

**Table 3.58.** Calculation results: PCB-153 mass flows transported from the atmosphere to soil: dry deposition (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
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMo Chem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2	ADEPT		
Jan	45.21	89.58	66.70		29.81	33.33	52.93	25.06	Jan	25.17		26.67	26.67	54.80	36.10	33.88	12.47
Feb	38.96	71.78	67.20		27.65	31.18	47.35	20.68	Feb	28.08		26.64	26.64	53.60	36.10	34.21	11.53
Mar	24.35	65.92	62.60		29.56	33.33	43.15	19.57	Mar	19.91		28.54	28.54	49.60	36.10	32.54	11.13
<b>Seas_1</b>	<b>108.52</b>	<b>227.28</b>	<b>196.50</b>	<b>7.41</b>	<b>87.02</b>	<b>97.85</b>	<b>120.76</b>	<b>79.68</b>	<b>Seas_1</b>	<b>73.16</b>	<b>34.460</b>	<b>81.85</b>	<b>81.85</b>	<b>158.00</b>	<b>108.30</b>	<b>89.60</b>	<b>41.13</b>
Apr	14.06	56.04	56.20		28.61	32.26	37.43	18.37	Apr	12.43		27.67	27.67	43.70	34.60	29.21	11.46
May	6.83	52.02	49.60		29.57	33.33	34.27	18.21	May	6.41		28.63	28.63	37.30	34.60	27.11	12.18
Jun	5.12	46.07	30.40		28.62	32.26	28.49	14.77	Jun	4.93		27.73	27.73	22.20	34.60	23.44	11.24
<b>Seas_2</b>	<b>26.01</b>	<b>154.14</b>	<b>136.20</b>	<b>6.63</b>	<b>86.80</b>	<b>97.85</b>	<b>84.61</b>	<b>58.63</b>	<b>Seas_2</b>	<b>23.76</b>	<b>31.524</b>	<b>84.02</b>	<b>84.03</b>	<b>103.20</b>	<b>103.80</b>	<b>71.72</b>	<b>35.32</b>
Jul	4.15	44.25	39.30		29.57	33.33	30.12	15.56	Jul	4.08		28.68	28.69	29.20	34.60	25.05	11.99
Aug	3.74	41.61	30.90		29.57	33.33	27.83	14.25	Aug	3.72		28.70	28.71	22.90	34.60	23.73	11.93
Sep	5.47	38.28	43.40		28.62	32.26	29.60	14.63	Sep	5.46		27.80	27.80	33.60	34.60	25.85	11.83
<b>Seas_3</b>	<b>13.36</b>	<b>124.13</b>	<b>113.60</b>	<b>7.27</b>	<b>87.77</b>	<b>98.93</b>	<b>74.18</b>	<b>51.04</b>	<b>Seas_3</b>	<b>13.26</b>	<b>34.582</b>	<b>85.18</b>	<b>85.19</b>	<b>85.70</b>	<b>103.80</b>	<b>67.95</b>	<b>35.49</b>
Oct	7.63	37.92	60.70		29.57	33.33	33.83	19.00	Oct	7.66		28.74	28.74	48.30	36.10	29.91	14.78
Nov	14.08	35.41	75.30		28.62	32.26	37.13	22.84	Nov	14.17		27.82	27.83	61.80	36.10	33.55	17.65
Dec	19.84	34.36	76.30		28.62	32.26	38.28	21.97	Dec	19.99		27.84	27.84	65.30	36.10	35.41	17.65
<b>Seas_4</b>	<b>41.55</b>	<b>107.69</b>	<b>212.30</b>	<b>8.47</b>	<b>86.81</b>	<b>97.85</b>	<b>92.45</b>	<b>69.71</b>	<b>Seas_4</b>	<b>41.83</b>	<b>41.063</b>	<b>84.40</b>	<b>84.41</b>	<b>175.40</b>	<b>108.30</b>	<b>89.23</b>	<b>49.80</b>
<b>Annual</b>	<b>189.44</b>	<b>613.24</b>	<b>658.60</b>	<b>29.78</b>	<b>348.40</b>	<b>392.48</b>	<b>371.99</b>	<b>241.56</b>	<b>Annual</b>	<b>152.01</b>	<b>141.630</b>	<b>335.46</b>	<b>335.49</b>	<b>522.30</b>	<b>424.20</b>	<b>318.51</b>	<b>149.86</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.59.** Calculation results: PCB-153 mass flows transported from the atmosphere to soil: dry deposition (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations				<i>m</i>	$\sigma$
	CAN/POPs	G-CIEMS_1	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	95.60	46.99	146.88	69.20		32.21	35.51	71.07	44.06	Jan		26.33	26.33	54.20	35.62	16.09
Feb	114.46	38.98	117.35	70.10		29.95	33.26	67.35	40.23	Feb		26.40	26.40	53.30	35.37	15.53
Mar	113.02	25.54	104.89	65.20		32.06	35.61	62.72	38.40	Mar		28.34	28.34	49.30	35.33	12.10
<b>Seas_1</b>	<b>323.08</b>	<b>111.51</b>	<b>369.11</b>	<b>204.50</b>	<b>5.18</b>	<b>94.22</b>	<b>104.38</b>	<b>173.1</b>	<b>132.2</b>	<b>Seas_1</b>	<b>23.50</b>	<b>81.07</b>	<b>81.07</b>	<b>156.80</b>	<b>85.6</b>	<b>54.7</b>
Apr	122.48	15.71	86.52	57.50		31.07	34.51	57.96	40.09	Apr		27.53	27.53	42.50	32.52	8.65
May	132.30	8.14	77.82	49.40		32.13	35.69	55.91	43.85	May		28.53	28.53	35.10	30.72	3.80
Jun	122.51	6.26	66.79	28.90		31.12	34.57	48.36	41.17	Jun		27.67	27.67	20.00	25.11	4.43
<b>Seas_2</b>	<b>377.29</b>	<b>30.12</b>	<b>231.13</b>	<b>135.80</b>	<b>3.12</b>	<b>94.32</b>	<b>104.76</b>	<b>139.5</b>	<b>128.3</b>	<b>Seas_2</b>	<b>14.65</b>	<b>83.73</b>	<b>83.72</b>	<b>97.60</b>	<b>69.9</b>	<b>37.4</b>
Jul	146.94	5.17	62.23	37.30		32.18	35.74	53.26	49.34	Jul		28.65	28.65	26.50	27.93	1.24
Aug	103.21	4.69	56.82	28.50		32.19	35.76	43.53	33.65	Aug		28.70	28.70	20.10	25.83	4.97
Sep	121.57	6.60	50.89	41.20		31.17	34.61	47.67	39.10	Sep		27.82	27.81	30.50	28.71	1.55
<b>Seas_3</b>	<b>371.72</b>	<b>16.46</b>	<b>169.95</b>	<b>107.00</b>	<b>3.23</b>	<b>95.53</b>	<b>106.12</b>	<b>124.3</b>	<b>123.2</b>	<b>Seas_3</b>	<b>15.02</b>	<b>85.17</b>	<b>85.16</b>	<b>77.10</b>	<b>65.6</b>	<b>33.9</b>
Oct	110.11	8.90	49.17	59.50		32.21	35.79	49.28	34.38	Oct		28.78	28.78	45.60	34.38	9.71
Nov	93.15	15.66	44.88	76.20		31.18	34.63	49.28	29.46	Nov		27.88	27.88	60.70	38.82	18.95
Dec	94.46	21.27	42.66	77.50		31.19	34.63	50.29	28.99	Dec		27.91	27.90	64.70	40.17	21.24
<b>Seas_4</b>	<b>297.72</b>	<b>45.83</b>	<b>136.71</b>	<b>213.20</b>	<b>4.83</b>	<b>94.58</b>	<b>105.06</b>	<b>128.3</b>	<b>99.8</b>	<b>Seas_4</b>	<b>23.13</b>	<b>84.56</b>	<b>84.56</b>	<b>171.00</b>	<b>90.8</b>	<b>60.8</b>
<b>Annual</b>	<b>1369.80</b>	<b>203.92</b>	<b>906.91</b>	<b>660.50</b>	<b>16.37</b>	<b>378.66</b>	<b>420.32</b>	<b>565.21</b>	<b>458.39</b>	<b>Annual</b>	<b>76.30</b>	<b>334.53</b>	<b>334.51</b>	<b>502.50</b>	<b>311.96</b>	<b>175.93</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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 mass flows (to regional and continental cells) 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 3.60.

**Table 3.60.** The percentage difference between calculation results on PCB-153 mass flows transported from the atmosphere to soil: dry deposition 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	G-CIEMS_1	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			3.9%	64.0%	-1.3%	-1.3%	8.1%	6.5%	3.7%	-1.1%
Feb			0.1%	63.5%	-0.9%	-0.9%	8.3%	6.7%	4.3%	-0.6%
Mar			4.9%	59.1%	-0.7%	-0.7%	8.5%	6.8%	4.2%	-0.6%
<b>Seas_1</b>	<b>-31.8%</b>	<b>-30.1%</b>	<b>2.8%</b>	<b>62.4%</b>	<b>-1.0%</b>	<b>-1.0%</b>	<b>8.3%</b>	<b>6.7%</b>	<b>4.1%</b>	<b>-0.8%</b>
Apr			11.8%	54.4%	-0.5%	-0.5%	8.6%	7.0%	2.3%	-2.7%
May			19.2%	49.6%	-0.3%	-0.4%	8.7%	7.1%	-0.4%	-5.9%
Jun			22.3%	45.0%	-0.2%	-0.2%	8.7%	7.2%	-4.9%	-9.9%
<b>Seas_2</b>	<b>-53.5%</b>	<b>-53.0%</b>	<b>15.8%</b>	<b>50.0%</b>	<b>-0.4%</b>	<b>-0.4%</b>	<b>8.7%</b>	<b>7.1%</b>	<b>-0.3%</b>	<b>-5.4%</b>
Jul			24.5%	40.6%	-0.1%	-0.1%	8.8%	7.2%	-5.1%	-9.2%
Aug			25.4%	36.6%	0.0%	0.0%	8.8%	7.3%	-7.8%	-12.2%
Sep			20.7%	33.0%	0.1%	0.0%	8.9%	7.3%	-5.1%	-9.2%
<b>Seas_3</b>	<b>-56.6%</b>	<b>-55.5%</b>	<b>23.2%</b>	<b>36.9%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>8.9%</b>	<b>7.3%</b>	<b>-5.8%</b>	<b>-10.0%</b>
Oct			16.7%	29.7%	0.1%	0.1%	8.9%	7.4%	-2.0%	-5.6%
Nov			11.2%	26.7%	0.2%	0.2%	8.9%	7.4%	1.2%	-1.8%
Dec			7.2%	24.2%	0.2%	0.2%	9.0%	7.4%	1.6%	-0.9%
<b>Seas_4</b>	<b>-43.7%</b>	<b>-43.0%</b>	<b>10.3%</b>	<b>27.0%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>8.9%</b>	<b>7.4%</b>	<b>0.4%</b>	<b>-2.5%</b>
<b>Annual</b>	<b>-46.1%</b>	<b>-45.0%</b>	<b>7.6%</b>	<b>47.9%</b>	<b>-0.3%</b>	<b>-0.3%</b>	<b>8.7%</b>	<b>7.1%</b>	<b>0.3%</b>	<b>-3.8%</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

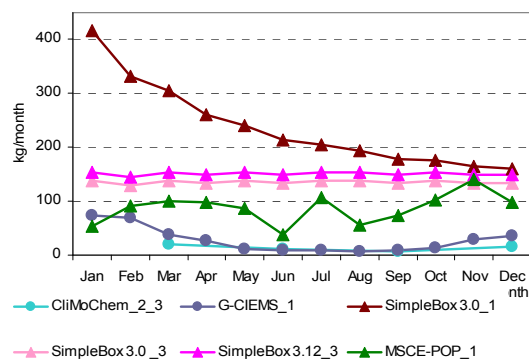
SimpleBox 3.0\_2 and SimpleBox 3.12\_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;

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.

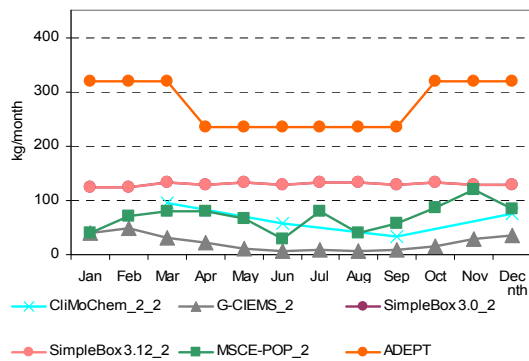
### Wet deposition

**Reference data set.** Calculation results on PCB-153 mass flows transported from the atmosphere to soil: wet deposition calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.61.

Monthly values of PCB-153 mass flows transported from the atmosphere to soil: wet deposition 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. 3.91 a and b, respectively.



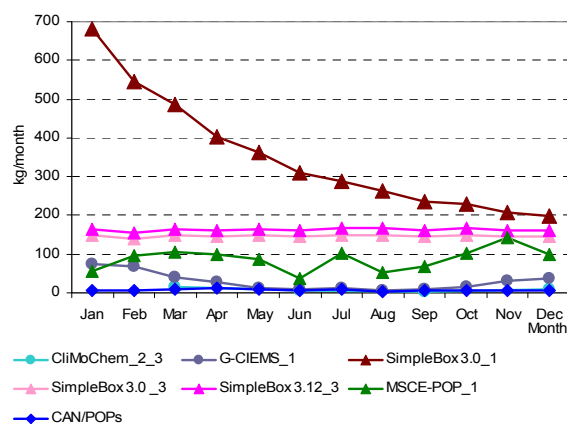
**Fig. 3.91a.** PCB-153 mass flows transported from the atmosphere to soil: wet deposition (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions



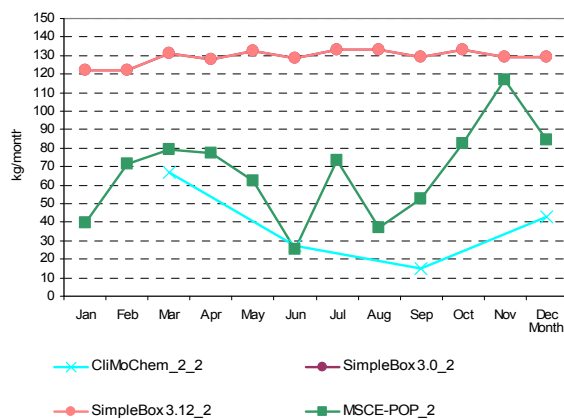
**Fig. 3.91b.** PCB-153 mass flows transported from the atmosphere to soil: wet deposition (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions

**Own/alternative data set.** Calculation results on PCB-153 mass flows transported from the atmosphere to soil: wet deposition calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table 3.62.

Monthly values of PCB-153 mass flows transported from the atmosphere to soil: wet deposition 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. 3.92 a and b, respectively.



