2048.45	2051.54	60.23	31.84	*1097.17*	*1008.04*
Seas_3	**61.51**	**28.96**	**2553.33**	**3609.39**	**1485.22**	**884.22**	**2863.22**	**1459.29**	***1618.14***	***1304.93***	**Seas_3**	**1082.84**	**309.34**	**1885.56**	**1887.94**	**60.26**	**25.01**	***875.16***	***871.40***
Oct	76.61	35.74	2756.66	3526.79	1842.13		3082.15	1459.29	*1825.62*	*1398.62*	Oct	1486.44		2185.51	2189.42	76.04	31.26	*1193.73*	*1079.50*
Nov	98.50	40.71	2815.52	3497.57	1968.42		3170.24	1459.29	*1864.32*	*1408.09*	Nov	1634.24		2307.22	2311.98	98.04	35.95	*1277.49*	*1139.11*
Dec	109.80	38.14	2781.98	3476.20	2005.78		3248.24	1459.29	*1874.21*	*1411.39*	Dec	1694.47		2413.98	2419.62	109.4	34.00	*1334.30*	*1190.01*
Seas_4	**94.97**	**38.20**	**2784.72**	**3500.19**	**1938.78**	**872.06**	**3166.88**	**1459.29**	***1731.88***	***1346.90***	**Seas_4**	**1605.05**	**387.57**	**2302.24**	**2307.01**	**94.49**	**33.74**	***1121.68***	***1077.96***
Annual	**73.49**	**26.72**	**2891.98**	**3323.86**	**1393.86**	**910.75**	**2560.58**	**1459.29**	***1580.06***	***1248.04***	**Annual**	**892.95**	**277.03**	**1476.05**	**1478.02**	**67.85**	**22.97**	***702.48***	***675.52***

EVN-BETR _1 - EVN-BETR and UK-MODEL results calculated on the basis of initial concentrations given as input data;
EVN-BETR _2 - EVN-BETR and UK-MODEL results calculated on the basis of zero initial concentrations;
EVN-BETR _3 - EVN-BETR and UK-MODEL results calculated on the basis of historical emissions for 20-year period;
CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
DEHM-POP_1 - DEHM-POP results calculated on the basis of initial concentrations given as input data;
DEHM-POP_2 - DEHM-POP results calculated on the basis of zero initial concentrations;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
[a] - EVN-BETR and UK-MODEL results were calculated with the help of a single box version of European model;
[b] - SimpleBox data presented here are masses calculated for continental level.

Table B.17. *Calculation results: PCB-28 mass contained in 200 m layer of water (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation.*

Month	Results obtained on the basis of initial concentrations given as input data			Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations					*m*	σ
	DEHM-POP_1	SimpleBox 3.0_1[a]	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	DEHM-POP_2	MSCE-POP_2		
Jan	46.09	1189.88	11.60		350.03	411.89	*401.90*	*475.04*	Jan		80.62	80.61	22.74	8.79	*48.19*	*37.87*
Feb	60.49	2286.01	14.35		527.27	738.51	*725.33*	*925.02*	Feb		282.24	282.35	46.46	11.47	*155.63*	*146.96*
Mar	68.58	2473.31	19.31		693.63	1041.02	*859.17*	*999.54*	Mar		473.65	474.16	59.70	16.07	*255.90*	*252.37*
Seas_1	**58.39**	**1983.07**	**15.09**	**248.72**	**523.64**	**730.48**	***593.23***	***734.07***	**Seas_1**	**129.37**	**278.84**	**279.04**	**42.97**	**12.11**	***148.47***	***126.62***
Apr	81.18	2393.25	29.47		838.68	1299.92	*928.50*	*976.95*	Apr		640.85	642.17	75.49	25.00	*345.88*	*341.99*
May	77.55	2255.64	34.86		959.64	1510.98	*967.73*	*950.86*	May		780.44	782.68	74.00	29.86	*416.75*	*421.64*
Jun	65.57	2123.47	31.93		1059.95	1681.74	*992.53*	*940.82*	Jun		896.26	899.68	63.43	27.42	*471.70*	*492.44*
Seas_2	**74.77**	**2257.45**	**32.09**	**192.09**	**952.76**	**1497.55**	***834.45***	***906.88***	**Seas_2**	**122.60**	**772.52**	**774.84**	**70.97**	**27.43**	***353.67***	***384.89***
Jul	59.41	2011.38	28.25		1143.02	1819.06	*1012.22*	*941.07*	Jul		992.16	996.95	57.97	24.27	*517.84*	*550.64*
Aug	55.66	1918.83	28.31		1213.01	1931.21	*1029.40*	*947.16*	Aug		1073.09	1079.39	54.66	24.43	*557.89*	*598.67*
Sep	55.94	1846.25	43.28		1270.40	2019.88	*1047.15*	*951.95*	Sep		1139.46	1147.36	55.30	38.17	*595.07*	*633.21*
Seas_3	**57.00**	**1925.49**	**33.28**	**118.62**	**1208.81**	**1923.39**	***877.76***	***923.44***	**Seas_3**	**83.55**	**1068.24**	**1074.57**	**55.98**	**28.96**	***462.26***	***556.41***
Oct	71.22	1788.93	44.26		1318.37	2091.15	*1062.79*	*957.96*	Oct		1195.03	1204.63	70.81	39.13	*627.40*	*661.12*
Nov	94.16	1743.85	50.76		1358.90	2148.67	*1079.27*	*960.70*	Nov		1242.00	1253.29	93.82	45.18	*658.57*	*680.51*
Dec	106.00	1709.37	48.92		1392.71	2194.34	*1090.27*	*967.85*	Dec		1281.24	1294.23	105.70	43.99	*681.29*	*700.74*
Seas_4	**90.46**	**1747.38**	**47.98**	**158.61**	**1356.66**	**2144.72**	***924.30***	***938.44***	**Seas_4**	**133.86**	**1239.42**	**1250.72**	**90.11**	**42.77**	***551.38***	***634.08***
Annual	**70.15**	**1978.35**	**32.11**	**179.51**	**1010.47**	**1574.03**	***807.44***	***841.30***	**Annual**	**117.35**	**839.75**	**844.79**	**65.01**	**27.81**	***378.94***	***424.16***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
DEHM-POP_1 - DEHM-POP results calculated on the basis of initial concentrations given as input data;
DEHM-POP_2 - DEHM-POP results calculated on the basis of zero initial concentrations;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
[a] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Comparison between results obtained on the basis of two data sets. The percentage difference between calculation results obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Table B.18.

Table B.18. *The percentage difference between calculation results on PCB-28 mass in water (kg) obtained by models on the basis of two data sets: "own or alternative" and "reference"*

Month	CliMo Chem_2_2	CliMo Chem_2_3	DEHM-POP_1	DEHM-POP_2	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3	MSCE-POP_1	MSCE-POP_2
Jan			6.3%	13.7%	-5.8%	-36.4%	-36.4%	-77.6%	-71.8%	13.7%	13.8%
Feb			0.6%	3.8%	-17.8%	-35.7%	-35.7%	-70.7%	-49.4%	17.5%	17.9%
Mar			-3.3%	-1.8%	-27.8%	-36.6%	-36.5%	-65.8%	-28.7%	18.8%	19.2%
Season_1	**-20.8%**	**-74.1%**	**0.5%**	**2.7%**	**-20.4%**	**-36.3%**	**-36.2%**	**-70.8%**	**-49.9%**	**17.1%**	**17.4%**
Apr			-4.0%	-3.0%	-34.7%	-38.0%	-37.8%	-62.5%	-10.9%	24.6%	25.5%
May			-5.7%	-5.1%	-39.4%	-39.4%	-39.3%	-60.4%	3.5%	19.4%	20.0%
Jun			-7.9%	-7.5%	-42.6%	-40.8%	-40.7%	-59.1%	15.2%	15.3%	15.8%
Season_2	**-50.6%**	**-79.3%**	**-5.8%**	**-5.1%**	**-38.9%**	**-39.6%**	**-39.4%**	**-60.6%**	**2.6%**	**19.5%**	**20.2%**
Jul			-7.0%	-6.7%	-45.0%	-42.1%	-41.9%	-58.3%	24.7%	10.4%	10.7%
Aug			-6.6%	-6.4%	-46.8%	-43.3%	-43.1%	-57.7%	32.3%	13.9%	14.8%
Sep			-8.4%	-8.2%	-48.2%	-44.4%	-44.1%	-57.4%	38.4%	18.7%	19.9%
Season_3	**-73.0%**	**-86.6%**	**-7.3%**	**-7.1%**	**-46.7%**	**-43.3%**	**-43.1%**	**-57.8%**	**31.8%**	**14.9%**	**15.8%**
Oct			-7.0%	-6.9%	-49.3%	-45.3%	-45.0%	-57.2%	43.3%	23.9%	25.2%
Nov			-4.4%	-4.3%	-50.1%	-46.2%	-45.8%	-57.1%	47.2%	24.7%	25.7%
Dec			-3.5%	-3.4%	-50.8%	-46.9%	-46.5%	-57.1%	50.4%	28.2%	29.4%
Season_4	**-65.5%**	**-81.8%**	**-4.7%**	**-4.6%**	**-50.1%**	**-46.2%**	**-45.8%**	**-57.2%**	**47.0%**	**25.6%**	**26.8%**
Annual	**-57.6%**	**-80.3%**	**-4.5%**	**-4.2%**	**-40.5%**	**-43.1%**	**-42.8%**	**-60.5%**	**7.9%**	**20.1%**	**21.1%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
DEHM-POP_1 - DEHM-POP results calculated on the basis of initial concentrations given as input data;
DEHM-POP_2 - DEHM-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;

B.1.4. Comparison of calculated values of PCB-28 mass in vegetation

Reference data set. Calculation results on PCB-28 mass in vegetation (kg) calculated by models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.19.

Monthly values of PCB-28 mass in vegetation calculated by participating models on the basis of "reference" data set are compared in Fig. B.13.

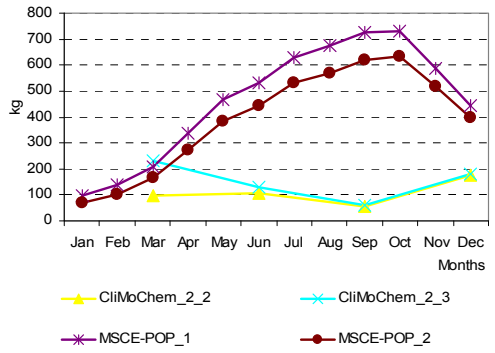


Fig. B.13. *PCB-28 mass in vegetation (kg) calculated by the participating models on the basis of "reference" data set*

Own/alternative data set. Calculation results on PCB-28 mass in vegetation (kg) calculated by models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.20.

Monthly values of PCB-28 mass in vegetation calculated by participating models on the basis of "own or alternative" data sets are compared in Fig. B.14.

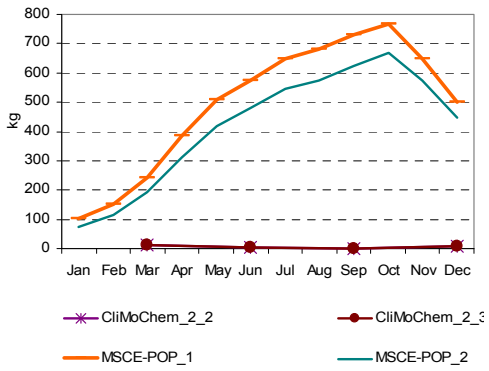


Fig. B.14. *PCB-28 mass in vegetation (kg) calculated by the participating models on the basis of "own or alternative" data sets*

Table B.19. *Calculation results: PCB-28 mass in vegetation (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data	Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations		*m*	σ
	MSCE-POP_1	CliMoChem_2_3				CliMoChem_2_2	MSCE-POP_2		
Jan	97.1				Jan		68.4		
Feb	136.5				Feb		102.6		
Mar	209.9				Mar		164.5		
Season_1	**147.85**	**230.42**	***189.1***	***58.4***	**Season_1**	**96.0**	**111.82**	***103.9***	***11.2***
Apr	335.4				Apr		272.1		
May	466.2				May		385.4		
Jun	531.2				Jun		442.7		
Season_2	**444.24**	**131.20**	***287.7***	***221.4***	**Season_2**	**104.6**	**366.75**	***235.7***	***185.3***
Jul	629.8				Jul		530.0		
Aug	673.9				Aug		569.2		
Sep	723.7				Sep		619.0		
Season_3	**675.83**	**60.92**	***368.4***	***434.8***	**Season_3**	**54.4**	**572.73**	***313.6***	***366.5***
Oct	731.0				Oct		634.0		
Nov	588.9				Nov		518.0		
Dec	445.7				Dec		396.2		
Season_4	**588.51**	**182.15**	***385.3***	***287.3***	**Season_4**	**175.0**	**516.08**	***345.5***	***241.2***
Annual	**464.1**	**151.17**	***307.6***	***221.3***	**Annual**	**107.5**	**391.8**	***249.7***	***201.1***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;

MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;

MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;

[a] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Table B.20. *Calculation results: PCB-28 mass in vegetation (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data	Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations		*m*	σ
	MSCE-POP_1	CliMoChem_2_3				CliMoChem_2_2	MSCE-POP_2		
Jan	104.61				Jan		75.05		
Feb	153.15				Feb		116.55		
Mar	243.23				Mar		192.42		
Season_1	**166.99**	**11.31**	***89.15***	***110.09***	**Season_1**	**10.58**	**128.01**	***69.29***	***83.04***
Apr	384.87				Apr		313.22		
May	507.94				May		420.08		
Jun	572.90				Jun		478.02		
Season_2	**488.57**	**2.76**	***245.66***	***343.52***	**Season_2**	**2.47**	**403.77**	***203.12***	***283.76***
Jul	649.24				Jul		546.17		
Aug	680.84				Aug		574.97		
Sep	730.32				Sep		624.68		
Season_3	**686.80**	**0.75**	***343.77***	***485.11***	**Season_3**	**0.58**	**581.94**	***291.26***	***411.08***
Oct	767.65				Oct		667.22		
Nov	649.13				Nov		573.41		
Dec	501.65				Dec		448.58		
Season_4	**639.48**	**7.65**	***323.56***	***446.77***	**Season_4**	**7.47**	**563.07**	***285.27***	***392.87***
Annual	**495.46**	**5.62**	***250.54***	***346.37***	**Annual**	**5.27**	**419.20**	***212.24***	***292.69***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;

[a] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Comparison between results obtained on the basis of two data sets. The percentage difference between calculation results obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Table B.21.

Table B.21. *The percentage difference between calculation results on PCB-28 mass in vegetation (kg) obtained by models on the basis of two data sets: "own or alternative" and "reference"*

Month	CliMoChem_ 2_2	CliMoChem_ 2_3	MSCE-POP_1	MSCE-POP_2
Jan			7.7%	9.7%
Feb			12.2%	13.6%
Mar			15.9%	17.0%
Season_ 1	**-89.0%**	**-95.1%**	**12.9%**	**14.5%**
Apr			14.8%	15.1%
May			9.0%	9.0%
Jun			7.9%	8.0%
Season_ 2	**-97.6%**	**-97.9%**	**10.0%**	**10.1%**
Jul			3.1%	3.1%
Aug			1.0%	1.0%
Sep			0.9%	0.9%
Season_ 3	**-98.9%**	**-98.8%**	**1.6%**	**1.6%**
Oct			5.0%	5.2%
Nov			10.2%	10.7%
Dec			12.6%	13.2%
Season_ 4	**-95.7%**	**-95.8%**	**8.7%**	**9.1%**
Annual	**-95.1%**	**-96.3%**	**6.8%**	**7.0%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data.
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;

B.1.5. Comparison of distribution of PCB-28 mass between environmental media

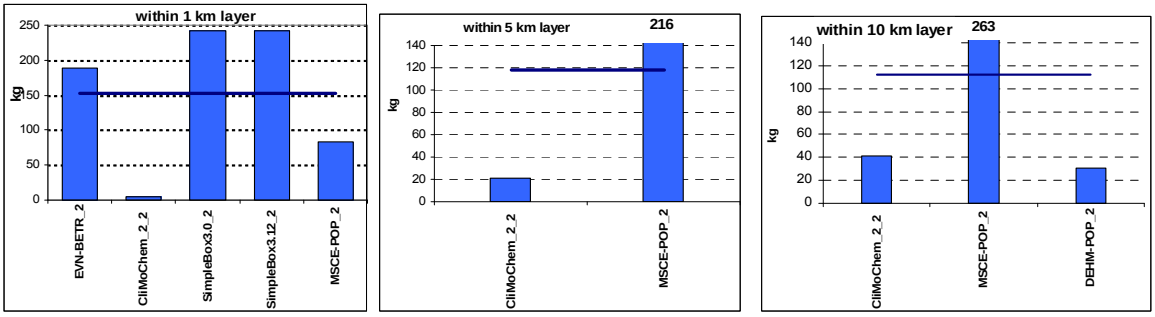
Mass balance estimates presented in Sections B.1.1-B.1.4 comprise masses of PCB-28 contained in different environmental compartments calculated by the participating models. The considered estimates of mass distribution in 2000 include results of one-year calculation with zero initial concentrations obtained by DEHM-POP, MSCE-POP, SimpleBox 3.0 and 3.12 models and with initial concentrations in media given as input data calculated by DEHM-POP, EVN-BETR and UK-MODEL, MSCE-POP, and SimpleBox 3.0 models; as well as results of long-term calculations for 20-year period with zero initial data with historical emissions carried out by CliMoChem and SimpleBox 3.0 and 3.12 models. Results of CliMoChem, DEHM-POP, MSCE-POP, and SimpleBox models obtained on the basis of two different physical-chemical data sets allow us to reveal sensitivity of these models' calculations to the variations in the input data.

A comparison of absolute values and relative fractions of PCB-28 mass contained in the main environmental compartments is presented in this section. The comparison is made separately for results calculated on the basis of initial concentrations or historical emissions (non-zero initial conditions) and for results based on zero initial conditions.

Atmosphere. Comparison of annual values of PCB-28 masses contained in the atmosphere within 1, 5 and 10 km layers calculated by different models on the basis of zero initial concentrations and with the use of "reference" data set is presented in Fig. B.15a. Fig. B.15b shows the same results but

obtained on the basis of initial concentrations or historical emissions. In the latter figure different colour of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; and then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between models.

a



b

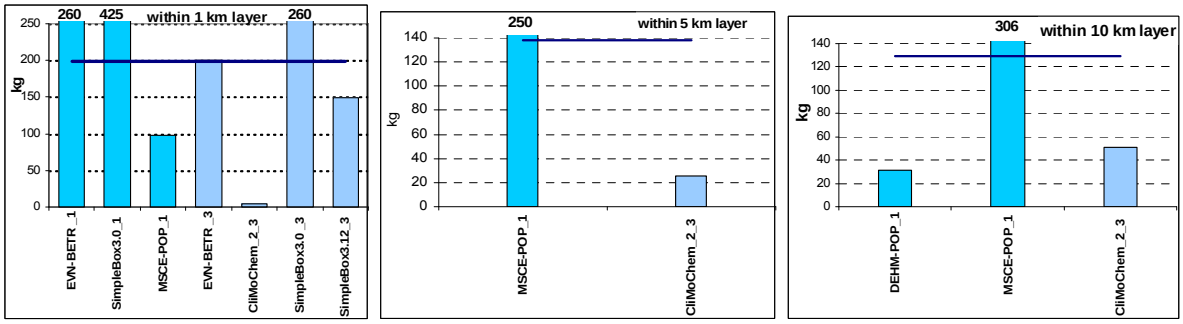


Fig. B.15. *Comparison of annual values of PCB-28 masses contained in the atmosphere within 1, 5 and 10 km layers calculated by different models on the basis of "reference" data set (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of air content profiles of annual values of PCB-28 mass calculated by MSCE-POP and CliMoChem models for the considered atmospheric layers (1, 5 and 10 km) on the basis of "reference" data set is presented in Fig. B.16.

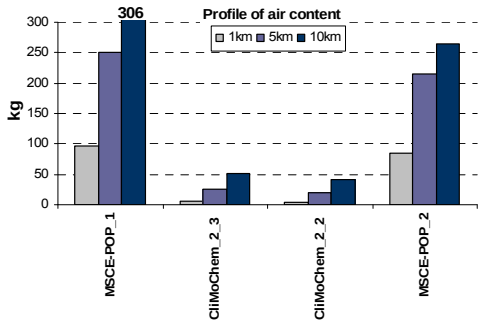


Fig. B.16. *Comparison of air content profiles of annual values of PCB-28 mass calculated by four models for the considered atmospheric layers (1, 5 and 10 km) on the basis of "reference" data set*

Comparison of annual values of PCB-28 masses contained in the atmosphere within 1, 5 and 10 km layers calculated by different models on the basis of zero initial concentrations and with the use of "own or alternative" data sets is presented in Fig. B.17a. Fig. B.17b shows the same results but obtained on the basis of initial concentrations or historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between models.

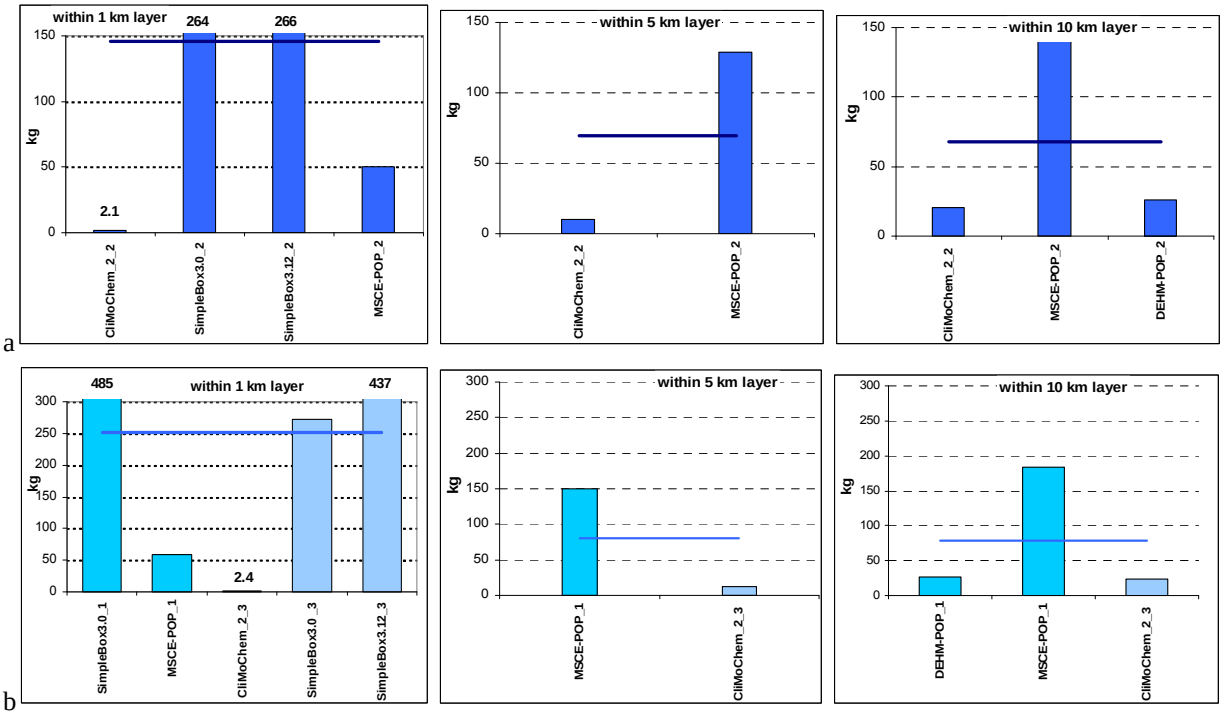


Fig. B.17. *Comparison of annual values of PCB-28 masses contained in the atmosphere within 1, 5 and 10 km layers calculated by different models on the basis of "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of air content profiles of annual values of PCB-28 mass calculated by MSCE-POP and CliMoChem models for the considered atmospheric layers (1, 5 and 10 km) on the basis of "own or alternative" data sets is presented in Fig. B.18.

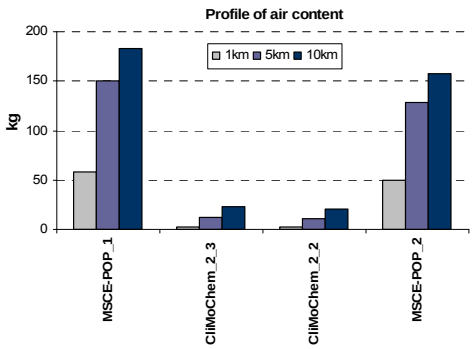


Fig. B.18. *Comparison of air content profiles of annual values of PCB-28 mass calculated by five models for the considered atmospheric layers (1, 5 and 10 km) on the basis of "own or alternative data sets"*

Comparison of annual values of PCB-28 mass contained in 1, 5 and 10 km layers of the atmosphere obtained by the participating models with the use of "reference" and "own/alternative" data sets is presented in Fig. B.19.

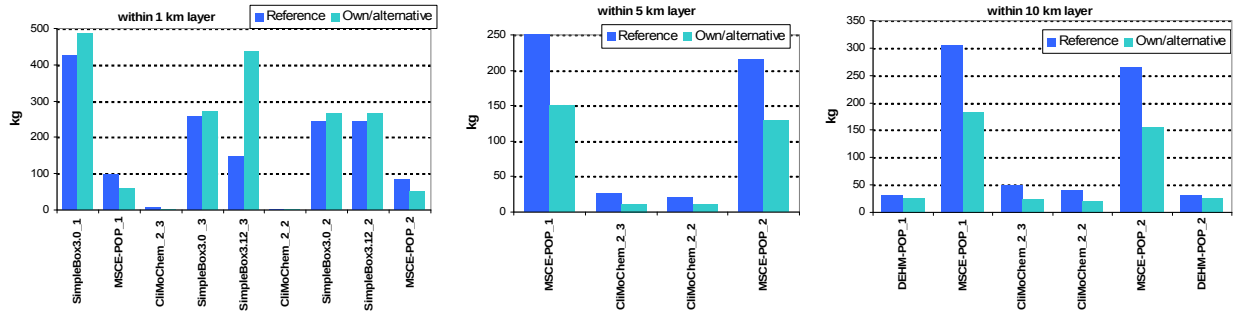


Fig. B.19. *Comparison of PCB-28 mass contained in the atmosphere within 1, 5 and 10 km layers calculated by different models on the basis of two data set*

Soil. Comparison of annual values of PCB-28 masses contained in soil within 5 and 10 cm layers calculated by different models on the basis of zero initial concentrations and with the use of "reference" data set is presented in Fig. B.20a. Fig. B.20b shows the same results but obtained on the basis of initial concentrations or historical emissions. In the latter figure different colour of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; and then long-tem calculations with historical emissions). The black line in the plots shows the value of the corresponding parameter averaged between models.

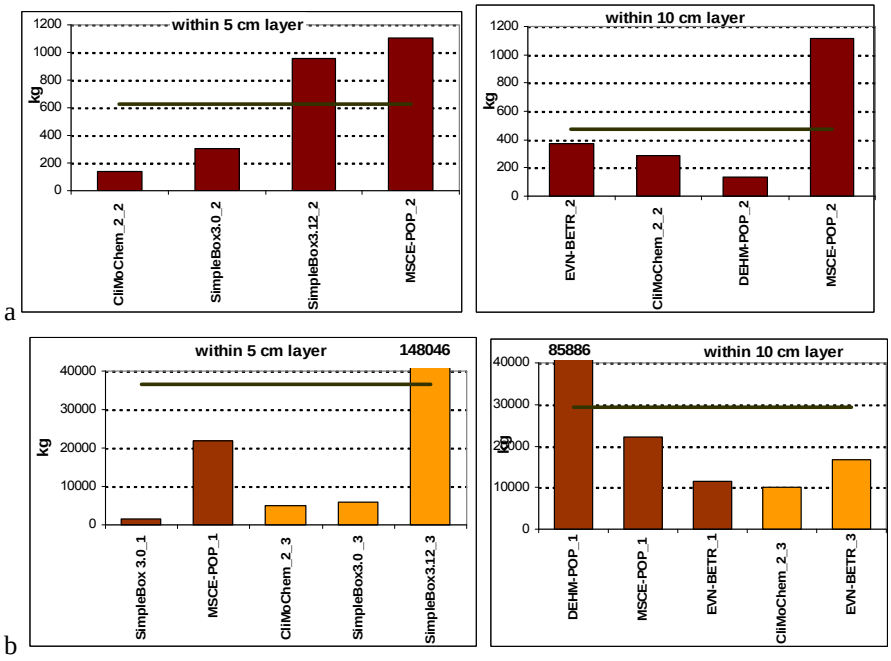


Fig. B.20. *Comparison of annual values of PCB-28 masses contained in soil within 5 and 10 cm layers calculated by different models on the basis of "reference" data set (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of soil content profiles of annual values of PCB-28 mass calculated by the participating models for the considered soil layers (5 and 10 cm) on the basis of "reference" data set is presented in Fig. B.21.

Comparison of annual values of PCB-28 masses contained in soil within 5 and 10 cm layers calculated by different models on the basis of zero initial concentrations and with the use of "own or alternative" data sets is presented in Fig. B.22a. Fig. B.22b shows the same results but obtained on the basis of initial concentrations or historical emissions. Different color of columns corresponds to the

different types of calculations (one-year calculations on the basis of initial data; and then long-tem calculations with historical emissions). The black line in the plots shows the value of the corresponding parameter averaged between models.

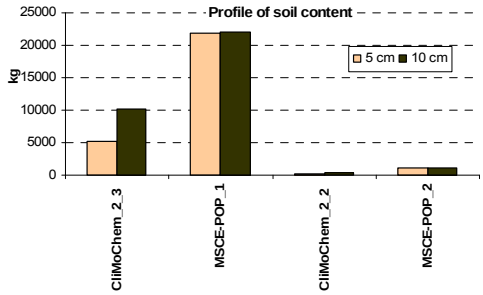


Fig. B.21. *Comparison of soil content profiles of annual values of PCB-28 mass calculated by the models for the considered soil layers (5 and 10 cm) on the basis of "reference" data set*

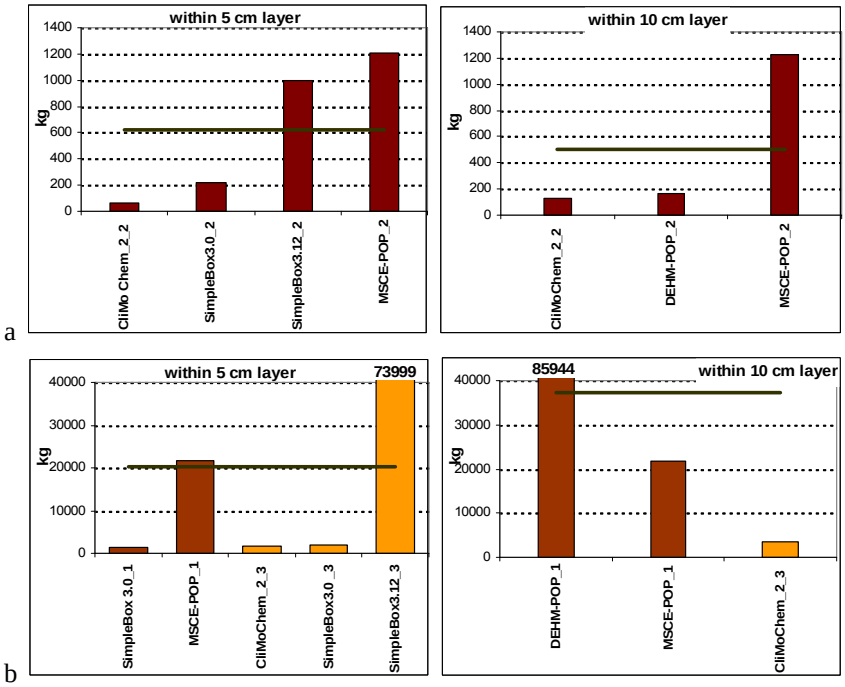


Fig. B.22. *Comparison of annual values of PCB-28 masses contained in soil within 5 and 10 cm layers calculated by different models on the basis of "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non- zero initial conditions)*

Comparison of soil content profiles of annual values of PCB-28 mass calculated by the participating models for the considered soil layers (5 and 10 cm) on the basis of "own or alternative" data sets is presented in Fig. B.23.