**Fig. 3.92a.** PCB-153 mass flows transported from the atmosphere to soil: wet deposition (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions



**Fig. 3.92b.** PCB-153 mass flows transported from the atmosphere to soil: wet deposition (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and zero-initial conditions

**Table 3.61.** Calculation results: PCB-153 mass flows transported from the atmosphere to soil: wet deposition (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			<i>m</i>	<i>σ</i>	Month	Results obtained on the basis of zero initial concentrations						<i>m</i>	<i>σ</i>
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMo Chem_2_2	MSCE-POP_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	ADEPT		
Jan	72.54	415.63	52.70		138.27	154.63	166.75	145.59	Jan	40.39		39.60	123.71	123.71	318.20	129.12	113.68
Feb	68.85	333.02	91.00		128.27	144.65	153.16	104.90	Feb	49.62		71.10	123.57	123.58	318.20	137.21	106.27
Mar	38.00	305.85	101.00		137.13	154.63	147.32	99.23	Mar	31.08		79.60	132.38	132.38	318.20	138.73	108.83
<b>Seas_1</b>	<b>179.39</b>	<b>1054.50</b>	<b>244.70</b>	<b>62.01</b>	<b>403.66</b>	<b>453.91</b>	<b>399.70</b>	<b>351.66</b>	<b>Seas_1</b>	<b>121.09</b>	<b>288.58</b>	<b>190.30</b>	<b>379.66</b>	<b>379.66</b>	<b>954.60</b>	<b>385.65</b>	<b>297.10</b>
Apr	25.96	260.01	97.50		132.73	149.64	133.17	85.33	Apr	22.95		79.20	128.32	128.33	234.80	118.72	78.09
May	10.71	241.37	86.80		137.16	154.63	126.13	85.27	May	10.06		66.50	132.78	132.79	234.80	115.39	84.18
Jun	8.06	213.76	38.20		132.74	149.64	108.48	84.25	Jun	7.74		27.90	128.64	128.65	234.80	105.54	91.33
<b>Seas_2</b>	<b>44.74</b>	<b>715.14</b>	<b>222.50</b>	<b>36.56</b>	<b>402.63</b>	<b>453.91</b>	<b>312.58</b>	<b>263.13</b>	<b>Seas_2</b>	<b>40.76</b>	<b>173.77</b>	<b>173.60</b>	<b>389.74</b>	<b>389.77</b>	<b>704.40</b>	<b>312.01</b>	<b>235.76</b>
Jul	8.83	205.30	107.00		137.17	154.63	122.58	72.91	Jul	8.68		80.10	133.05	133.06	234.80	117.94	82.89
Aug	5.81	193.03	54.90		137.18	154.63	109.11	76.67	Aug	5.77		40.80	133.15	133.16	234.80	109.53	89.86
Sep	8.19	177.59	72.60		132.75	149.64	108.15	67.83	Sep	8.20		57.50	128.93	128.95	234.80	111.68	85.73
<b>Seas_3</b>	<b>22.83</b>	<b>575.92</b>	<b>234.50</b>	<b>21.65</b>	<b>407.10</b>	<b>458.89</b>	<b>286.81</b>	<b>232.55</b>	<b>Seas_3</b>	<b>22.64</b>	<b>103.03</b>	<b>178.40</b>	<b>395.12</b>	<b>395.17</b>	<b>704.40</b>	<b>299.79</b>	<b>249.86</b>
Oct	14.39	175.91	103.00		137.17	154.63	117.02	63.28	Oct	14.45		86.40	133.30	133.32	318.20	137.14	112.29
Nov	29.11	164.27	141.00		132.75	149.64	123.35	53.96	Nov	29.34		119.00	129.06	129.08	318.20	144.94	105.55
Dec	35.61	159.42	98.60		132.75	149.64	115.20	50.15	Dec	35.96		84.80	129.12	129.14	318.20	139.44	107.08
<b>Seas_4</b>	<b>79.11</b>	<b>499.59</b>	<b>342.60</b>	<b>46.88</b>	<b>402.68</b>	<b>453.91</b>	<b>304.13</b>	<b>194.24</b>	<b>Seas_4</b>	<b>79.75</b>	<b>227.22</b>	<b>290.20</b>	<b>391.48</b>	<b>391.54</b>	<b>954.60</b>	<b>389.13</b>	<b>300.49</b>
<b>Annual</b>	<b>326.07</b>	<b>2845.15</b>	<b>1044.30</b>	<b>167.09</b>	<b>1616.07</b>	<b>1820.61</b>	<b>1303.21</b>	<b>1005.56</b>	<b>Annual</b>	<b>264.24</b>	<b>792.59</b>	<b>832.50</b>	<b>1556.00</b>	<b>1556.14</b>	<b>3318.00</b>	<b>1386.58</b>	<b>1068.39</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.62.** Calculation results: PCB-153 mass flows transported from the atmosphere to soil: wet deposition (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations				<i>m</i>	$\sigma$
	CAN/POP_1	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMoChem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				CliMoChem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2		
Jan	5.08	75.19	681.20	55.90		149.35	164.65	188.56	248.56	Jan		122.06	122.06	39.40	94.51	47.73
Feb	6.38	68.70	544.25	95.90		138.87	154.21	168.05	191.72	Feb		122.40	122.40	71.40	105.40	29.44
Mar	10.68	39.73	486.48	105.00		148.67	165.11	159.28	171.19	Mar		131.41	131.41	79.50	114.11	29.97
<b>Seas_1</b>	<b>22.14</b>	<b>183.63</b>	<b>1711.93</b>	<b>256.80</b>	<b>44.16</b>	<b>436.89</b>	<b>483.97</b>	<b>448.5</b>	<b>584.5</b>	<b>Seas_1</b>	<b>200.46</b>	<b>375.88</b>	<b>375.87</b>	<b>190.30</b>	<b>285.6</b>	<b>104.3</b>
Apr	10.89	28.90	401.27	99.30		144.04	160.00	140.73	140.95	Apr		127.63	127.63	77.30	110.85	29.06
May	8.86	12.70	360.96	86.30		148.98	165.49	130.55	130.62	May		132.27	132.26	62.60	109.04	40.22
Jun	5.68	9.79	309.79	36.50		144.29	160.28	111.06	118.27	Jun		128.31	128.30	25.20	93.94	59.53
<b>Seas_2</b>	<b>25.43</b>	<b>51.40</b>	<b>1072.01</b>	<b>222.10</b>	<b>17.26</b>	<b>437.32</b>	<b>485.76</b>	<b>330.2</b>	<b>380.0</b>	<b>Seas_2</b>	<b>81.08</b>	<b>388.20</b>	<b>388.19</b>	<b>165.10</b>	<b>255.6</b>	<b>156.9</b>
Jul	10.50	10.91	288.62	103.00		149.19	165.74	121.33	105.40	Jul		132.85	132.84	73.40	113.03	34.32
Aug	4.57	7.23	263.54	51.70		149.24	165.82	107.02	103.20	Aug		133.08	133.07	36.70	100.95	55.64
Sep	5.71	9.82	236.04	68.90		144.52	160.49	104.25	91.68	Sep		128.97	128.96	52.40	103.44	44.20
<b>Seas_3</b>	<b>20.78</b>	<b>27.96</b>	<b>788.20</b>	<b>223.60</b>	<b>9.64</b>	<b>442.96</b>	<b>492.05</b>	<b>286.5</b>	<b>299.0</b>	<b>Seas_3</b>	<b>44.78</b>	<b>394.89</b>	<b>394.87</b>	<b>162.50</b>	<b>249.3</b>	<b>174.9</b>
Oct	7.14	16.70	228.06	101.00		149.35	165.94	111.37	87.14	Oct		133.43	133.42	82.60	116.48	29.35
Nov	7.44	32.25	208.14	143.00		144.55	160.59	115.99	78.51	Nov		129.27	129.26	117.00	125.17	7.08
Dec	5.23	38.05	197.86	100.00		144.64	160.59	107.73	74.43	Dec		129.39	129.38	84.30	114.36	26.03
<b>Seas_4</b>	<b>19.81</b>	<b>87.00</b>	<b>634.05</b>	<b>344.00</b>	<b>27.04</b>	<b>438.55</b>	<b>487.12</b>	<b>291.1</b>	<b>246.8</b>	<b>Seas_4</b>	<b>129.48</b>	<b>392.09</b>	<b>392.06</b>	<b>283.90</b>	<b>299.4</b>	<b>124.2</b>
<b>Annual</b>	<b>88.16</b>	<b>349.99</b>	<b>4206.19</b>	<b>1046.50</b>	<b>98.10</b>	<b>1755.72</b>	<b>1948.91</b>	<b>1356.22</b>	<b>1468.13</b>	<b>Annual</b>	<b>455.80</b>	<b>1551.06</b>	<b>1550.99</b>	<b>801.80</b>	<b>1089.91</b>	<b>550.86</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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 mass flows (to regional and continental cells) 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 3.63.

**Table 3.63.** The percentage difference between calculation results on PCB-153 mass flows transported from the atmosphere to soil: wet deposition obtained by models on the basis of two data sets: “reference” and “own or alternative” data sets

Month	CliMoChem_2_2	CliMoChem_2_3	G-CIEMS_1	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			3.7%	63.9%	-1.3%	-1.3%	8.0%	6.5%	6.1%	-0.5%
Feb			-0.2%	63.4%	-1.0%	-1.0%	8.3%	6.6%	5.4%	0.4%
Mar			4.5%	59.1%	-0.7%	-0.7%	8.4%	6.8%	4.0%	-0.1%
<b>Seas_1</b>	<b>-30.5%</b>	<b>-28.8%</b>	<b>2.4%</b>	<b>62.3%</b>	<b>-1.0%</b>	<b>-1.0%</b>	<b>8.2%</b>	<b>6.6%</b>	<b>4.9%</b>	<b>0.0%</b>
Apr			11.3%	54.3%	-0.5%	-0.5%	8.5%	6.9%	1.8%	-2.4%
May			18.6%	49.5%	-0.4%	-0.4%	8.6%	7.0%	-0.6%	-5.9%
Jun			21.4%	44.9%	-0.3%	-0.3%	8.7%	7.1%	-4.5%	-9.7%
<b>Seas_2</b>	<b>-53.3%</b>	<b>-52.8%</b>	<b>14.9%</b>	<b>49.9%</b>	<b>-0.4%</b>	<b>-0.4%</b>	<b>8.6%</b>	<b>7.0%</b>	<b>-0.2%</b>	<b>-4.9%</b>
Jul			23.5%	40.6%	-0.1%	-0.2%	8.8%	7.2%	-3.7%	-8.4%
Aug			24.5%	36.5%	-0.1%	-0.1%	8.8%	7.2%	-5.8%	-10.0%
Sep			19.9%	32.9%	0.0%	0.0%	8.9%	7.3%	-5.1%	-8.9%
<b>Seas_3</b>	<b>-56.5%</b>	<b>-55.5%</b>	<b>22.5%</b>	<b>36.9%</b>	<b>-0.1%</b>	<b>-0.1%</b>	<b>8.8%</b>	<b>7.2%</b>	<b>-4.6%</b>	<b>-8.9%</b>
Oct			16.1%	29.6%	0.1%	0.1%	8.9%	7.3%	-1.9%	-4.4%
Nov			10.8%	26.7%	0.2%	0.1%	8.9%	7.3%	1.4%	-1.7%
Dec			6.9%	24.1%	0.2%	0.2%	9.0%	7.3%	1.4%	-0.6%
<b>Seas_4</b>	<b>-43.0%</b>	<b>-42.3%</b>	<b>10.0%</b>	<b>26.9%</b>	<b>0.2%</b>	<b>0.1%</b>	<b>8.9%</b>	<b>7.3%</b>	<b>0.4%</b>	<b>-2.2%</b>
<b>Annual</b>	<b>-42.5%</b>	<b>-41.3%</b>	<b>7.3%</b>	<b>47.8%</b>	<b>-0.3%</b>	<b>-0.3%</b>	<b>8.6%</b>	<b>7.0%</b>	<b>0.2%</b>	<b>-3.7%</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

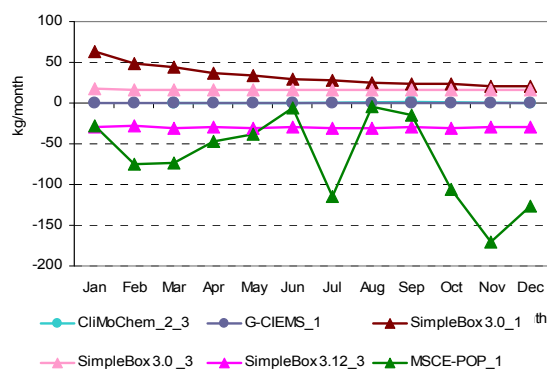
SimpleBox 3.0\_2 and SimpleBox 3.12\_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;

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.

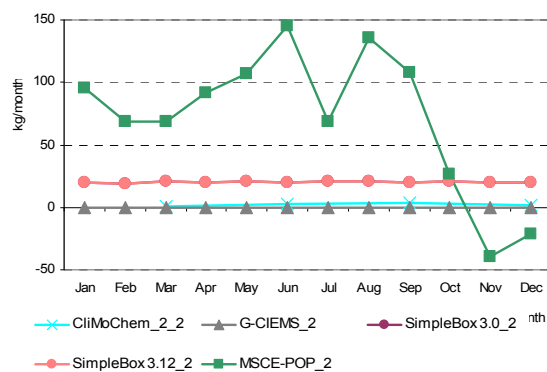
### Gaseous exchange

**Reference data set.** Calculation results on PCB-153 mass flows between the atmosphere and soil: gaseous exchange calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.64.

Monthly values of PCB-153 mass flows between the atmosphere and soil: gaseous exchange 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. 3.93 a and b, respectively.



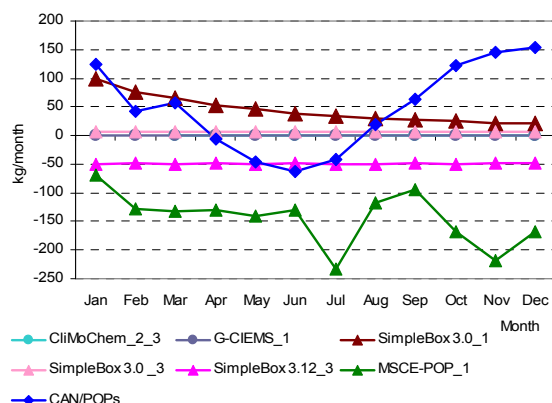
**Fig. 3.93a.** PCB-153 mass flows between the atmosphere and soil: gaseous exchange (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions (all models)



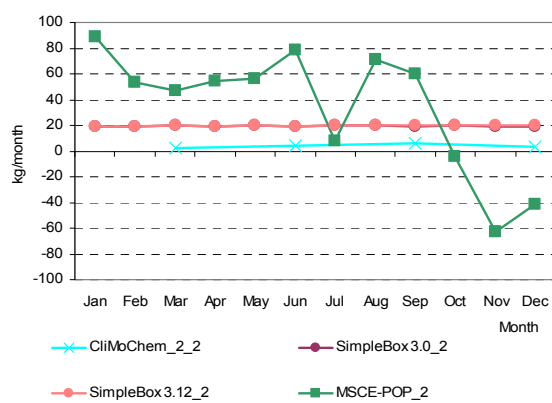
**Fig. 3.93b.** PCB-153 mass flows between the atmosphere and soil: gaseous exchange (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions

**Own/alternative data set.** Calculation results on PCB-153 mass flows between the atmosphere and soil: gaseous exchange calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table 3.65.