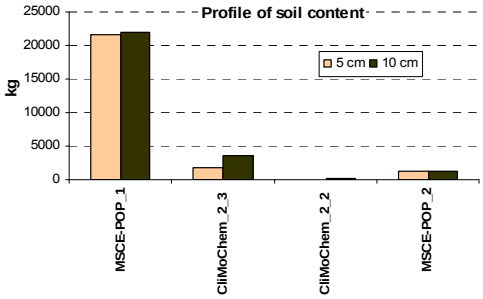


Fig. B.23. *Comparison of soil content profiles of annual values of PCB-28 mass calculated by the models for the considered soil layers (5 and 10 cm) on the basis of "own or alternative" data sets*

Comparison of annual values of PCB-28 mass contained in the considered different layers of soil obtained with "reference" and "own/alternative" data sets is presented in Fig. B.24.

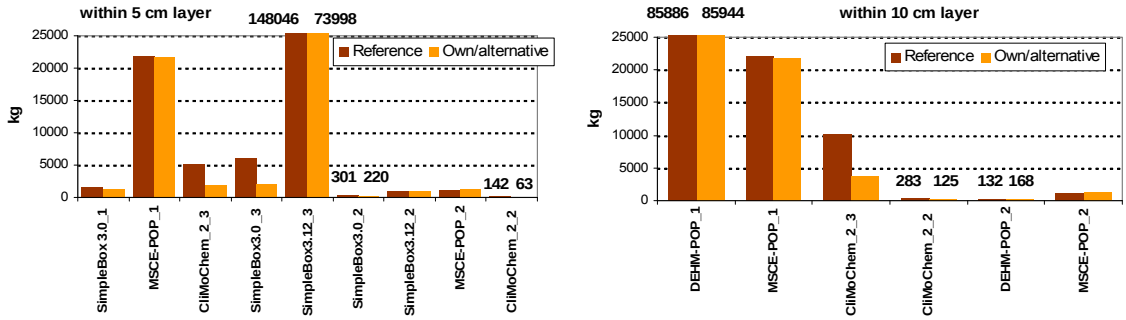


Fig. B.24. *Comparison of PCB-28 mass contained within 5 and 10 cm soil layers calculated by different models on the basis of two data set*

Water. Comparison of annual values of PCB-28 water content calculated by different models on the basis of zero initial concentrations and with the use of "***reference"*** data set is presented in Fig. B.25a. Fig. B.25b shows the same results but obtained on the basis of initial concentrations or historical emissions. Different colour of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The blue line in the plot shows the value of the corresponding parameter averaged between models.

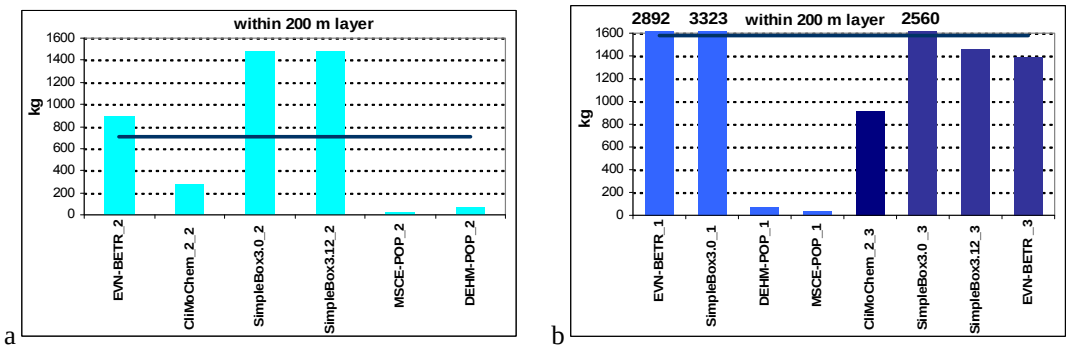


Fig. B.25. *Comparison of annual values of PCB-28 masses contained in water within 200 m layer calculated by different models on the basis of "reference" data set (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Figs.3.26a and B.26b show the annual values of PCB-28 masses contained in water layer of 200 m and calculated by different models on the basis of "***own or alternative***" data set and zero and non-zero initial conditions, respectively (blue line corresponds to the averaged value). Different color of columns corresponds to the different types of calculations (a - one-year calculations on the basis of zero initial conditions; b - one-year calculations on the basis of initial data; then long-tem calculations with historical emissions).

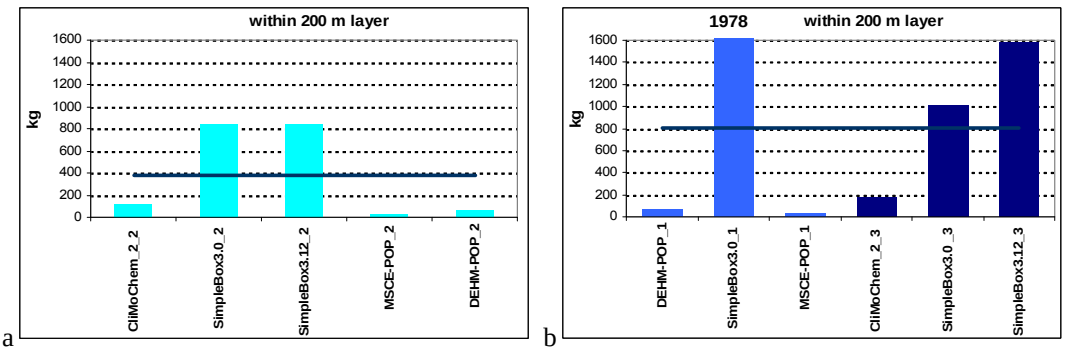


Fig. B.26. *Comparison of annual values of PCB-28 masses contained in water within 200 m layer calculated by different models on the basis of "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of annual values of PCB-28 mass contained in the 200m layer of water obtained by the participating models on the basis of "reference" and "own/alternative" data sets is presented in Fig. B.27.

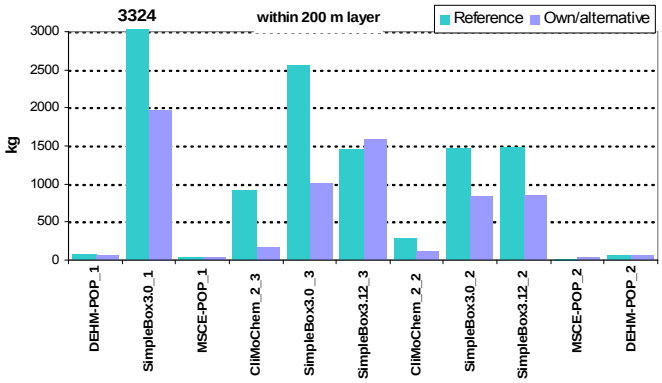


Fig. B.27. *Comparison of PCB-28 mass contained within 200 m water layer calculated by different models on the basis of two data sets*

Vegetation. Annual values of PCB-28 mass contained in vegetation obtained on the basis of zero initial conditions and with the use of "reference" and "own/alternative" data sets are presented in Fig. B.28a.

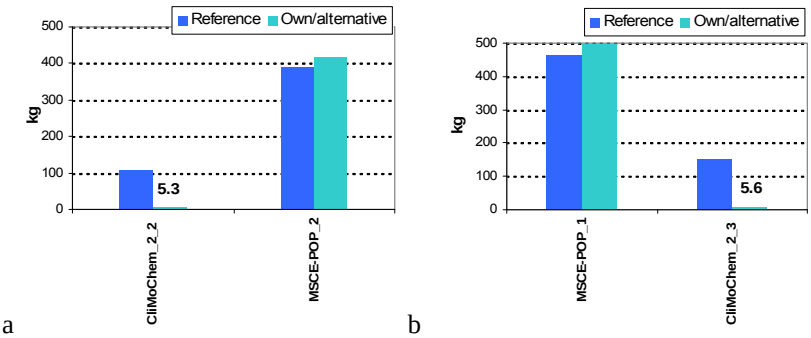


Fig. B.28. *Comparison of PCB-28 mass contained in vegetation calculated by different models on the basis of "reference" and "own/alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Relative distribution of PCB mass. The distribution of PCB-28 mass between main environmental compartments averaged for the results obtained by the participating models on the basis of zero and non-zero initial conditions is presented in Fig. B.29a and b, respectively. In this figure results calculated with the use of “reference” and “own/alternative” data sets are given. Of note, absolute values of averaged mass of PCB-28 in each media calculated with two different data sets of physical-chemical properties could not be directly compared since calculation results of different participating models are enclosed in these averaged figures.

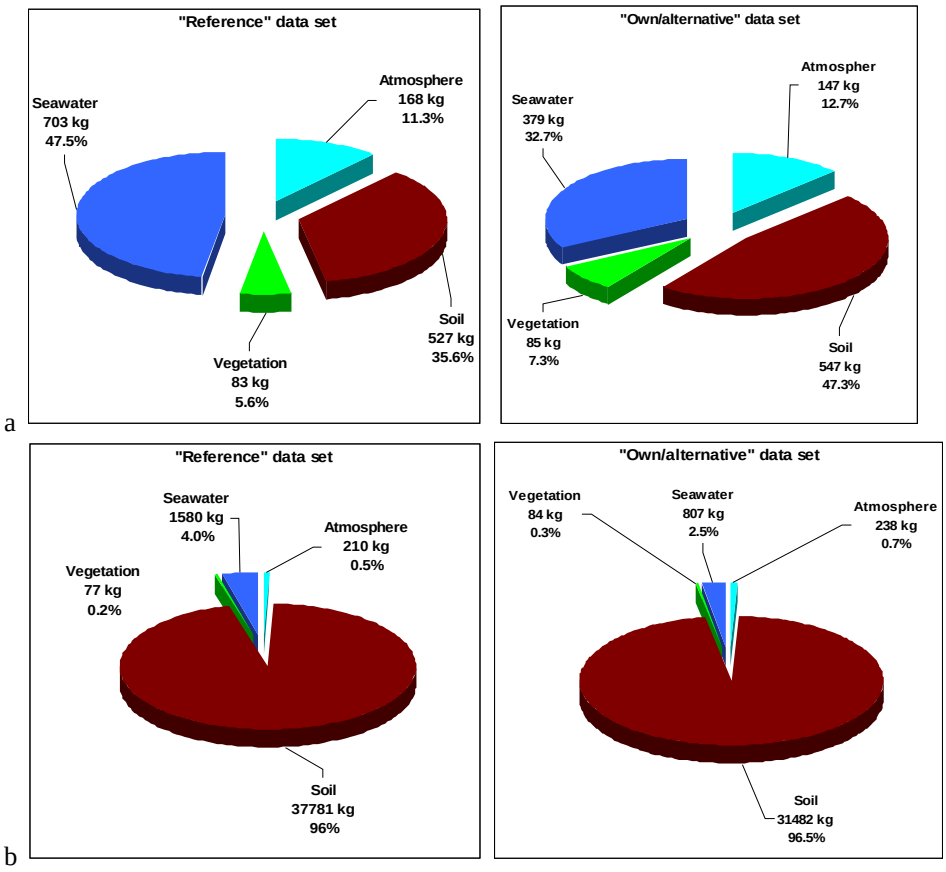
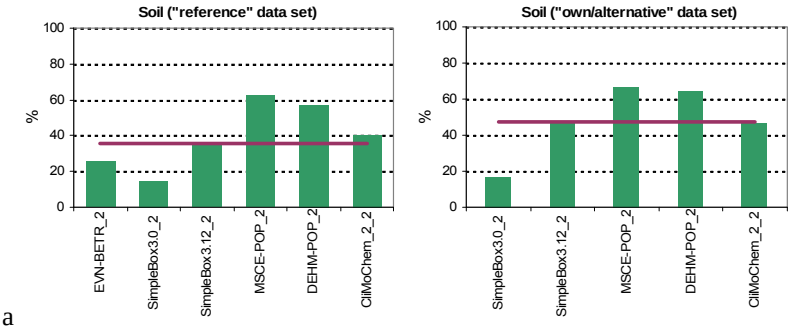
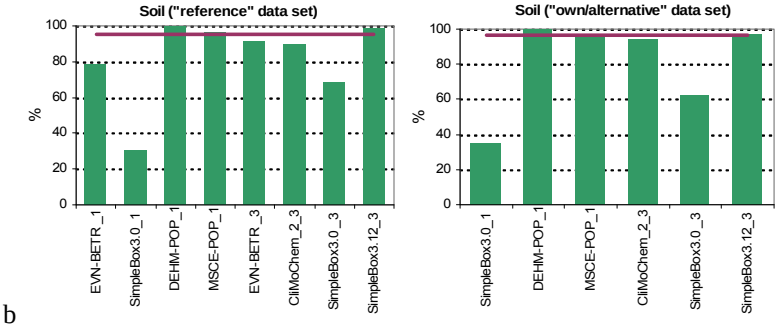


Fig. B.29. *Distribution of PCB-28 mass between environmental compartments (kg) averaged for all participating models and calculated on the basis of “reference” and “own or alternative” data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

To show redistribution of the pollutant between main environmental compartments for each participating model in more detail, plots of PCB-28 fractions in different environmental compartments calculated by the models on the basis of zero and non-zero initial conditions are presented in Figs. B.30a and b, respectively. In these figures fractions of PCB-28 mass in soil calculated by the different models with the use of “reference” and “own/alternative” data sets are also compared. The red line in the plots shows the value of the corresponding fraction averaged between models.



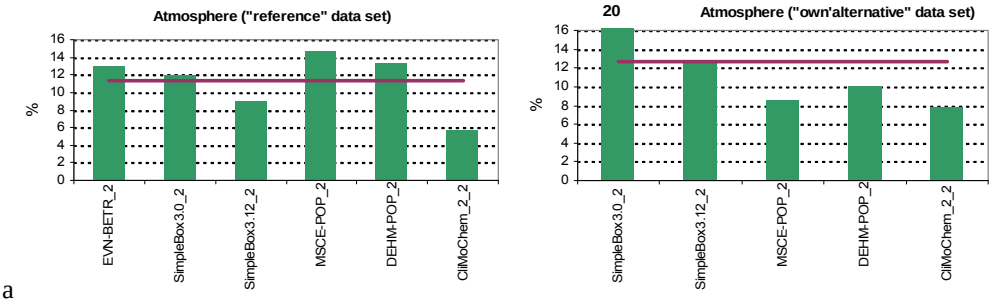
a



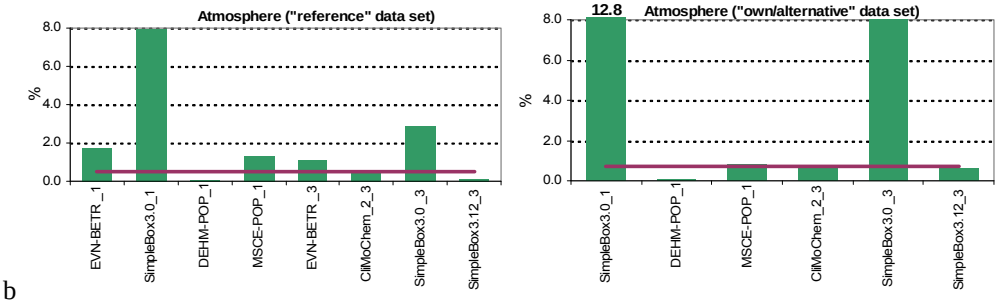
b

Fig. B.30. *Fractions of PCB-28 mass in soil calculated by the participating models on the basis of "reference" and "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Fractions of PCB-28 mass in the atmosphere calculated by the participating models on the basis of zero and non-zero initial conditions are presented in Fig. B.31a and b, respectively. In these figures fractions of PCB-28 mass in the atmosphere calculated by the different models with the use of "reference" and "own/alternative" data sets are also compared. The red line in the plots shows the value of the corresponding fraction averaged between models.



a



b

Fig. B.31. *Fractions of PCB-28 mass in the atmosphere calculated by the participating models on the basis of "reference" and "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Fractions of PCB-28 mass in seawater calculated by the participating models on the basis of zero and non-zero initial conditions are presented in Fig. B.32a and b, respectively. In these figures fractions of PCB-28 mass in seawater calculated by the different models with the use of “reference” and “own/alternative” data sets are also compared. The red line in the plots shows the value of the corresponding fraction averaged between models.

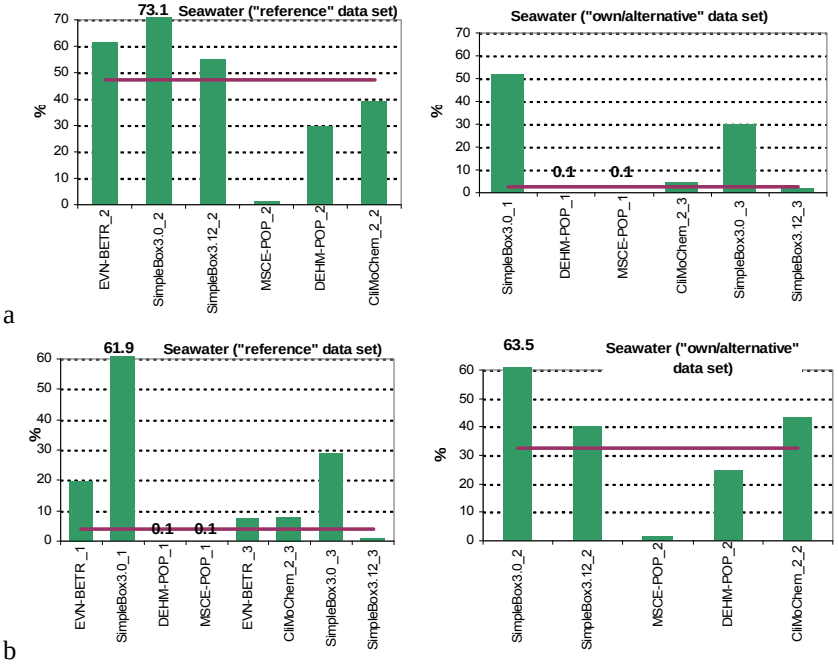


Fig. B.32. *Fractions of PCB-28 mass in seawater calculated by the participating models on the basis of “reference” and “own or alternative” data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Fractions of total environmental mass of PCB-28 contained in vegetation calculated by the participating models on the basis of zero and non-zero initial conditions are presented in Fig. B.33a and b, respectively. In these figures fractions of PCB-28 mass in vegetation calculated by the different models with the use of “reference” and “own/alternative” data sets are also compared. The red line in the plots shows the value of the corresponding fraction averaged between models. Of note, the models, for which vegetation compartment was not included into calculations of mass balance, are also shown in the plots.

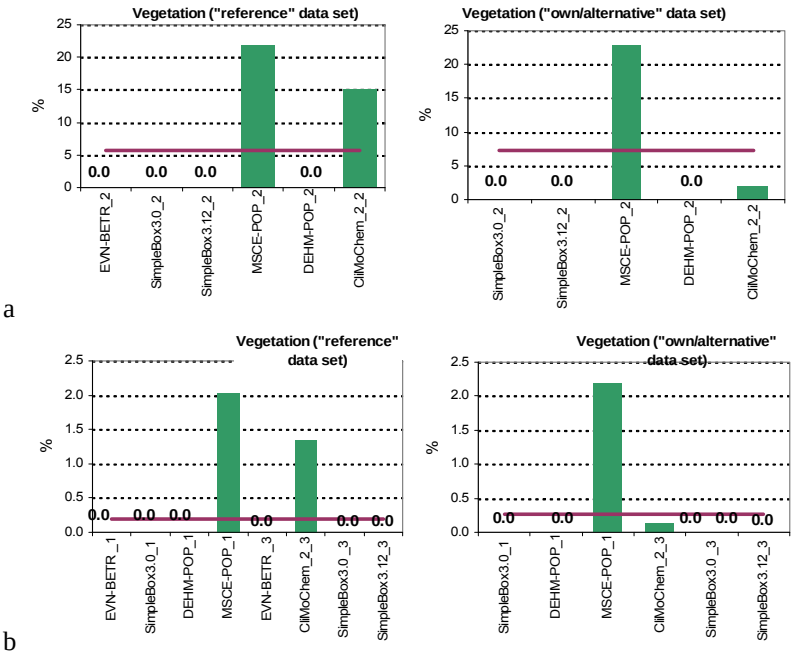


Fig. B.33. *Fractions of PCB-28 mass in vegetation calculated by the participating models on the basis of "reference" and "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

B.2. Masses degraded in the environmental compartments

B.2.1. Comparison of calculated values of PCB-28 mass degraded in the atmosphere

According to the programme of Stage II results of computational experiments on mass balance include masses of PCB-28 degraded in the atmosphere within layers of 1 km, 5 km and 10 km height.

Reference data set. Calculation results on PCB-28 mass degraded in 1 km layer of the atmosphere (kg) calculated by the models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.22.

Monthly values of PCB-28 mass degraded in 1 km layer of the atmosphere calculated by all participating models on the basis of "reference" data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.34 a and b, respectively. Seasonal variations of low values of mass contained in 1 km layer of the atmosphere calculated by the participating models on the basis of "reference" data set and non-zero initial conditions are also shown in Fig. B.34c in more detail.

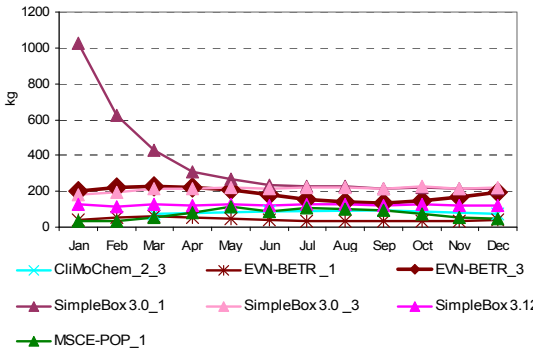


Fig. B.34a. *PCB-28 mass degraded in 1 km layer of the atmosphere (kg) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions (all models)*

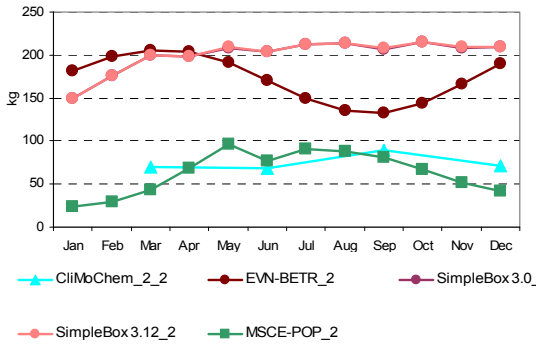


Fig. B.34b. *PCB-28 mass degraded in 1 km layer of the atmosphere (kg) calculated by the participating models on the basis of "reference" data set and zero-initial conditions*

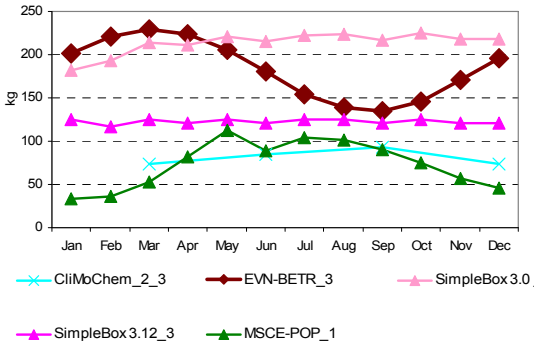


Fig. B.34c. *PCB-28 mass degraded in 1 km layer of the atmosphere (kg) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions (models with low values)*

Calculation results on PCB-28 mass degraded in 5 km layer of the atmosphere (kg) calculated by models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.23.

Monthly values of PCB-28 mass degraded in 5 km layer of the atmosphere calculated by the models on the basis of "reference" data set are compared in Fig. B.35.

Calculation results on PCB-28 mass degraded in 10 km layer of the atmosphere (kg) calculated by models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.24.

Monthly values of PCB-28 mass degraded in 10 km layer of the atmosphere calculated by the participating models on the basis of "reference" data set are compared in Fig. B.36.

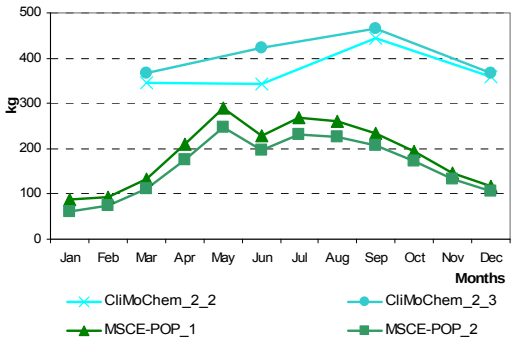


Fig. B.35. *PCB-28 mass degraded in 5 km layer of the atmosphere (kg) calculated by the participating models on the basis of "reference" data set*

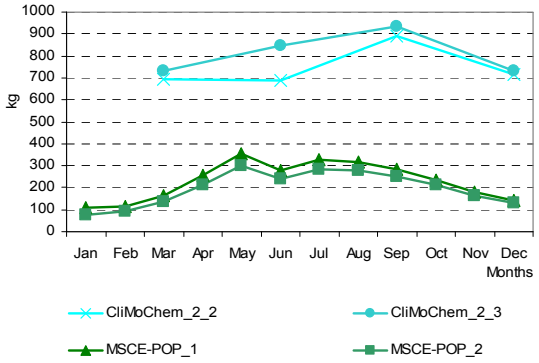


Fig. B.36. *PCB-28 mass degraded in 10 km layer of the atmosphere (kg) calculated by the participating models on the basis of "reference" data set*

Table B.22. *Calculation results: PCB-28 mass degraded in 1 km layer of the atmosphere (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data			Results obtained on the basis of historical emissions				*m*	σ	Month	Results obtained on the basis of zero initial concentrations					*m*	σ
	MSCE-POP_1	EVN-BETR_1[a]	SimpleBox 3.0_1[b]	EVN-BETR_3[a]	CliMo Chem_2_3	SimpleBox 3.0_3[b]	SimpleBox 3.12_3[b]				EVN-BETR_2[a]	CliMo Chem_2_2	SimpleBox 3.0_2[b]	SimpleBox 3.12_2[b]	MSCE-POP_2		
Jan	34.02	42.83	1026.38	201.04		181.46	125.40	*268.52*	*377.60*	Jan	181.49		149.24	149.25	24.05	*126.01*	*69.65*
Feb	36.10	55.24	621.15	221.39		193.51	117.31	*207.45*	*215.49*	Feb	198.90		176.09	176.14	28.85	*144.99*	*78.17*
Mar	52.10	59.18	426.51	229.43		214.37	125.40	*184.50*	*140.15*	Mar	205.89		199.50	199.61	43.32	*162.08*	*79.23*
Seas_1	**122.22**	**157.25**	**2074.03**	**651.86**	**73.17**	**589.34**	**368.10**	***576.57***	***698.49***	**Seas_1**	**586.28**	**69.33**	**524.82**	**524.99**	**96.22**	***360.33***	***254.78***
Apr	81.55	54.36	305.34	224.27		211.30	121.35	*166.36*	*96.39*	Apr	203.54		198.79	198.97	68.44	*167.43*	*66.03*
May	112.81	45.19	265.17	206.16		220.56	125.40	*162.55*	*81.76*	May	190.93		208.67	208.94	95.75	*176.07*	*54.21*
Jun	89.48	37.24	234.16	180.04		214.78	121.35	*146.18*	*76.54*	Jun	170.52		203.88	204.22	76.51	*163.78*	*60.29*
Seas_2	**283.85**	**136.78**	**804.68**	**610.47**	**84.70**	**646.63**	**368.10**	***419.32***	***273.70***	**Seas_2**	**564.98**	**68.71**	**611.34**	**612.13**	**240.70**	***419.57***	***250.05***
Jul	104.41	33.88	231.28	154.62		222.88	125.40	*145.41*	*74.81*	Jul	149.06		212.05	212.48	90.12	*165.93*	*58.67*
Aug	101.47	34.41	226.24	138.46		223.61	125.40	*141.60*	*73.84*	Aug	134.92		213.09	213.61	88.15	*162.44*	*61.80*
Sep	90.96	34.73	216.70	135.03		216.95	121.35	*135.95*	*71.50*	Sep	132.23		207.03	207.60	80.59	*156.86*	*61.95*
Seas_3	**296.84**	**103.01**	**674.23**	**428.12**	**93.21**	**663.43**	**372.14**	***375.86***	***236.31***	**Seas_3**	**416.21**	**89.01**	**632.17**	**633.68**	**258.86**	***405.99***	***237.29***
Oct	75.45	34.63	222.83	146.10		224.67	125.40	*138.18*	*76.85*	Oct	143.17		214.63	215.31	67.48	*160.14*	*70.44*
Nov	56.96	35.04	215.15	170.47		217.83	121.35	*136.13*	*78.49*	Nov	166.53		208.31	209.04	51.52	*158.85*	*74.26*
Dec	45.15	40.50	214.92	196.42		218.19	121.35	*139.42*	*82.65*	Dec	190.46		208.83	209.64	41.41	*162.59*	*81.27*
Seas_4	**177.56**	**110.17**	**652.89**	**513.00**	**73.14**	**660.69**	**368.10**	***365.08***	***250.83***	**Seas_4**	**500.16**	**71.67**	**631.77**	**633.98**	**160.40**	***399.60***	***266.32***
Annual	**880.47**	**507.22**	**4205.83**	**2203.45**	**324.22**	**2560.09**	**1476.44**	***1736.82***	***1372.35***	**Annual**	**2067.63**	**298.72**	**2400.10**	**2404.79**	**756.19**	***1585.49***	***988.79***

EVN-BETR _1 - EVN-BETR and UK-MODEL results calculated on the basis of initial concentrations given as input data;
EVN-BETR _2 - EVN-BETR and UK-MODEL results calculated on the basis of zero initial concentrations;
EVN-BETR _3 - EVN-BETR and UK-MODEL results calculated on the basis of historical emissions for 20-year period;
CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;

MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;

SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;

SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;

SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;

[a] - EVN-BETR and UK-MODEL results were calculated with the help of a single box version of European model;

[b] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Table B.23. *Calculation results: PCB-28 mass degraded in 5 km layer of the atmosphere (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation.*

Month	Results obtained on the basis of initial concentrations given as input data	Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations		*m*	σ
	MSCE-POP_1	CliMoChem_2_3				CliMoChem_2_2	MSCE-POP_2		
Jan	87.40				Jan		61.80		
Feb	92.77				Feb		74.13		
Mar	133.87				Mar		111.32		
Seas_1	**314.05**	**365.87**	***339.96***	***36.64***	**Seas_1**	**346.64**	**247.25**	***296.95***	***70.28***
Apr	209.54				Apr		175.86		
May	289.88				May		246.02		
Jun	229.93				Jun		196.59		
Seas_2	**729.36**	**423.49**	***576.42***	***216.28***	**Seas_2**	**343.57**	**618.48**	***481.02***	***194.39***
Jul	268.29				Jul		231.56		
Aug	260.73				Aug		226.51		
Sep	233.72				Sep		207.08		
Seas_3	**762.75**	**466.07**	***614.41***	***209.78***	**Seas_3**	**445.06**	**665.16**	***555.11***	***155.63***
Oct	193.88				Oct		173.38		
Nov	146.36				Nov		132.37		
Dec	116.00				Dec		106.41		
Seas_4	**456.25**	**365.69**	***410.97***	***64.03***	**Seas_4**	**358.34**	**412.16**	***385.25***	***38.06***
Annual	**2262.40**	**1621.12**	***1941.76***	***453.45***	**Annual**	**1493.61**	**1943.05**	***1718.33***	***317.80***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations; CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period; MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data; MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;

Table B.24. *Calculation results: PCB-28 mass degraded in 10 km layer of the atmosphere (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data	Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations		*m*	σ
	MSCE-POP_1	CliMoChem_2_3				CliMoChem_2_2	MSCE-POP_2		
Jan	106.89				Jan		75.58		
Feb	113.45				Feb		90.65		
Mar	163.72				Mar		136.14		
Seas_1	**384.06**		***557.90***	***245.85***	**Seas_1**	**693.29**	**302.37**	***497.83***	***276.42***
Apr	256.26	**731.74**			Apr		215.07		
May	354.51				May		300.87		
Jun	281.19				Jun		240.42		
Seas_2	**891.96**		***869.47***	***31.80***	**Seas_2**	**687.14**	**756.36**	***721.75***	***48.94***
Jul	328.11	**846.98**			Jul		283.18		
Aug	318.85				Aug		277.01		
Sep	285.83				Sep		253.25		
Seas_3	**932.79**		***932.46***	***0.47***	**Seas_3**	**890.11**	**813.44**	***851.78***	***54.21***
Oct	237.11	**932.13**			Oct		212.04		
Nov	178.99				Nov		161.88		
Dec	141.87				Dec		130.14		
Seas_4	**557.96**		***644.68***	***122.63***	**Seas_4**	**716.68**	**504.05**	***610.36***	***150.35***
Annual	**2766.77**	**731.39**	***3004.51***	***336.21***	**Annual**	**2987.22**	**2376.23**	***2681.72***	***432.03***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations; CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period; MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data; MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

Own/alternative data set. Calculation results on PCB-28 mass degraded in 1 km layer of the atmosphere (kg) calculated by models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.25.

Monthly values of PCB-28 mass degraded in 1 km layer of the atmosphere calculated by all participating models on the basis of "own or alternative" data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.37 a and b, respectively. Seasonal variations of low values of mass contained in 1 km layer of the atmosphere calculated by the participating models on the basis of "reference" data set and non-zero initial conditions are also shown in Fig. B.37c in more detail.

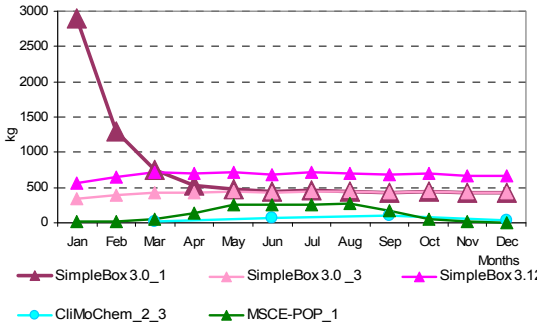


Fig. B.37a. *PCB-28 mass degraded in 1 km layer of the atmosphere (kg) calculated by the participating models on the basis of "own/alternative" data set and non-zero initial conditions (all models)*

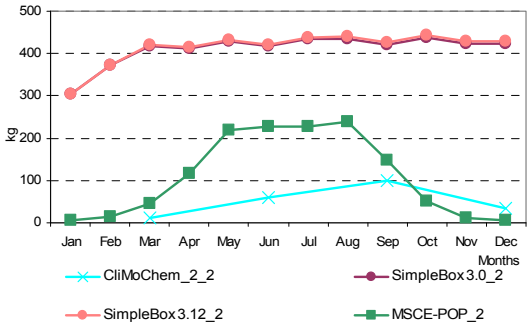


Fig. B.37b. *PCB-28 mass degraded in 1 km layer of the atmosphere (kg) calculated by the participating models on the basis of "own/alternative" data set and zero-initial conditions*

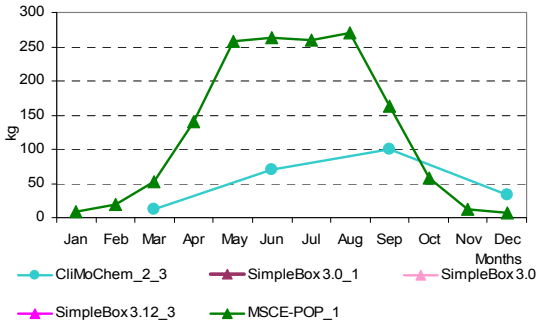


Fig. B.37c. *PCB-28 mass degraded in 1 km layer of the atmosphere (kg) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions (models with low values)*

Calculation results on PCB-28 mass degraded in 5 km layer of the atmosphere (kg) calculated by models on the basis of "own or alternative" data set together with statistical parameters used for evaluation are presented in Table B.26.

Monthly values of PCB-28 mass degraded in 5 km layer of the atmosphere calculated by the models on the basis of "reference" data set are compared in Fig. B.38.

Calculation results on PCB-28 mass degraded in 10 km layer of the atmosphere (kg) calculated by models on the basis of “own or alternative data sets” together with statistical parameters used for evaluation are presented in Table B.27.

Monthly values of PCB-28 mass degraded in 10 km layer of the atmosphere calculated by the participating models on the basis of “own or alternative” data sets are compared in Fig. B.39.

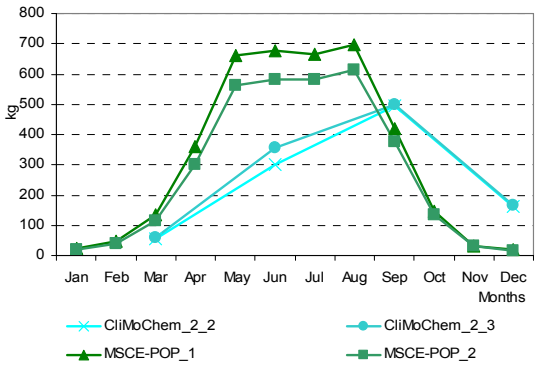


Fig. B.38. *PCB-28 mass degraded in 5 km layer of the atmosphere (kg) calculated by the participating models on the basis of “own/alternative” data set*

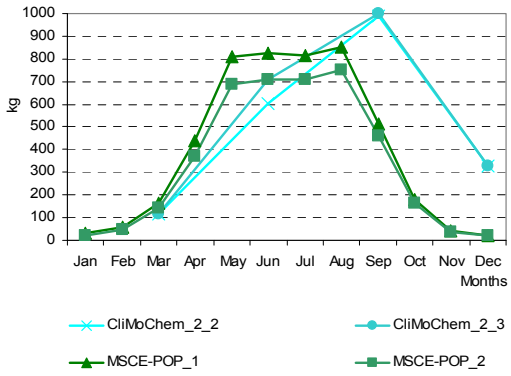


Fig. B.39. *PCB-28 mass degraded in 10 km layer of the atmosphere (kg) calculated by the participating models on the basis of “own/alternative” data set*

Table B.25. *Calculation results: PCB-28 mass degraded in 1 km layer of the atmosphere (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	MSCE-POP_1	SimpleBox 3.0_1[a]	CliMo Chem_ 2_3	SimpleBox 3.0 _3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	9.45	2889.68		338.79	555.28	*948.30*	*1313.57*	Jan		302.59	302.69	7.10	*204.13*	*170.63*
Feb	18.62	1297.97		384.96	644.60	*586.54*	*539.34*	Feb		371.17	371.65	15.24	*252.69*	*205.63*
Mar	52.89	746.14		429.66	714.07	*485.69*	*321.69*	Mar		418.41	419.48	44.73	*294.21*	*216.06*
Seas_1	**81.0**	**4933.8**	**11.65**	**1153.4**	**1914.0**	***1618.75***	***2014.99***	**Seas_1**	**11.39**	**1092.17**	**1093.82**	**67.07**	***566.11***	***608.82***
Apr	140.40	524.38		422.41	695.25	*445.61*	*232.54*	Apr		412.79	414.43	117.74	*314.99*	*170.82*
May	257.90	479.10		439.51	716.25	*473.19*	*188.50*	May		430.15	432.47	218.63	*360.42*	*122.79*
Jun	263.00	444.17		427.00	689.37	*455.88*	*175.77*	Jun		418.26	421.11	225.87	*355.08*	*111.91*
Seas_2	**661.3**	**1447.7**	**71.02**	**1288.9**	**2100.9**	***1113.95***	***775.98***	**Seas_2**	**60.27**	**1261.21**	**1268.01**	**562.25**	***787.94***	***587.33***
Jul	258.79	452.17		442.42	708.03	*465.36*	*184.63*	Jul		433.65	437.20	226.00	*365.62*	*120.93*
Aug	271.05	449.53		443.37	703.71	*466.91*	*178.22*	Aug		434.81	438.98	238.73	*370.84*	*114.43*
Sep	162.74	433.88		429.82	677.01	*425.86*	*210.07*	Sep		421.70	426.30	146.91	*331.64*	*159.99*
Seas_3	**692.6**	**1335.6**	**99.95**	**1315.6**	**2088.8**	***1106.50***	***749.25***	**Seas_3**	**98.93**	**1290.16**	**1302.48**	**611.64**	***825.80***	***582.25***
Oct	57.76	447.67		444.81	695.61	*411.46*	*263.48*	Oct		436.58	441.90	52.53	*310.34*	*223.28*
Nov	12.81	432.83		431.00	669.52	*386.54*	*273.17*	Nov		423.18	428.88	11.85	*287.97*	*239.15*
Dec	6.99	432.58		431.48	666.05	*384.28*	*274.66*	Dec		423.78	430.01	6.54	*286.78*	*242.72*
Seas_4	**77.6**	**1313.1**	**32.90**	**1307.3**	**2031.2**	***952.40***	***870.44***	**Seas_4**	**32.79**	**1283.54**	**1300.80**	**70.91**	***672.01***	***716.30***
Annual	**1512.40**	**9030.11**	**215.51**	**5065.23**	**8134.77**	***4791.60***	***3902.25***	**Annual**	**203.38**	**4927.08**	**4965.10**	**1311.87**	***2851.86***	***2460.24***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
[a] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Table B.26. *Calculation results: PCB-28 mass degraded in 5 km layer of the atmosphere (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data	Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations		*m*	σ
	MSCE-POP_1	CliMoChem_2_3				CliMoChem_2_2	MSCE-POP_2		
Jan	24.28				Jan		18.23		
Feb	47.85				Feb		39.17		
Mar	135.90				Mar		114.93		
Seas_1	**208.03**	**58.24**	***133.14***	***105.91***	**Seas_1**	**56.96**	**172.34**	***114.65***	***81.58***
Apr	360.75				Apr		302.55		
May	662.68				May		561.79		
Jun	675.80				Jun		580.39		
Seas_2	**1699.23**	**355.08**	***1027.15***	***950.46***	**Seas_2**	**301.37**	**1444.72**	***873.05***	***808.47***
Jul	664.98				Jul		580.70		
Aug	696.48				Aug		613.44		
Sep	418.16				Sep		377.49		
Seas_3	**1779.62**	**499.77**	***1139.69***	***904.99***	**Seas_3**	**494.64**	**1571.63**	***1033.14***	***761.55***
Oct	148.43				Oct		134.98		
Nov	32.91				Nov		30.44		
Dec	17.96				Dec		16.79		
Seas_4	**199.29**	**164.48**	***181.89***	***24.62***	**Seas_4**	**163.93**	**182.21**	***173.07***	***12.93***
Annual	**3886.17**	**1077.57**	***2481.87***	***1985.98***	**Annual**	**1016.90**	**3370.91**	***2193.90***	***1664.53***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations; CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period; MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data; MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

Table B.27. *Calculation results: PCB-28 mass degraded in 10 km layer of the atmosphere (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	sults obtained n the basis of initial oncentrations given as input data	Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations		*m*	σ
	MSCE-POP_1	CliMoChem_2_3				CliMo Chem_2_2	MSCE-POP_2		
Jan	29.69				Jan		22.30		
Feb	58.52				Feb		47.90		
Mar	166.19				Mar		140.56		
Seas_1	**254.41**	**116.49**	***185.45***	***97.52***	**Seas_1**	**113.92**	**210.76**	***162.34***	***68.48***
Apr	441.18				Apr		370.00		
May	810.42				May		687.03		
Jun	826.46				Jun		709.78		
Seas_2	**2078.06**	**710.15**	***1394.10***	***967.25***	**Seas_2**	**602.75**	**1766.81**	***1184.78***	***823.12***
Jul	813.23				Jul		710.17		
Aug	851.75				Aug		750.19		
Sep	511.39				Sep		461.65		
Seas_3	**2176.36**	**999.55**	***1587.95***	***832.13***	**Seas_3**	**989.28**	**1922.01**	***1455.64***	***659.54***
Oct	181.52				Oct		165.07		
Nov	40.25				Nov		37.23		
Dec	21.96				Dec		20.54		
Seas_4	**243.72**	**328.96**	***286.34***	***60.27***	**Seas_4**	**327.86**	**222.83**	***275.35***	***74.27***
Annual	**4752.54**	**2155.14**	***3453.84***	***1836.64***	**Annual**	**2033.80**	**4122.41**	***3078.11***	***1476.87***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;

MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

Comparison between results obtained on the basis of two data sets. The percentage difference between calculation results on PCB-28 mass degraded in 1, 5 and 10 km layers of obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Tables B.28 – B.30.

Table B.28. *The percentage difference between calculation results on PCB-28 mass degraded in 1 km layer of the atmosphere obtained by models on the basis of two data sets: "reference" and "own or alternative" data sets*

Month	CliMo Chem_2_2	CliMo Chem_2_3	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3	MSCE-POP_1	MSCE-POP_2
Jan			182%	103%	103%	87%	343%	-72%	-70%
Feb			109%	111%	111%	99%	450%	-48%	-47%
Mar			75%	110%	110%	100%	469%	2%	3%
Seas_1	**-84%**	**-84%**	**138%**	**108%**	**108%**	**96%**	**420%**	**-34%**	**-30%**
Apr			72%	108%	108%	100%	473%	72%	72%
May			81%	106%	107%	99%	471%	129%	128%
Jun			90%	105%	106%	99%	468%	194%	195%
Seas_2	**-12%**	**-16%**	**80%**	**106%**	**107%**	**99%**	**471%**	**133%**	**134%**
Jul			96%	105%	106%	99%	465%	148%	151%
Aug			99%	104%	106%	98%	461%	167%	171%
Sep			100%	104%	105%	98%	458%	79%	82%
Seas_3	**11%**	**7%**	**98%**	**104%**	**106%**	**98%**	**461%**	**133%**	**136%**
Oct			101%	103%	105%	98%	455%	-23%	-22%
Nov			101%	103%	105%	98%	452%	-78%	-77%
Dec			101%	103%	105%	98%	449%	-85%	-84%
Seas_4	**-54%**	**-55%**	**101%**	**103%**	**105%**	**98%**	**452%**	**-56%**	**-56%**
Annual	**-32%**	**-34%**	**115%**	**105%**	**106%**	**98%**	**451%**	**72%**	**73%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations; CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period; MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data; MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations; SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data; SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations; SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period.

Table B.29. *The percentage difference between calculation results on PCB-28 mass degraded in 5 km layer of the atmosphere obtained by models on the basis of two data sets: "reference" and "own or alternative" data sets*

Month	CliMoChem_2_2	CliMoChem_2_3	MSCE-POP_1	MSCE-POP_2
Jan			-72%	-70%
Feb			-48%	-47%
Mar			2%	3%
Seas_1	**-84%**	**-84%**	**-34%**	**-30%**
Apr			72%	72%
May			129%	128%
Jun			194%	195%
Seas_2	**-12%**	**-16%**	**133%**	**134%**
Jul			148%	151%
Aug			167%	171%
Sep			79%	82%
Seas_3	**11%**	**7%**	**133%**	**136%**
Oct			-23%	-22%
Nov			-78%	-77%
Dec			-85%	-84%
Seas_4	**-54%**	**-55%**	**-56%**	**-56%**
Annual	**-32%**	**-34%**	**72%**	**73%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations; CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and

with historical emissions for 20-year period; MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data; MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

Table B.30. *The percentage difference between calculation results on PCB-28 mass degraded in 10 km layer of the atmosphere obtained by models on the basis of two data sets: "reference" and "own or alternative" data sets*

Month	CliMoChem_2_2	CliMoChem_2_3	MSCE-POP_1	MSCE-POP_2
Jan			-72%	-70%
Feb			-48%	-47%
Mar			2%	3%
Seas_1	**-84%**	**-84%**	**-34%**	**-30%**
Apr			72%	72%
May			129%	128%
Jun			194%	195%
Seas_2	**-12%**	**-16%**	**133%**	**134%**
Jul			148%	151%
Aug			167%	171%
Sep			79%	82%
Seas_3	**11%**	**7%**	**133%**	**136%**
Oct			-23%	-22%
Nov			-78%	-77%
Dec			-85%	-84%
Seas_4	**-54%**	**-55%**	**-56%**	**-56%**
Annual	**-32%**	**-34%**	**72%**	**73%**

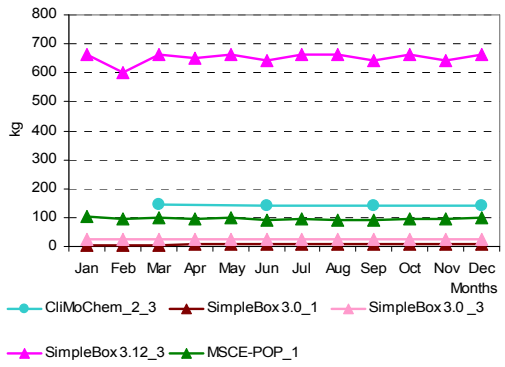
CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

3.2.2. Comparison of calculated values of PCB-28 mass degraded in soil

According to the programme of Stage II results of computational experiments on mass balance include masses of PCB-28 degraded in soil within 5 cm and 10 cm depth.

Reference data set. Calculation results on PCB-28 mass degraded in 5cm layer of soil (kg) calculated by models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.31.

Monthly values of PCB-28 mass degraded in soil calculated by the participating models on the basis of "reference" data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.40a and b, respectively.



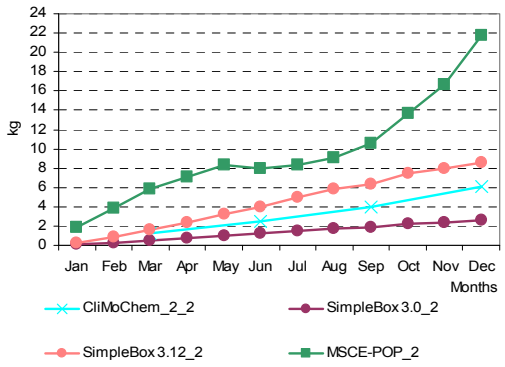
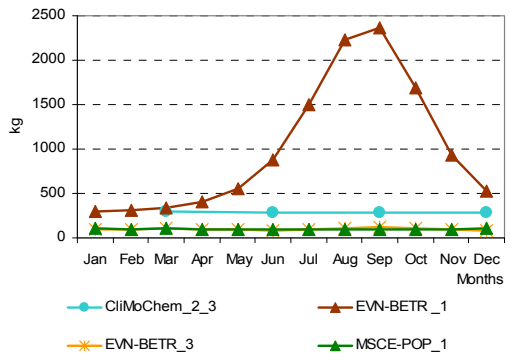


Fig. B.40a. *PCB-28 mass degraded in 5 cm layer of soil (kg) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions*

Fig. B.40b. *PCB-28 mass degraded in 5 cm layer of soil (kg) calculated by the participating models on the basis of "reference" data set and zero initial conditions*

Calculation results on PCB-28 mass degraded in 10 cm layer of soil (kg) calculated by models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.32.

Monthly values of PCB-28 mass degraded in 10 cm layer of soil calculated by the participating models on the basis of "reference" data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.41a and b, respectively. Seasonal variations of low values of mass degraded in 10 cm layer of soil calculated by the participating models on the basis of "reference" data set and non-zero initial conditions are also shown in Fig. B.41c in more detail.



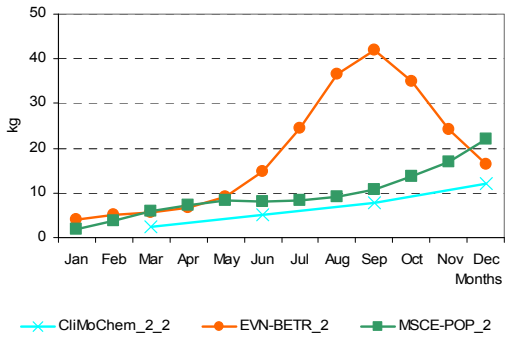


Fig. B.41a. *PCB-28 mass degraded in 10cm layer of soil (kg) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions (all models)*

Fig. B.41b. *PCB-28 mass degraded in 10cm layer of soil (kg) calculated by the participating models on the basis of "reference" data set and zero-initial conditions*

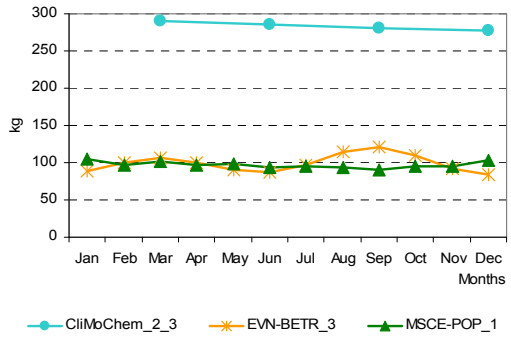


Fig. B.41c. *PCB-28 mass degraded in 10cm layer of soil (kg) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions (models with low values)*

Table B.31. *Calculation results: PCB-28 mass degraded in 5cm layer of soil (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	MSCE-POP_1	SimpleBox 3.0_1[a]	CliMo Chem_2_3	SimpleBox 3.0 _3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	103.11	3.95		25.45	664.98	*199.38*	*313.31*	Jan		0.07	0.24	1.80	*0.71*	*0.95*
Feb	94.98	4.98		23.86	600.63	*181.11*	*282.35*	Feb		0.25	0.81	3.85	*1.64*	*1.93*
Mar	100.41	6.08		25.59	664.98	*199.27*	*313.13*	Mar		0.49	1.65	5.89	*2.68*	*2.84*
Seas_1	**298.50**	**15.02**	**145.29**	**74.91**	**1930.59**	***492.86***	***810.66***	**Seas_1**	**1.23**	**0.82**	**2.70**	**11.54**	***4.07***	***5.04***
Apr	96.07	6.35		24.85	649.02	*194.07*	*305.75*	Apr		0.71	2.34	7.07	*3.37*	*3.30*
May	97.90	6.90		25.76	664.98	*198.89*	*313.19*	May		0.98	3.28	8.27	*4.18*	*3.73*
Jun	92.42	6.94		25.02	643.53	*191.98*	*303.27*	Jun		1.19	3.98	7.93	*4.37*	*3.39*
Seas_2	**286.39**	**20.19**	**142.91**	**75.63**	**1957.53**	***496.53***	***822.76***	**Seas_2**	**2.50**	**2.88**	**9.61**	**23.27**	***9.56***	***9.70***
Jul	93.60	7.42		25.95	664.98	*197.99*	*313.52*	Jul		1.48	4.94	8.35	*4.92*	*3.44*
Aug	92.55	7.65		26.05	662.01	*197.06*	*312.10*	Aug		1.73	5.80	9.06	*5.53*	*3.67*
Sep	89.98	7.62		25.30	643.53	*191.61*	*303.35*	Sep		1.91	6.40	10.51	*6.28*	*4.30*
Seas_3	**276.13**	**22.70**	**140.60**	**77.30**	**1970.52**	***497.45***	***828.88***	**Seas_3**	**3.94**	**5.12**	**17.14**	**27.92**	***13.53***	***11.30***
Oct	94.70	8.10		26.24	664.98	*198.50*	*313.21*	Oct		2.22	7.44	13.66	*7.77*	*5.73*
Nov	94.28	8.04		25.48	643.53	*192.83*	*302.76*	Nov		2.39	7.99	16.65	*9.01*	*7.19*
Dec	101.48	8.33		25.76	664.98	*200.14*	*312.52*	Dec		2.64	8.62	21.82	*11.03*	*9.81*
Seas_4	**290.46**	**24.47**	**139.07**	**77.48**	**1973.49**	***500.99***	***829.15***	**Seas_4**	**6.09**	**7.25**	**24.04**	**52.13**	***22.38***	***21.46***
Annual	**1151.49**	**82.39**	**567.87**	**305.32**	**7832.12**	***1987.84***	***3291.39***	**Annual**	**13.77**	**16.06**	**53.49**	**114.86**	***49.54***	***47.20***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
[a] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Table B.32. *Calculation results: PCB-28 mass degraded in 10 cm layer of soil (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions		*m*	σ	Month	Results obtained on the basis of zero initial concentrations			*m*	σ
	EVN-BETR_1[a]	MSCE-POP_1	EVN-BETR_3[a]	CliMo Chem_2_3				EVN-BETR_2[a]	CliMo Chem_2_2	MSCE-POP_2		
Jan	300.05	104.24	87.97		*164.09*	*118.03*	Jan	4.13		1.82	*2.98*	*1.63*
Feb	305.06	96.01	100.41		*167.16*	*119.44*	Feb	5.21		3.89	*4.55*	*0.93*
Mar	344.02	101.51	106.49		*184.01*	*138.60*	Mar	5.58		5.95	*5.77*	*0.27*
Seas_1	**949.13**	**301.76**	**294.88**	**290.58**	***459.09***	***326.72***	**Seas_1**	**14.92**	**2.47**	**11.67**	***9.68***	***6.46***
Apr	412.13	97.12	100.40		*203.22*	*180.93*	Apr	6.68		7.15	*6.92*	*0.33*
May	555.66	98.97	90.03		*248.22*	*266.29*	May	9.24		8.36	*8.80*	*0.62*
Jun	879.82	93.43	87.46		*353.57*	*455.76*	Jun	14.65		8.01	*11.33*	*4.69*
Seas_2	**1847.61**	**289.53**	**277.89**	**285.83**	***675.21***	***781.61***	**Seas_2**	**30.57**	**5.00**	**23.52**	***19.70***	***13.21***
Jul	1498.57	94.63	97.56		*563.59*	*809.72*	Jul	24.53		8.44	*16.49*	*11.38*
Aug	2228.00	93.56	114.44		*812.00*	*1226.34*	Aug	36.66		9.16	*22.91*	*19.45*
Sep	2370.98	90.96	121.66		*861.20*	*1307.60*	Sep	41.95		10.63	*26.29*	*22.15*
Seas_3	**6097.55**	**279.15**	**333.67**	**281.20**	*1747.89*	*2899.88*	**Seas_3**	**103.15**	**7.88**	**28.22**	*46.42*	*50.17*
Oct	1695.86	95.74	110.09		*633.90*	*919.72*	Oct	35.04		13.81	*24.43*	*15.02*
Nov	936.01	95.31	92.64		*374.65*	*486.15*	Nov	24.08		16.83	*20.46*	*5.13*
Dec	524.59	102.59	83.70		*236.96*	*249.27*	Dec	16.51		22.06	*19.28*	*3.92*
Seas_4	**3156.46**	**293.64**	**286.43**	**278.14**	***1003.67***	***1435.21***	**Seas_4**	**75.64**	**12.19**	**52.70**	***46.84***	***32.13***
Annual	**12050.75**	**1164.07**	**1192.87**	**1135.74**	***3885.86***	***5443.31***	**Annual**	**224.28**	**27.53**	**116.11**	***122.64***	***98.54***

EVN-BETR _1 - EVN-BETR and UK-MODEL results calculated on the basis of initial concentrations given as input data;
EVN-BETR _2 - EVN-BETR and UK-MODEL results calculated on the basis of zero initial concentrations;
EVN-BETR _3 - EVN-BETR and UK-MODEL results calculated on the basis of historical emissions for 20-year period;
CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
a - EVN-BETR and UK-MODEL results were calculated with the help of a single box version of European model.

Own/alternative data set. Calculation results on PCB-28 mass degraded in 5cm layer of soil (kg) calculated by the models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.33.

Monthly values of PCB-28 mass degraded in 5cm layer of soil calculated by the participating models on the basis of "own or alternative" data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.42a and b, respectively.