Monthly values of PCB-153 mass flows between the atmosphere and soil: gaseous exchange 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. 3.94 a and b, respectively.



**Fig. 3.94a.** PCB-153 mass flows between the atmosphere and soil: gaseous exchange (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions



**Fig. 3.94b.** PCB-153 mass between the atmosphere and soil: gaseous exchange (kg/month) 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.** 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 3.66.



**Table 3.64.** Calculation results: PCB-153 mass flows between the atmosphere and soil: gaseous exchange (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			<i>m</i>	<i>σ</i>	Month	Results obtained on the basis of zero initial concentrations					<i>m</i>	<i>σ</i>
	G-CIEMS_1	SimpleBox 3.0_1a	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3a	SimpleBox 3.12_3a				G-CIEMS_2	CliMoChem_2_2	SimpleBox 3.0_2a	SimpleBox 3.12_2a	MSCE-POP_2		
Jan	0.22	62.64	-28.10		17.22	-29.78	4.44	38.08	Jan	0.14		19.60	19.59	95.60	33.73	42.25
Feb	0.19	48.68	-74.80		15.57	-28.27	-7.73	46.66	Feb	0.15		19.24	19.23	69.10	26.93	29.52
Mar	0.15	43.96	-73.30		16.66	-30.22	-8.55	45.08	Mar	0.15		20.60	20.58	68.80	27.53	29.15
<b>Seas_1</b>	<b>0.56</b>	<b>155.28</b>	<b>-176.20</b>	<b>0.57</b>	<b>49.45</b>	<b>-88.27</b>	<b>-9.8</b>	<b>113.9</b>	<b>Seas_1</b>	<b>0.43</b>	<b>2.56</b>	<b>59.43</b>	<b>59.40</b>	<b>233.50</b>	<b>71.1</b>	<b>95.3</b>
Apr	0.12	36.73	-47.60		16.13	-29.24	-4.77	33.97	Apr	0.14		19.95	19.93	92.00	33.01	40.42
May	0.06	33.52	-38.90		16.68	-30.22	-3.77	30.65	May	0.12		20.64	20.61	107.00	37.09	47.60
Jun	0.04	29.21	-6.39		16.16	-29.24	1.96	22.31	Jun	0.13		19.98	19.94	145.00	46.26	66.49
<b>Seas_2</b>	<b>0.22</b>	<b>99.46</b>	<b>-92.89</b>	<b>1.39</b>	<b>48.97</b>	<b>-88.70</b>	<b>-5.3</b>	<b>75.7</b>	<b>Seas_2</b>	<b>0.39</b>	<b>6.54</b>	<b>60.57</b>	<b>60.48</b>	<b>344.00</b>	<b>94.4</b>	<b>142.4</b>
Jul	0.02	27.64	-115.00		16.70	-30.22	-20.17	57.33	Jul	0.13		20.65	20.61	68.80	27.55	29.15
Aug	0.01	25.63	-3.75		16.72	-30.22	1.68	21.50	Aug	0.13		20.66	20.61	136.00	44.35	61.86
Sep	0.05	23.30	-14.40		16.19	-29.24	-0.82	21.59	Sep	0.13		19.99	19.93	108.00	37.01	48.24
<b>Seas_3</b>	<b>0.07</b>	<b>76.57</b>	<b>-133.15</b>	<b>2.39</b>	<b>49.60</b>	<b>-89.67</b>	<b>-15.7</b>	<b>80.8</b>	<b>Seas_3</b>	<b>0.39</b>	<b>11.52</b>	<b>61.30</b>	<b>61.15</b>	<b>312.80</b>	<b>89.4</b>	<b>127.9</b>
Oct	0.07	22.82	-106.00		16.73	-30.22	-19.32	52.64	Oct	0.13		20.66	20.59	26.70	17.02	11.62
Nov	0.11	21.11	-170.00		16.20	-29.24	-32.36	79.41	Nov	0.15		19.99	19.92	-39.70	0.09	28.12
Dec	0.12	20.31	-126.00		16.21	-29.24	-23.72	60.40	Dec	0.15		19.98	19.91	-21.40	4.66	19.72
<b>Seas_4</b>	<b>0.30</b>	<b>64.24</b>	<b>-402.00</b>	<b>0.99</b>	<b>49.15</b>	<b>-88.70</b>	<b>-62.7</b>	<b>174.6</b>	<b>Seas_4</b>	<b>0.42</b>	<b>4.67</b>	<b>60.62</b>	<b>60.42</b>	<b>-34.40</b>	<b>18.3</b>	<b>41.4</b>
<b>Annual</b>	<b>1.16</b>	<b>395.56</b>	<b>-804.24</b>	<b>5.34</b>	<b>197.18</b>	<b>-355.33</b>	<b>-93.39</b>	<b>428.04</b>	<b>Annual</b>	<b>1.64</b>	<b>25.29</b>	<b>241.92</b>	<b>241.45</b>	<b>855.90</b>	<b>273.24</b>	<b>345.23</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.65.** Calculation results: PCB-153 mass flows between the atmosphere and soil: gaseous exchange (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations				<i>m</i>	$\sigma$
	CAN/POPs	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				CliMo Chem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2		
Jan	124.03	0.15	98.37	-69.10		6.52	-50.07	18.32	77.94	Jan		18.95	18.95	88.80	42.23	40.33
Feb	42.04	0.12	75.79	-128.00		5.55	-47.19	-8.61	71.70	Feb		18.65	18.65	53.30	30.20	20.01
Mar	57.63	0.08	65.98	-133.00		5.97	-50.32	-8.94	74.10	Mar		20.00	20.01	47.30	29.10	15.76
<b>Seas_1</b>	<b>223.71</b>	<b>0.35</b>	<b>240.13</b>	<b>-330.10</b>	<b>1.44</b>	<b>18.04</b>	<b>-147.57</b>	<b>0.9</b>	<b>199.5</b>	<b>Seas_1</b>	<b>6.61</b>	<b>57.59</b>	<b>57.61</b>	<b>189.40</b>	<b>77.8</b>	<b>78.2</b>
Apr	-6.24	0.04	52.87	-130.00		5.81	-48.59	-21.02	62.41	Apr		19.41	19.42	54.40	31.08	20.20
May	-46.46	-0.03	46.12	-141.00		6.03	-50.10	-30.91	64.78	May		20.10	20.11	56.60	32.27	21.07
Jun	-62.11	-0.07	38.36	-131.00		5.86	-48.39	-32.89	60.62	Jun		19.48	19.49	78.20	39.06	33.90
<b>Seas_2</b>	<b>-114.81</b>	<b>-0.05</b>	<b>137.35</b>	<b>-402.00</b>	<b>2.15</b>	<b>17.70</b>	<b>-147.08</b>	<b>-72.4</b>	<b>172.7</b>	<b>Seas_2</b>	<b>11.85</b>	<b>58.98</b>	<b>59.02</b>	<b>189.20</b>	<b>79.8</b>	<b>76.3</b>
Jul	-42.84	-0.10	34.62	-234.00		6.07	-49.91	-47.69	96.61	Jul		20.15	20.17	7.81	16.04	7.13
Aug	18.77	-0.12	30.62	-117.00		6.08	-49.81	-18.58	55.55	Aug		20.16	20.18	70.80	37.05	29.23
Sep	63.37	-0.06	26.59	-94.90		5.91	-48.13	-7.87	56.05	Sep		19.52	19.55	60.40	33.16	23.59
<b>Seas_3</b>	<b>39.29</b>	<b>-0.28</b>	<b>91.82</b>	<b>-445.90</b>	<b>2.74</b>	<b>18.06</b>	<b>-147.85</b>	<b>-63.2</b>	<b>184.0</b>	<b>Seas_3</b>	<b>19.30</b>	<b>59.83</b>	<b>59.89</b>	<b>139.01</b>	<b>69.5</b>	<b>50.1</b>
Oct	121.40	-0.02	24.93	-168.00		6.11	-49.64	-10.87	95.26	Oct		20.18	20.21	-4.18	12.07	14.07
Nov	146.26	0.04	22.11	-219.00		5.92	-47.96	-15.44	118.95	Nov		19.53	19.56	-62.60	-7.84	47.43
Dec	153.70	0.06	20.45	-167.00		5.94	-47.89	-5.79	103.98	Dec		19.53	19.56	-41.60	-0.84	35.30
<b>Seas_4</b>	<b>421.37</b>	<b>0.08</b>	<b>67.49</b>	<b>-554.00</b>	<b>1.98</b>	<b>17.96</b>	<b>-145.49</b>	<b>-27.2</b>	<b>290.2</b>	<b>Seas_4</b>	<b>9.99</b>	<b>59.23</b>	<b>59.33</b>	<b>-108.38</b>	<b>5.0</b>	<b>79.1</b>
<b>Annual</b>	<b>569.56</b>	<b>0.11</b>	<b>536.79</b>	<b>-1732.00</b>	<b>8.32</b>	<b>71.77</b>	<b>-587.98</b>	<b>-161.92</b>	<b>793.70</b>	<b>Annual</b>	<b>47.75</b>	<b>235.64</b>	<b>235.85</b>	<b>409.23</b>	<b>232.11</b>	<b>147.63</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.66.** Comparison of the calculation results on PCB-153 mass flows between the atmosphere and soil: gaseous exchange (kg/month) obtained by models on the basis of two data sets: “reference” and “own or alternative” data sets.

Month	CliMoChem_2_3		G-CIEMS_1		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	alt	ref	own	ref	own	ref	own
Jan			0.22	0.15	62.64	98.37	19.60	18.95	19.59	18.95	17.22	6.52	-29.78	-50.07	-28.10	-69.10	95.60	88.80		
Feb			0.19	0.12	48.68	75.79	19.24	18.65	19.23	18.65	15.57	5.55	-28.27	-47.19	-74.80	-128.00	69.10	53.30		
Mar			0.15	0.08	43.96	65.98	20.60	20.00	20.58	20.01	16.66	5.97	-30.22	-50.32	-73.30	-133.00	68.80	47.30		
<b>Seas_1</b>	<b>0.57</b>	<b>1.44</b>	<b>0.56</b>	<b>0.35</b>	<b>155.28</b>	<b>240.13</b>	<b>59.43</b>	<b>57.59</b>	<b>59.40</b>	<b>57.61</b>	<b>49.45</b>	<b>18.04</b>	<b>-88.27</b>	<b>-147.57</b>	<b>-176.20</b>	<b>-330.10</b>	<b>233.50</b>	<b>189.40</b>	<b>2.56</b>	<b>6.61</b>
Apr			0.12	0.04	36.73	52.87	19.95	19.41	19.93	19.42	16.13	5.81	-29.24	-48.59	-47.60	-130.00	92.00	54.40		
May			0.06	-0.03	33.52	46.12	20.64	20.10	20.61	20.11	16.68	6.03	-30.22	-50.10	-38.90	-141.00	107.00	56.60		
Jun			0.04	-0.07	29.21	38.36	19.98	19.48	19.94	19.49	16.16	5.86	-29.24	-48.39	-6.39	-131.00	145.00	78.20		
<b>Seas_2</b>	<b>1.39</b>	<b>2.15</b>	<b>0.22</b>	<b>-0.05</b>	<b>99.46</b>	<b>137.35</b>	<b>60.57</b>	<b>58.98</b>	<b>60.48</b>	<b>59.02</b>	<b>48.97</b>	<b>17.70</b>	<b>-88.70</b>	<b>-147.08</b>	<b>-92.89</b>	<b>-402.00</b>	<b>344.00</b>	<b>189.20</b>	<b>6.54</b>	<b>11.85</b>
Jul			0.02	-0.10	27.64	34.62	20.65	20.15	20.61	20.17	16.70	6.07	-30.22	-49.91	-115.00	-234.00	68.80	7.81		
Aug			0.01	-0.12	25.63	30.62	20.66	20.16	20.61	20.18	16.72	6.08	-30.22	-49.81	-3.75	-117.00	136.00	70.80		
Sep			0.05	-0.06	23.30	26.59	19.99	19.52	19.93	19.55	16.19	5.91	-29.24	-48.13	-14.40	-94.90	108.00	60.40		
<b>Seas_3</b>	<b>2.39</b>	<b>2.74</b>	<b>0.07</b>	<b>-0.28</b>	<b>76.57</b>	<b>91.82</b>	<b>61.30</b>	<b>59.83</b>	<b>61.15</b>	<b>59.89</b>	<b>49.60</b>	<b>18.06</b>	<b>-89.67</b>	<b>-147.85</b>	<b>-133.15</b>	<b>-445.90</b>	<b>312.80</b>	<b>139.01</b>	<b>11.52</b>	<b>19.30</b>
Oct			0.07	-0.02	22.82	24.93	20.66	20.18	20.59	20.21	16.73	6.11	-30.22	-49.64	-106.00	-168.00	26.70	-4.18		
Nov			0.11	0.04	21.11	22.11	19.99	19.53	19.92	19.56	16.20	5.92	-29.24	-47.96	-170.00	-219.00	-39.70	-62.60		
Dec			0.12	0.06	20.31	20.45	19.98	19.53	19.91	19.56	16.21	5.94	-29.24	-47.89	-126.00	-167.00	-21.40	-41.60		
<b>Seas_4</b>	<b>0.99</b>	<b>1.98</b>	<b>0.30</b>	<b>0.08</b>	<b>64.24</b>	<b>67.49</b>	<b>60.62</b>	<b>59.23</b>	<b>60.42</b>	<b>59.33</b>	<b>49.15</b>	<b>17.96</b>	<b>-88.70</b>	<b>-145.49</b>	<b>-402.00</b>	<b>-554.00</b>	<b>-34.40</b>	<b>-108.38</b>	<b>4.67</b>	<b>9.99</b>
<b>Annual</b>	<b>5.34</b>	<b>8.32</b>	<b>1.16</b>	<b>0.11</b>	<b>395.56</b>	<b>536.79</b>	<b>241.92</b>	<b>235.64</b>	<b>241.45</b>	<b>235.85</b>	<b>197.18</b>	<b>71.77</b>	<b>-355.33</b>	<b>-587.98</b>	<b>-804.24</b>	<b>-1732.00</b>	<b>855.90</b>	<b>409.23</b>	<b>25.29</b>	<b>47.75</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

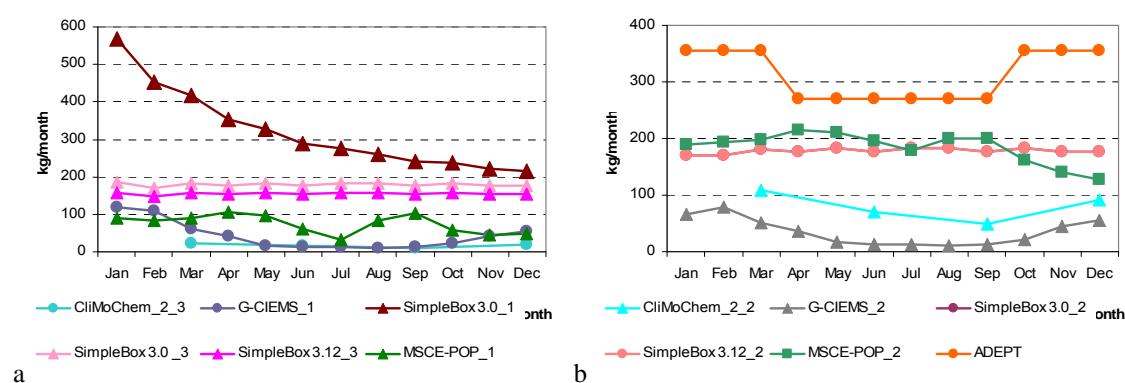
SimpleBox 3.0\_3 and SimpleBox 3.12\_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period.