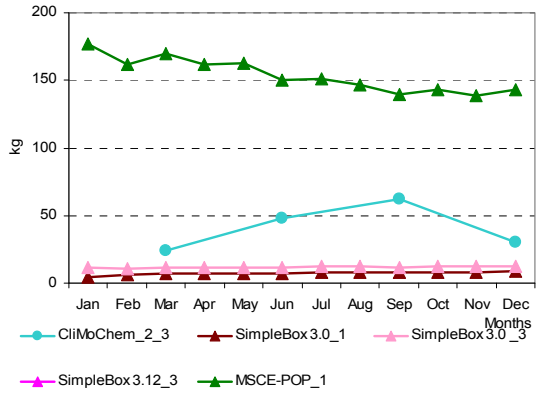


Fig. B.42a. *PCB-28 mass degraded in 5cm layer of soil (kg) calculated by the participating models on the basis of "own or alternative" data sets and non-zero initial conditions*

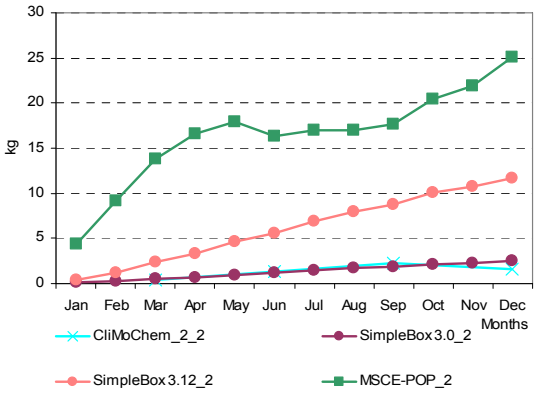


Fig. B.42b. *PCB-28 mass degraded in 5cm layer of soil (kg) calculated by the participating models on the basis of "own or alternative" data sets and zero initial conditions*

Table B.33. *Calculation results: PCB-28 mass degraded in 5cm layer of soil (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	MSCE-POP_1	SimpleBox 3.0_1[a]	CliMo Chem_2_3	SimpleBox 3.0 _3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	176.87	4.88		11.32	468.35	*165.36*	*217.12*	Jan		0.07	0.34	4.36	*1.59*	*2.40*
Feb	162.14	5.92		10.68	416.83	*148.89*	*192.79*	Feb		0.25	1.17	9.22	*3.55*	*4.93*
Mar	170.15	6.91		11.55	455.06	*160.92*	*210.27*	Mar		0.49	2.39	13.74	*5.54*	*7.17*
Seas_1	**509.15**	**17.72**	23.95	**33.55**	**1340.24**	***384.92***	***573.73***	**Seas_1**	**0.39**	**0.81**	**3.90**	**27.32**	***8.10***	***12.90***
Apr	162.07	6.99		11.30	438.87	*154.81*	*202.64*	Apr		**0.70**	3.36	16.61	*6.89*	*8.52*
May	162.38	7.45		11.82	442.66	*156.08*	*204.18*	May		**0.96**	4.65	17.97	*7.86*	*8.94*
Jun	150.65	7.40		11.57	422.63	*148.06*	*194.77*	Jun		**1.16**	5.58	16.33	*7.69*	*7.80*
Seas_2	**475.10**	**21.84**	47.71	**34.69**	**1304.16**	***376.70***	***552.49***	**Seas_2**	**1.37**	**2.82**	**13.60**	**50.90**	***17.17***	***23.14***
Jul	151.08	7.83		12.09	430.91	*150.48*	*198.44*	Jul		**1.43**	6.87	17.05	*8.45*	*7.93*
Aug	146.72	8.02		12.23	425.49	*148.11*	*195.82*	Aug		**1.67**	8.00	16.97	*8.88*	*7.69*
Sep	139.79	7.93		11.96	406.06	*141.44*	*186.74*	Sep		**1.84**	8.75	17.64	*9.41*	*7.92*
Seas_3	**437.59**	**23.78**	62.46	**36.27**	**1262.47**	***364.51***	***530.74***	**Seas_3**	**2.32**	**4.94**	**23.62**	**51.66**	***20.63***	***22.75***
Oct	143.54	8.37		12.49	414.17	*144.64*	*190.33*	Oct		**2.13**	10.09	20.39	*10.87*	*9.16*
Nov	138.41	8.27		12.22	395.65	*138.64*	*181.69*	Nov		**2.28**	10.77	21.89	*11.65*	*9.84*
Dec	143.20	8.53		12.44	403.73	*141.97*	*185.38*	Dec		**2.51**	11.65	25.11	*13.09*	*11.37*
Seas_4	**425.15**	**25.17**	30.45	**37.15**	**1213.54**	***346.29***	***514.00***	**Seas_4**	**1.60**	**6.92**	**32.52**	**67.39**	***27.11***	***30.06***
Annual	**1846.98**	**88.51**	**164.57**	**141.66**	**5120.41**	***1472.43***	***2170.52***	**Annual**	**5.67**	**15.49**	**73.64**	**197.27**	***73.02***	***88.10***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
a - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Calculation results on PCB-28 mass degraded in 10 cm layer of soil (kg) calculated by models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table 3.34.

Table 3.34. *Calculation results: PCB-28 mass degraded in 10 cm layer of soil (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data	Results obtained on the basis of historical emissions	*m*	σ	Month	Results obtained on the basis of zero initial concentrations		*m*	σ
	MSCE-POP_1	CliMoChem_2_3				CliMo Chem_2_2	MSCE- POP_2		
Jan	178.80				Jan		4.40		
Feb	163.91				Feb		9.32		
Mar	172.01				Mar		13.90		
Seas_1	**514.72**	**47.90**	***281.31***	***330.09***	**Seas_1**	**0.77**	**27.61**	***14.19***	***18.98***
Apr	163.84				Apr		16.79		
May	164.15				May		18.16		
Jun	152.30				Jun		16.51		
Seas_2	**480.29**	**95.43**	***287.86***	***272.14***	**Seas_2**	**2.74**	**51.46**	***27.10***	***34.45***
Jul	152.73				Jul		17.23		
Aug	148.32				Aug		17.16		
Sep	141.32				Sep		17.83		
Seas_3	**442.37**	**124.91**	***283.64***	***224.48***	**Seas_3**	**4.64**	**52.22**	***28.43***	***33.65***
Oct	145.10				Oct		20.62		
Nov	139.93				Nov		22.13		
Dec	144.76				Dec		25.38		
Seas_4	**429.79**	**60.90**	***245.35***	***260.85***	**Seas_4**	**3.20**	**68.13**	***35.66***	***45.91***
Annual	**1867.17**	**329.14**	***1098.15***	***1087.56***	**Annual**	**11.34**	**199.43**	***105.38***	***132.99***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
a - EVN-BETR and UK-MODEL results were calculated with the help of a single box version of European model on the basis of initial concentrations given as input data;
[b]– in CAN/POPs results the second layer of soil is applied as 5cm;

Monthly values of PCB-28 mass degraded in 10 cm layer of soil calculated by the participating models on the basis of "own or alternative" data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.43a and b, respectively.

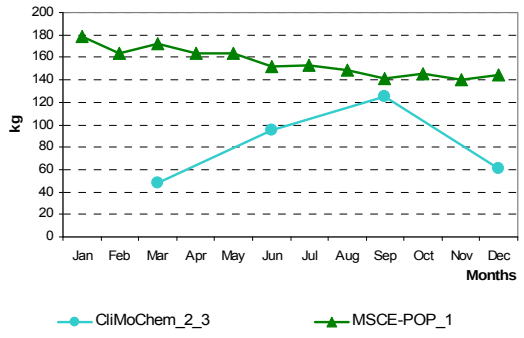


Fig. B.43a. *PCB-28 mass degraded in 10cm layer of soil (kg) calculated by the participating models on the basis of "own or alternative" data sets and non-zero initial conditions*

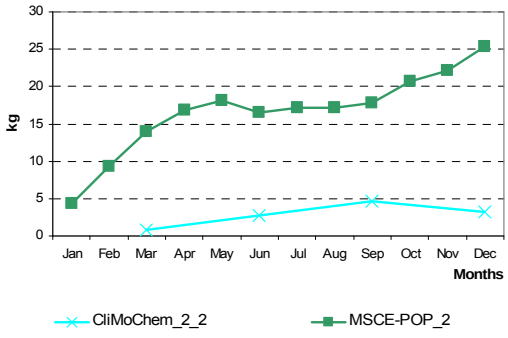


Fig. B.43b. *PCB-28 mass degraded in 10cm layer of soil (kg) calculated by the participating models on the basis of "own or alternative" data sets and zero initial conditions*

Comparison between results obtained on the basis of two data sets. The percentage difference between calculation results on PCB-28 mass degraded in soil within 5 and 10 cm layers obtained with two different data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Tables B.35-B.36.

Table B.35. *The percentage difference between calculation results on PCB-28 mass degraded within 5 cm soil layer obtained by models on the basis of two data sets: "own or alternative" and "reference"*

Month	CliMo Chem_2_2	CliMo Chem_2_3	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3	MSCE-POP_1	MSCE-POP_2
Jan			24%	-3%	42%	-56%	-30%	72%	141%
Feb			19%	-1%	45%	-55%	-31%	71%	140%
Mar			14%	0%	45%	-55%	-32%	69%	133%
Seas_1	**-69%**	**-84%**	**18%**	**-1%**	**44%**	**-55%**	**-31%**	**71%**	**137%**
Apr			10%	-1%	44%	-55%	-32%	69%	135%
May			8%	-2%	42%	-54%	-33%	66%	117%
Jun			7%	-2%	40%	-54%	-34%	63%	106%
Seas_2	**-45%**	**-67%**	**8%**	**-2%**	**42%**	**-54%**	**-33%**	**66%**	**119%**
Jul			6%	-3%	39%	-53%	-35%	61%	104%
Aug			5%	-3%	38%	-53%	-36%	59%	87%
Sep			4%	-4%	37%	-53%	-37%	55%	68%
Seas_3	**-41%**	**-56%**	**5%**	**-4%**	**38%**	**-53%**	**-36%**	**58%**	**85%**
Oct			3%	-4%	36%	-52%	-38%	52%	49%
Nov			3%	-5%	35%	-52%	-39%	47%	31%
Dec			2%	-5%	35%	-52%	-39%	41%	15%
Seas_4	**-74%**	**-78%**	**3%**	**-5%**	**35%**	**-52%**	**-39%**	**46%**	**29%**
Annual	**-59%**	**-71%**	**7%**	**-4%**	**38%**	**-54%**	**-35%**	**60%**	**72%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations; CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period; MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data; MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations; SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data; SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations; SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period.

Table B.36. *The percentage difference between calculation results on PCB-28 mass degraded within 10 cm soil layer obtained by models on the basis of two data sets: "own or alternative" and "reference"*

Month	CliMoChem_2_2	CliMoChem_2_3	MSCE-POP_1	MSCE-POP_2
Jan			72%	141%
Feb			71%	140%
Mar			69%	133%
Seas_1	**-69%**	**-84%**	**71%**	**137%**
Apr			69%	135%
May			66%	117%
Jun			63%	106%
Seas_2	**-45%**	**-67%**	**66%**	**119%**
Jul			61%	104%
Aug			59%	87%
Sep			55%	68%
Seas_3	**-41%**	**-56%**	**58%**	**85%**
Oct			52%	49%
Nov			47%	31%
Dec			41%	15%
Seas_4	**-74%**	**-78%**	**46%**	**29%**
Annual	**-59%**	**-71%**	**60%**	**72%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations.

3.2.3. Comparison of calculated values of PCB-28 mass degraded in water

According to the programme of Stage II model results of computational experiments on mass balance include masses of PCB-28 degraded in sea within a layer of 200 m depth.

Reference data set. Calculation results on PCB-28 mass degraded in 200 m layer of water (kg) calculated by models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.37.

Monthly values of PCB-28 mass degraded in 200 m layer of water calculated by all participating models on the basis of "reference" data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.44a and b, respectively. Seasonal variations of low values of mass degraded in 10 cm layer of soil calculated by the participating models on the basis of "reference" data set and -zero initial conditions are also shown in Fig. B.44c in more detail.

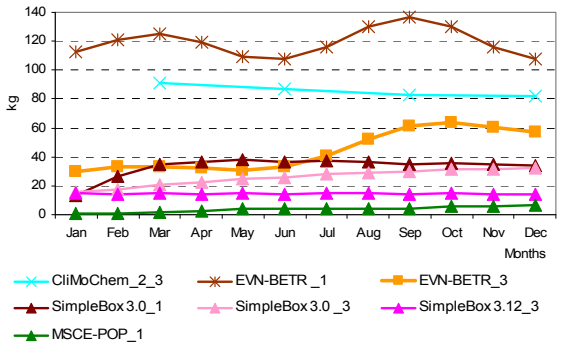


Fig. B.44a. *PCB-28 mass degraded in 200 m layer of water (kg) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions*

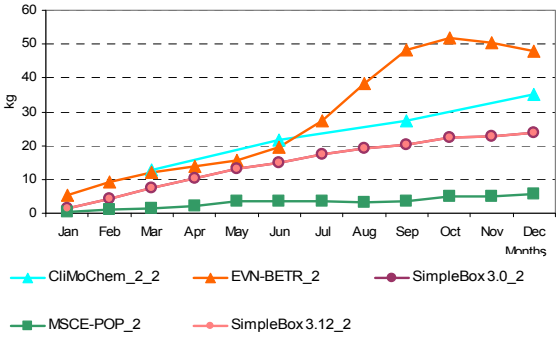


Fig. B.44b. *PCB-28 mass degraded in 200 m layer of water (kg) calculated by the participating models on the basis of "reference" data set and zero initial conditions*

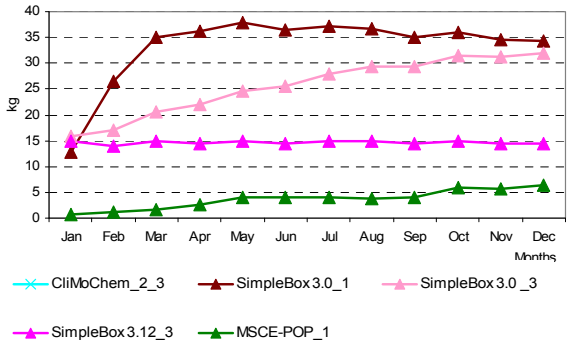


Fig. B.44c. *PCB-28 mass degraded in 200 m layer of water (kg) calculated by the participating models on the basis of "reference" data set and zero initial conditions (models with low values)*

Table B.37. *Calculation results: PCB-28 mass degraded in 200 m layer of water (kg) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data			Results obtained on the basis of historical emissions				*m*	σ	Month	Results obtained on the basis of zero initial concentrations					*m*	σ
	SimpleBox 3.0_1[b]	MSCE-POP_1	EVN-BETR_1[a]	EVN-BETR_3[a]	CliMo Chem_2_3	SimpleBox 3.0_3[b]	SimpleBox 3.12_3[b]				EVN-BETR_2[a]	CliMo Chem_2_2	SimpleBox 3.0_2[b]	SimpleBox 3.12_2[b]	MSCE-POP_2		
Jan	12.87	0.60	112.58	30.19		15.89	14.87	*31.17*	*40.98*	Jan	5.28		1.29	1.29	0.42	*2.07*	*2.18*
Feb	26.51	1.24	120.90	32.80		17.13	13.91	*35.42*	*43.26*	Feb	9.32		4.19	4.19	0.95	*4.66*	*3.46*
Mar	34.92	1.71	125.08	33.46		20.64	14.87	*38.45*	*44.19*	Mar	12.03		7.61	7.61	1.36	*7.15*	*4.39*
Seas_1	**74.31**	**3.56**	**358.56**	**96.45**	**91.14**	**53.66**	**43.65**	***103.05***	***117.02***	**Seas_1**	**26.63**	**12.93**	**13.09**	**13.09**	**2.72**	***13.69***	***8.50***
Apr	36.15	2.61	119.09	31.99		22.06	14.39	*37.72*	*41.66*	Apr	13.79		10.19	10.19	2.16	*9.08*	*4.92*
May	37.91	4.01	109.68	30.86		24.72	14.87	*37.01*	*37.55*	May	15.72		13.13	13.14	3.40	*11.35*	*5.44*
Jun	36.50	4.05	107.31	33.14		25.56	14.39	*36.82*	*36.57*	Jun	19.70		14.94	14.95	3.42	*13.25*	*6.93*
Seas_2	**110.55**	**10.66**	**336.08**	**95.99**	**87.21**	**72.34**	**43.65**	***108.07***	***106.06***	**Seas_2**	**49.21**	**21.64**	**38.26**	**38.28**	**8.98**	***31.27***	***15.89***
Jul	37.26	3.98	115.73	40.55		27.90	14.87	*40.05*	*39.54*	Jul	27.35		17.47	17.49	3.37	*16.42*	*9.86*
Aug	36.76	3.86	129.69	51.92		29.24	14.87	*44.39*	*45.02*	Aug	38.32		19.29	19.32	3.26	*20.05*	*14.34*
Sep	35.14	4.10	136.98	61.58		29.41	14.39	*46.93*	*48.30*	Sep	48.21		20.20	20.23	3.50	*23.03*	*18.54*
Seas_3	**109.17**	**11.94**	**382.40**	**154.05**	**83.14**	**86.55**	**44.13**	***124.48***	***122.41***	**Seas_3**	**113.87**	**27.46**	**56.97**	**57.04**	**10.13**	***53.09***	***39.46***
Oct	35.94	5.89	130.08	63.84		31.41	14.87	*47.01*	*45.33*	Oct	51.90		22.27	22.31	5.12	*25.40*	*19.43*
Nov	34.49	5.74	116.20	60.38		31.26	14.39	*43.75*	*40.18*	Nov	50.26		22.75	22.80	5.00	*25.20*	*18.69*
Dec	34.28	6.34	107.38	56.80		32.03	14.39	*41.87*	*36.57*	Dec	47.92		23.81	23.86	5.59	*25.29*	*17.36*
Seas_4	**104.71**	**17.97**	**353.66**	**181.03**	**82.41**	**94.70**	**43.65**	***125.45***	***113.02***	**Seas_4**	**150.08**	**35.32**	**68.83**	**68.97**	**15.71**	***67.78***	***51.33***
Annual	**398.74**	**44.13**	**1430.70**	**527.52**	**343.89**	**307.26**	**175.09**	***461.05***	***454.88***	**Annual**	**339.78**	**97.35**	**177.14**	**177.38**	**37.55**	***165.84***	***113.65***

EVN-BETR _1 - EVN-BETR and UK-MODEL results calculated on the basis of initial concentrations given as input data;
EVN-BETR _2 - EVN-BETR and UK-MODEL results calculated on the basis of zero initial concentrations;
EVN-BETR _3 - EVN-BETR and UK-MODEL results calculated on the basis of historical emissions for 20-year period;
CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
[a] - EVN-BETR and UK-MODEL results were calculated with the help of a single box version of European model;
b - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Own/alternative data set. Calculation results on PCB-28 mass degraded in 200 m layer of water (kg) calculated by models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.38.

Monthly values of PCB-28 mass degraded in 200 m layer of water calculated by the participating models on the basis of "own or alternative" data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.45a and b, respectively.

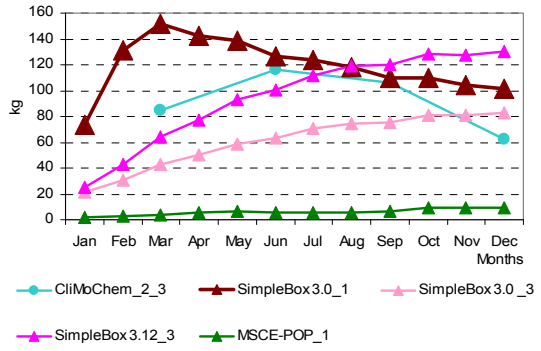


Fig. B.45a. *PCB-28 mass degraded in 200 m layer of water (kg) calculated by the participating models on the basis of "own or alternative" data sets and non-zero initial conditions*

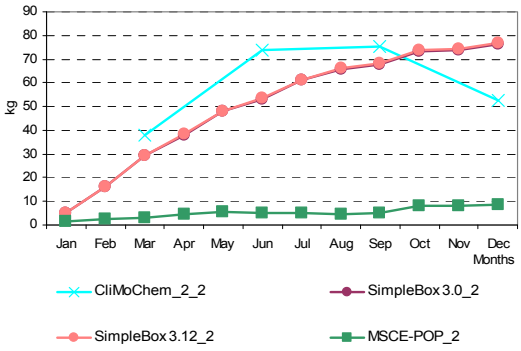


Fig. B.45b. *PCB-28 mass degraded in 200 m layer of water (kg) calculated by the participating models on the basis of "own or alternative" data sets and zero initial conditions*

Table B.38. *Calculation results: PCB-28 mass degraded in 200 m layer of water (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	SimpleBox 3.0_1a	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0 _3a	SimpleBox 3.12_3a				CliMo Chem_ 2_2	SimpleBox 3.0_2a	SimpleBox 3.12_2a	MSCE-POP_2		
Jan	73.15	1.96		21.52	25.32	*30.49*	*30.23*	Jan		4.96	4.96	1.42	*3.78*	*2.04*
Feb	131.46	2.99		30.32	42.47	*51.81*	*55.61*	Feb		16.23	16.24	2.40	*11.62*	*7.99*
Mar	152.04	3.61		42.64	64.00	*65.57*	*62.84*	Mar		29.12	29.15	2.97	*20.41*	*15.10*
Seas_1	**356.65**	**8.55**	**84.33**	**94.48**	**131.79**	***135.16***	***131.66***	**Seas_1**	**37.67**	**50.30**	**50.34**	**6.79**	***36.28***	***20.54***
Apr	**142.38**	5.14		49.89	77.33	*68.68*	*57.44*	Apr		38.12	38.20	4.38	*26.90*	*19.51*
May	**138.66**	6.42		58.99	92.89	*74.24*	*55.77*	May		47.98	48.11	5.52	*33.87*	*24.55*
Jun	**126.33**	5.95		63.06	100.05	*73.85*	*52.18*	Jun		53.32	53.52	5.11	*37.32*	*27.89*
Seas_2	**407.37**	**17.50**	**116.30**	**171.94**	**270.27**	***196.68***	***149.15***	**Seas_2**	**73.72**	**139.42**	**139.84**	**15.01**	***92.00***	***60.00***
Jul	**123.65**	5.68		70.27	111.83	*77.86*	*53.28*	Jul		60.99	61.29	4.89	*42.39*	*32.48*
Aug	**117.96**	5.32		74.57	118.72	*79.14*	*53.36*	Aug		65.97	66.35	4.58	*45.63*	*35.56*
Sep	**109.83**	6.06		75.58	120.16	*77.91*	*51.55*	Sep		67.79	68.26	5.29	*47.11*	*36.22*
Seas_3	**351.44**	**17.06**	**105.63**	**220.41**	**350.71**	***209.05***	***148.35***	**Seas_3**	**75.16**	**194.75**	**195.90**	**14.75**	***120.14***	***90.25***
Oct	**109.97**	9.12		81.05	128.55	*82.17*	*52.48*	Oct		73.46	74.05	8.08	*51.86*	*37.92*
Nov	**103.74**	9.20		80.84	127.83	*80.40*	*51.20*	Nov		73.89	74.56	8.18	*52.21*	*38.13*
Dec	**101.69**	9.74		82.85	130.54	*81.21*	*51.52*	Dec		76.22	76.99	8.75	*53.99*	*39.18*
Seas_4	**315.41**	**28.06**	**62.63**	**244.74**	**386.92**	***207.55***	***156.85***	**Seas_4**	**52.72**	**223.57**	**225.61**	**25.01**	***131.73***	***107.83***
Annual	**1430.87**	**71.18**	**368.90**	**731.58**	**1139.68**	***748.44***	***552.68***	**Annual**	**239.27**	**608.04**	**611.69**	**61.56**	***380.14***	***275.01***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
[a] - SimpleBox data presented here are overall masses calculated as sum of regional and continental level estimates.

Comparison between results obtained on the basis of two data sets. The percentage difference between calculation results obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Table B.39.

Table B.39. *The percentage difference between calculation results on PCB-28 mass degraded in 200 m layer of water obtained by models on the basis of two data sets: "own or alternative" and "reference"*

Month	CliMo Chem_2_2	CliMo Chem_2_3	Simple Box 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0_3	SimpleBox 3.12_3	MSCE-POP_1	MSCE-POP_2
Jan			468%	284%	284%	35%	70%	226%	237%
Feb			396%	288%	288%	77%	205%	140%	153%
Mar			335%	283%	283%	107%	330%	110%	119%
Seas_1	**191%**	**-7%**	**380%**	**284%**	**285%**	**76%**	**202%**	**140%**	**149%**
Apr			294%	274%	275%	126%	437%	97%	103%
May			266%	265%	266%	139%	525%	60%	63%
Jun			246%	257%	258%	147%	595%	47%	49%
Seas_2	**241%**	**33%**	**268%**	**264%**	**265%**	**138%**	**519%**	**64%**	**67%**
Jul			232%	249%	250%	152%	652%	43%	45%
Aug			221%	242%	243%	155%	698%	38%	40%
Sep			213%	236%	237%	157%	735%	48%	51%
Seas_3	**174%**	**27%**	**222%**	**242%**	**243%**	**155%**	**695%**	**43%**	**46%**
Oct			206%	230%	232%	158%	764%	55%	58%
Nov			201%	225%	227%	159%	788%	60%	63%
Dec			197%	220%	223%	159%	807%	54%	57%
Seas_4	**49%**	**-24%**	**201%**	**225%**	**227%**	**158%**	**786%**	**56%**	**59%**
Annual	**146%**	**7%**	**259%**	**243%**	**245%**	**138%**	**551%**	**61%**	**64%**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period.

B.2.4. Comparison of calculated values of PCB-28 mass degraded in vegetation

Reference data set. Values of PCB-28 mass degraded in vegetation (kg) obtained by CliMoChem_2_2 and CliMoChem_2_3 models on the basis of "reference" data set are equal to zero.

Own/alternative data set. Calculation results on PCB-28 mass degraded in vegetation (kg) calculated by models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.40.

Table B.40. *Calculation results: PCB-28 mass degraded in vegetation (kg) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of historical emissions	Results obtained on the basis of zero initial concentrations	*m*	σ
	CliMoChem_2_3	CliMoChem_2_2		
Jan				
Feb				
Mar				
Seas_1	**97.59**	**91.57**	***94.58***	***3.01***
Apr				
May				
Jun				
Seas_2	**160.84**	**158.83**	***159.83***	***1.01***
Jul				
Aug				
Sep				
Seas_3	**140.64**	**138.87**	***139.75***	***0.89***
Oct				
Nov				
Dec				
Seas_4	**228.58**	**227.56**	***228.07***	***0.51***
Annual	**627.65**	**616.82**	***622.24***	***5.41***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
* - In MSCE-POP model degradation in vegetation is not taken into account.

Monthly values of PCB-28 mass degraded in vegetation calculated by the participating models on the basis of "own or alternative" data sets are compared in Fig. B.46.

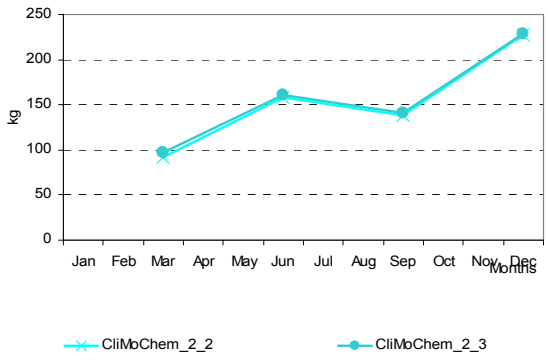


Fig. B.46. *PCB-28 mass degraded in vegetation (kg) calculated by the participating models on the basis of "own or alternative" data sets*

3.2.5. Comparison of distribution of PCB-28 mass degraded in the environment

Sections from B.2.1 to B.2.4 above are devoted to the comparison between the results of participating models on PCB-28 mass degraded in the main environmental compartments (atmosphere, soil, water and vegetation). The comparison includes results of one-year calculations made on the basis of initial conditions (EVN-BETR and UK-MODEL, MSCE-POP, SimpleBox) and zero initial concentrations (CliMoChem, MSCE-POP and SimpleBox) along with results of long-term calculations performed with historical emissions (EVN-BETR and UK-MODEL, CliMoChem and SimpleBox). Calculation results obtained with the use of two different physical-chemical data sets are submitted by CliMoChem, MSCE-POP and SimpleBox models.

A preliminary analysis of the main results on comparison of absolute and relative values of PCB-28 mass degraded in the main environmental compartments is presented in this section. The analysis is made separately for results calculated on the basis of initial concentrations or historical emissions and for results based on zero-initial conditions.

Atmosphere.Comparison of annual values of PCB-28 masses degraded in the atmosphere within 1, 5 and 10 km layers calculated by different models on the basis of zero initial concentrations and with the use of "***reference***" data set is presented in Fig. B.47a. Fig. B.47b shows the same results but obtained on the basis of initial concentrations or historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between models.

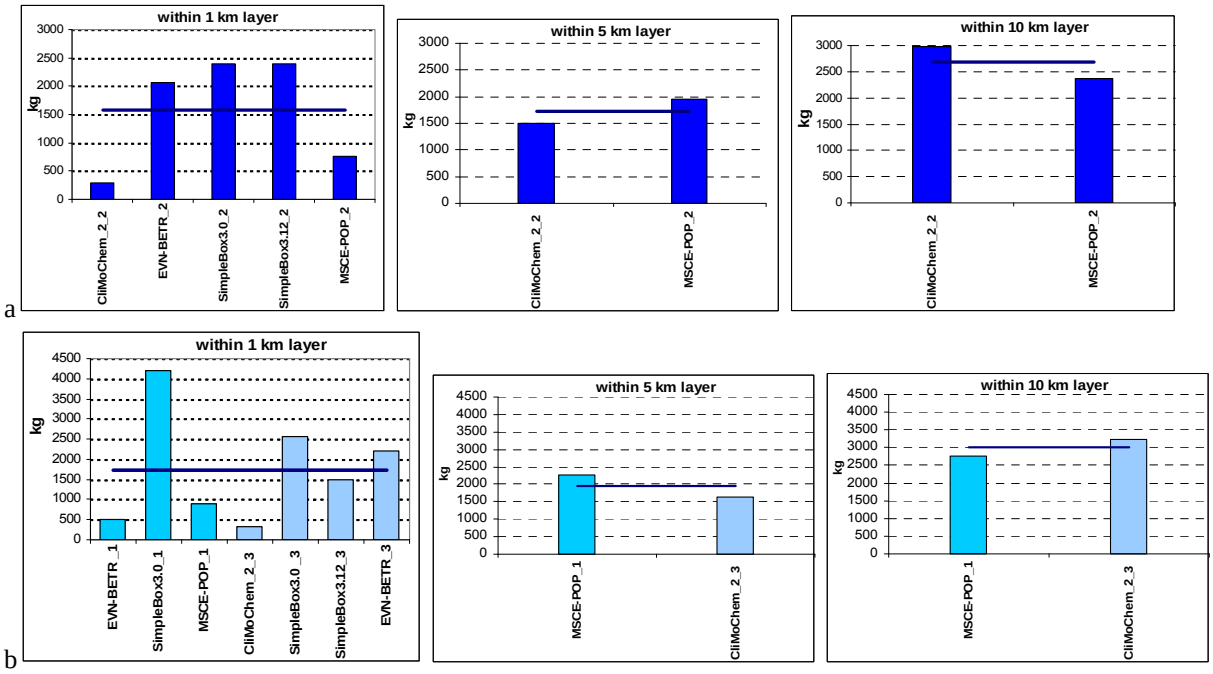


Fig. B.47. *Comparison of annual values of PCB-28 masses degraded in the atmosphere within 1, 5 and 10 km layers calculated by different models on the basis of "reference" data set (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of profiles of annual values of PCB-28 degraded mass calculated by CliMoChem and MSCE-POP models for the considered atmospheric layers (1, 5 and 10 km) on the basis of "reference" data set is presented in Fig. B.48.

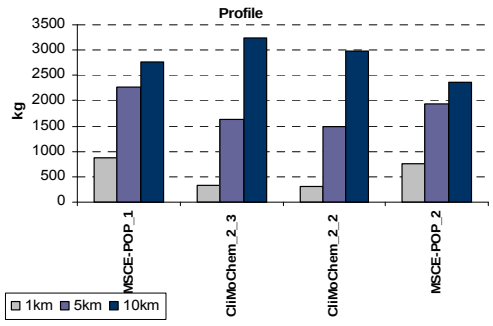


Fig. 3.48. *Comparison of profiles of annual values of PCB-28 degraded mass calculated by the models for the considered atmospheric layers (1, 5 and 10 km) on the basis of "reference data set»*

Comparison of annual values of PCB-28 masses degraded in the atmosphere within 1, 5 and 10 km layers calculated by different models on the basis of zero initial concentrations and with the use of "***own or alternative***" data sets is presented in Fig. B.49a. Fig. B.49b shows the same results but obtained on the basis of initial concentrations or historical

emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between models.

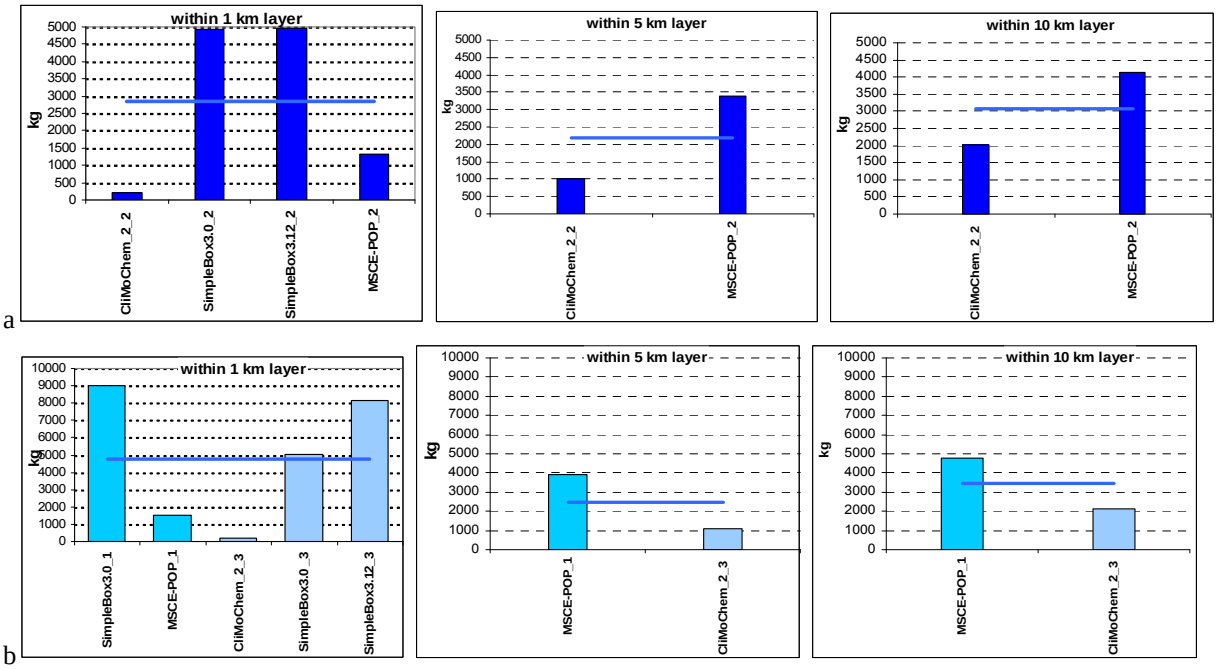


Fig. B.49. *Comparison of annual values of PCB-28 masses degraded in the atmosphere within 1, 5 and 10 km layers calculated by different models on the basis of "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of profiles of annual values of PCB-28 degraded mass calculated by CliMoChem and MSCE-POP models for the considered atmospheric layers (1, 5 and 10 km) on the basis of "own or alternative" data sets is presented in Fig. B.50.

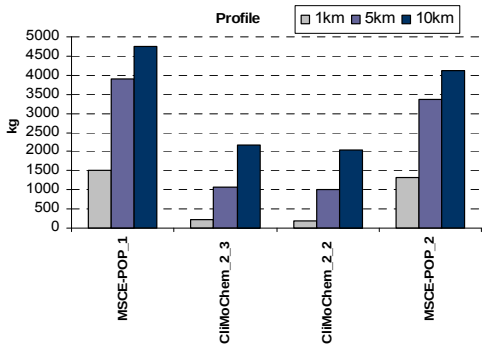


Fig. B.50. *Comparison of profiles of annual values of PCB-28 degraded mass calculated by the models for the considered atmospheric layers (1, 5 and 10 km) on the basis of "own or alternative data sets"*

Comparison of annual values of PCB-28 mass degraded in the considered different layers of the atmosphere obtained with "reference" and "own/alternative" data sets is presented in Fig. B.51.

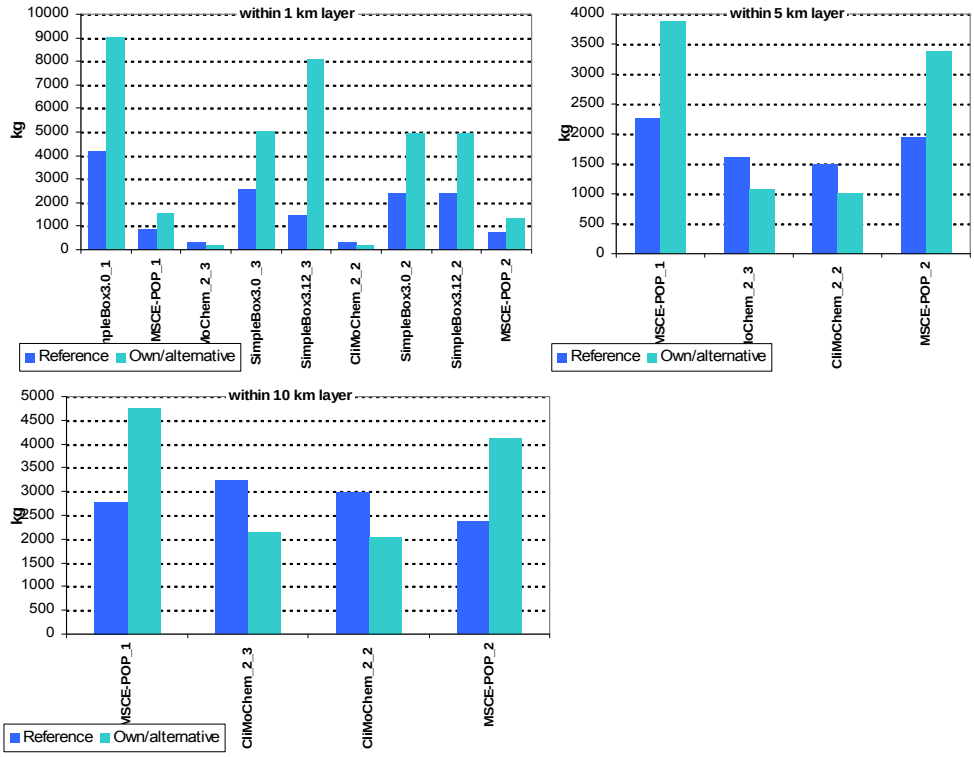


Fig. B.51. *Comparison of PCB-28 mass degraded in the atmosphere within 1, 5 and 10 km layers calculated by different models on the basis of two data set*

Soil. Comparison of annual values of PCB-28 masses degraded in soil within 5 and 10 cm layers calculated by different models on the basis of zero initial concentrations and with the use of "***reference***" data set is presented in Fig. B.52a. Fig. B.52b shows the same results but obtained on the basis of initial concentrations or historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The black line in the plots shows the value of the corresponding parameter averaged between models.

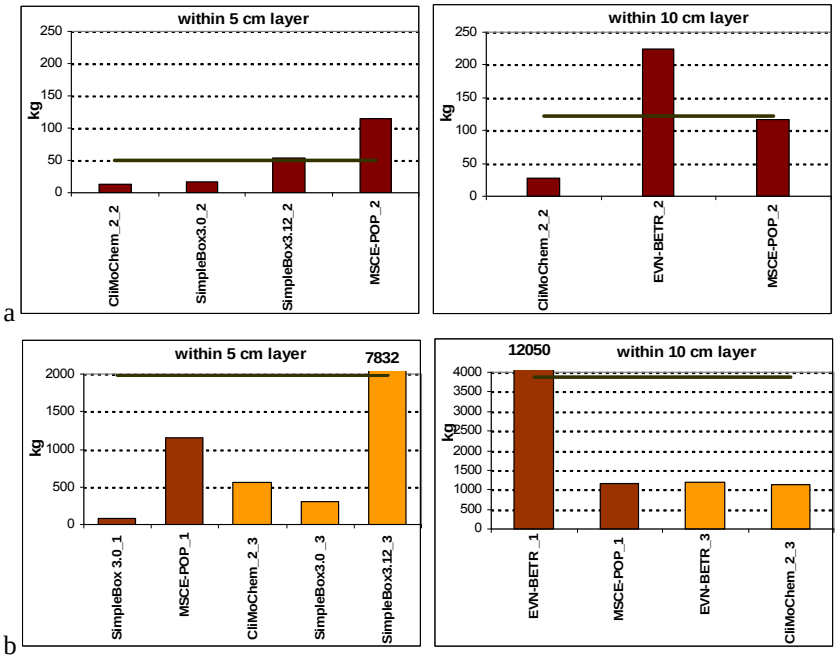


Fig. B.52. *Comparison of annual values of PCB-28 masses degraded in soil within 5 and 10 cm layers calculated by different models on the basis of "reference" data set (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

A comparison of profiles of annual values of PCB-28 degraded mass calculated by the participating models for the considered soil layers (5 and 10 cm) on the basis of "reference" data set is presented in Fig. B.53.

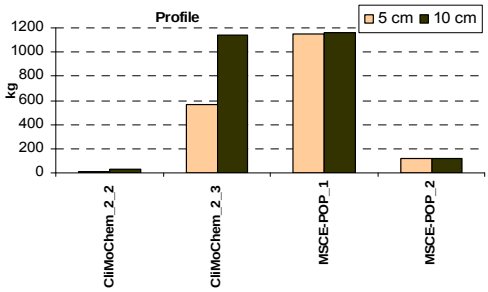
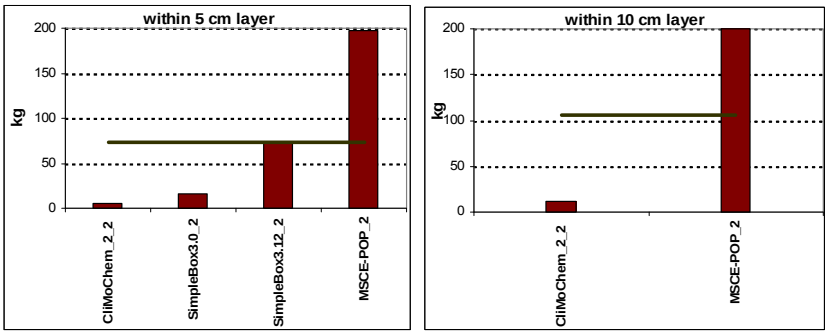


Fig. 3.53. *Comparison of profiles of annual values of PCB-28 degraded mass calculated by the models for the considered soil layers (5 and 10 cm) on the basis of "reference data set"*

Comparison of annual values of PCB-28 masses degraded in soil within 5 and 10 cm layers calculated by different models on the basis of zero initial concentrations and with the use of "***own or alternative***" data sets is presented in Fig. B.54a. Fig. B.54b shows the same results but obtained on the basis of initial concentrations or historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The black line in the plots shows the value of the corresponding parameter averaged between models.

a



b

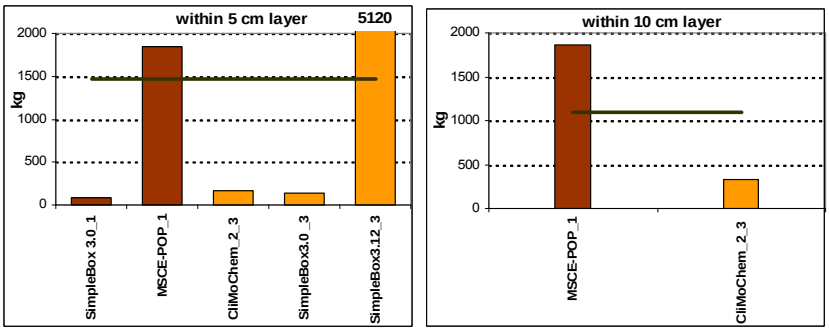


Fig. B.54. *Comparison of annual values of PCB-28 masses degraded in soil within 5 and 10 cm layers calculated by different models on the basis of "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of profiles of annual values of PCB-28 degraded mass calculated by the participating models for the considered soil layers (5 and 10 cm) on the basis of "own or alternative" data sets is presented in Fig. B.55.

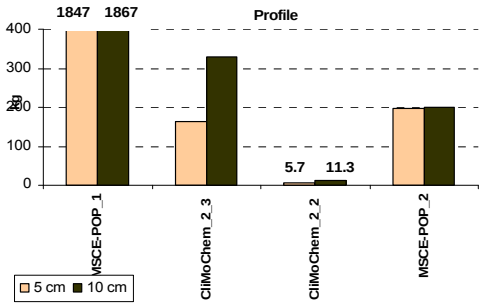


Fig. B.55. *Comparison of profiles of annual values of PCB-28 degraded mass calculated by the models for the considered soil layers (5 and 10 cm) on the basis of "own or alternative data sets"*

Comparison of annual values of PCB-28 mass degraded in the considered different layers of soil obtained with "reference" and "own/alternative" data sets is presented in Fig. B.56.

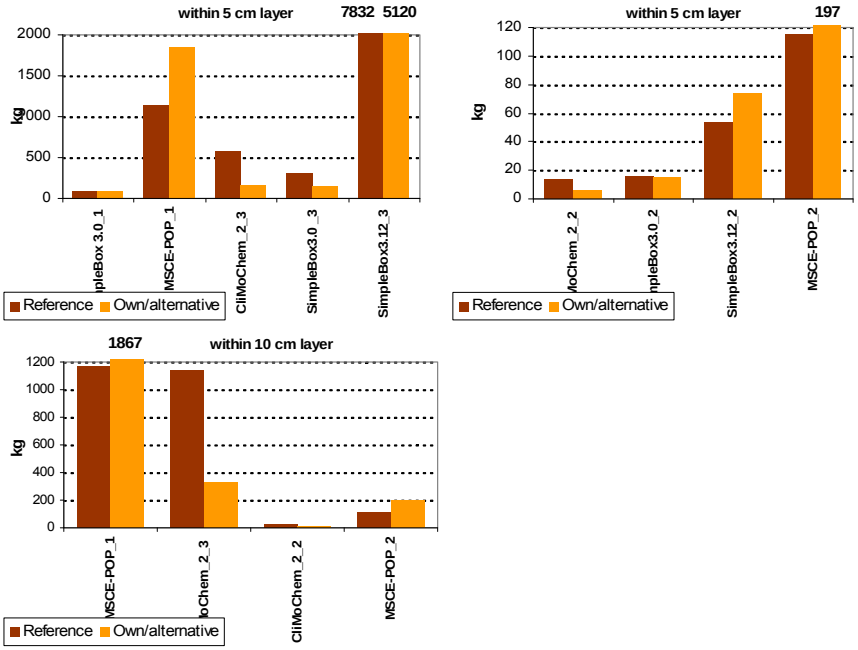


Fig. B.56. *Comparison of PCB-28 mass degraded within 5 and 10 cm soil layers calculated by different models on the basis of two data set*

Water. A comparison of annual values of PCB-28 masses degraded in water layer of 200 m calculated by different models on the basis of zero initial concentrations and with the use of "***reference"*** data set is presented in Fig. B.57a. Fig. B.57b shows the same results but obtained on the basis of initial concentrations or historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The blue line in the plot shows the value of the corresponding parameter averaged between models.

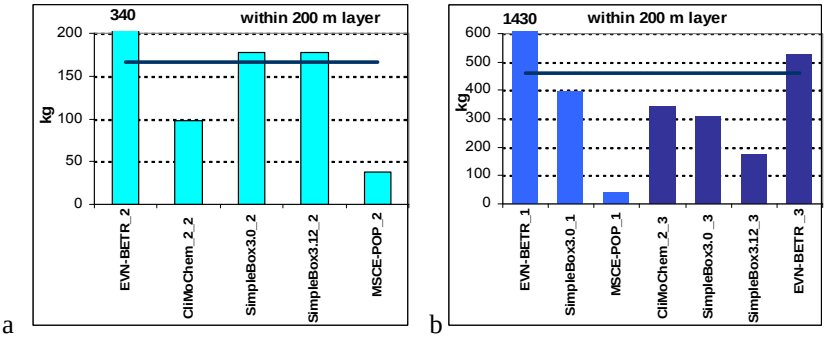


Fig. B.57. *Comparison of annual values of PCB-28 masses degraded in water within 200 m layer calculated by different models on the basis of "reference" data set (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of annual values of PCB-28 masses degraded in water layer of 200 m calculated by different models on the basis of zero initial concentrations and with the use of "***own or alternative"*** data sets is presented in Fig. B.58a (blue line corresponds to the averaged value). Fig. B.58b shows the same results but obtained on the basis of initial concentrations or historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions).

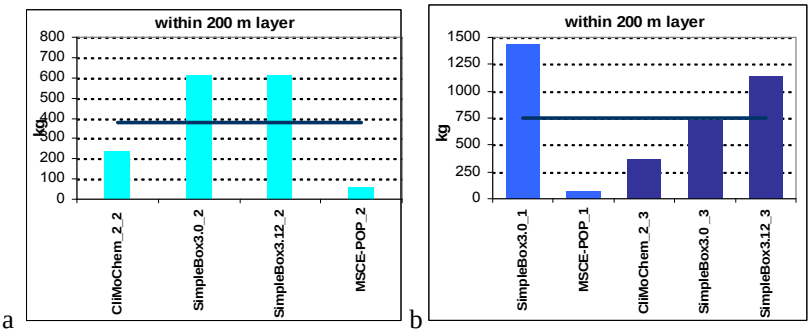


Fig. B.58. *Comparison of annual values of PCB-28 masses degraded in water within 200 m layer calculated by different models on the basis of "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Annual values of PCB-28 mass degraded in the 200m layer of water obtained by the participating models on the basis of "reference" and "own/alternative" data sets are compared in Fig. B.59.

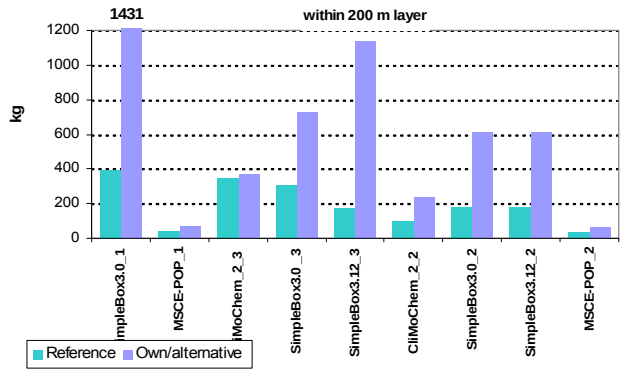


Fig. B.59. *Comparison of PCB-28 mass degraded within 200 m water layer calculated by different models on the basis of two data sets*

Vegetation. Annual values of PCB-28 mass degraded in vegetation obtained by the participating models on the basis of "reference" and "own/alternative" data sets are shown in Fig. B.60.

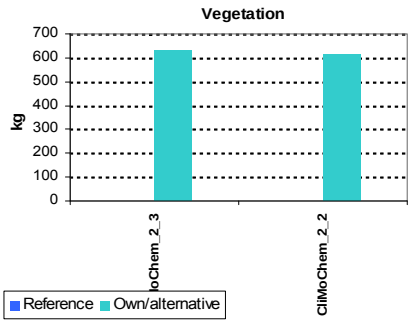


Fig. B.60. *Comparison of PCB-28 mass degraded in vegetation calculated by different models on the basis of two data sets*

Relative distribution of PCB mass degraded in the environmental compartments

The presented estimates of PCB-28 masses degraded in the main environmental compartments allow one to reveal the relative contributions of degradation process occurs in this or that media to the overall mass of PCB-28 in the whole environment. Below, the comparison of relative fractions of PCB-28 mass degraded in the main environmental media in relation to the mass balance estimates is presented. Of note, here and hereinafter fractions of mass degraded in different media are the ratios of the degraded mass and the mass contained in the considered compartment (taking into account also degraded mass).

Fractions of PCB-28 mass degraded in the atmosphere calculated by the participating models on the basis of zero and non-zero initial conditions are presented in Figs. B.61a and b, respectively. In these figures fractions of PCB-28 mass degraded in the atmosphere calculated by the different models with the use of "reference" and "own/alternative" data sets are also compared.

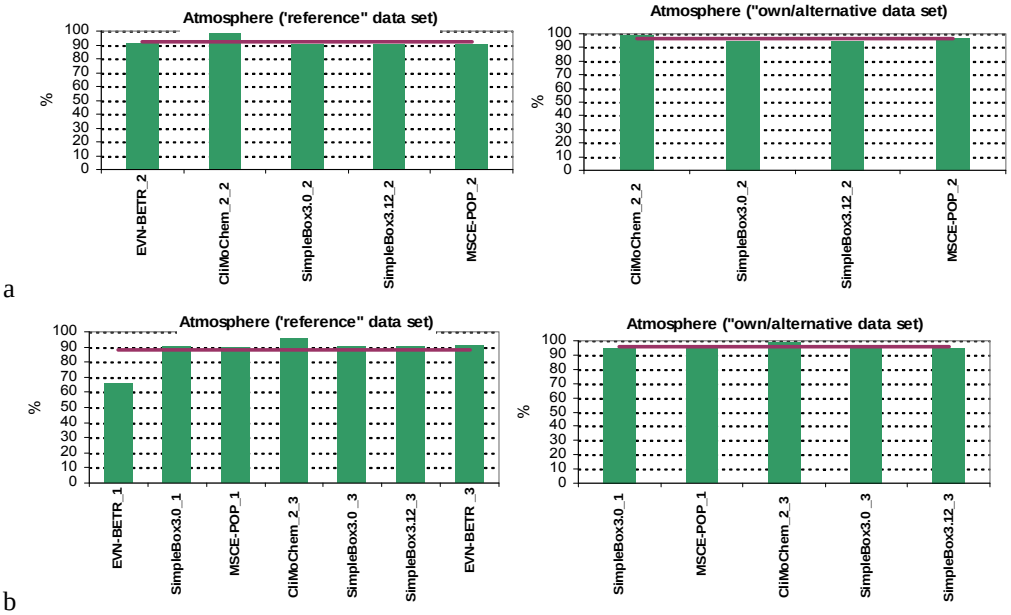


Fig. B.61. *Fractions of PCB-28 mass degraded in the atmosphere calculated by the participating models on the basis of "reference" and "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

In Fig. B.62 a and b fractions of PCB-28 mass degraded in soil calculated by the different models on the basis of zero and non-zero initial conditions are presented, respectively. In these figures fractions of PCB-28 mass degraded in soil calculated by the different models with the use of “reference” and “own/alternative” data sets are also compared.

Fractions of PCB-28 mass degraded in seawater calculated by the participating on the basis of zero and non-zero initial conditions are presented in Figs. B.63a and b, respectively. In these figures fractions of PCB-28 mass degraded in the atmosphere calculated by the different models with the use of “reference” and “own/alternative” data sets are also compared.

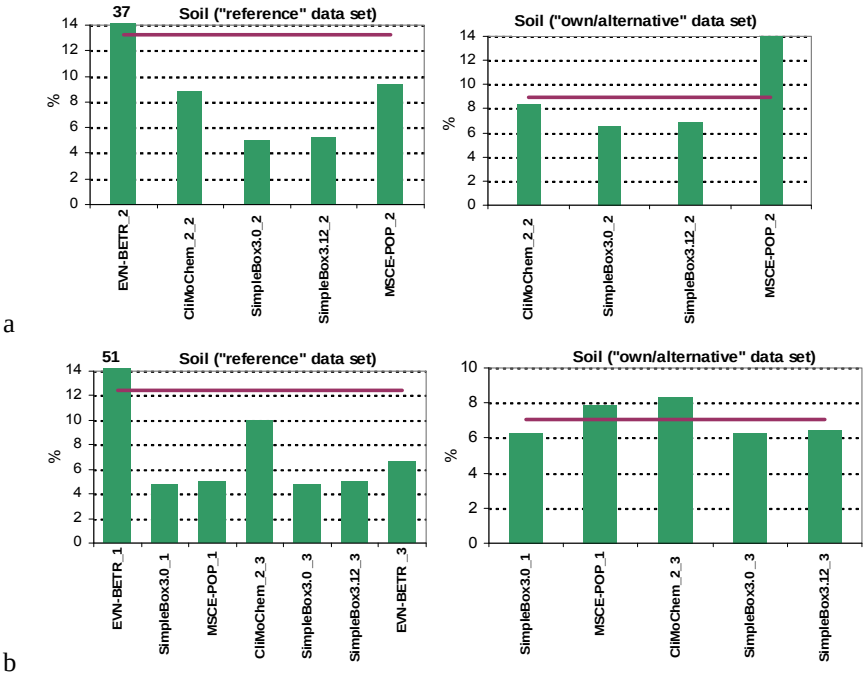


Fig. B.62. *Fractions of PCB-28 mass degraded in soil calculated by the participating models on the basis of “reference” and “own or alternative” data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

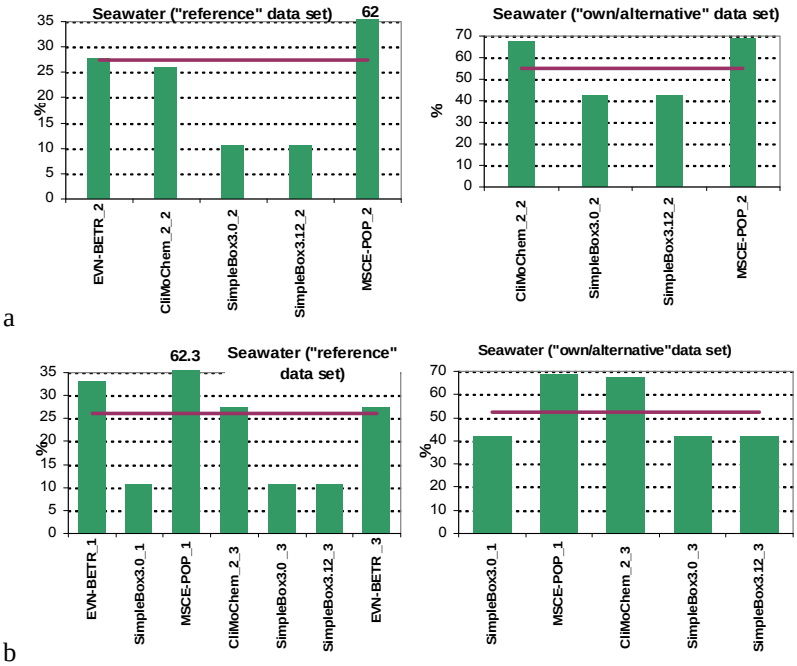


Fig. B.63. *Fractions of PCB-28 mass degraded in seawater calculated by the participating models on the basis of “reference” and “own or alternative” data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

For the participating models, which consider process of degradation in vegetation, fractions of PCB-28 mass degraded in vegetation calculated on the basis of zero and non-zero initial conditions are presented in Figs. B.64a and b, respectively.

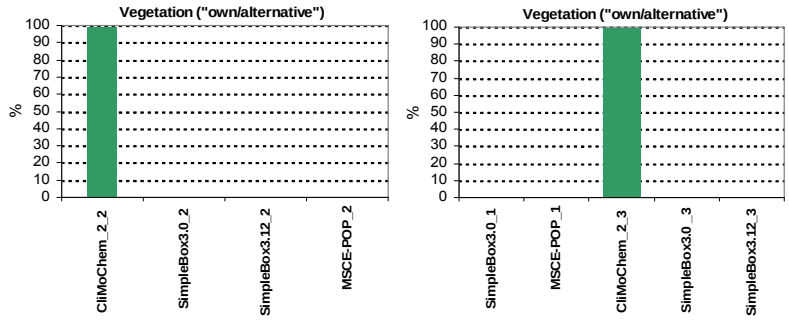


Fig. B.64. *Fractions of PCB-28 mass degraded in vegetation calculated by the participating models on the basis of "own or alternative" data sets*

3.2.6. Comparison of calculated values of PCB-28 mass deposited into deep sea

In this section a comparison of results calculated by CliMoChem model with historical emission scenario on the basis of their own Land Cover Data [*DeFries and Townshend*, 1994] and Land Cover Data given as input data for this intercomparison study [*Guo and Chen*, 1994] is presented. Of note, contrary to the calculations discussed in the previous and subsequent sections in this simulation, PCB-28 is emitted as pulse emission into air each year at the beginning of season one.

Reference data set. Two sets of calculated values of PCB-28 mass deposited into deep sea (kg) obtained by CliMoChem model on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.41.

Table B.41. *Calculation results: PCB-28 mass deposited into deep sea (kg) calculated by CliMoChem model on the basis of "reference" data set and statistical parameters used for evaluation*

Month	CliMoChem_1_3	CliMoChem_2_3	*m*	σ
Season_1	119.45	139.78	*129.62*	*14.38*
Season_2	68.66	79.19	*73.93*	*7.45*
Season_3	47.38	53.77	*50.57*	*4.52*
Season_4	63.48	73.07	*68.27*	*6.78*
Annual	**298.96**	**345.81**	***322.38***	***33.13***

CliMoChem_1_3 – CliMoChem results calculated on the basis of their own Land Cover Data;
CliMoChem_2_3 – CliMoChem results calculated on the basis of Land Cover Data given as input data for this intercomparison study

Seasonal values of PCB-28 mass deposited into deep sea calculated by CliMoChem model on the basis of "reference" data set are compared in Fig. B.65.

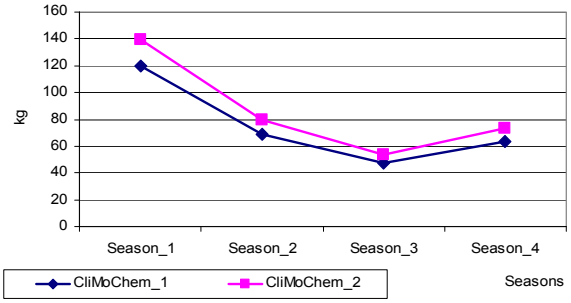


Fig. B.65. *PCB-28 mass deposited into deep sea (kg) calculated by CliMoChem model on the basis of "reference" data sets*

Own/alternative data set. Two versions of calculation results on PCB-28 mass deposited into deep sea (kg) obtained by CliMoChem model on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.42.

Table B.42. *Calculation results: PCB-28 mass deposited into deep sea (kg) calculated by CliMoChem model on the basis of "own or alternative" data sets and statistical parameters used for evaluation.*

Month	CliMoChem_1_3	CliMoChem_2_3	*m*	σ
Season_1	28.32	35.24	*31.78*	*4.89*
Season_2	12.50	15.91	*14.21*	*2.41*
Season_3	4.68	6.07	*5.37*	*0.98*
Season_4	4.24	5.76	*5.00*	*1.08*
Annual	**49.74**	**62.98**	***56.36***	***9.36***

CliMoChem_1_3 – CliMoChem results calculated on the basis of their own Land Cover Data;
CliMoChem_2_3 – CliMoChem results calculated on the basis of Land Cover Data given as input data for this intercomparison study

Seasonal values of PCB-28 mass deposited into deep sea calculated by CliMoChem model on the basis of "own or alternative" data sets are compared in Fig. B.66.