### Net mass flows between the atmosphere and soil

Net mass flows are equal to the total mass flows resulted from summing up of dry and wet depositions and gaseous exchange.

**Reference data set.** Calculation results on PCB-153 net mass flows between the atmosphere and soil calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.67.

Monthly values of PCB-153 net mass flows between the atmosphere and soil 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. 3.95 a and b, respectively.



**Fig. 3.95a.** PCB-153 net mass flows between the atmosphere and soil (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions (all models)

**Fig. 3.95b.** PCB-153 net mass flows between the atmosphere and soil (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions

**Table 3.67.** Calculation results: PCB-153 net mass flows between the atmosphere and soil (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
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMoChem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMoChem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2	ADEPT <sup>b</sup>		
Jan	117.98	567.86	91.30		185.30	158.18	224.12	195.53	Jan	65.70		169.97	169.97	190.00	354.30	189.99	103.98
Feb	107.99	453.47	83.40		171.49	147.57	192.79	149.68	Feb	77.85		169.45	169.44	193.80	354.30	192.97	100.48
Mar	62.50	415.73	90.30		183.35	157.75	181.93	139.56	Mar	51.13		181.51	181.50	198.00	354.30	193.29	107.74
<b>Seas_1</b>	<b>288.47</b>	<b>1437.06</b>	<b>265.00</b>	<b>69.99</b>	<b>540.14</b>	<b>463.49</b>	<b>510.69</b>	<b>482.75</b>	<b>Seas_1</b>	<b>194.68</b>	<b>325.60</b>	<b>520.94</b>	<b>520.92</b>	<b>581.80</b>	<b>1062.90</b>	<b>534.47</b>	<b>296.96</b>
Apr	40.14	352.78	106.10		177.47	152.66	165.83	116.86	Apr	35.52		175.94	175.93	214.90	269.40	174.34	86.54
May	17.60	326.91	97.50		183.41	157.75	156.63	114.61	May	16.59		182.04	182.02	210.80	269.40	172.17	94.00
Jun	13.22	289.05	62.21		177.52	152.66	138.93	107.12	Jun	12.80		176.35	176.33	195.10	269.40	165.99	93.84
<b>Seas_2</b>	<b>70.97</b>	<b>968.74</b>	<b>265.81</b>	<b>44.58</b>	<b>538.40</b>	<b>463.06</b>	<b>391.93</b>	<b>346.06</b>	<b>Seas_2</b>	<b>64.91</b>	<b>211.83</b>	<b>534.33</b>	<b>534.28</b>	<b>620.80</b>	<b>808.20</b>	<b>462.39</b>	<b>274.15</b>
Jul	13.00	277.19	31.30		183.45	157.75	132.54	110.33	Jul	12.89		182.38	182.35	178.10	269.40	165.02	93.29
Aug	9.56	260.27	82.05		183.46	157.75	138.62	96.22	Aug	9.62		182.51	182.47	199.70	269.40	168.74	95.90
Sep	13.70	239.17	101.60		177.56	152.66	136.94	84.83	Sep	13.79		176.72	176.68	199.10	269.40	167.14	93.78
<b>Seas_3</b>	<b>36.26</b>	<b>776.62</b>	<b>214.95</b>	<b>31.30</b>	<b>544.47</b>	<b>468.15</b>	<b>345.29</b>	<b>300.63</b>	<b>Seas_3</b>	<b>36.30</b>	<b>149.12</b>	<b>541.60</b>	<b>541.51</b>	<b>576.90</b>	<b>808.20</b>	<b>442.27</b>	<b>290.69</b>
Oct	22.08	236.65	57.70		183.48	157.75	131.53	89.25	Oct	22.24		182.70	182.65	161.40	354.30	180.66	117.93
Nov	43.31	220.78	46.30		177.58	152.66	128.12	79.88	Nov	43.66		176.88	176.83	141.10	354.30	178.55	112.35
Dec	55.57	214.09	48.90		177.59	152.66	129.76	74.10	Dec	56.10		176.94	176.89	128.70	354.30	178.59	109.97
<b>Seas_4</b>	<b>120.96</b>	<b>671.52</b>	<b>152.90</b>	<b>56.34</b>	<b>538.64</b>	<b>463.06</b>	<b>333.90</b>	<b>256.02</b>	<b>Seas_4</b>	<b>122.00</b>	<b>272.95</b>	<b>536.51</b>	<b>536.37</b>	<b>431.20</b>	<b>1062.90</b>	<b>493.66</b>	<b>322.01</b>
<b>Annual</b>	<b>516.67</b>	<b>3853.95</b>	<b>898.66</b>	<b>202.20</b>	<b>2161.64</b>	<b>1857.76</b>	<b>1581.81</b>	<b>1347.55</b>	<b>Annual</b>	<b>417.89</b>	<b>959.51</b>	<b>2133.38</b>	<b>2133.07</b>	<b>2210.70</b>	<b>3742.20</b>	<b>1932.79</b>	<b>1155.31</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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;

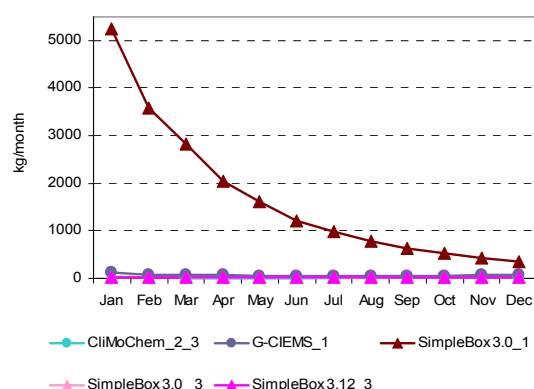
a - SimpleBox data presented here are overall mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates;

b - ADEPT results refer to bulk depositions (sum of dry and wet deposition mass flows).

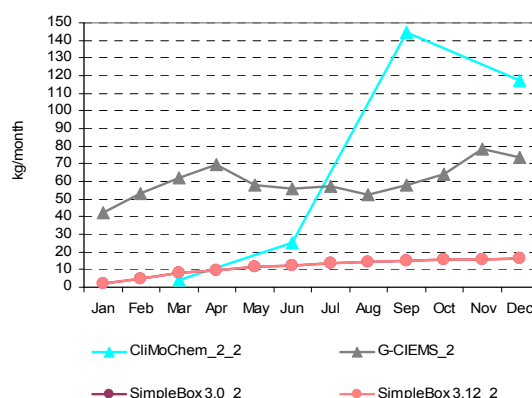
### 3.4.2. Comparison of calculated values of PCB-153 mass flows transported from vegetation to soil: Litterfall

**Reference data set.** Calculation results on PCB-153 mass flows transported from the vegetation to soil: litterfall calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.68.

Monthly values of PCB-153 mass flows transported from vegetation to soil: litterfall 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. 3.96 a and b, respectively. Seasonal variations of low values of mass flows transported from vegetation to soil calculated by the participating models on the basis of “reference” data set and non-zero initial conditions are also shown in Fig. 3.96c in more detail.

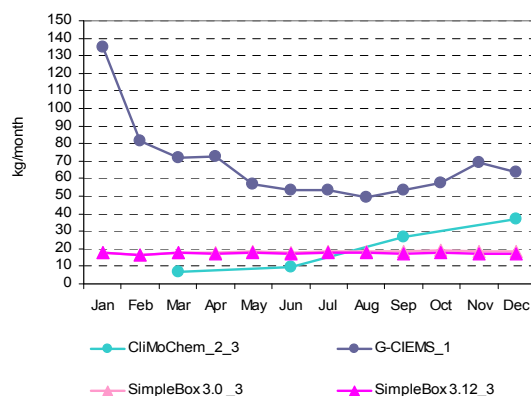


b



**Fig. 3.96a.** PCB-153 mass flows transported from vegetation to soil: litterfall (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions

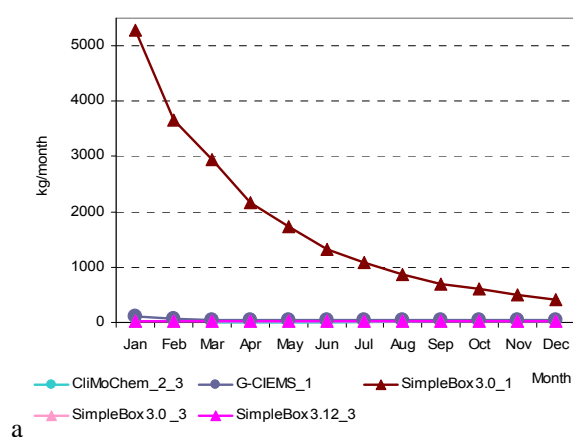
**Fig. 3.96b.** PCB-153 mass flows transported from vegetation to soil: litterfall (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions



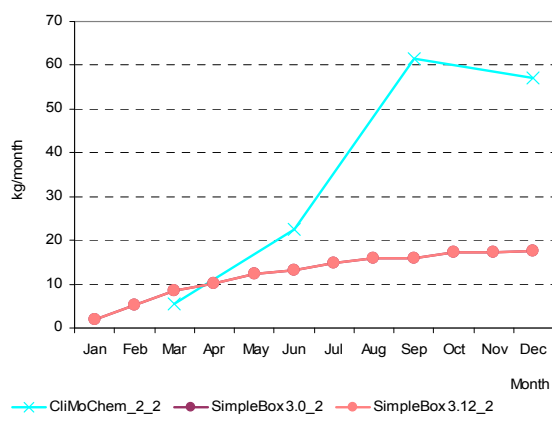
**Fig. 3.96c.** PCB-153 mass flows transported from vegetation to soil: litterfall (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions (models with low values)

**Own/alternative data set.** Calculation results on PCB-153 mass flows transported from vegetation to soil: litterfall calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table 3.69.

Monthly values of PCB-153 mass flows transported from vegetation to soil: litterfall 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. 3.97 a and b, respectively. Seasonal variations of low values of mass flows transported from vegetation to soil calculated by the participating models on the basis of “reference” data set and non-zero initial conditions are also shown in Fig. 3.97c in more detail.



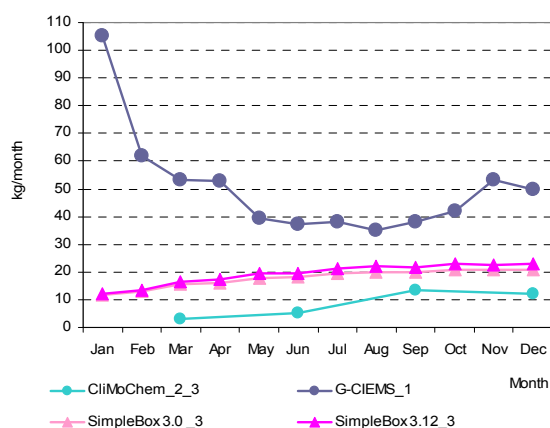
a



b

**Fig. 3.97a.** PCB-153 mass flows transported from vegetation to soil: litterfall (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions (all models)

**Fig. 3.97b.** PCB-153 mass flows transported from vegetation to soil: litterfall (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and zero-initial conditions



**Fig. 3.97c.** PCB-153 mass flows transported from vegetation to soil: litterfall (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions (models with low values)

**Table 3.68.** Calculation results: PCB-153 mass flows transported from vegetation to soil: litterfall (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations				<i>m</i>	$\sigma$
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	CliMoChem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMoChem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>		
Jan	134.68	5246.46		17.70	17.56	1354.10	2595.50	Jan	42.06		1.90	1.90	15.29	23.19
Feb	81.26	3571.90		16.76	16.43	921.58	1767.14	Feb	53.20		4.99	4.99	21.06	27.83
Mar	71.66	2825.96		18.10	17.56	733.32	1395.33	Mar	61.78		7.93	7.93	25.88	31.09
<b>Seas_1</b>	<b>287.60</b>	<b>11644.32</b>	<b>20.06</b>	<b>52.56</b>	<b>51.54</b>	<b>2411.22</b>	<b>5162.58</b>	<b>Seas_1</b>	<b>157.04</b>	<b>13.03</b>	<b>14.82</b>	<b>14.82</b>	<b>49.93</b>	<b>71.41</b>
Apr	72.27	2046.61		17.69	16.99	538.39	1005.81	Apr	69.27		9.62	9.62	29.50	34.44
May	56.73	1611.97		18.43	17.56	426.17	790.74	May	57.77		11.50	11.50	26.92	26.71
Jun	53.21	1210.01		17.96	16.99	324.54	590.55	Jun	55.58		12.32	12.32	26.74	24.97
<b>Seas_2</b>	<b>182.21</b>	<b>4868.59</b>	<b>28.12</b>	<b>54.08</b>	<b>51.54</b>	<b>1036.91</b>	<b>2142.83</b>	<b>Seas_2</b>	<b>182.61</b>	<b>75.06</b>	<b>33.45</b>	<b>33.45</b>	<b>81.14</b>	<b>70.43</b>
Jul	53.64	987.39		18.68	17.56	269.32	479.01	Jul	56.98		13.72	13.72	28.14	24.98
Aug	49.16	789.83		18.79	17.56	218.83	380.94	Aug	52.76		14.53	14.53	27.28	22.07
Sep	53.17	622.97		18.27	16.99	177.85	297.22	Sep	58.12		14.70	14.70	29.17	25.07
<b>Seas_3</b>	<b>155.98</b>	<b>2400.18</b>	<b>80.25</b>	<b>55.74</b>	<b>52.11</b>	<b>548.85</b>	<b>1035.77</b>	<b>Seas_3</b>	<b>167.86</b>	<b>434.41</b>	<b>42.94</b>	<b>42.95</b>	<b>172.04</b>	<b>184.56</b>
Oct	57.77	532.00		18.96	17.56	156.57	250.98	Oct	64.38		15.73	15.73	31.95	28.09
Nov	69.50	430.46		18.41	16.99	133.84	199.25	Nov	78.64		15.67	15.67	36.66	36.36
Dec	63.54	364.67		18.47	16.99	115.92	167.24	Dec	73.64		16.04	16.04	35.24	33.26
<b>Seas_4</b>	<b>190.82</b>	<b>1327.13</b>	<b>111.71</b>	<b>55.84</b>	<b>51.54</b>	<b>347.41</b>	<b>550.56</b>	<b>Seas_4</b>	<b>216.66</b>	<b>351.31</b>	<b>47.44</b>	<b>47.44</b>	<b>165.71</b>	<b>147.22</b>
<b>Annual</b>	<b>816.61</b>	<b>20240.22</b>	<b>240.14</b>	<b>218.22</b>	<b>206.75</b>	<b>4344.39</b>	<b>8889.78</b>	<b>Annual</b>	<b>724.18</b>	<b>873.81</b>	<b>138.65</b>	<b>138.66</b>	<b>468.83</b>	<b>386.11</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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;

a - SimpleBox data presented here are overall mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.