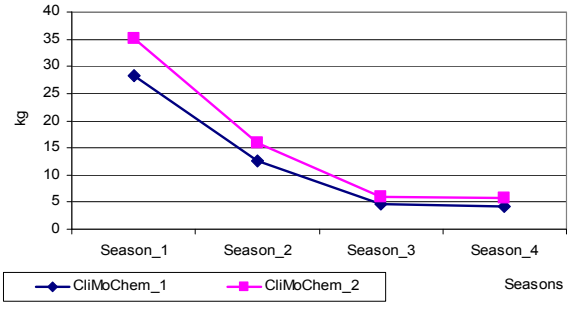


Fig. B.66. *PCB-28 mass deposited into deep sea (kg) calculated by CliMoChem model on the basis of "own or alternative" data sets*

Comparison between results obtained on the basis of two data sets. The percentage difference between calculation results obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Table B.43.

Table B.43. *The percentage difference between calculation results on PCB-28 mass deposited into deep sea obtained by CliMoChem model on the basis of two data sets: "reference" and "own or alternative" data sets*

Month	CliMoChem_1_3	CliMoChem_2_3
Season_1	-76%	-75%
Season_2	-82%	-80%
Season_3	-90%	-89%
Season_4	-93%	-92%
Annual	**-83%**	**-82%**

CliMoChem_1_3 – CliMoChem results calculated on the basis of their own Land Cover Data;
CliMoChem_2_3 – CliMoChem results calculated on the basis of Land Cover Data given as input data for this intercomparison study

B.3. Mass flows transported in/out the specified domain: inflow and outflow

Mass flows of PCB-28 transported in/out the specified domain (inflow and outflow) are calculated by the participating models on the basis of atmospheric emission estimates presented by [*Breivik et al*. 2002a] (see also www.nilu.no/projects/globalpcb/). The higher (or worst-case) emission estimates for 1981-2000 are applied.

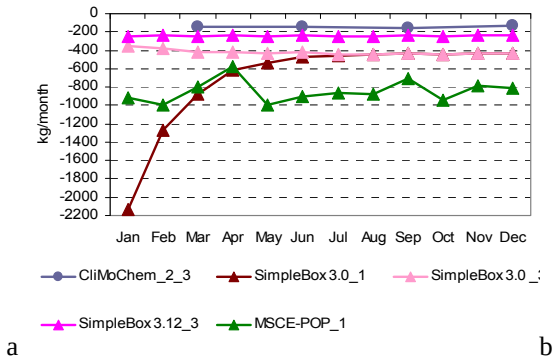
All amount of emissions is released into the atmosphere and is uniformly distributed throughout a year. In calculations of SimpleBox and MSCE-POP models, a value of PCB-28 total annual emissions in 2000 totals on average 17057 kg. In CliMoChem model the global emission data were summarized to zone-specific emissions (10 zones) and for the specified domain emission data for the model zones 2 and 3 (of 10) are used. At that emission value in 2000 used by CliMoChem for PCB-28 totals to 43697 kg.

It should be noted that transport into the calculation domain is supposed to be positive.

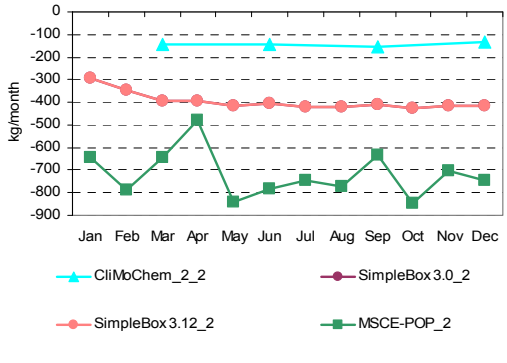
B.3.1. Comparison of calculated values of PCB-28 mass flows transported in/out the calculation domain through the atmosphere.

Reference data set. Calculation results on PCB-28 mass flows transported in/out the calculation domain through the atmosphere calculated by the models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.44.

Monthly values of PCB-28 mass flows transported in/out the calculation domain through the atmosphere calculated by all participating models on the basis of "reference" data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.67 a and b, respectively.



a



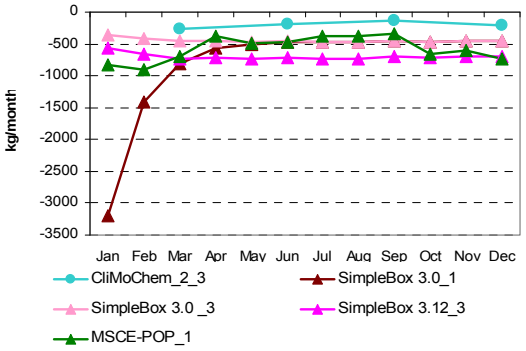
b

Fig. B.67a. *PCB-28 mass flows transported in/out the calculation domain through the atmosphere (kg/month) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions*

Fig. B.67b. *PCB-28 mass flows transported in/out the calculation domain through the atmosphere (kg/month) calculated by the participating models on the basis of "reference" data set and zero initial conditions*

Own/alternative data set. Calculation results on PCB-28 mass flows transported in/out the calculation domain through the atmosphere calculated by models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.45.

Monthly values of PCB-28 mass flows transported in/out of the calculation domain through atmosphere calculated by the participating models on the basis of "own or alternative" data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.68 a and b, respectively.



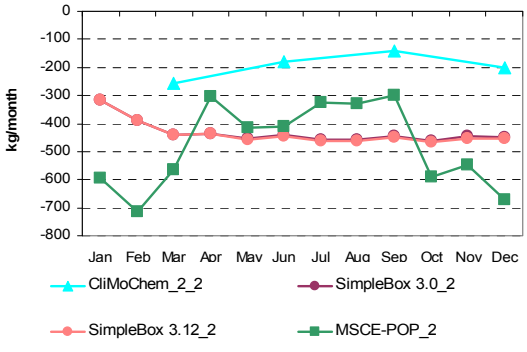


Fig. B.68a. *PCB-28 mass flows transported in/out the calculation domain through the atmosphere (kg/month) calculated by the participating models on the basis of "own or alternative" data set and non-zero initial conditions*

Fig. B.68b. *PCB-28 mass flows transported in/out the calculation domain through the atmosphere (kg/month) calculated by the participating models on the basis of "own or alternative" data set and zero initial conditions*

Comparison between results obtained on the basis of two data sets. A comparison of the calculation results obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Table B.46.

Table B.44. *Calculation results: PCB-28 mass flows transported in/out the calculation domain through the atmosphere (kg/month) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	SimpleBox 3.0_1[a]	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0 _3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	-2135.2	-913.9		-357.4	-245.9	*-913.1*	*865.5*	Jan		-293.2	-293.2	-642.3	*-409.6*	*201.5*
Feb	-1276.4	-1001.3		-381.3	-230.0	*-722.2*	*497.8*	Feb		-346.6	-346.7	-789.6	*-494.3*	*255.7*
Mar	-871.2	-796.3		-423.1	-245.9	*-584.1*	*298.8*	Mar		-393.7	-394.0	-643.7	*-477.1*	*144.2*
Seas_1	**-4282.8**	**-2711.5**	**-424.6**	**-1161.7**	**-721.8**	***-1860.5***	***1615.4***	**Seas_1**	**-424.3**	**-1033.6**	**-1034.0**	**-2075.5**	***-1141.8***	***685.6***
Apr	-618.4	-579.8		-417.5	-238.0	*-463.4*	*173.7*	Apr		-393.0	-393.4	-480.7	*-422.3*	*50.5*
May	-532.9	-992.3		-436.0	-245.9	*-551.8*	*317.0*	May		-413.0	-413.5	-842.4	*-556.3*	*247.8*
Jun	-468.0	-904.3		-424.8	-238.0	*-508.8*	*282.0*	Jun		-403.7	-404.4	-782.4	*-530.2*	*218.4*
Seas_2	**-1619.2**	**-2476.4**	**-448.9**	**-1278.3**	**-721.8**	***-1308.9***	***797.6***	**Seas_2**	**-435.9**	**-1209.7**	**-1211.3**	**-2105.5**	***-1240.6***	***682.5***
Jul	-460.7	-860.4		-440.9	-245.9	*-502.0*	*257.9*	Jul		-420.1	-420.9	-747.0	*-529.3*	*188.5*
Aug	-449.9	-875.8		-442.4	-245.9	*-503.5*	*265.5*	Aug		-422.2	-423.3	-773.6	*-539.7*	*202.6*
Sep	-430.4	-710.2		-429.3	-238.0	*-452.0*	*194.5*	Sep		-410.3	-411.4	-633.0	*-484.9*	*128.3*
Seas_3	**-1341.1**	**-2446.3**	**-478.9**	**-1312.5**	**-729.8**	***-1261.7***	***759.6***	**Seas_3**	**-471.2**	**-1252.5**	**-1255.6**	**-2153.5**	***-1283.2***	***687.6***
Oct	-442.3	-948.7		-444.6	-245.9	*-520.4*	*300.4*	Oct		-425.4	-426.8	-844.4	*-565.5*	*241.5*
Nov	-426.9	-781.7		-431.0	-238.0	*-469.4*	*226.8*	Nov		-412.9	-414.4	-703.4	*-510.2*	*167.3*
Dec	-427.4	-818.1		-431.7	-238.0	*-478.8*	*243.6*	Dec		-413.9	-415.6	-743.8	*-524.4*	*190.0*
Seas_4	**-1296.6**	**-2548.5**	**-388.9**	**-1307.3**	**-721.8**	***-1252.6***	***823.4***	**Seas_4**	**-391.7**	**-1252.2**	**-1256.7**	**-2291.7**	***-1298.1***	***777.3***
Annual	**-8539.7**	**-10182.7**	**-1741.4**	**-5059.8**	**-2895.2**	***-5683.8***	***3609.2***	**Annual**	**-1723.1**	**-4748.0**	**-4757.6**	**-8626.2**	***-4963.7***	***2828.7***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
[a] - SimpleBox data are presented for moderate scale.

Table B.45. *Calculation results: PCB-28 mass flows transported in/out the calculation domain through the atmosphere (kg/month) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	SimpleBox 3.0_1[a]	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0 _3	SimpleBox 3.12_3[a]				CliMo Chem_ 2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	-3205.7	-836.2		-355.4	-571.7	*-1242.2*	*1323.6*	Jan		-317.3	-317.4	-594.8	*-409.8*	*160.2*
Feb	-1413.7	-908.5		-404.8	-663.2	*-847.5*	*429.9*	Feb		-390.2	-390.7	-715.3	*-498.7*	*187.6*
Mar	-804.7	-703.1		-452.6	-736.7	*-674.3*	*153.7*	Mar		-440.8	-441.9	-565.8	*-482.8*	*71.9*
Seas_1	**-5424.1**	**-2447.7**	**-781.7**	**-1212.7**	**-1971.6**	***-2367.6***	***1827.2***	**Seas_1**	**-772.4**	**-1148.2**	**-1150.0**	**-1876.0**	***-1236.6***	***461.7***
Apr	-559.7	-370.3		-445.3	-718.2	*-523.4*	*151.5*	Apr		-435.3	-437.0	-303.4	*-391.9*	*76.6*
May	-508.4	-491.1		-463.5	-740.3	*-550.8*	*127.7*	May		-453.8	-456.2	-416.9	*-442.3*	*22.0*
Jun	-470.1	-470.9		-450.4	-712.8	*-526.1*	*124.9*	Jun		-441.3	-444.3	-411.3	*-432.3*	*18.3*
Seas_2	**-1538.3**	**-1332.2**	**-543.9**	**-1359.2**	**-2171.3**	***-1389.0***	***581.5***	**Seasl_2**	**-541.7**	**-1330.4**	**-1337.5**	**-1131.6**	***-1085.3***	***374.8***
Jul	-478.1	-374.8		-466.7	-732.4	*-513.0*	*153.4*	Jul		-457.6	-461.4	-326.9	*-415.3*	*76.6*
Aug	-475.0	-370.5		-467.7	-728.2	*-510.4*	*152.8*	Aug		-458.9	-463.3	-329.4	*-417.2*	*76.1*
Sep	-458.4	-337.6		-453.5	-700.8	*-487.6*	*152.7*	Sep		-445.1	-449.9	-301.5	*-398.8*	*84.3*
Seas_3	**-1411.5**	**-1082.8**	**-422.2**	**-1387.9**	**-2161.3**	***-1293.2***	***628.4***	**Seas_3**	**-420.6**	**-1361.6**	**-1374.6**	**-957.8**	***-1028.6***	***449.2***
Oct	-472.8	-662.4		-469.3	-720.3	*-581.2*	*129.4*	Oct		-460.8	-466.4	-589.2	*-505.5*	*72.6*
Nov	-457.1	-607.0		-454.7	-693.6	*-553.1*	*117.7*	Nov		-446.6	-452.7	-547.7	*-482.3*	*56.7*
Dec	-456.7	-733.6		-455.2	-690.3	*-584.0*	*148.9*	Dec		-447.3	-453.8	-670.4	*-523.9*	*127.0*
Seas_4	**-1386.6**	**-2003.0**	**-606.0**	**-1379.2**	**-2104.2**	***-1495.8***	***601.0***	**Seas_4**	**-605.5**	**-1354.7**	**-1372.9**	**-1807.3**	***-1285.1***	***499.0***
Annual	**-9760.4**	**-6865.8**	**-2353.8**	**-5339.0**	**-8408.5**	***-6545.5***	***2869.5***	**Annual**	**-2340.2**	**-5194.9**	**-5235.0**	**-5772.7**	***-4635.7***	***1552.8***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
a - SimpleBox data are presented for moderate scale.

Table B.46. *Comparison of the calculation results on PCB-28 mass flows transported in/out the calculation domain through the atmosphere (kg/month) obtained by models on the basis of two data sets: "reference" and "own or alternative"*

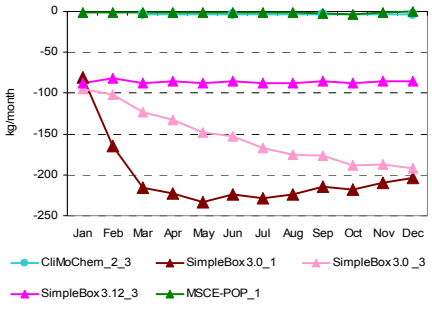
Month	CliMoChem_2_3		SimpleBox 3.0_1		SimpleBox 3.0_2		SimpleBox 3.12_2		SimpleBox 3.0 _3		SimpleBox 3.12_3		MSCE-POP_1		MSCE-POP_2		CliMoChem_2_2	
	ref	own	ref	alt	ref	alt	ref	own	ref	alt	ref	alt	ref	own	ref	own	ref	own
Jan			-2135.2	-3205.7	-293.2	-317.3	-293.2	-317.4	-357.4	-355.4	-245.9	-571.7	-913.9	-836.2	-203.3	-594.8		
Feb			-1276.4	-1413.7	-346.6	-390.2	-346.7	-390.7	-381.3	-404.8	-230.0	-663.2	-1001.3	-908.5	-199.8	-715.3		
Mar			-871.2	-804.7	-393.7	-440.8	-394.0	-441.9	-423.1	-452.6	-245.9	-736.7	-796.3	-703.1	-159.6	-565.8		
Seas_1	**-424.6**	**-781.7**	**-4282.8**	**-5424.1**	**-1033.6**	**-1148.2**	**-1034.0**	**-1150.0**	**-1161.7**	**-1212.7**	**-721.8**	**-1971.6**	**-2711.5**	**-2447.7**	**-562.7**	**-1876.0**	**-424.3**	**-772.4**
Apr			-618.4	-559.7	-393.0	-435.3	-393.4	-437.0	-417.5	-445.3	-238.0	-718.2	-579.8	-370.3	-134.2	-303.4		
May			-532.9	-508.4	-413.0	-453.8	-413.5	-456.2	-436.0	-463.5	-245.9	-740.3	-992.3	-491.1	-153.7	-416.9		
Jun			-468.0	-470.1	-403.7	-441.3	-404.4	-444.3	-424.8	-450.4	-238.0	-712.8	-904.3	-470.9	-145.1	-411.3		
Seas_2	**-448.9**	**-543.9**	**-1619.2**	**-1538.3**	**-1209.7**	**-1330.4**	**-1211.3**	**-1337.5**	**-1278.3**	**-1359.2**	**-721.8**	**-2171.3**	**-2476.4**	**-1332.2**	**-433.0**	**-1131.6**	**-435.9**	**-541.7**
Jul			-460.7	-478.1	-420.1	-457.6	-420.9	-461.4	-440.9	-466.7	-245.9	-732.4	-860.4	-374.8	-159.0	-326.9		
Aug			-449.9	-475.0	-422.2	-458.9	-423.3	-463.3	-442.4	-467.7	-245.9	-728.2	-875.8	-370.5	-143.6	-329.4		
Sep			-430.4	-458.4	-410.3	-445.1	-411.4	-449.9	-429.3	-453.5	-238.0	-700.8	-710.2	-337.6	-139.9	-301.5		
Seas_3	**-478.9**	**-422.2**	**-1341.1**	**-1411.5**	**-1252.5**	**-1361.6**	**-1255.6**	**-1374.6**	**-1312.5**	**-1387.9**	**-729.8**	**-2161.3**	**-2446.3**	**-1082.8**	**-442.5**	**-957.8**	**-471.2**	**-420.6**
Oct			-442.3	-472.8	-425.4	-460.8	-426.8	-466.4	-444.6	-469.3	-245.9	-720.3	-948.7	-662.4	-189.7	-589.2		
Nov			-426.9	-457.1	-412.9	-446.6	-414.4	-452.7	-431.0	-454.7	-238.0	-693.6	-781.7	-607.0	-169.6	-547.7		
Dec			-427.4	-456.7	-413.9	-447.3	-415.6	-453.8	-431.7	-455.2	-238.0	-690.3	-818.1	-733.6	-206.4	-670.4		
Seas_4	**-388.9**	**-606.0**	**-1296.6**	**-1386.6**	**-1252.2**	**-1354.7**	**-1256.7**	**-1372.9**	**-1307.3**	**-1379.2**	**-721.8**	**-2104.2**	**-2548.5**	**-2003.0**	**-565.7**	**-1807.3**	**-391.7**	**-605.5**
Annual	**-1741.4**	**-2353.8**	**-8539.7**	**-9760.4**	**-4748.0**	**-5194.9**	**-4757.6**	**-5235.0**	**-5059.8**	**-5339.0**	**-2895.2**	**-8408.5**	**-10182.7**	**-6865.8**	**-2003.9**	**-5772.7**	**-1723.1**	**-2340.2**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period.

B.3.2. Comparison of calculated values of PCB-28 mass flows transported in/out the calculation domain through ocean

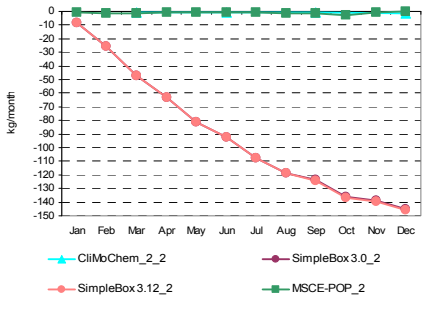
Reference data set. Calculation results on PCB-28 mass flows transported in/out the calculation domain through ocean calculated by the models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.47.

Monthly values of PCB-28 mass flows transported in/out the calculation domain through ocean calculated by all participating models on the basis of "reference" data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.69 a and b, respectively.



a

Fig. B.69a. *PCB-28 mass flows transported in/out the calculation domain through ocean (kg/month) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions*

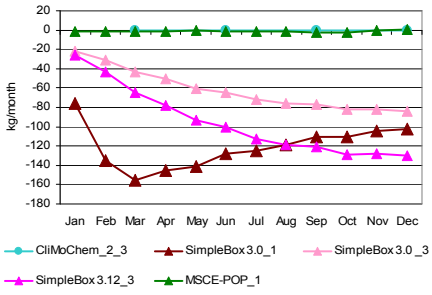


b

Fig. B.69b. *PCB-28 mass flows transported in/out the calculation domain through ocean (kg/month) calculated by the participating models on the basis of "reference" data set and zero initial conditions*

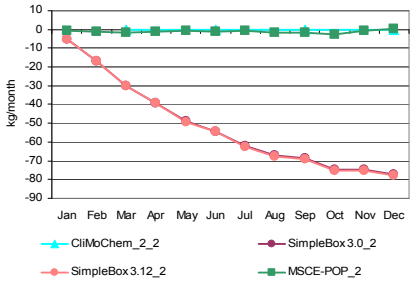
Own/alternative data set. Calculation results on PCB-28 mass flows transported in/out the calculation domain through ocean calculated by models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.48.

Monthly values of PCB-28 mass flows transported in/out the calculation domain through ocean calculated by all participating models on the basis of "own or alternative" data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.70 a and b, respectively.



a

Fig. B.70a. *PCB-28 mass flows transported in/out the calculation domain through ocean (kg/month) calculated by the participating models on the basis of "own or alternative" data set and non-zero initial conditions*



b

Fig. B.70b. *PCB-28 mass flows transported in/out the calculation domain through ocean (kg/month) calculated by the participating models on the basis of "own or alternative" data set and zero initial conditions*

Comparison between results obtained on the basis of two data sets. A comparison of the calculation results obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Table B.49.

Table B.47. *Calculation results: PCB-28 mass flows transported in/out the calculation domain through ocean (kg/month) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	MSCE-POP_1	SimpleBox 3.0_1[a]	CliMo Chem_2_3	SimpleBox 3.0_3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	-0.9	-80.1		-94.3	-87.9	*-65.8*	*43.7*	Jan		-8.0	-8.0	-0.7	*-5.6*	*4.2*
Feb	-1.4	-164.3		-102.1	-82.3	*-87.5*	*67.2*	Feb		-26.0	-25.9	-1.1	*-17.7*	*14.3*
Mar	-1.5	-215.9		-123.4	-87.9	*-107.2*	*88.7*	Mar		-47.1	-47.1	-1.3	*-31.8*	*26.4*
Seas_1	**-3.8**	**-460.3**	**-9.2**	**-319.7**	**-258.2**	***-210.2***	***199.9***	**Seas_1**	**-1.5**	**-81.1**	**-81.0**	**-3.1**	***-41.7***	***45.5***
Apr	-1.1	-222.9		-132.1	-85.1	*-110.3*	*92.6*	Apr		-62.9	-62.9	-0.9	*-42.3*	*35.8*
May	-0.6	-233.2		-148.2	-87.9	*-117.5*	*98.1*	May		-81.0	-81.0	-0.6	*-54.2*	*46.4*
Jun	-1.1	-224.0		-153.3	-85.1	*-115.9*	*95.2*	Jun		-92.1	-92.1	-1.0	*-61.7*	*52.6*
Seas_2	**-2.8**	**-680.1**	**-10.4**	**-433.6**	**-258.2**	***-277.0***	***288.8***	**Seas_2**	**-2.2**	**-236.0**	**-236.0**	**-2.5**	***-119.2***	***134.9***
Jul	-0.9	-228.1		-167.4	-87.9	*-121.1*	*98.6*	Jul		-107.5	-107.5	-0.7	*-71.9*	*61.7*
Aug	-1.6	-224.5		-175.3	-87.9	*-122.4*	*98.3*	Aug		-118.5	-118.6	-1.4	*-79.5*	*67.7*
Sep	-2.0	-214.1		-176.3	-85.1	*-119.4*	*95.2*	Sep		-123.9	-124.0	-1.6	*-83.2*	*70.6*
Seas_3	**-4.5**	**-666.8**	**-10.2**	**-519.0**	**-261.0**	***-292.3***	***297.9***	**Seas_3**	**-2.7**	**-349.9**	**-350.1**	**-3.7**	***-176.6***	***200.2***
Oct	-3.0	-218.5		-188.1	-87.9	*-124.4*	*98.3*	Oct		-136.4	-136.5	-2.5	*-91.8*	*77.3*
Nov	-1.1	-209.2		-187.1	-85.1	*-120.6*	*96.3*	Nov		-139.1	-139.3	-0.9	*-93.1*	*79.9*
Dec	0.0	-204.0		-191.6	-85.1	*-120.2*	*96.3*	Dec		-145.4	-145.6	0.0	*-97.0*	*84.0*
Seas_4	**-4.1**	**-631.7**	**-9.0**	**-566.9**	**-258.2**	***-294.0***	***297.9***	**Seas_4**	**-3.3**	**-420.9**	**-421.5**	**-3.4**	***-212.3***	***241.2***
Annual	**-15.2**	**-2438.8**	**-38.8**	**-1839.2**	**-1035.5**	***-1073.5***	***1077.3***	**Annual**	**-9.7**	**-1087.9**	**-1088.7**	**-12.7**	***-549.7***	***621.8***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;

MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;

SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;

SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;

SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;

[a] - SimpleBox data are presented for moderate scale.

Table B.48. *Calculation results: PCB-28 mass flows transported in/out the calculation domain through ocean (kg/month) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	SimpleBox 3.0_1[a]	MSCE-POP_1	CliMoChem_2_3	SimpleBox 3.0_3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	-75.4	-1.0		-22.0	-25.8	*-31.0*	*31.5*	Jan		-5.1	-5.1	-0.8	*-3.7*	*2.5*
Feb	-134.9	-1.5		-31.0	-43.1	*-52.6*	*57.6*	Feb		-16.7	-16.7	-1.2	*-11.5*	*8.9*
Mar	-155.6	-1.7		-43.6	-64.8	*-66.4*	*65.0*	Mar		-29.9	-29.9	-1.4	*-20.4*	*16.4*
Seas_1	**-365.9**	**-4.1**	**-1.2**	**-96.5**	**-133.8**	***-120.3***	***149.0***	**Seas_1**	**-1.2**	**-51.6**	**-51.6**	**-3.4**	***-27.0***	***28.5***
Apr	-145.3	-1.0		-50.9	-78.2	*-68.9*	*60.1*	Apr		-39.0	-39.1	-0.9	*-26.3*	*22.0*
May	-141.1	-0.8		-60.1	-93.7	*-74.0*	*59.0*	May		-49.0	-49.1	-0.8	*-33.0*	*27.9*
Jun	-128.2	-1.3		-64.2	-100.8	*-73.6*	*54.9*	Jun		-54.4	-54.6	-1.2	*-36.7*	*30.8*
Seas_2	**-414.7**	**-3.2**	**-1.6**	**-175.2**	**-272.7**	***-173.5***	***177.9***	**Seas_2**	**-1.2**	**-142.5**	**-142.8**	**-2.9**	***-72.3***	***81.2***
Jul	-125.2	-0.9		-71.4	-112.4	*-77.5*	*56.0*	Jul		-62.1	-62.4	-0.8	*-41.8*	*35.5*
Aug	-119.2	-1.8		-75.7	-119.2	*-79.0*	*55.4*	Aug		-67.1	-67.5	-1.6	*-45.4*	*37.9*
Sep	-110.8	-2.0		-76.7	-120.4	*-77.5*	*53.7*	Sep		-68.9	-69.3	-1.7	*-46.6*	*38.9*
Seas_3	**-355.2**	**-4.7**	**-0.7**	**-223.8**	**-352.0**	***-187.3***	***176.6***	**Seas_3**	**-0.7**	**-198.2**	**-199.2**	**-4.0**	***-100.5***	***113.4***
Oct	-110.7	-2.9		-82.1	-128.6	*-81.1*	*55.5*	Oct		-74.6	-75.1	-2.4	*-50.7*	*41.8*
Nov	-104.3	-0.8		-81.8	-127.7	*-78.6*	*55.2*	Nov		-74.9	-75.5	-0.6	*-50.3*	*43.1*
Dec	-102.1	0.6		-83.8	-130.2	*-78.9*	*56.3*	Dec		-77.2	-77.9	0.5	*-51.5*	*45.1*
Seas_4	**-317.0**	**-3.0**	**-0.6**	**-247.7**	**-386.5**	***-191.0***	***179.5***	**Seas_4**	**-0.9**	**-226.6**	**-228.5**	**-2.5**	***-114.7***	***130.4***
Annual	**-1452.8**	**-15.1**	**-4.0**	**-743.2**	**-1145.0**	***-672.0***	***655.0***	**Annual**	**-4.0**	**-618.9**	**-622.2**	**-12.9**	***-314.5***	***353.4***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
a - SimpleBox data are presented for moderate scale.

Table B.49. *Comparison of the calculation results on PCB-28 mass flows transported in/out the calculation domain through ocean (kg/month) obtained by models on the basis of two data sets: "reference" and "own or alternative" data sets*

Month	CliMoChem_2_3		SimpleBox 3.0_1		SimpleBox 3.0_2		SimpleBox 3.12_2		SimpleBox 3.0 _3		SimpleBox 3.12_3		MSCE-POP_1		MSCE-POP_2		CliMoChem_2_2	
	ref	own	ref	alt	ref	alt	ref	alt	ref	alt	ref	alt	ref	own	ref	own	ref	own
Jan			-80.1	-75.4	-8.0	-5.1	-8.0	-5.1	-94.3	-22.0	-87.9	-25.8	-0.9	-1.0	-0.7	-0.8		
Feb			-164.3	-134.9	-26.0	-16.7	-25.9	-16.7	-102.1	-31.0	-82.3	-43.1	-1.4	-1.5	-1.1	-1.2		
Mar			-215.9	-155.6	-47.1	-29.9	-47.1	-29.9	-123.4	-43.6	-87.9	-64.8	-1.5	-1.7	-1.3	-1.4		
Seas_1	**-9.2**	**-1.2**	**-460.3**	**-365.9**	**-81.1**	**-51.6**	**-81.0**	**-51.6**	**-319.7**	**-96.5**	**-258.2**	**-133.8**	**-3.8**	**-4.1**	**-3.1**	**-3.4**	**-1.5**	**-1.2**
Apr			-222.9	-145.3	-62.9	-39.0	-62.9	-39.1	-132.1	-50.9	-85.1	-78.2	-1.1	-1.0	-0.9	-0.9		
May			-233.2	-141.1	-81.0	-49.0	-81.0	-49.1	-148.2	-60.1	-87.9	-93.7	-0.6	-0.8	-0.6	-0.8		
Jun			-224.0	-128.2	-92.1	-54.4	-92.1	-54.6	-153.3	-64.2	-85.1	-100.8	-1.1	-1.3	-1.0	-1.2		
Seas_2	**-10.4**	**-1.6**	**-680.1**	**-414.7**	**-236.0**	**-142.5**	**-236.0**	**-142.8**	**-433.6**	**-175.2**	**-258.2**	**-272.7**	**-2.8**	**-3.2**	**-2.5**	**-2.9**	**-2.2**	**-1.2**
Jul			-228.1	-125.2	-107.5	-62.1	-107.5	-62.4	-167.4	-71.4	-87.9	-112.4	-0.9	-0.9	-0.7	-0.8		
Aug			-224.5	-119.2	-118.5	-67.1	-118.6	-67.5	-175.3	-75.7	-87.9	-119.2	-1.6	-1.8	-1.4	-1.6		
Sep			-214.1	-110.8	-123.9	-68.9	-124.0	-69.3	-176.3	-76.7	-85.1	-120.4	-2.0	-2.0	-1.6	-1.7		
Seas_3	**-10.2**	**-0.7**	**-666.8**	**-355.2**	**-349.9**	**-198.2**	**-350.1**	**-199.2**	**-519.0**	**-223.8**	**-261.0**	**-352.0**	**-4.5**	**-4.7**	**-3.7**	**-4.0**	**-2.7**	**-0.7**
Oct			-218.5	-110.7	-136.4	-74.6	-136.5	-75.1	-188.1	-82.1	-87.9	-128.6	-3.0	-2.9	-2.5	-2.4		
Nov			-209.2	-104.3	-139.1	-74.9	-139.3	-75.5	-187.1	-81.8	-85.1	-127.7	-1.1	-0.8	-0.9	-0.6		
Dec			-204.0	-102.1	-145.4	-77.2	-145.6	-77.9	-191.6	-83.8	-85.1	-130.2	0.0	0.6	0.0	0.5		
Seas_4	**-9.0**	**-0.6**	**-631.7**	**-317.0**	**-420.9**	**-226.6**	**-421.5**	**-228.5**	**-566.9**	**-247.7**	**-258.2**	**-386.5**	**-4.1**	**-3.0**	**-3.4**	**-2.5**	**-3.3**	**-0.9**
Annual	**-38.8**	**-4.0**	**-2438.8**	**-1452.8**	**-1087.9**	**-618.9**	**-1088.7**	**-622.2**	**-1839.2**	**-743.2**	**-1035.5**	**-1145.0**	**-15.2**	**-15.1**	**-12.7**	**-12.9**	**-9.7**	**-4.0**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period.

B.3.3. Calculated values of PCB-28 mass flows transported in/out the calculation domain through other compartments

Reference data set. Calculation results on PCB-28 mass flows transported in/out the calculation domain through sediments, soil and vegetation calculated by SimpleBox model on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.50.

Monthly values of PCB-28 mass flows transported in/out the calculation domain through sediments, soil and vegetation calculated by SimpleBox model on the basis of "reference" data set are presented in Fig. B.71.

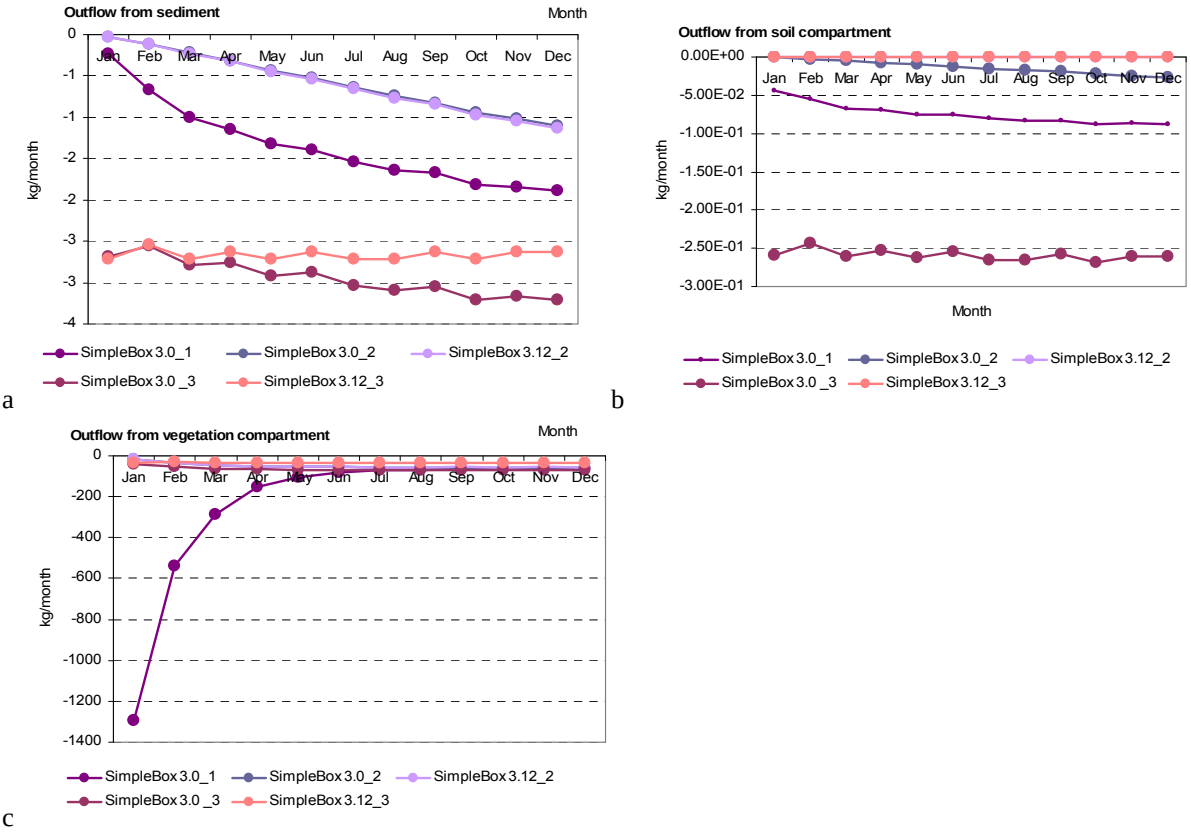


Fig. B.71. *PCB-28 mass flows transported in/out the calculation domain through sediment (a), soil (b) and vegetation(c) calculated by SimpleBox on the basis of "reference" data set*

Own/alternative data set. Calculation results on PCB-28 mass flows transported in/out the calculation domain through sediments, soil and vegetation calculated by SimpleBox model on the basis of "alternative" data sets together with statistical parameters used for evaluation are presented in Table B.51.

Monthly values of PCB-28 mass flows transported in/out the calculation domain through sediments, soil and vegetation calculated by SimpleBox model on the basis of "alternative" data set are compared in Fig. B.72.

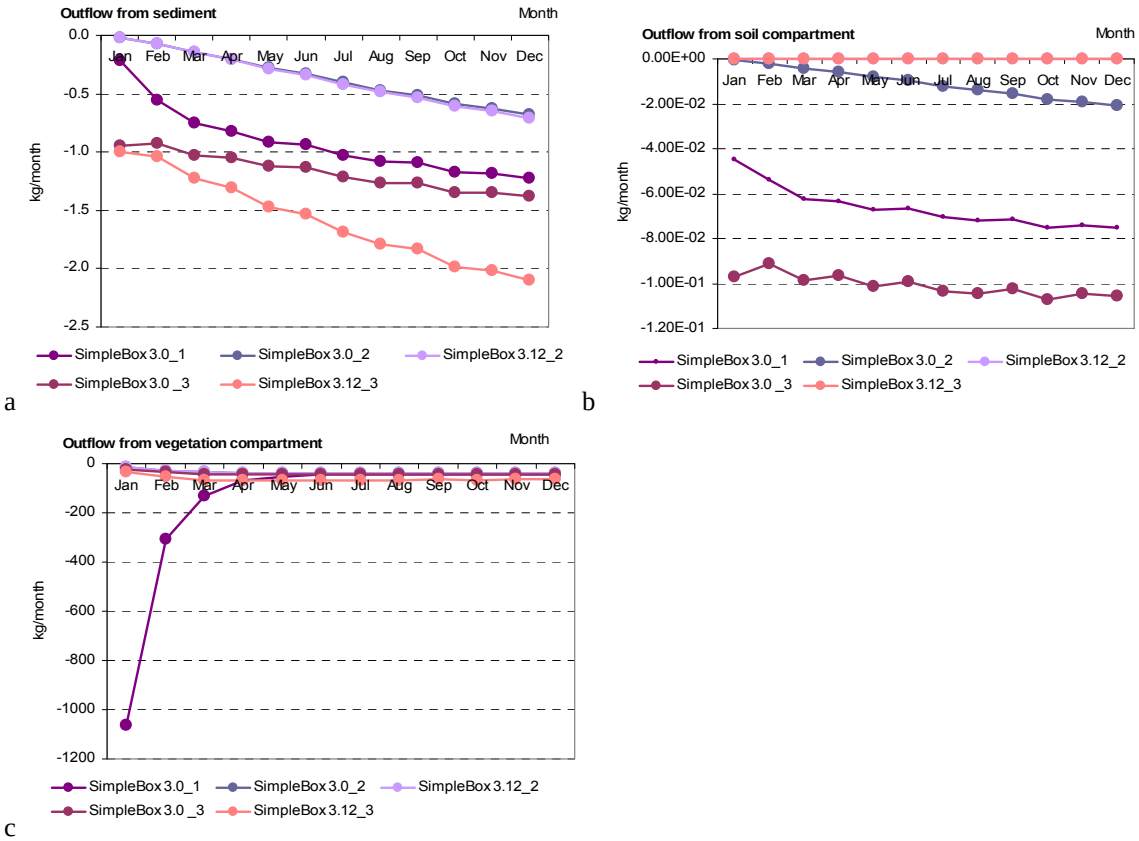


Fig. B.72. *PCB-28 mass flows transported in/out the calculation domain through sediment (a), soil (b) and vegetation(c) calculated by SimpleBox on the basis of "alternative" data sets*

Comparison between results obtained on the basis of two data sets. The percentage difference between calculation results obtained with two different data sets of physical-chemical properties (for SimpleBox model) is shown in Table B.52.

Table B.50. *Calculation results: PCB-28 mass flows transported in/out the calculation domain through sediments, soil and vegetation (kg/month) calculated by SimpleBox on the basis of "reference" data set*

Month	Sediment					Soil					Vegetation				
	Outflow from sediment compartment = burial					Outflow from soil compartment = leaching					Outflow from vegetation compartment = harvest of agricultural vegetation				
	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0_3	SimpleBox 3.12_3	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3
Jan	-0.24	-0.03	-0.03	-2.69	-2.71	-4.43E-02	-7.29E-04	-1.26E-07	-2.59E-01	-4.17E-04	-1296.36	-14.83	-14.80	-43.57	-33.90
Feb	-0.67	-0.11	-0.12	-2.56	-2.54	-5.52E-02	-2.53E-03	-3.98E-07	-2.43E-01	-3.90E-04	-539.18	-34.59	-34.49	-54.43	-31.71
Mar	-1.00	-0.22	-0.23	-2.79	-2.71	-6.70E-02	-4.99E-03	-7.44E-07	-2.61E-01	-4.17E-04	-284.68	-47.20	-47.00	-64.92	-33.90
Apr	-1.15	-0.32	-0.32	-2.76	-2.63	-6.97E-02	-7.21E-03	-1.04E-06	-2.53E-01	-4.03E-04	-153.90	-50.41	-50.14	-65.95	-32.80
May	-1.32	-0.43	-0.44	-2.91	-2.71	-7.55E-02	-9.96E-03	-1.41E-06	-2.63E-01	-4.17E-04	-105.91	-54.50	-54.13	-69.74	-33.90
Jun	-1.39	-0.52	-0.54	-2.88	-2.63	-7.58E-02	-1.21E-02	-1.68E-06	-2.55E-01	-4.03E-04	-80.18	-54.01	-53.56	-68.31	-32.80
Jul	-1.54	-0.64	-0.66	-3.04	-2.71	-8.08E-02	-1.50E-02	-2.07E-06	-2.65E-01	-4.17E-04	-72.82	-56.61	-56.06	-71.10	-33.90
Aug	-1.64	-0.75	-0.77	-3.10	-2.71	-8.32E-02	-1.76E-02	-2.40E-06	-2.66E-01	-4.17E-04	-68.34	-57.17	-56.53	-71.46	-33.90
Sep	-1.67	-0.82	-0.84	-3.05	-2.63	-8.28E-02	-1.95E-02	-2.64E-06	-2.58E-01	-4.03E-04	-64.28	-55.74	-55.03	-69.42	-32.80
Oct	-1.81	-0.95	-0.97	-3.21	-2.71	-8.77E-02	-2.27E-02	-3.05E-06	-2.68E-01	-4.17E-04	-65.61	-57.96	-57.14	-71.96	-33.90
Nov	-1.84	-1.01	-1.04	-3.16	-2.63	-8.70E-02	-2.44E-02	-3.26E-06	-2.60E-01	-4.03E-04	-63.18	-56.41	-55.53	-69.82	-32.80
Dec	-1.89	-1.10	-1.13	-3.22	-2.63	-8.86E-02	-2.68E-02	-3.56E-06	-2.61E-01	-4.03E-04	-62.47	-56.69	-55.72	-70.00	-32.80
Annual	**-16.17**	**-6.91**	**-7.09**	**-35.37**	**-31.96**	**-8.98E-01**	**-1.63E-01**	**-2.24E-05**	**-3.11E+00**	**-4.91E-03**	**-2856.90**	**-596.13**	**-590.13**	**-790.67**	**-399.11**

SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;

SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;

SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;

* - SimpleBox data are presented for moderate scale

Table B.51. *Calculation results: PCB-28 mass flows transported in/out the calculation domain through sediment, soil and vegetation (kg/month) calculated by SimpleBox on the basis of "alternative" data set*

Month	Sediment					Soil					Vegetation				
	Outflow from sediment compartment = burial					Outflow from soil compartment = leaching					Outflow from vegetation compartment = harvest of agricultural vegetation				
	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3
Jan	-0.22	-0.02	-0.02	-0.95	-0.99	-4.49E-02	-5.80E-04	-3.55E-08	-9.68E-02	-5.96E-05	-1061.47	-13.58	-13.56	-22.82	-32.16
Feb	-0.55	-0.07	-0.07	-0.92	-1.04	-5.39E-02	-2.08E-03	-1.14E-07	-9.14E-02	-5.51E-05	-309.36	-28.74	-28.68	-34.92	-54.51
Mar	-0.76	-0.14	-0.15	-1.03	-1.23	-6.27E-02	-4.10E-03	-2.15E-07	-9.88E-02	-5.83E-05	-130.94	-36.36	-36.26	-42.04	-66.15
Apr	-0.82	-0.20	-0.21	-1.04	-1.31	-6.33E-02	-5.89E-03	-3.00E-07	-9.68E-02	-5.57E-05	-68.57	-37.10	-36.98	-42.27	-66.06
May	-0.91	-0.28	-0.28	-1.13	-1.47	-6.73E-02	-8.07E-03	-4.04E-07	-1.01E-01	-5.69E-05	-53.22	-39.11	-38.96	-44.31	-68.54
Jun	-0.94	-0.33	-0.34	-1.13	-1.53	-6.67E-02	-9.74E-03	-4.82E-07	-9.90E-02	-5.44E-05	-46.32	-38.23	-38.07	-43.19	-66.09
Jul	-1.03	-0.41	-0.42	-1.22	-1.69	-7.05E-02	-1.20E-02	-5.90E-07	-1.04E-01	-5.56E-05	-46.24	-39.78	-39.58	-44.83	-67.89
Aug	-1.08	-0.47	-0.48	-1.26	-1.79	-7.21E-02	-1.40E-02	-6.83E-07	-1.05E-01	-5.50E-05	-45.73	-40.00	-39.77	-45.00	-67.44
Sep	-1.09	-0.51	-0.53	-1.26	-1.83	-7.12E-02	-1.55E-02	-7.49E-07	-1.02E-01	-5.26E-05	-44.11	-38.90	-38.65	-43.68	-64.86
Oct	-1.18	-0.59	-0.61	-1.35	-1.99	-7.51E-02	-1.79E-02	-8.63E-07	-1.07E-01	-5.37E-05	-45.55	-40.37	-40.09	-45.26	-66.60
Nov	-1.18	-0.63	-0.65	-1.34	-2.01	-7.41E-02	-1.92E-02	-9.21E-07	-1.05E-01	-5.14E-05	-44.10	-39.23	-38.93	-43.92	-64.06
Dec	-1.23	-0.68	-0.71	-1.38	-2.10	-7.55E-02	-2.10E-02	-1.00E-06	-1.06E-01	-5.08E-05	-44.13	-39.38	-39.05	-44.02	-63.70
Annual	**-10.98**	**-4.33**	**-4.47**	**-14.03**	**-18.97**	**-7.97E-01**	**-1.30E-01**	**-6.36E-06**	**-1.21E+00**	**-6.59E-04**	**-1939.74**	**-430.77**	**-428.58**	**-496.26**	**-748.06**

SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;

SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;

SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;

* - SimpleBox data are presented for moderate scale.

Table B.52. *The percentage difference between calculation results on PCB-28 mass flows transported in/out the calculation domain through sediments, soil and vegetation calculated by SimpleBox model on the basis of two data sets: "reference" and "alternative"*

Month	Sediment					Soil					Vegetation				
	Outflow from sediment compartment = burial					Outflow from soil compartment = leaching					Outflow from vegetation compartment = harvest of agricultural vegetation				
	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0 _3	SimpleBox 3.12_3
Jan	-8.1%	-38.2%	-38.2%	-64.7%	-63.4%	1%	-20%	-72%	-63%	-86%	-18%	-8%	-8%	-48%	-5%
Feb	-17.4%	-36.6%	-36.6%	-63.9%	-59.2%	-2%	-18%	-71%	-62%	-86%	-43%	-17%	-17%	-36%	72%
Mar	-24.4%	-36.1%	-36.0%	-63.1%	-54.7%	-6%	-18%	-71%	-62%	-86%	-54%	-23%	-23%	-35%	95%
Apr	-28.6%	-36.1%	-36.0%	-62.2%	-50.3%	-9%	-18%	-71%	-62%	-86%	-55%	-26%	-26%	-36%	101%
May	-31.0%	-36.4%	-36.2%	-61.4%	-45.9%	-11%	-19%	-71%	-61%	-86%	-50%	-28%	-28%	-36%	102%
Jun	-32.4%	-36.6%	-36.4%	-60.6%	-41.8%	-12%	-19%	-71%	-61%	-86%	-42%	-29%	-29%	-37%	101%
Jul	-33.4%	-36.9%	-36.6%	-59.9%	-37.8%	-13%	-20%	-71%	-61%	-87%	-37%	-30%	-29%	-37%	100%
Aug	-34.1%	-37.2%	-36.9%	-59.2%	-33.9%	-13%	-20%	-72%	-61%	-87%	-33%	-30%	-30%	-37%	99%
Sep	-34.7%	-37.4%	-37.1%	-58.6%	-30.3%	-14%	-21%	-72%	-60%	-87%	-31%	-30%	-30%	-37%	98%
Oct	-35.2%	-37.6%	-37.2%	-58.0%	-26.8%	-14%	-21%	-72%	-60%	-87%	-31%	-30%	-30%	-37%	96%
Nov	-35.6%	-37.9%	-37.4%	-57.5%	-23.4%	-15%	-21%	-72%	-60%	-87%	-30%	-30%	-30%	-37%	95%
Dec	-35.2%	-38.1%	-37.6%	-57.0%	-20.2%	-15%	-21%	-72%	-59%	-87%	-29%	-31%	-30%	-37%	94%
Annual	-32.1%	-37.3%	-37.0%	-60.3%	-40.6%	-11%	-20%	-72%	-61%	-87%	-32%	-28%	-27%	-37%	87%

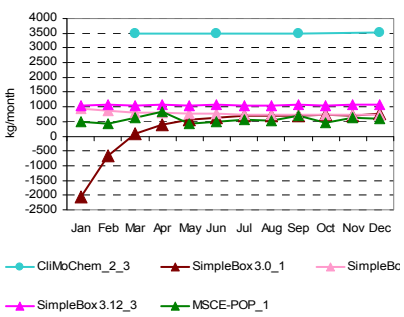
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;

B.3.4. Comparison of calculated values of PCB-28 total mass flows transported in/out the specified domain

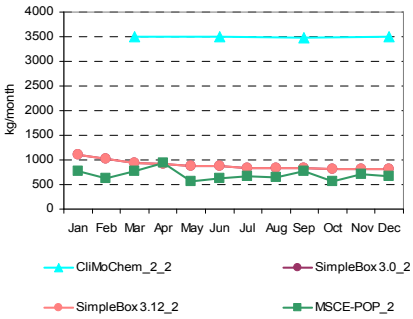
Values of total mass flow transported in/out the calculation domain are calculated as sum of inflow (emissions) and all outflows through the main transport media.

Reference data set. Calculation results on PCB-28 total mass flows transported in/out the specified domain calculated by the models on the basis of "reference" data set together with statistical parameters used for evaluation are presented in Table B.53.

Monthly values of PCB-28 total mass flows transported in/out the specified domain calculated by the participating models on the basis of "reference" data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.73 a and b, respectively.



a



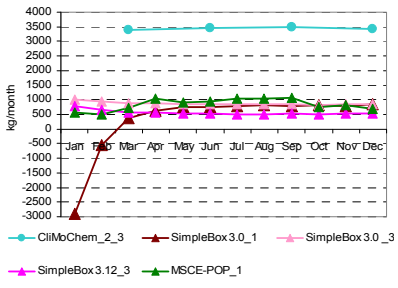
b

Fig. B.73a. *PCB-28 mass flows transported in/out the specified domain (kg/month) calculated by the participating models on the basis of "reference" data set and non-zero initial conditions*

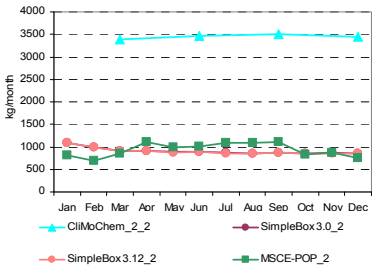
Fig. B.73b. *PCB-28 mass flows transported in/out the specified domain (kg/month) calculated by the participating models on the basis of "reference" data set and zero initial conditions*

Own/alternative data set. Calculation results on PCB-28 total mass flows transported in/out the specified domain calculated by the models on the basis of "own or alternative" data sets together with statistical parameters used for evaluation are presented in Table B.54.

Monthly values of PCB-28 mass flows transported in/out the specified domain calculated by the participating models on the basis of "own or alternative" data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. B.74 a and b, respectively.



a



b

Fig. B.74a. *PCB-28 mass flows transported in/out the specified domain (kg/month) calculated by the participating models on the basis of "own or alternative" data set and non-zero initial conditions*

Fig. B.74b. *PCB-28 mass flows transported in/out the specified domain (kg/month) calculated by the participating models on the basis of "own or alternative" data set and zero initial conditions*

Comparison between results obtained on the basis of two data sets. A comparison of the calculation results obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Table B.55.

Table B.53. *Calculation results: PCB-28 total mass flows transported in/out the specified domain (kg/month) calculated by models on the basis of "reference" data set and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	SimpleBox 3.0_1[a]	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0 _3	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	-2060.4	499.8		926.0	1053.7	*104.8*	*1462.8*	Jan		1108.1	1108.1	771.6	*995.9*	*194.3*
Feb	-669.6	411.9		883.6	1077.6	*425.9*	*782.0*	Feb		1016.9	1016.9	623.9	*885.9*	*226.9*
Mar	78.7	616.8		809.7	1053.7	*639.7*	*414.6*	Mar		935.9	935.9	769.7	*880.5*	*96.0*
Seas_1	**-2651.4**	**1528.5**	**10490.6**	**2619.3**	**3185.0**	***3034.4***	***4753.6***	**Seas_1**	**10498.6**	**3060.8**	**3060.8**	**2165.2**	***4696.4***	***3891.1***
Apr	408.2	833.8		805.6	1065.7	*778.3*	*272.9*	Apr		917.5	917.4	933.0	*922.6*	*9.0*
May	578.1	421.6		767.0	1053.7	*705.1*	*271.9*	May		875.2	875.1	571.6	*774.0*	*175.2*
Jun	631.0	509.2		774.6	1065.7	*745.1*	*239.6*	Jun		873.8	873.6	631.2	*792.9*	*140.0*
Seas_2	**1617.4**	**1764.6**	**10465.1**	**2347.3**	**3185.0**	***3875.9***	***3734.6***	**Seas_2**	**10486.2**	**2666.5**	**2666.0**	**2135.8**	***4488.7***	***4006.2***
Jul	688.2	553.3		741.5	1053.7	*759.2*	*211.7*	Jul		839.3	839.0	666.9	*781.7*	*99.4*
Aug	707.0	537.2		731.6	1053.7	*757.4*	*215.6*	Aug		825.5	825.0	639.7	*763.4*	*107.1*
Sep	694.0	702.4		745.9	1065.7	*802.0*	*177.2*	Sep		833.4	832.9	780.0	*815.4*	*30.7*
Seas_3	**2089.2**	**1793.0**	**10435.2**	**2219.0**	**3173.1**	***3941.9***	***3666.5***	**Seas_3**	**10450.5**	**2498.3**	**2496.8**	**2086.6**	***4383.0***	***4049.6***
Oct	723.1	462.9		716.0	1053.7	*738.9*	*242.2*	Oct		803.5	802.7	567.7	*724.6*	*135.9*
Nov	703.4	631.8		732.7	1065.7	*783.4*	*192.9*	Nov		814.7	813.9	710.3	*779.6*	*60.1*
Dec	755.6	596.5		727.4	1065.7	*786.3*	*198.7*	Dec		807.1	806.1	670.8	*761.3*	*78.4*
Seas_4	**2182.2**	**1691.2**	**10526.4**	**2176.1**	**3185.0**	***3952.2***	***3715.1***	**Seas_4**	**10529.3**	**2425.2**	**2422.8**	**1948.7**	***4331.5***	***4137.9***
Annual	**3237.4**	**6777.3**	**41917.2**	**9361.8**	**12728.1**	***14804.4***	***15550.5***	**Annual**	**41964.6**	**10650.9**	**10646.5**	**8336.3**	***17899.6***	***16080.3***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
a - SimpleBox data are presented for moderate scale.

Table B.54. *Calculation results: PCB-28 total mass flows transported in/out the specified domain (kg/month) calculated by models on the basis of "own or alternative" data sets and statistical parameters used for evaluation*

Month	Results obtained on the basis of initial concentrations given as input data		Results obtained on the basis of historical emissions			*m*	σ	Month	Results obtained on the basis of zero initial concentrations				*m*	σ
	SimpleBox 3.0_1[a]	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0 _3[a]	SimpleBox 3.12_3[a]				CliMo Chem_2_2	SimpleBox 3.0_2[a]	SimpleBox 3.12_2[a]	MSCE-POP_2		
Jan	-2891.3	577.5		1022.9	793.5	*-124.4*	*1853.6*	Jan		1088.2	1088.1	819.0	*998.4*	*155.3*
Feb	-547.6	504.6		952.5	662.3	*392.9*	*653.9*	Feb		988.5	988.0	698.0	*891.5*	*167.6*
Mar	359.4	709.8		884.9	555.2	*627.3*	*223.7*	Mar		917.0	916.0	847.3	*893.5*	*39.9*
Seas_1	**-3079.5**	**1791.9**	**10141.5**	**2860.2**	**2011.0**	***2745.0***	***4745.9***	**Seas_1**	**10150.8**	**2993.7**	**2992.1**	**2364.4**	***4625.2***	***3695.6***
Apr	630.2	1043.3		884.6	560.4	*779.6*	*224.3*	Apr		912.6	910.9	1110.2	*977.9*	*114.6*
May	747.7	922.7		855.0	520.1	*761.4*	*176.3*	May		882.0	879.6	996.9	*919.5*	*67.1*
Jun	758.9	942.4		865.2	543.0	*777.4*	*173.4*	Jun		889.9	886.8	1002.1	*926.3*	*65.7*
Seas_2	**2136.9**	**2908.4**	**10378.8**	**2604.7**	**1623.4**	***3930.4***	***3637.4***	**Seas_2**	**10381.5**	**2684.4**	**2677.3**	**3109.3**	***4713.1***	***3784.3***
Jul	800.8	1038.9		839.9	509.8	*797.3*	*218.2*	Jul		864.2	860.4	1086.9	*937.2*	*129.7*
Aug	810.4	1042.3		834.3	507.6	*798.7*	*220.2*	Aug		857.7	853.1	1083.6	*931.5*	*131.8*
Sep	790.3	1075.0		849.0	536.3	*812.6*	*221.4*	Sep		870.8	865.7	1111.5	*949.3*	*140.4*
Seas_3	**2401.5**	**3156.2**	**10501.4**	**2523.2**	**1553.7**	***4027.2***	***3663.9***	**Seas_3**	**10503.1**	**2592.6**	**2579.3**	**3282.0**	***4739.2***	***3856.5***
Oct	821.1	749.4		826.1	506.6	*725.8*	*150.3*	Oct		847.8	842.0	823.0	*837.6*	*13.0*
Nov	798.0	806.8		842.3	536.8	*746.0*	*140.8*	Nov		862.7	856.4	866.3	*861.8*	*5.0*
Dec	847.2	681.6		839.7	537.9	*726.6*	*147.2*	Dec		859.6	852.7	744.7	*819.0*	*64.4*
Seas_4	**2466.4**	**2237.7**	**10317.8**	**2508.0**	**1581.3**	***3822.2***	***3650.0***	**Seas_4**	**10317.9**	**2570.2**	**2551.0**	**2433.9**	***4468.3***	***3900.2***
Annual	**3925.2**	**10094.3**	**41339.6**	**10496.2**	**6769.4**	***14524.9***	***15226.5***	**Annual**	**41353.2**	**10840.9**	**10799.7**	**11189.6**	***18545.9***	***15205.9***

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;
a - SimpleBox data are presented for moderate scale.

Table B.55. *Comparison of the calculation results on PCB-28 mass flows transported in/out the specified domain (kg/month) obtained by models on the basis of two data sets: "reference" and "own or alternative"*

Month	CliMoChem_2_3		SimpleBox 3.0_1		SimpleBox 3.0_2		SimpleBox 3.12_2		SimpleBox 3.0_3		SimpleBox 3.12_3		MSCE-POP_1		MSCE-POP_2		CliMoChem_2_2	
	ref	own	ref	alt	ref	alt	ref	alt	ref	alt	ref	alt	ref	own	ref	own	ref	own
Jan			-2060.4	-2891.3	1108.1	1088.2	1108.1	1088.1	926.0	1022.9	1053.7	793.5	499.8	577.5	771.6	819.0		
Feb			-669.6	-547.6	1016.9	988.5	1016.9	988.0	883.6	952.5	1077.6	662.3	411.9	504.6	623.9	698.0		
Mar			78.7	359.4	935.9	917.0	935.9	916.0	809.7	884.9	1053.7	555.2	616.8	709.8	769.7	847.3		
Seas_1	**10490.6**	**10141.5**	**-2651.4**	**-3079.5**	**3060.8**	**2993.7**	**3060.8**	**2992.1**	**2619.3**	**2860.2**	**3185.0**	**2011.0**	**1528.5**	**1791.9**	**2165.2**	**2364.4**	**10498.6**	**10150.8**
Apr			408.2	630.2	917.5	912.6	917.4	910.9	805.6	884.6	1065.7	560.4	833.8	1043.3	933.0	1110.2		
May			578.1	747.7	875.2	882.0	875.1	879.6	767.0	855.0	1053.7	520.1	421.6	922.7	571.6	996.9		
Jun			631.0	758.9	873.8	889.9	873.6	886.8	774.6	865.2	1065.7	543.0	509.2	942.4	631.2	1002.1		
Seas_2	**10465.1**	**10378.8**	**1617.4**	**2136.9**	**2666.5**	**2684.4**	**2666.0**	**2677.3**	**2347.3**	**2604.7**	**3185.0**	**1623.4**	**1764.6**	**2908.4**	**2135.8**	**3109.3**	**10486.2**	**10381.5**
Jul			688.2	800.8	839.3	864.2	839.0	860.4	741.5	839.9	1053.7	509.8	553.3	1038.9	666.9	1086.9		
Aug			707.0	810.4	825.5	857.7	825.0	853.1	731.6	834.3	1053.7	507.6	537.2	1042.3	639.7	1083.6		
Sep			694.0	790.3	833.4	870.8	832.9	865.7	745.9	849.0	1065.7	536.3	702.4	1075.0	780.0	1111.5		
Seas_3	**10435.2**	**10501.4**	**2089.2**	**2401.5**	**2498.3**	**2592.6**	**2496.8**	**2579.3**	**2219.0**	**2523.2**	**3173.1**	**1553.7**	**1793.0**	**3156.2**	**2086.6**	**3282.0**	**10450.5**	**10503.1**
Oct			723.1	821.1	803.5	847.8	802.7	842.0	716.0	826.1	1053.7	506.6	462.9	749.4	567.7	823.0		
Nov			703.4	798.0	814.7	862.7	813.9	856.4	732.7	842.3	1065.7	536.8	631.8	806.8	710.3	866.3		
Dec			755.6	847.2	807.1	859.6	806.1	852.7	727.4	839.7	1065.7	537.9	596.5	681.6	670.8	744.7		
Seas_4	**10526.4**	**10317.8**	**2182.2**	**2466.4**	**2425.2**	**2570.2**	**2422.8**	**2551.0**	**2176.1**	**2508.0**	**3185.0**	**1581.3**	**1691.2**	**2237.7**	**1948.7**	**2433.9**	**10529.3**	**10317.9**
Annual	**41917.2**	**41339.6**	**3237.4**	**3925.2**	**10650.9**	**10840.9**	**10646.5**	**10799.7**	**9361.8**	**10496.2**	**12728.1**	**6769.4**	**6777.3**	**10094.3**	**8336.3**	**11189.6**	**41964.6**	**41353.2**

CliMoChem_2_2 – CliMoChem results calculated on the basis of Land Cover Data given as input data and with zero initial concentrations;
CliMoChem_2_3 - CliMoChem results calculated on the basis of Land Cover Data given as input data and with historical emissions for 20-year period;
MSCE-POP_1 - MSCE-POP results calculated on the basis of initial concentrations given as input data;
MSCE-POP_2 - MSCE-POP results calculated on the basis of zero initial concentrations;
SimpleBox 3.0_1 - SimpleBox results of version 3.0 calculated on the basis of initial concentrations given as input data;
SimpleBox 3.0_2 and SimpleBox 3.12_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;
SimpleBox 3.0_3 and SimpleBox 3.12_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period;

B.3.5. Comparison of PCB-28 mass flows transported in/out the specified domain

The calculation results on PCB-28 transport inside and outside the calculation domain through main transport media such as atmosphere and seawater are discussed in this subsection. Transport of this pollutant from sediment, soil and vegetation compartments due to such processes as burial, leaching and harvest of agricultural vegetation, respectively, is considered in SimpleBox model.