**Table 3.69.** Calculation results: PCB-153 mass flows transported from vegetation to soil: litterfall (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations			<i>m</i>	$\sigma$
	G-CIEMS_1	SimpleBox 3.0_1a	CliMo Chem_2_3	SimpleBox 3.0_3a	SimpleBox 3.12_3a				CliMo Chem_2_2	SimpleBox 3.0_2a	SimpleBox 3.12_2a		
Jan	105.43	5292.50		11.77	12.02	1355.43	2625.08	Jan		1.99	1.99	1.99	0.00
Feb	61.72	3664.20		12.91	13.56	938.10	1817.54	Feb		5.26	5.26	5.26	0.00
Mar	53.39	2943.90		15.39	16.44	757.28	1457.85	Mar		8.41	8.41	8.41	0.00
<b>Seas_1</b>	<b>220.55</b>	<b>11900.59</b>	<b>8.95</b>	<b>40.07</b>	<b>42.03</b>	<b>2442.44</b>	<b>5287.93</b>	<b>Seas_1</b>	<b>16.49</b>	<b>15.65</b>	<b>15.65</b>	<b>15.93</b>	<b>0.48</b>
Apr	52.93	2162.96		16.15	17.44	562.37	1067.20	Apr		10.27	10.27	10.27	0.00
May	39.53	1725.81		17.75	19.29	450.59	850.20	May		12.35	12.35	12.35	0.00
Jun	37.33	1310.69		18.01	19.67	346.43	642.90	Jun		13.30	13.30	13.30	0.00
<b>Seas_2</b>	<b>129.79</b>	<b>5199.45</b>	<b>15.99</b>	<b>51.92</b>	<b>56.40</b>	<b>1090.71</b>	<b>2297.23</b>	<b>Seas_2</b>	<b>67.33</b>	<b>35.92</b>	<b>35.92</b>	<b>46.39</b>	<b>18.13</b>
Jul	38.20	1080.80		19.33	21.19	289.88	527.35	Jul		14.86	14.86	14.86	0.00
Aug	35.13	872.88		19.95	21.92	237.47	423.66	Aug		15.80	15.80	15.80	0.00
Sep	38.02	694.46		19.80	21.80	193.52	334.06	Sep		16.03	16.03	16.03	0.00
<b>Seas_3</b>	<b>111.35</b>	<b>2648.15</b>	<b>40.82</b>	<b>59.08</b>	<b>64.90</b>	<b>584.86</b>	<b>1153.71</b>	<b>Seas_3</b>	<b>184.23</b>	<b>46.70</b>	<b>46.70</b>	<b>92.54</b>	<b>79.41</b>
Oct	42.07	597.80		20.89	23.04	170.95	284.72	Oct		17.21	17.21	17.21	0.00
Nov	53.23	487.34		20.58	22.72	145.97	228.07	Nov		17.18	17.18	17.18	0.00
Dec	49.74	415.77		20.88	23.08	127.37	192.71	Dec		17.63	17.63	17.63	0.00
<b>Seas_4</b>	<b>145.04</b>	<b>1500.91</b>	<b>36.91</b>	<b>62.35</b>	<b>68.83</b>	<b>362.81</b>	<b>637.49</b>	<b>Seas_4</b>	<b>171.09</b>	<b>52.03</b>	<b>52.02</b>	<b>91.71</b>	<b>68.74</b>
<b>Annual</b>	<b>606.72</b>	<b>21249.10</b>	<b>102.68</b>	<b>213.42</b>	<b>232.15</b>	<b>4480.81</b>	<b>9375.68</b>	<b>Annual</b>	<b>439.14</b>	<b>150.30</b>	<b>150.30</b>	<b>246.58</b>	<b>166.76</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

a - SimpleBox data presented here are overall mass flows (to regional and continental cells) 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 3.70.

**Table 3.70.** The percentage difference between calculation results on PCB-153 mass flows transported from vegetation to soil: litterfall obtained by models on the basis of two data sets: “reference” and “own or alternative” data sets

Month	CliMoChem_2_2	CliMoChem_2_3	G-CIEMS_1	SimpleBox 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0_3	SimpleBox 3.12_3
Jan			-21.7%	0.9%	4.4%	4.3%	-33.5%	-31.5%
Feb			-24.0%	2.6%	5.3%	5.3%	-23.0%	-17.4%
Mar			-25.5%	4.2%	6.1%	6.1%	-15.0%	-6.4%
<b>Seas_1</b>	<b>26.6%</b>	<b>-55.4%</b>	<b>-23.3%</b>	<b>2.2%</b>	<b>5.6%</b>	<b>5.6%</b>	<b>-23.8%</b>	<b>-18.5%</b>
Apr			-26.8%	5.7%	6.8%	6.8%	-8.7%	2.6%
May			-30.3%	7.1%	7.4%	7.4%	-3.7%	9.8%
Jun			-29.8%	8.3%	7.9%	7.9%	0.3%	15.8%
<b>Seas_2</b>	<b>-10.3%</b>	<b>-43.1%</b>	<b>-28.8%</b>	<b>6.8%</b>	<b>7.4%</b>	<b>7.4%</b>	<b>-4.0%</b>	<b>9.4%</b>
Jul			-28.8%	9.5%	8.4%	8.3%	3.5%	20.7%
Aug			-28.5%	10.5%	8.8%	8.7%	6.2%	24.8%
Sep			-28.5%	11.5%	9.1%	9.1%	8.4%	28.3%
<b>Seas_3</b>	<b>-57.6%</b>	<b>-49.1%</b>	<b>-28.6%</b>	<b>10.3%</b>	<b>8.7%</b>	<b>8.7%</b>	<b>6.0%</b>	<b>24.5%</b>
Oct			-27.2%	12.4%	9.4%	9.4%	10.2%	31.2%
Nov			-23.4%	13.2%	9.7%	9.7%	11.7%	33.7%
Dec			-21.7%	14.0%	9.9%	9.9%	13.1%	35.8%
<b>Seas_4</b>	<b>-51.3%</b>	<b>-67.0%</b>	<b>-24.0%</b>	<b>13.1%</b>	<b>9.7%</b>	<b>9.7%</b>	<b>11.7%</b>	<b>33.5%</b>
<b>Annual</b>	<b>-49.7%</b>	<b>-57.2%</b>	<b>-25.7%</b>	<b>5.0%</b>	<b>8.4%</b>	<b>8.4%</b>	<b>-2.2%</b>	<b>12.3%</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

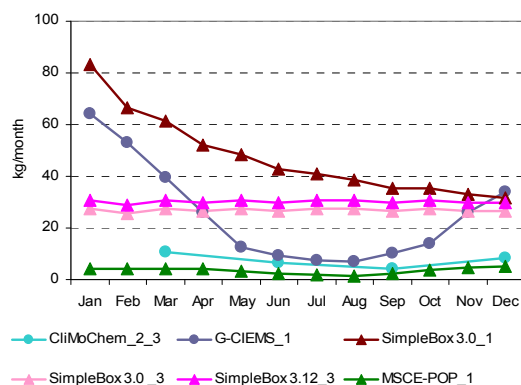
SimpleBox 3.0\_3 and SimpleBox 3.12\_3 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated with historical emissions for 20-year period.

### 3.4.3. Comparison of calculated values of PCB-153 mass flows transported from the atmosphere to water

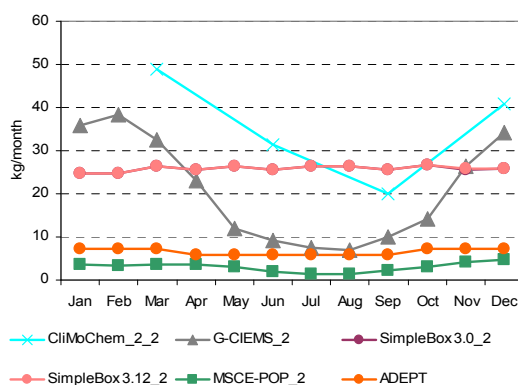
#### Dry deposition

**Reference data set.** Calculation results on PCB-153 mass flows transported from the atmosphere to water: dry deposition calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.71.

Monthly values of PCB-153 mass flows transported from the atmosphere to water: dry deposition 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. 3.98 a and b, respectively.



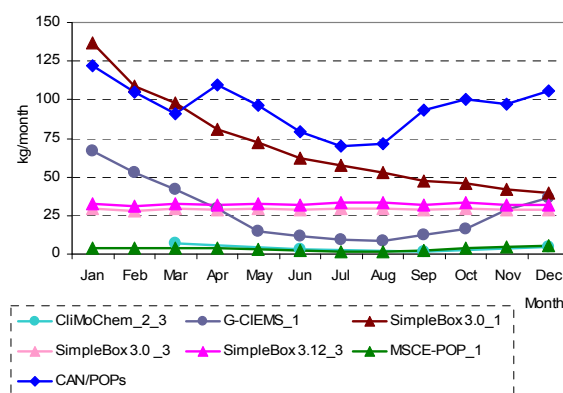
**Fig. 3.98a.** PCB-153 mass flows transported from the atmosphere to water: dry deposition (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions



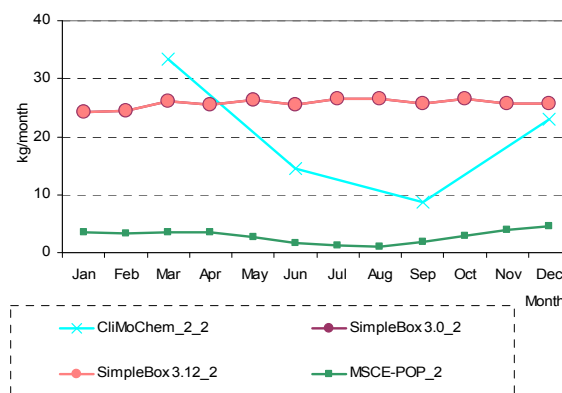
**Fig. 3.98b.** PCB-153 mass flows transported from the atmosphere to water: dry deposition (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions

**Own/alternative data set.** Calculation results on PCB-153 mass flows transported from the atmosphere to water: dry deposition calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table 3.72.

Monthly values of PCB-153 mass flows transported from the atmosphere to water: dry deposition 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. 3.99 a and b, respectively.



**Fig. 3.99a.** PCB-153 mass flows transported from the atmosphere to water: dry deposition (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions (all models)



**Fig. 3.99b.** PCB-153 mass flows transported from the atmosphere to water: dry deposition (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and zero-initial conditions

**Table 3.71.** Calculation results: PCB-153 mass flows transported from the atmosphere to water: dry deposition (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			<i>m</i>	<i>σ</i>	Month	Results obtained on the basis of zero initial concentrations						<i>m</i>	<i>σ</i>
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMoChem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMoChem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2	ADEPT		
Jan	64.36	83.19	4.13		27.53	30.82	42.01	31.48	Jan	35.84		24.61	24.61	3.51	7.10	19.13	13.49
Feb	53.00	66.68	4.04		25.54	28.83	35.62	24.56	Feb	38.20		24.60	24.60	3.45	7.10	19.59	14.26
Mar	39.71	61.25	4.31		27.30	30.82	32.68	20.63	Mar	32.47		26.35	26.35	3.75	7.10	19.20	12.88
<b>Seas_1</b>	<b>157.07</b>	<b>211.11</b>	<b>12.48</b>	<b>31.49</b>	<b>80.37</b>	<b>90.47</b>	<b>97.17</b>	<b>75.35</b>	<b>Seas_1</b>	<b>106.51</b>	<b>146.48</b>	<b>75.55</b>	<b>75.55</b>	<b>10.71</b>	<b>21.30</b>	<b>72.68</b>	<b>51.16</b>
Apr	26.07	52.07	4.24		26.42	29.82	27.72	16.98	Apr	23.04		25.54	25.54	3.65	5.70	16.70	11.04
May	12.62	48.33	3.42		27.31	30.82	24.50	17.33	May	11.84		26.43	26.43	2.92	5.70	14.66	11.22
Jun	9.44	42.79	2.33		26.43	29.82	22.16	16.26	Jun	9.08		25.60	25.61	1.95	5.70	13.59	11.26
<b>Seas_2</b>	<b>48.12</b>	<b>143.18</b>	<b>9.99</b>	<b>19.83</b>	<b>80.16</b>	<b>90.47</b>	<b>65.29</b>	<b>49.68</b>	<b>Seas_2</b>	<b>43.96</b>	<b>94.24</b>	<b>77.58</b>	<b>77.58</b>	<b>8.52</b>	<b>17.10</b>	<b>53.16</b>	<b>35.38</b>
Jul	7.65	41.08	1.65		27.31	30.82	21.70	16.50	Jul	7.51		26.48	26.49	1.39	5.70	13.51	12.05
Aug	6.86	38.61	1.51		27.31	30.82	21.02	16.02	Aug	6.82		26.50	26.51	1.26	5.70	13.36	12.18
Sep	10.07	35.51	2.54		26.43	29.82	20.87	13.95	Sep	10.07		25.66	25.67	2.12	5.70	13.84	11.15
<b>Seas_3</b>	<b>24.58</b>	<b>115.19</b>	<b>5.70</b>	<b>12.54</b>	<b>81.05</b>	<b>91.46</b>	<b>55.09</b>	<b>46.45</b>	<b>Seas_3</b>	<b>24.40</b>	<b>59.66</b>	<b>78.65</b>	<b>78.66</b>	<b>4.77</b>	<b>17.10</b>	<b>43.87</b>	<b>32.54</b>
Oct	14.12	35.16	3.80		27.31	30.82	22.24	12.96	Oct	14.18		26.53	26.54	3.16	7.10	15.50	10.82
Nov	26.12	32.82	4.71		26.43	29.82	23.98	11.12	Nov	26.30		25.69	25.69	4.03	7.10	17.76	11.19
Dec	33.98	31.84	5.21		26.43	29.82	25.46	11.65	Dec	34.24		25.70	25.71	4.67	7.10	19.48	12.92
<b>Seas_4</b>	<b>74.22</b>	<b>99.81</b>	<b>13.72</b>	<b>25.33</b>	<b>80.17</b>	<b>90.47</b>	<b>63.95</b>	<b>35.70</b>	<b>Seas_4</b>	<b>74.72</b>	<b>122.76</b>	<b>77.93</b>	<b>77.94</b>	<b>11.86</b>	<b>21.30</b>	<b>64.42</b>	<b>41.22</b>
<b>Annual</b>	<b>304.00</b>	<b>569.30</b>	<b>41.89</b>	<b>89.18</b>	<b>321.75</b>	<b>362.87</b>	<b>281.50</b>	<b>192.86</b>	<b>Annual</b>	<b>249.58</b>	<b>423.14</b>	<b>309.71</b>	<b>309.73</b>	<b>35.86</b>	<b>76.80</b>	<b>234.14</b>	<b>149.30</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.72.** Calculation results: PCB-153 mass flows transported from the atmosphere to water: dry deposition (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations				<i>m</i>	$\sigma$
	CAN/POPs	G-CIEMS_1	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	122.03	66.91	136.51	4.19		29.76	32.82	65.37	53.56	Jan		24.30	24.30	3.42	17.34	12.05
Feb	105.30	53.04	109.12	4.05		27.67	30.74	54.99	43.35	Feb		24.38	24.38	3.35	17.37	12.14
Mar	90.97	41.67	97.56	4.27		29.62	32.91	49.50	36.90	Mar		26.17	26.17	3.61	18.65	13.03
<b>Seas_1</b>	<b>318.30</b>	<b>161.62</b>	<b>343.19</b>	<b>12.51</b>	<b>22.02</b>	<b>87.05</b>	<b>96.47</b>	<b>148.74</b>	<b>134.09</b>	<b>Seas_1</b>	<b>99.91</b>	<b>74.84</b>	<b>74.84</b>	<b>10.38</b>	<b>64.99</b>	<b>38.28</b>
Apr	109.67	29.17	80.49	4.15		28.70	31.89	47.34	39.41	Apr		25.42	25.42	3.46	18.10	12.68
May	96.05	15.07	72.40	3.18		29.69	32.99	41.56	35.52	May		26.34	26.34	2.62	18.44	13.70
Jun	79.47	11.57	62.13	2.11		28.75	31.95	36.00	29.62	Jun		25.56	25.55	1.71	17.61	13.77
<b>Seas_2</b>	<b>285.19</b>	<b>55.82</b>	<b>215.02</b>	<b>9.44</b>	<b>9.33</b>	<b>87.14</b>	<b>96.83</b>	<b>108.39</b>	<b>104.55</b>	<b>Seas_2</b>	<b>43.79</b>	<b>77.32</b>	<b>77.32</b>	<b>7.79</b>	<b>51.55</b>	<b>33.18</b>
Jul	69.61	9.55	57.87	1.46		29.73	33.04	33.54	26.50	Jul		26.46	26.46	1.20	18.04	14.58
Aug	71.51	8.65	52.83	1.31		29.74	33.06	32.85	26.40	Aug		26.51	26.51	1.07	18.03	14.69
Sep	92.91	12.19	47.30	2.31		28.80	32.00	35.92	32.05	Sep		25.69	25.69	1.86	17.75	13.76
<b>Seas_3</b>	<b>234.02</b>	<b>30.39</b>	<b>158.01</b>	<b>5.08</b>	<b>5.58</b>	<b>88.27</b>	<b>98.09</b>	<b>88.49</b>	<b>84.96</b>	<b>Seas_3</b>	<b>25.91</b>	<b>78.66</b>	<b>78.65</b>	<b>4.13</b>	<b>46.84</b>	<b>37.80</b>
Oct	99.94	16.50	45.69	3.58		29.76	33.08	38.09	33.57	Oct		26.58	26.58	2.89	18.68	13.68
Nov	96.99	29.08	41.68	4.64		28.81	32.02	38.87	30.99	Nov		25.75	25.75	3.88	18.46	12.63
Dec	106.06	36.45	39.61	5.13		28.82	32.01	41.35	33.97	Dec		25.77	25.77	4.52	18.69	12.27
<b>Seas_4</b>	<b>302.98</b>	<b>82.03</b>	<b>126.98</b>	<b>13.35</b>	<b>14.45</b>	<b>87.39</b>	<b>97.11</b>	<b>103.47</b>	<b>97.61</b>	<b>Seas_4</b>	<b>69.16</b>	<b>78.10</b>	<b>78.10</b>	<b>11.29</b>	<b>59.16</b>	<b>32.19</b>
<b>Annual</b>	<b>1140.49</b>	<b>329.86</b>	<b>843.19</b>	<b>40.38</b>	<b>51.38</b>	<b>349.85</b>	<b>388.51</b>	<b>449.09</b>	<b>405.44</b>	<b>Annual</b>	<b>238.76</b>	<b>308.92</b>	<b>308.91</b>	<b>33.59</b>	<b>222.55</b>	<b>130.24</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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 mass flows (to regional and continental cells) 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 3.73.