The results considered in Sections B.3.1-B.3.4 above are obtained with one-year calculations with zero initial concentrations (CliMoChem, MSCE-POP, SimpleBox) and with initial concentrations in media (MSCE-POP, SimpleBox); and with long-term calculations with historical emissions (CliMoChem, SimpleBox). CliMoChem, MSCE-POP, and SimpleBox models presented results obtained on the basis of two different physical-chemical data sets. Of note, the calculated values compared below are negative in the case if a model predicted PCB-28 transport out the calculation domain through the considered media.

A preliminary analysis of the comparison of absolute values PCB-28 transport mass flows inside and outside the calculation domain through main transport media is presented in this section. The analysis is made separately for results calculated on the basis of initial concentrations or historical emissions and for results based on zero initial conditions.

Transport through the atmosphere. Comparison of annual values of PCB-28 mass flows transported out the calculation domain through the atmosphere calculated by different models on the basis of zero initial concentrations and with the use of "***reference***" data set is presented in Fig. B.75a together with the averaged value given as the blue line. Fig. B.75b shows the same results but obtained on the basis of initial concentrations and historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions).

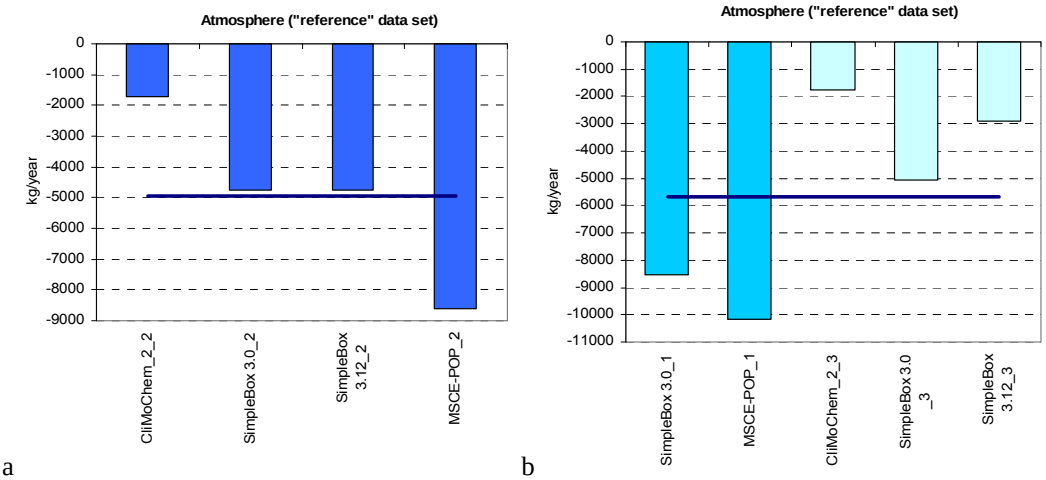
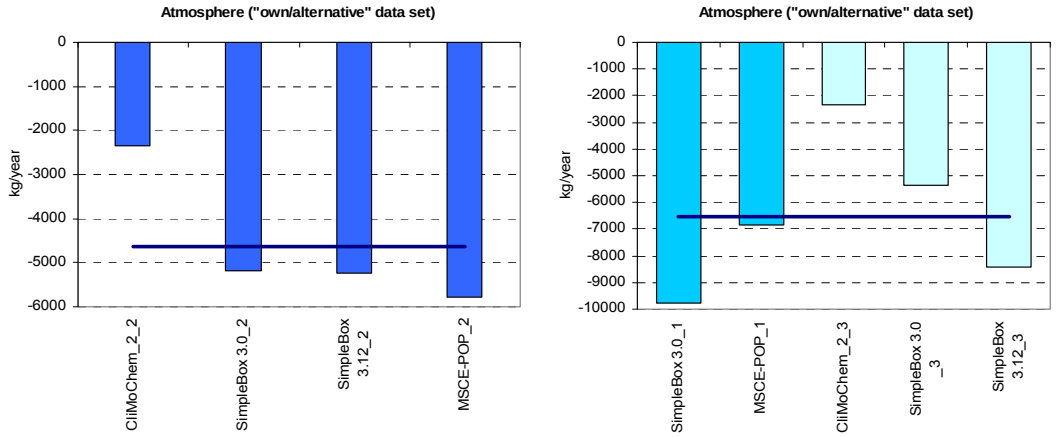


Fig. B.75. *Comparison of annual values of PCB-28 mass flows transported in/out the calculation domain through the atmosphere calculated by different models on the basis of "reference" data set (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Fig. B.76a demonstrates the comparison of the annual values of PCB-28 mass flows transported out the calculation domain through the atmosphere calculated on the basis of zero initial concentrations and with the use of "***own or alternative*****"** data sets. Fig. B.76b shows the same results but obtained on the basis of initial concentrations and historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial

data; then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between models.



a b

Fig. B.76. *Comparison of annual values of PCB-28 mass flows transported in/out the calculation domain through the atmosphere calculated by different models on the basis of "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of annual values of PCB-28 mass flows transported out the calculation domain through the atmosphere obtained with "reference" and "own/alternative" data sets is presented in and in Fig. B.77 (see also Table B.46 given in Section B.3.1).

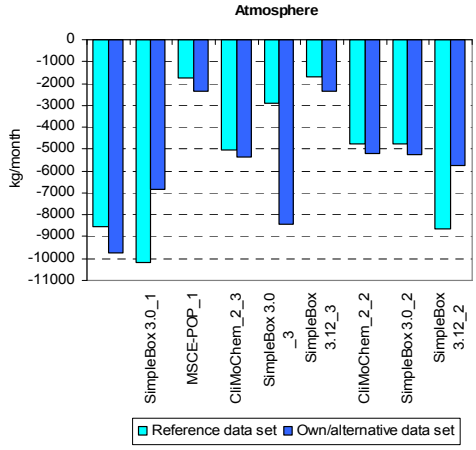


Fig. B.77. *Comparison of PCB-28 mass flows transported in/out the calculation domain through the atmosphere calculated by different models on the basis of two physical-chemical data sets*

Transport through ocean. Comparison of annual values of PCB-28 mass flows transported out the calculation domain through ocean calculated by different models on the basis of zero initial concentrations and with the use of "***reference***" data set is presented in Fig. B.78a. Fig. B.78b shows the same results but obtained on the basis of initial concentrations and historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between models.

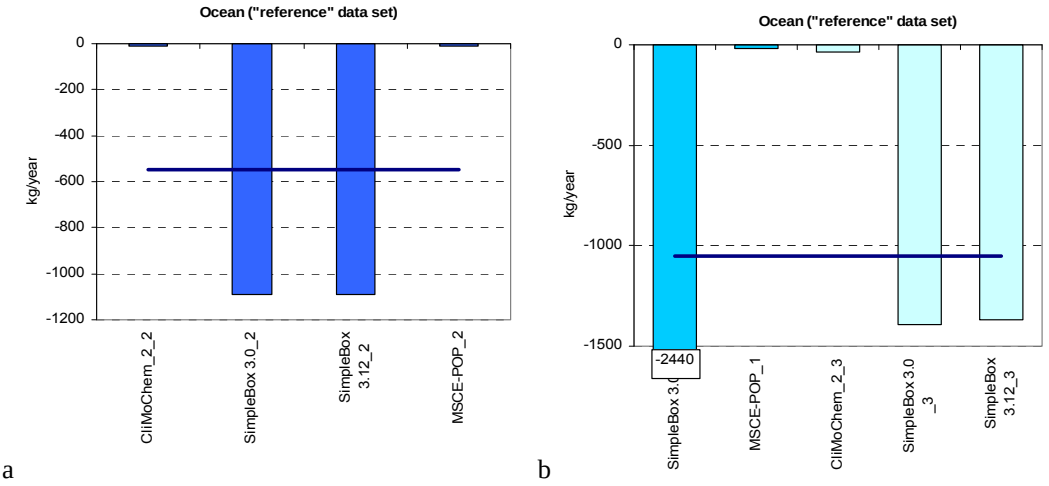


Fig. B.78. *Comparison of annual values of PCB-28 mass flows transported in/out the calculation domain through ocean calculated by different models on the basis of "reference" data set (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of annual values of PCB-28 mass flows transported out the calculation domain through ocean calculated by different models on the basis of zero initial concentrations and with the use of "***own or alternative***" data sets is presented in Fig. B.79a. Fig. B.79b shows the same results but obtained on the basis of initial concentrations and historical emissions. In the latter figure different colour of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between models.

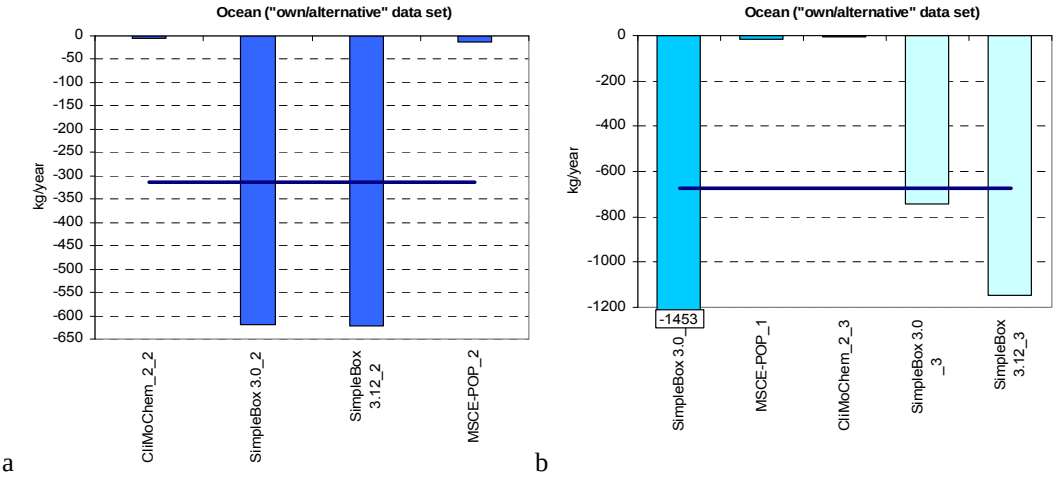


Fig. B.79. *Comparison of annual values of PCB-28 mass flows transported in/out the calculation domain through ocean calculated by different models on the basis of "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of annual values of PCB-28 mass flows transported out the calculation domain through ocean obtained with "reference" and "own/alternative" data sets is presented in Table B.49 given in Section B.3.2 and in Fig. B.80a below. The same data for models with low values of mass flows transported out the calculation domain through ocean are also shown in Fig. B.80b in more detail.

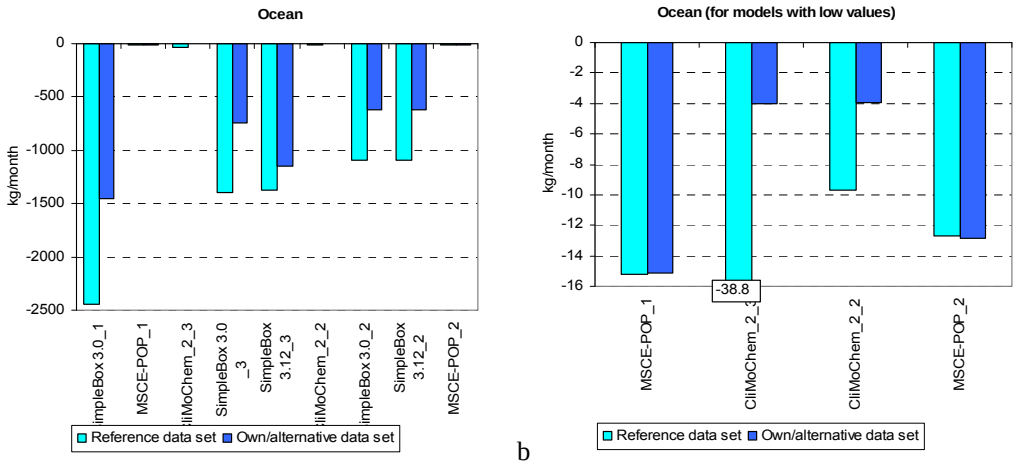


Fig. B.80. *Comparison of PCB-28 mass flows transported in/out the calculation domain through ocean calculated by different models on the basis of two data sets (a - all models; b – models with low values of PCB-28 mass flows transported in/out of ocean).*

Transport through other media. In addition to the results on mass flows of PCB-28 transported out the calculation domain via the atmosphere and ocean, Simple Box model presented calculated values of outflows from sediments, soil and vegetation. Transport of this pollutant from these compartments is considered to be due to such processes as burial, leaching and harvest of agricultural vegetation, respectively.

Comparison of annual values of PCB-28 mass flows transported in/out the calculation domain through three media as a whole (sediment, soil and vegetation) calculated by SimpleBox model on the basis of zero initial concentrations and with the use of "***reference***" data set is presented in Fig. B.81a. Fig. B.81b shows the same results but obtained on the basis of initial concentrations and historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between calculations of different types.

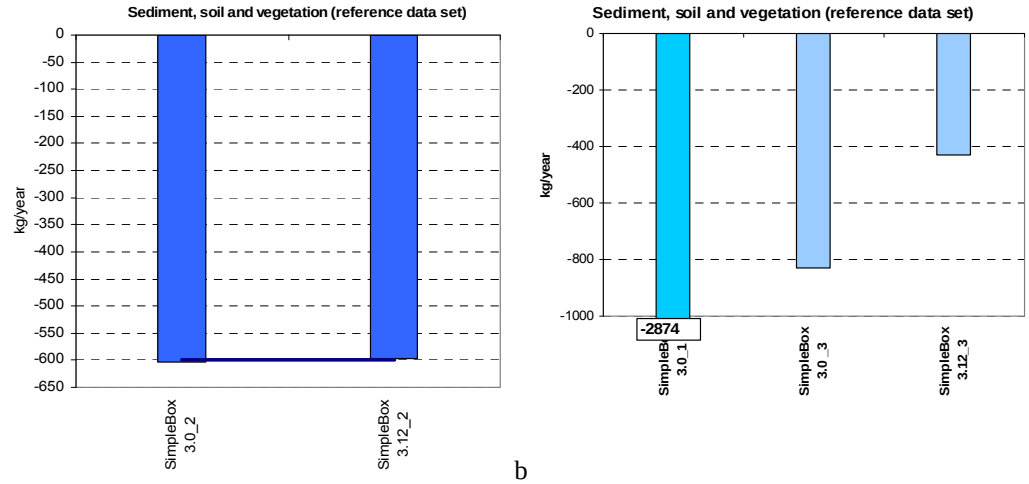
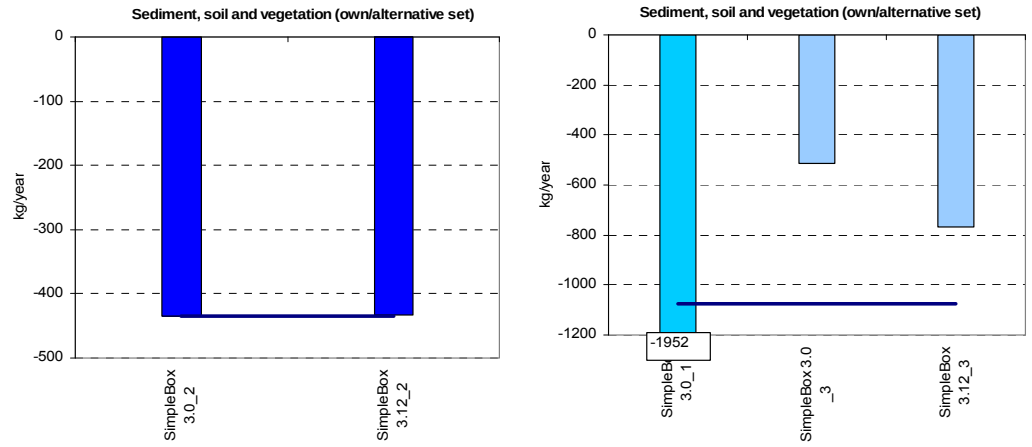


Fig. B.81. *Comparison of annual values of PCB-28 mass flows transported in/out the calculation domain through three media as a whole (sediment, soil and vegetation) calculated by SimpleBox model on the basis of "reference" data set (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions).*

The annual values of PCB-28 mass flows transported out the calculation domain through three considered media calculated by SimpleBox model on the basis of zero initial concentrations and "**alternative**" data set are compared in Fig. B.82a. Fig. B.82b shows the same results but obtained on the basis of initial concentrations and historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between different versions of this model.



a b

Fig. B.82. *Comparison of annual values of PCB-28 mass flows transported in/out the calculation domain through three media as a whole (sediment, soil and vegetation) calculated by SimpleBox model on the basis of "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Annual values of PCB-28 mass flows transported out the calculation domain through such media as sediment, soil and vegetation obtained with "reference" and "own/alternative" data sets are compared in Fig. B.83.

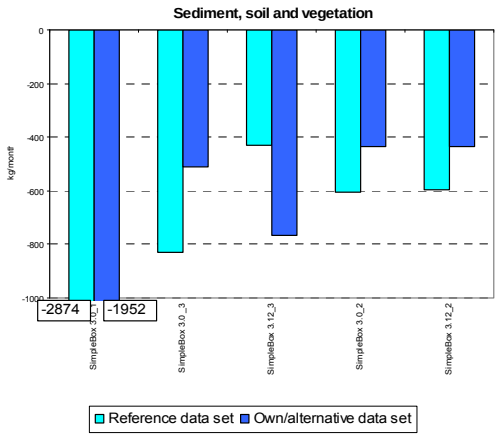


Fig. B.83. *Comparison of PCB-28 mass flows transported in/out the calculation domain through the atmosphere (a), other media (sediment, soil and vegetation)(b) and seawater(c, d) calculated by different models on the basis of two data sets*

Total mass flow. Comparison of annual values of PCB-28 total mass flows transported in/out the calculation domain calculated by different models on the basis of zero initial concentrations and with the use of "***reference*****"** data set is presented in Fig. B.84a. Fig. B.84b shows the same results but obtained on the basis of initial concentrations and historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis

of initial data; then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between models.

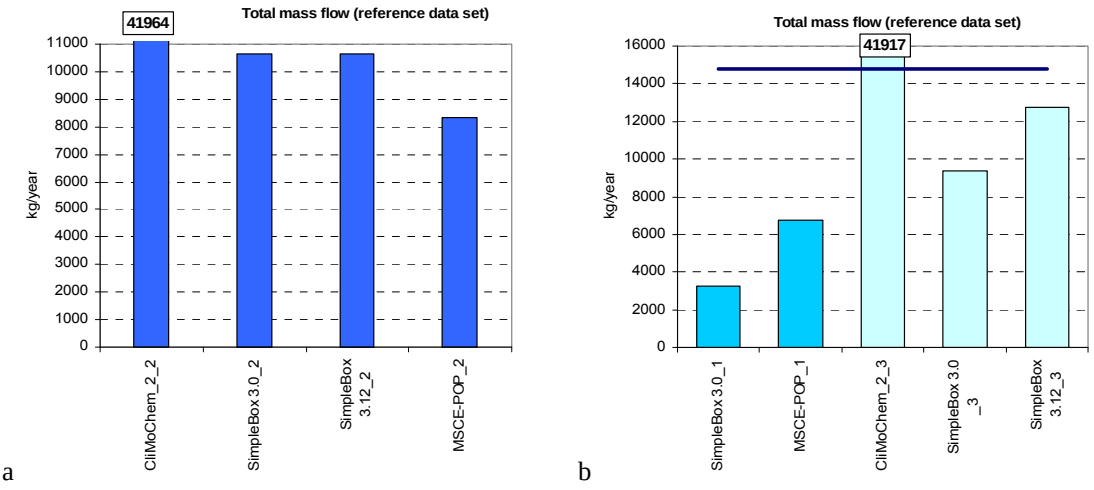


Fig. B.84. *Comparison of annual values of PCB-28 total mass flows transported in/out the calculation domain calculated by different models on the basis of "reference" data set (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

Comparison of annual values of PCB-28 total mass flows transported in/out the calculation domain calculated by different models on the basis of zero initial concentrations and "***own or alternative***" data sets is presented in Fig. B.85a. Fig. B.85b shows the same results but obtained on the basis of initial concentrations and historical emissions. In the latter figure different color of columns corresponds to the different types of calculations (one-year calculations on the basis of initial data; then long-tem calculations with historical emissions). The blue line in the plots shows the value of the corresponding parameter averaged between models.

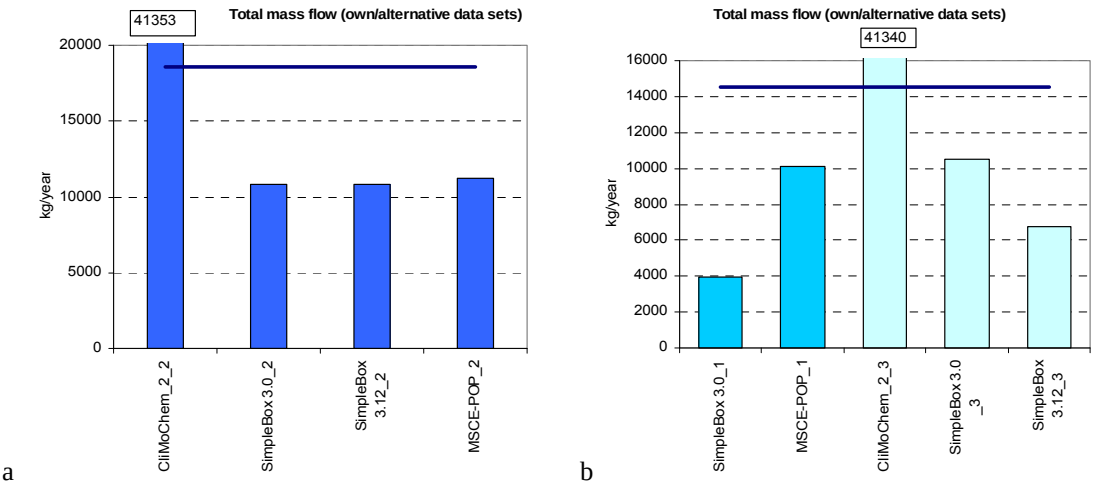


Fig. B.85. *Comparison of annual values of PCB-28 total mass flows transported in/out the calculation domain calculated by different models on the basis of "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*

For models performed calculations on two data sets, the annual values of PCB-28 mass flow transported inside and outside the calculation domain (taking into account emissions) obtained with

"reference" and "own/alternative" data sets are compared in Fig. B.86a. Fig. B.86b presents also the comparison of absolute values of overall mass flow transported outside the calculation domain (not taking into account emission value).

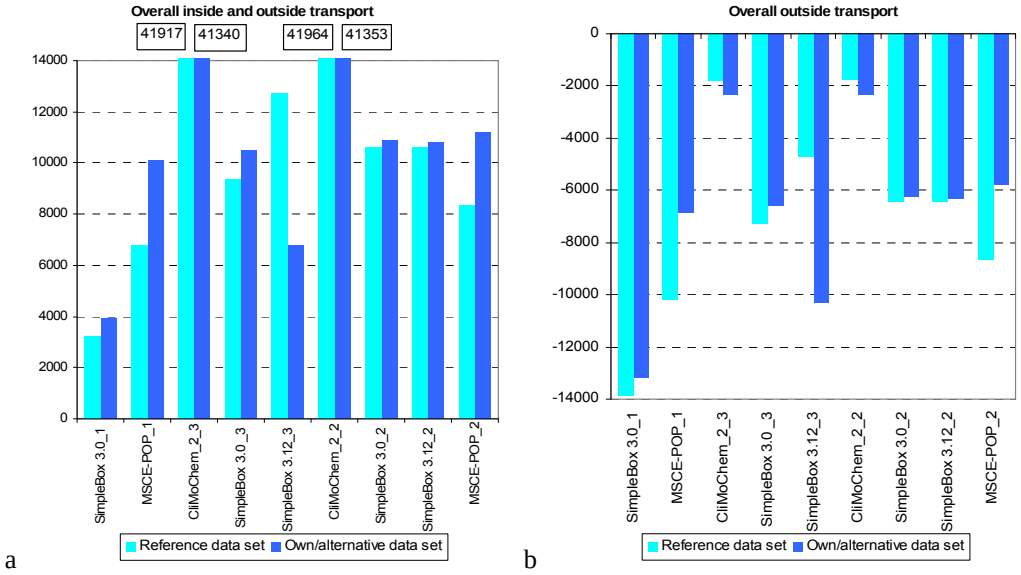
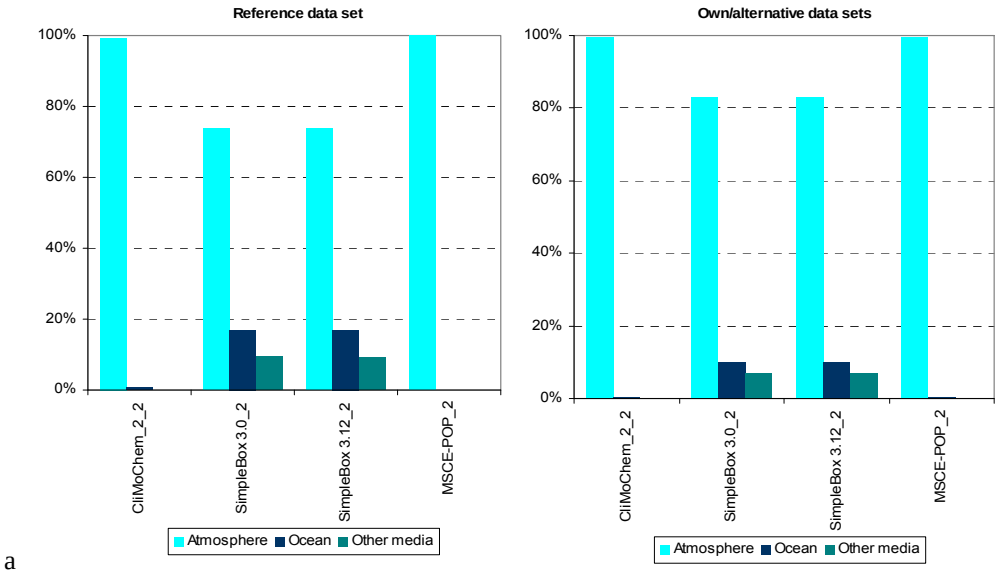
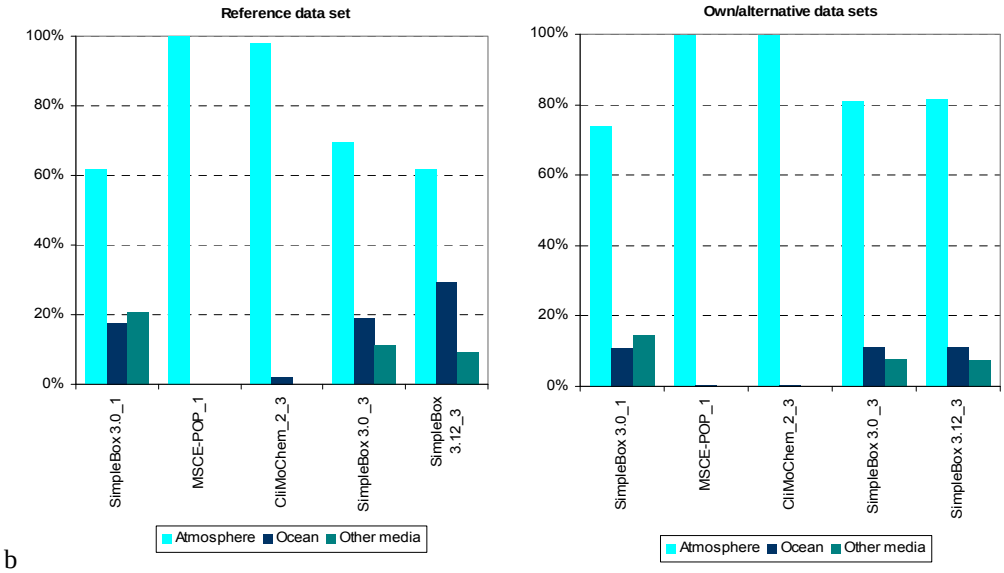


Fig. B.86. *Comparison of PCB-28 overall transport inside and outside the calculation domain (taking into account emissions) (a) and overall transport outside the calculation domain (b) calculated by different models on the basis of two data sets*

Fractions of overall outside transport through atmosphere, ocean and other media (sediment, soil and vegetation) calculated on the basis of zero and non-zero initial conditions are presented in Figs. B.87a and b, respectively. In these figures fractions of PCB-28 mass in soil calculated by the different models with the use of "reference" and "own/alternative" data sets are also compared.



a



b

Fig. B.87. *Comparison of PCB-28 fractions of overall outside transport through atmosphere, ocean and other media (sediment, soil and vegetation) calculated by different models on the basis of "reference" and "own or alternative" data sets (a – results obtained on the basis of zero initial conditions; b – results based on non-zero initial conditions)*