**Table 3.73.** The percentage difference between calculation results on PCB-153 mass flows transported from the atmosphere to water: dry deposition obtained by models on the basis of two data sets: “reference” and “own or alternative” data sets

Month	CliMoChem_2_2	CliMoChem_2_3	G-CIEMS_1	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			4.0%	64.1%	-1.3%	-1.3%	8.1%	6.5%	1.5%	-2.6%
Feb			0.1%	63.7%	-0.9%	-0.9%	8.4%	6.6%	0.2%	-2.9%
Mar			4.9%	59.3%	-0.7%	-0.7%	8.5%	6.8%	-0.9%	-3.7%
<b>Seas_1</b>	<b>-31.8%</b>	<b>-30.1%</b>	<b>2.9%</b>	<b>62.6%</b>	<b>-0.9%</b>	<b>-0.9%</b>	<b>8.3%</b>	<b>6.6%</b>	<b>0.2%</b>	<b>-3.1%</b>
Apr			11.9%	54.6%	-0.5%	-0.5%	8.6%	6.9%	-2.1%	-5.2%
May			19.5%	49.8%	-0.3%	-0.3%	8.7%	7.0%	-7.0%	-10.3%
Jun			22.6%	45.2%	-0.2%	-0.2%	8.8%	7.1%	-9.4%	-12.3%
<b>Seas_2</b>	<b>-53.5%</b>	<b>-53.0%</b>	<b>16.0%</b>	<b>50.2%</b>	<b>-0.3%</b>	<b>-0.3%</b>	<b>8.7%</b>	<b>7.0%</b>	<b>-5.5%</b>	<b>-8.6%</b>
Jul			24.9%	40.9%	-0.1%	-0.1%	8.9%	7.2%	-11.5%	-13.7%
Aug			26.0%	36.8%	0.0%	0.0%	8.9%	7.3%	-13.2%	-15.1%
Sep			21.0%	33.2%	0.1%	0.1%	9.0%	7.3%	-9.1%	-12.3%
<b>Seas_3</b>	<b>-56.6%</b>	<b>-55.5%</b>	<b>23.6%</b>	<b>37.2%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>8.9%</b>	<b>7.2%</b>	<b>-10.9%</b>	<b>-13.4%</b>
Oct			16.9%	30.0%	0.2%	0.1%	9.0%	7.3%	-5.8%	-8.5%
Nov			11.3%	27.0%	0.2%	0.2%	9.0%	7.3%	-1.5%	-3.7%
Dec			7.3%	24.4%	0.3%	0.3%	9.1%	7.3%	-1.5%	-3.2%
<b>Seas_4</b>	<b>-43.7%</b>	<b>-43.0%</b>	<b>10.5%</b>	<b>27.2%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>9.0%</b>	<b>7.3%</b>	<b>-2.7%</b>	<b>-4.8%</b>
<b>Annual</b>	<b>-43.6%</b>	<b>-42.4%</b>	<b>8.5%</b>	<b>48.1%</b>	<b>-0.3%</b>	<b>-0.3%</b>	<b>8.7%</b>	<b>7.1%</b>	<b>-3.6%</b>	<b>-6.3%</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

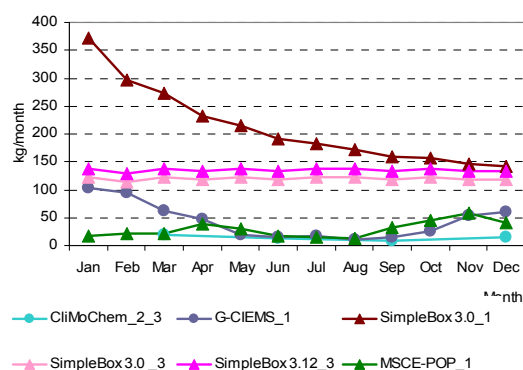
SimpleBox 3.0\_2 and SimpleBox 3.12\_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;

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.

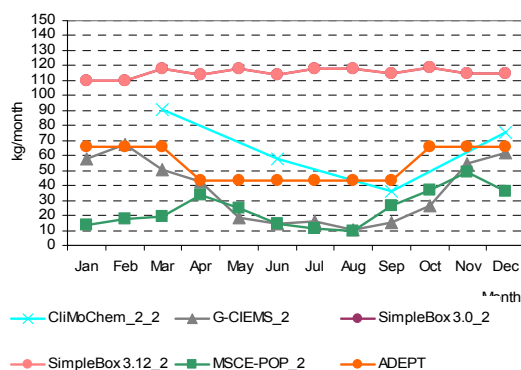
## Wet deposition

**Reference data set.** Calculation results on PCB-153 mass flows transported from the atmosphere to water: wet deposition calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.74.

Monthly values of PCB-153 mass flows transported from the atmosphere to water: wet deposition 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. 3.100 a and b, respectively.



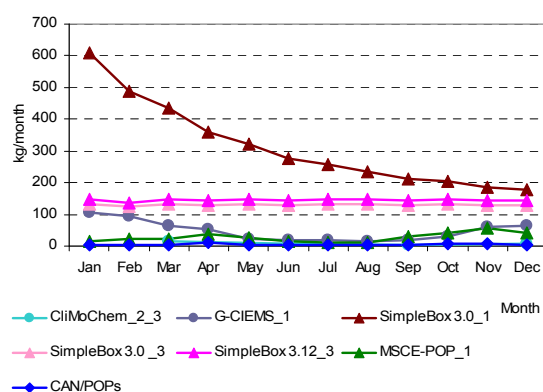
**Fig. 3.100a.** PCB-153 mass flows transported from the atmosphere to water: wet deposition (kg/month) calculated by the participating models on the basis of “reference data set” and non-zero initial conditions



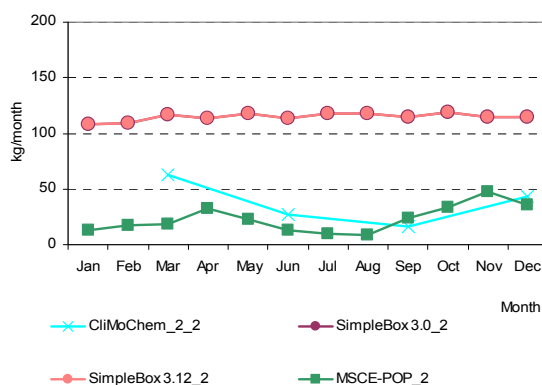
**Fig. 3.100b.** PCB-153 mass flows transported from the atmosphere to water: wet deposition (kg/month) calculated by the participating models on the basis of “reference data set” and zero-initial conditions

**Own/alternative data set.** Calculation results on PCB-153 mass flows transported from the atmosphere to water: wet deposition calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table 3.75.

Monthly values of PCB-153 mass flows transported from the atmosphere to water: wet deposition 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. 3.101 a and b, respectively.



**Fig. 3.101a.** PCB-153 mass flows transported from the atmosphere to water: wet deposition (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions



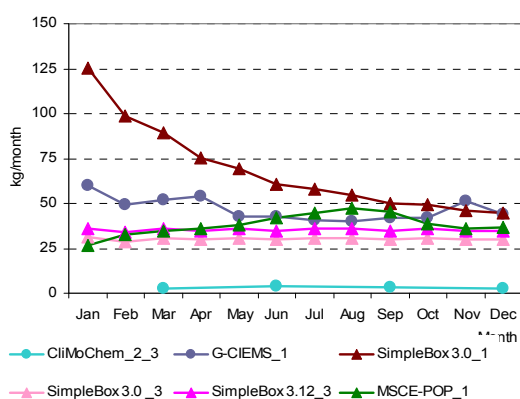
**Fig. 3.101b.** PCB-153 mass flows transported from the atmosphere to water: wet deposition (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and zero-initial conditions

**Comparison between results obtained on the basis of two data sets.** The percentage difference between calculation results obtained with two data sets of physical-chemical properties (for those models who provided calculations for both these sets) is shown in Table 3.76.

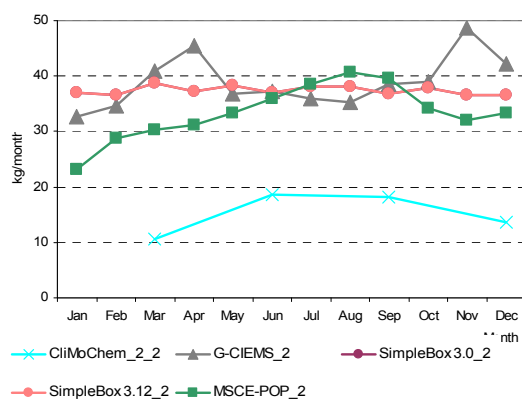
### Gaseous exchange

**Reference data set.** Calculation results on PCB-153 mass flows between the atmosphere and water: gaseous exchange calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.77.

Monthly values of PCB-153 mass flows between the atmosphere and water: gaseous exchange 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. 3.102 a and b, respectively.



**Fig. 3.102a.** PCB-153 mass flows between the atmosphere and water: gaseous exchange (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions



**Fig. 3.102b.** PCB-153 mass flows between the atmosphere and water: gaseous exchange (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions



**Table 3.74.** Calculation results: PCB-153 mass flows between the atmosphere and water: wet deposition (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations						<i>m</i>	$\sigma$
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMoChem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMoChem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2	ADEPT		
Jan	103.26	371.13	16.50		122.82	137.49	150.24	132.10	Jan	57.50		109.79	109.79	13.60	65.70	71.27	40.35
Feb	93.68	297.47	21.00		113.92	128.62	130.94	101.86	Feb	67.51		109.73	109.73	17.40	65.70	74.01	38.30
Mar	61.97	273.24	22.50		121.80	137.49	123.40	95.67	Mar	50.68		117.55	117.55	19.50	65.70	74.20	42.94
<b>Seas_1</b>	<b>258.91</b>	<b>941.85</b>	<b>60.00</b>	<b>58.18</b>	<b>358.54</b>	<b>403.61</b>	<b>346.85</b>	<b>325.80</b>	<b>Seas_1</b>	<b>175.69</b>	<b>270.74</b>	<b>337.06</b>	<b>337.07</b>	<b>50.50</b>	<b>197.10</b>	<b>228.03</b>	<b>110.28</b>
Apr	48.15	232.28	39.10		117.89	133.06	114.10	77.97	Apr	42.56		113.95	113.96	34.00	43.50	69.59	40.66
May	19.80	215.59	29.60		121.82	137.49	104.86	81.42	May	18.59		117.91	117.92	24.90	43.50	64.56	49.55
Jun	14.85	190.88	17.50		117.90	133.06	94.84	76.81	Jun	14.26		114.23	114.24	14.20	43.50	60.09	50.86
<b>Seas_2</b>	<b>82.79</b>	<b>638.76</b>	<b>86.20</b>	<b>36.40</b>	<b>357.62</b>	<b>403.61</b>	<b>267.56</b>	<b>238.70</b>	<b>Seas_2</b>	<b>75.41</b>	<b>173.00</b>	<b>346.09</b>	<b>346.11</b>	<b>73.10</b>	<b>130.50</b>	<b>190.70</b>	<b>125.98</b>
Jul	16.26	183.26	14.10		121.84	137.49	94.59	75.93	Jul	15.99		118.15	118.16	11.50	43.50	61.46	53.19
Aug	10.66	172.24	12.70		121.84	137.49	90.99	74.66	Aug	10.58		118.24	118.25	9.92	43.50	60.10	54.79
Sep	15.09	158.40	32.20		117.91	133.06	91.33	63.75	Sep	15.11		114.50	114.51	26.80	43.50	62.88	48.19
<b>Seas_3</b>	<b>42.01</b>	<b>513.90</b>	<b>59.00</b>	<b>22.95</b>	<b>361.60</b>	<b>408.05</b>	<b>234.59</b>	<b>217.69</b>	<b>Seas_3</b>	<b>41.67</b>	<b>109.26</b>	<b>350.88</b>	<b>350.92</b>	<b>48.22</b>	<b>130.50</b>	<b>171.91</b>	<b>142.81</b>
Oct	26.63	156.84	44.10		121.84	137.49	97.38	58.28	Oct	26.75		118.38	118.40	36.90	65.70	73.23	43.63
Nov	54.02	146.41	57.70		117.92	133.06	101.82	43.17	Nov	54.43		114.62	114.63	49.30	65.70	79.74	32.40
Dec	60.99	142.04	41.20		117.92	133.06	99.04	45.16	Dec	61.59		114.66	114.68	36.40	65.70	78.61	34.78
<b>Seas_4</b>	<b>141.63</b>	<b>445.29</b>	<b>143.00</b>	<b>46.67</b>	<b>357.67</b>	<b>403.61</b>	<b>256.31</b>	<b>165.91</b>	<b>Seas_4</b>	<b>142.77</b>	<b>226.22</b>	<b>347.66</b>	<b>347.71</b>	<b>122.60</b>	<b>197.10</b>	<b>230.68</b>	<b>97.92</b>
<b>Annual</b>	<b>525.35</b>	<b>2539.81</b>	<b>348.20</b>	<b>164.20</b>	<b>1435.43</b>	<b>1618.88</b>	<b>1105.31</b>	<b>919.32</b>	<b>Annual</b>	<b>435.55</b>	<b>779.22</b>	<b>1381.70</b>	<b>1381.82</b>	<b>294.42</b>	<b>655.20</b>	<b>821.32</b>	<b>465.62</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.75.** Calculation results: PCB-153 mass flows between the atmosphere and water: wet deposition (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations				<i>m</i>	$\sigma$
	CAN/POPs	G-CIEMS_1	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	3.45	107.07	608.76	16.80		132.71	146.36	169.19	223.44	Jan		108.35	108.35	13.30	76.66	54.87
Feb	3.13	93.50	486.62	21.30		123.40	137.08	144.17	176.24	Feb		108.70	108.70	17.00	78.14	52.95
Mar	2.82	64.82	435.09	22.30		132.10	146.78	133.98	158.30	Mar		116.72	116.71	18.80	84.08	56.53
<b>Seas_1</b>	<b>9.40</b>	<b>265.39</b>	<b>1530.47</b>	<b>60.40</b>	<b>41.43</b>	<b>388.21</b>	<b>430.21</b>	<b>389.36</b>	<b>531.16</b>	<b>Seas_1</b>	<b>188.07</b>	<b>333.77</b>	<b>333.76</b>	<b>49.10</b>	<b>226.17</b>	<b>136.58</b>
Apr	10.29	53.66	358.93	38.50		127.99	142.23	121.93	127.05	Apr		113.36	113.36	32.50	86.41	46.68
May	4.63	23.52	322.88	27.50		132.39	147.12	109.67	120.48	May		117.48	117.48	22.30	85.75	54.95
Jun	2.56	18.09	277.08	16.10		128.22	142.49	97.42	106.92	Jun		113.97	113.96	12.60	80.18	58.52
<b>Seas_2</b>	<b>17.48</b>	<b>95.26</b>	<b>958.88</b>	<b>82.10</b>	<b>17.19</b>	<b>388.61</b>	<b>431.84</b>	<b>284.48</b>	<b>343.24</b>	<b>Seas_2</b>	<b>80.72</b>	<b>344.81</b>	<b>344.80</b>	<b>67.40</b>	<b>209.43</b>	<b>156.41</b>
Jul	1.89	20.15	258.09	12.80		132.58	147.34	95.48	101.76	Jul		118.01	118.00	10.10	82.03	62.30
Aug	2.59	13.33	235.60	11.40		132.62	147.42	90.49	95.93	Aug		118.21	118.20	8.45	81.62	63.37
Sep	4.50	18.16	210.95	29.20		128.43	142.68	88.99	83.72	Sep		114.56	114.56	23.60	84.24	52.52
<b>Seas_3</b>	<b>8.99</b>	<b>51.63</b>	<b>704.65</b>	<b>53.40</b>	<b>10.22</b>	<b>393.63</b>	<b>437.44</b>	<b>237.14</b>	<b>275.35</b>	<b>Seas_3</b>	<b>47.49</b>	<b>350.78</b>	<b>350.76</b>	<b>42.15</b>	<b>197.79</b>	<b>176.65</b>
Oct	5.82	30.96	203.74	41.40		132.72	147.53	93.70	78.64	Oct		118.53	118.52	33.80	90.28	48.92
Nov	6.22	59.88	185.88	56.80		128.46	142.78	96.67	66.66	Nov		114.83	114.82	47.50	92.39	38.87
Dec	4.39	65.20	176.63	40.50		128.54	142.77	93.01	66.51	Dec		114.94	114.93	35.20	88.36	46.04
<b>Seas_4</b>	<b>16.44</b>	<b>156.05</b>	<b>566.25</b>	<b>138.70</b>	<b>26.92</b>	<b>389.72</b>	<b>433.08</b>	<b>246.74</b>	<b>215.45</b>	<b>Seas_4</b>	<b>128.91</b>	<b>348.30</b>	<b>348.28</b>	<b>116.50</b>	<b>235.50</b>	<b>130.34</b>
<b>Annual</b>	<b>52.30</b>	<b>568.34</b>	<b>3760.25</b>	<b>334.60</b>	<b>95.76</b>	<b>2730.61</b>	<b>3032.07</b>	<b>1510.56</b>	<b>1594.97</b>	<b>Annual</b>	<b>445.19</b>	<b>1377.66</b>	<b>1377.60</b>	<b>275.15</b>	<b>868.90</b>	<b>591.52</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.76.** The percentage difference between calculation results on PCB-153 mass flows between the atmosphere and water: wet deposition 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	G-CIEMS_1	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			3.7%	64.0%	-1.3%	-1.3%	8.1%	6.4%	1.8%	-2.2%
Feb			-0.2%	63.6%	-0.9%	-0.9%	8.3%	6.6%	1.4%	-2.3%
Mar			4.6%	59.2%	-0.7%	-0.7%	8.5%	6.8%	-0.9%	-3.6%
<b>Seas_1</b>	<b>-30.5%</b>	<b>-28.8%</b>	<b>2.5%</b>	<b>62.5%</b>	<b>-1.0%</b>	<b>-1.0%</b>	<b>8.3%</b>	<b>6.6%</b>	<b>0.7%</b>	<b>-2.8%</b>
Apr			11.4%	54.5%	-0.5%	-0.5%	8.6%	6.9%	-1.5%	-4.4%
May			18.8%	49.8%	-0.4%	-0.4%	8.7%	7.0%	-7.1%	-10.4%
Jun			21.8%	45.2%	-0.2%	-0.2%	8.8%	7.1%	-8.0%	-11.3%
<b>Seas_2</b>	<b>-53.3%</b>	<b>-52.8%</b>	<b>15.1%</b>	<b>50.1%</b>	<b>-0.4%</b>	<b>-0.4%</b>	<b>8.7%</b>	<b>7.0%</b>	<b>-4.8%</b>	<b>-7.8%</b>
Jul			23.9%	40.8%	-0.1%	-0.1%	8.8%	7.2%	-9.2%	-12.2%
Aug			25.0%	36.8%	0.0%	0.0%	8.8%	7.2%	-10.2%	-14.8%
Sep			20.3%	33.2%	0.1%	0.0%	8.9%	7.2%	-9.3%	-11.9%
<b>Seas_3</b>	<b>-56.5%</b>	<b>-55.5%</b>	<b>22.9%</b>	<b>37.1%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>8.9%</b>	<b>7.2%</b>	<b>-9.5%</b>	<b>-12.6%</b>
Oct			16.3%	29.9%	0.1%	0.1%	8.9%	7.3%	-6.1%	-8.4%
Nov			10.9%	27.0%	0.2%	0.2%	8.9%	7.3%	-1.6%	-3.7%
Dec			6.9%	24.4%	0.2%	0.2%	9.0%	7.3%	-1.7%	-3.3%
<b>Seas_4</b>	<b>-43.0%</b>	<b>-42.3%</b>	<b>10.2%</b>	<b>27.2%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>9.0%</b>	<b>7.3%</b>	<b>-3.0%</b>	<b>-5.0%</b>
<b>Annual</b>	<b>-42.9%</b>	<b>-41.7%</b>	<b>8.2%</b>	<b>48.1%</b>	<b>-0.3%</b>	<b>-0.3%</b>	<b>90.2%</b>	<b>87.3%</b>	<b>-3.9%</b>	<b>-6.5%</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

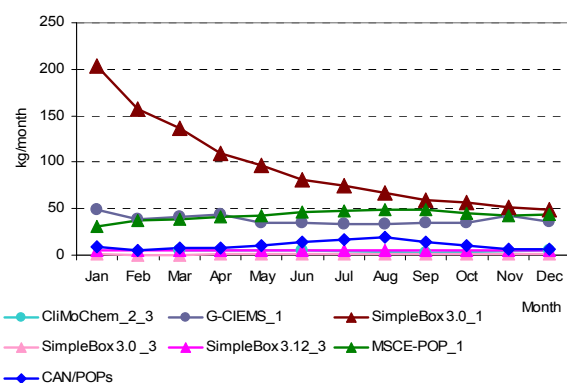
SimpleBox 3.0\_2 and SimpleBox 3.12\_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;

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;

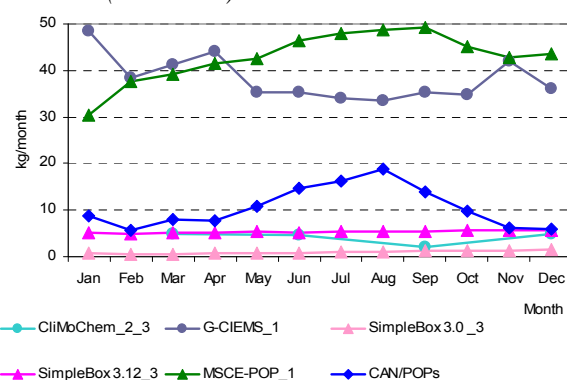
a - SimpleBox data presented here are overall mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Own/alternative data set.** Calculation results on PCB-153 mass flows between the atmosphere and water: gaseous exchange calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table 3.78.

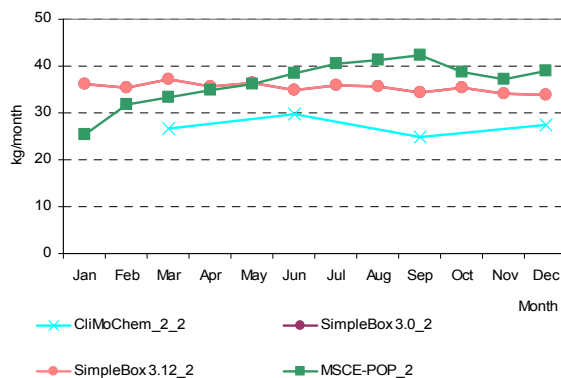
Monthly values of PCB-153 mass flows between the atmosphere and water: gaseous exchange calculated by participating models on the basis of “own or alternative” data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. 3.103 a and b, respectively. Seasonal variations of gaseous exchange flows between the atmosphere and water calculated by the participating models on the basis of “own or alternative” data set and non-zero initial conditions are also shown in Fig. 3.103c in more detail.



**Fig. 3.103a.** PCB-153 mass flows between the atmosphere and water: gaseous exchange (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions (all models)



**Fig. 3.103c.** PCB-153 mass flows between the atmosphere and water: gaseous exchange (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions (models with low values)



**Fig. 3.103b.** PCB-153 mass flows between the atmosphere and water: gaseous exchange (kg/month) 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. 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 3.79.

**Table 3.77.** Calculation results: PCB-153 mass flows between the atmosphere and water: gaseous exchange (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
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMoChem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMoChem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2		
Jan	59.81	125.13	26.70		31.07	36.00	55.74	40.84	Jan	32.78		37.10	37.10	23.20	32.54	6.55
Feb	49.21	98.65	32.90		28.71	33.68	48.63	29.03	Feb	34.64		36.56	36.56	28.70	34.12	3.72
Mar	51.67	89.42	34.50		30.68	36.00	48.45	24.26	Mar	40.94		38.78	38.78	30.20	37.18	4.76
<b>Seasonal_1</b>	<b>160.69</b>	<b>313.20</b>	<b>94.10</b>	<b>7.00</b>	<b>90.46</b>	<b>105.67</b>	<b>128.52</b>	<b>103.02</b>	<b>Seasonal_1</b>	<b>108.36</b>	<b>32.06</b>	<b>112.44</b>	<b>112.44</b>	<b>82.10</b>	<b>89.48</b>	<b>34.51</b>
Apr	53.81	75.18	35.90		29.68	34.84	45.88	18.75	Apr	45.41		37.30	37.30	31.20	37.80	5.83
May	42.34	69.18	38.10		30.67	36.00	43.26	15.09	May	36.82		38.37	38.37	33.40	36.74	2.34
Jun	42.52	60.85	42.10		29.68	34.84	42.00	11.82	Jun	37.28		37.00	37.00	36.00	36.82	0.56
<b>Seasonal_2</b>	<b>138.66</b>	<b>205.21</b>	<b>116.10</b>	<b>11.66</b>	<b>90.03</b>	<b>105.67</b>	<b>111.22</b>	<b>63.25</b>	<b>Seasonal_2</b>	<b>119.51</b>	<b>55.62</b>	<b>112.67</b>	<b>112.68</b>	<b>100.60</b>	<b>100.21</b>	<b>25.84</b>
Jul	40.90	58.13	44.80		30.68	36.00	42.10	10.41	Jul	35.95		38.12	38.13	38.60	37.70	1.19
Aug	40.07	54.43	47.10		30.70	36.00	41.66	9.32	Aug	35.35		38.03	38.04	40.70	38.03	2.18
Sep	42.27	49.92	45.10		29.72	34.84	40.37	8.08	Sep	38.58		36.73	36.74	39.70	37.94	1.46
<b>Seasonal_3</b>	<b>123.24</b>	<b>162.49</b>	<b>137.00</b>	<b>11.00</b>	<b>91.10</b>	<b>106.83</b>	<b>105.28</b>	<b>52.33</b>	<b>Seasonal_3</b>	<b>109.89</b>	<b>54.56</b>	<b>112.89</b>	<b>112.90</b>	<b>119.00</b>	<b>101.85</b>	<b>26.64</b>
Oct	41.89	49.33	38.70		30.73	36.00	39.33	6.93	Oct	38.99		37.89	37.90	34.10	37.22	2.14
Nov	51.05	45.96	36.10		29.75	34.84	39.54	8.71	Nov	48.64		36.61	36.62	32.10	38.49	7.09
Dec	44.11	44.53	36.80		29.77	34.84	38.01	6.31	Dec	42.29		36.56	36.57	33.40	37.21	3.70
<b>Seasonal_4</b>	<b>137.04</b>	<b>139.82</b>	<b>111.60</b>	<b>8.54</b>	<b>90.25</b>	<b>105.67</b>	<b>98.82</b>	<b>48.12</b>	<b>Seasonal_4</b>	<b>129.92</b>	<b>40.66</b>	<b>111.07</b>	<b>111.09</b>	<b>99.60</b>	<b>98.47</b>	<b>34.10</b>
<b>Annual</b>	<b>559.63</b>	<b>820.72</b>	<b>458.80</b>	<b>38.20</b>	<b>361.84</b>	<b>423.84</b>	<b>443.84</b>	<b>255.87</b>	<b>Annual</b>	<b>467.68</b>	<b>182.90</b>	<b>449.07</b>	<b>449.11</b>	<b>401.30</b>	<b>390.01</b>	<b>118.36</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.78.** Calculation results: PCB-153 mass flows between the atmosphere and water: gaseous exchange (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations				<i>m</i>	$\sigma$
	CAN/POPs	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE- POP_1	CliMo Chem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				CliMoChem_2_2	SimpleBox 3.0_2	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2		
Jan	8.68	48.56	203.61	30.50		0.67	5.22	49.54	77.62	Jan		36.28	36.28	25.50	32.69	6.22
Feb	5.76	38.32	157.35	37.60		0.47	4.91	40.74	59.57	Feb		35.39	35.39	31.90	34.23	2.01
Mar	7.99	41.20	136.61	39.20		0.59	5.25	38.47	51.20	Mar		37.23	37.23	33.40	35.95	2.21
<b>Seas_1</b>	<b>22.43</b>	<b>128.09</b>	<b>497.57</b>	<b>107.30</b>	<b>14.90</b>	<b>1.73</b>	<b>15.38</b>	<b>112.49</b>	<b>176.96</b>	<b>Seas_1</b>	<b>79.94</b>	<b>108.90</b>	<b>108.90</b>	<b>90.80</b>	<b>97.14</b>	<b>14.29</b>
Apr	7.62	44.07	109.68	41.40		0.67	5.10	34.76	41.28	Apr		35.57	35.57	35.00	35.38	0.33
May	10.70	35.24	96.37	42.40		0.78	5.31	31.80	35.78	May		36.37	36.37	36.10	36.28	0.16
Jun	14.64	35.36	81.08	46.30		0.86	5.20	30.57	30.34	Jun		34.90	34.90	38.50	36.10	2.08
<b>Seas_2</b>	<b>32.97</b>	<b>114.67</b>	<b>287.12</b>	<b>130.10</b>	<b>13.66</b>	<b>2.31</b>	<b>15.61</b>	<b>85.20</b>	<b>102.65</b>	<b>Seas_2</b>	<b>89.33</b>	<b>106.84</b>	<b>106.83</b>	<b>109.60</b>	<b>103.15</b>	<b>9.30</b>
Jul	16.16	33.97	74.31	47.90		0.99	5.43	29.79	28.06	Jul		35.81	35.81	40.40	37.34	2.65
Aug	18.92	33.39	66.95	48.80		1.10	5.52	29.11	25.62	Aug		35.60	35.59	41.30	37.50	3.29
Sep	13.92	35.27	59.33	49.20		1.18	5.40	27.38	24.12	Sep		34.27	34.27	42.30	36.95	4.63
<b>Seas_3</b>	<b>49.00</b>	<b>102.63</b>	<b>200.59</b>	<b>145.90</b>	<b>6.04</b>	<b>3.27</b>	<b>16.36</b>	<b>74.83</b>	<b>77.01</b>	<b>Seas_3</b>	<b>74.29</b>	<b>105.68</b>	<b>105.67</b>	<b>124.00</b>	<b>102.41</b>	<b>20.64</b>
Oct	9.70	34.88	56.84	45.10		1.32	5.69	25.59	23.16	Oct		35.26	35.26	38.80	36.44	2.04
Nov	6.09	42.04	51.51	42.90		1.38	5.58	24.92	22.83	Nov		33.99	33.99	37.30	35.09	1.91
Dec	5.98	36.07	48.69	43.50		1.51	5.65	23.57	21.46	Dec		33.87	33.87	38.90	35.55	2.91
<b>Seas_4</b>	<b>21.77</b>	<b>112.99</b>	<b>157.04</b>	<b>131.50</b>	<b>14.62</b>	<b>4.21</b>	<b>16.91</b>	<b>65.58</b>	<b>65.33</b>	<b>Seas_4</b>	<b>82.06</b>	<b>103.12</b>	<b>103.11</b>	<b>115.00</b>	<b>100.82</b>	<b>13.71</b>
<b>Annual</b>	<b>126.17</b>	<b>458.37</b>	<b>1142.32</b>	<b>514.80</b>	<b>49.22</b>	<b>11.52</b>	<b>64.25</b>	<b>338.09</b>	<b>408.75</b>	<b>Annual</b>	<b>325.62</b>	<b>424.53</b>	<b>424.52</b>	<b>439.40</b>	<b>403.52</b>	<b>52.40</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.79.** Comparison of the calculation results on PCB-153 mass flows between the atmosphere and water: gaseous exchange (kg/month) obtained by models on the basis of two data sets: “reference” and “own or alternative” data sets

Month	CliMoChem_2_3		G-CIEMS_1		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	alt	ref	own	ref	own	ref	own
Jan			59.81	48.56	125.13	203.61	37.10	36.28	37.10	36.28	31.07	0.67	36.00	5.22	26.70	30.50	23.20	25.50		
Feb			49.21	38.32	98.65	157.35	36.56	35.39	36.56	35.39	28.71	0.47	33.68	4.91	32.90	37.60	28.70	31.90		
Mar			51.67	41.20	89.42	136.61	38.78	37.23	38.78	37.23	30.68	0.59	36.00	5.25	34.50	39.20	30.20	33.40		
<b>Seas_1</b>	<b>7.00</b>	<b>14.90</b>	<b>160.69</b>	<b>128.09</b>	<b>313.20</b>	<b>497.57</b>	<b>112.44</b>	<b>108.90</b>	<b>112.44</b>	<b>108.90</b>	<b>90.46</b>	<b>1.73</b>	<b>105.67</b>	<b>15.38</b>	<b>94.10</b>	<b>107.30</b>	<b>82.10</b>	<b>90.80</b>	<b>32.06</b>	<b>79.94</b>
Apr			53.81	44.07	75.18	109.68	37.30	35.57	37.30	35.57	29.68	0.67	34.84	5.10	35.90	41.40	31.20	35.00		
May			42.34	35.24	69.18	96.37	38.37	36.37	38.37	36.37	30.67	0.78	36.00	5.31	38.10	42.40	33.40	36.10		
Jun			42.52	35.36	60.85	81.08	37.00	34.90	37.00	34.90	29.68	0.86	34.84	5.20	42.10	46.30	36.00	38.50		
<b>Seas_2</b>	<b>11.66</b>	<b>13.66</b>	<b>138.66</b>	<b>114.67</b>	<b>205.21</b>	<b>287.12</b>	<b>112.67</b>	<b>106.84</b>	<b>112.68</b>	<b>106.83</b>	<b>90.03</b>	<b>2.31</b>	<b>105.67</b>	<b>15.61</b>	<b>116.10</b>	<b>130.10</b>	<b>100.60</b>	<b>109.60</b>	<b>55.62</b>	<b>89.33</b>
Jul			40.90	33.97	58.13	74.31	38.12	35.81	38.13	35.81	30.68	0.99	36.00	5.43	44.80	47.90	38.60	40.40		
Aug			40.07	33.39	54.43	66.95	38.03	35.60	38.04	35.59	30.70	1.10	36.00	5.52	47.10	48.80	40.70	41.30		
Sep			42.27	35.27	49.92	59.33	36.73	34.27	36.74	34.27	29.72	1.18	34.84	5.40	45.10	49.20	39.70	42.30		
<b>Seas_3</b>	<b>11.00</b>	<b>6.04</b>	<b>123.24</b>	<b>102.63</b>	<b>162.49</b>	<b>200.59</b>	<b>112.89</b>	<b>105.68</b>	<b>112.90</b>	<b>105.67</b>	<b>91.10</b>	<b>3.27</b>	<b>106.83</b>	<b>16.36</b>	<b>137.00</b>	<b>145.90</b>	<b>119.00</b>	<b>124.00</b>	<b>54.56</b>	<b>74.29</b>
Oct			41.89	34.88	49.33	56.84	37.89	35.26	37.90	35.26	30.73	1.32	36.00	5.69	38.70	45.10	34.10	38.80		
Nov			51.05	42.04	45.96	51.51	36.61	33.99	36.62	33.99	29.75	1.38	34.84	5.58	36.10	42.90	32.10	37.30		
Dec			44.11	36.07	44.53	48.69	36.56	33.87	36.57	33.87	29.77	1.51	34.84	5.65	36.80	43.50	33.40	38.90		
<b>Seas_4</b>	<b>8.54</b>	<b>14.62</b>	<b>137.04</b>	<b>112.99</b>	<b>139.82</b>	<b>157.04</b>	<b>111.07</b>	<b>103.12</b>	<b>111.09</b>	<b>103.11</b>	<b>90.25</b>	<b>4.21</b>	<b>105.67</b>	<b>16.91</b>	<b>111.60</b>	<b>131.50</b>	<b>99.60</b>	<b>115.00</b>	<b>40.66</b>	<b>82.06</b>
<b>Annual</b>	<b>38.20</b>	<b>49.22</b>	<b>559.63</b>	<b>458.37</b>	<b>820.72</b>	<b>1142.32</b>	<b>449.07</b>	<b>424.53</b>	<b>449.11</b>	<b>424.52</b>	<b>361.84</b>	<b>11.52</b>	<b>423.84</b>	<b>64.25</b>	<b>458.80</b>	<b>514.80</b>	<b>401.30</b>	<b>439.40</b>	<b>182.90</b>	<b>325.62</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;



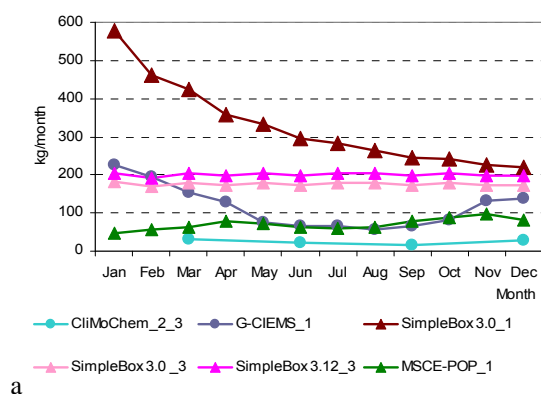


### Net mass flows between the atmosphere and water

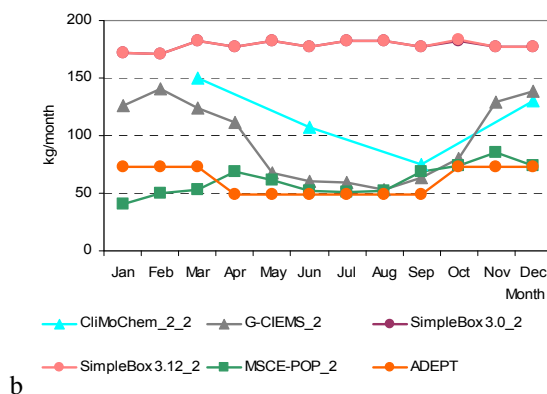
Net mass flows are equal to the total mass flows resulted from summing up of dry and wet depositions and gaseous exchange.

**Reference data set.** Calculation results on PCB-153 net mass flows PCB-153 between the atmosphere and water calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.80.

Monthly values of PCB-153 net mass flows PCB-153 net mass flows between the atmosphere and water (kg/month) 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. 3.104 a and b, respectively.



**Fig. 3.104a.** PCB-153 net mass flows between the atmosphere and water (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions



**Fig. 3.104b.** PCB-153 net mass flows between the atmosphere and water (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions

**Table 3.80.** Calculation results: PCB-153 net mass flows between the atmosphere and water (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			<i>m</i>	<i>σ</i>	Month	Results obtained on the basis of zero initial concentrations						<i>m</i>	<i>σ</i>
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMo Chem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2	ADEPT <sup>b</sup>		
Jan	227.43	579.45	47.33		181.42	204.31	247.99	198.05	Jan	126.11		171.50	171.50	40.31	72.80	116.44	58.86
Feb	195.89	462.80	57.94		168.18	191.13	215.19	149.33	Feb	140.36		170.88	170.89	49.55	72.80	120.90	56.52
Mar	153.35	423.92	61.31		179.78	204.31	204.53	134.05	Mar	124.10		182.67	182.68	53.45	72.80	123.14	60.17
<b>Seas_1</b>	<b>576.67</b>	<b>1466.16</b>	<b>166.58</b>	<b>96.67</b>	<b>529.37</b>	<b>599.75</b>	<b>572.53</b>	<b>488.35</b>	<b>Seas_1</b>	<b>390.56</b>	<b>449.28</b>	<b>525.05</b>	<b>525.06</b>	<b>143.31</b>	<b>218.40</b>	<b>375.28</b>	<b>160.62</b>
Apr	128.02	359.53	79.24		173.99	197.72	187.70	106.23	Apr	111.02		176.80	176.80	68.85	49.20	116.53	59.38
May	74.75	333.10	71.12		179.80	204.31	172.62	108.04	May	67.24		182.71	182.72	61.22	49.20	108.62	67.95
Jun	66.80	294.52	61.93		174.02	197.72	159.00	97.49	Jun	60.62		176.83	176.85	52.15	49.20	103.13	67.42
<b>Seas_2</b>	<b>269.57</b>	<b>987.15</b>	<b>212.29</b>	<b>67.88</b>	<b>527.81</b>	<b>599.75</b>	<b>444.08</b>	<b>332.23</b>	<b>Seas_2</b>	<b>238.88</b>	<b>322.86</b>	<b>536.34</b>	<b>536.37</b>	<b>182.22</b>	<b>147.60</b>	<b>327.38</b>	<b>172.39</b>
Jul	64.80	282.47	60.55		179.83	204.31	158.39	95.26	Jul	59.45		182.75	182.77	51.49	49.20	105.13	70.97
Aug	57.60	265.28	61.31		179.85	204.31	153.67	91.47	Aug	52.75		182.77	182.79	51.88	49.20	103.88	72.04
Sep	67.43	243.83	79.84		174.06	197.72	152.58	76.43	Sep	63.76		176.89	176.92	68.62	49.20	107.08	64.14
<b>Seas_3</b>	<b>189.84</b>	<b>791.58</b>	<b>201.70</b>	<b>46.49</b>	<b>533.75</b>	<b>606.34</b>	<b>394.95</b>	<b>290.56</b>	<b>Seas_3</b>	<b>175.96</b>	<b>223.48</b>	<b>542.42</b>	<b>542.48</b>	<b>171.99</b>	<b>147.60</b>	<b>300.66</b>	<b>188.90</b>
Oct	82.63	241.33	86.60		179.88	204.31	158.95	71.31	Oct	79.92		182.80	182.83	74.16	72.80	118.50	58.77
Nov	131.19	225.19	98.51		174.10	197.72	165.34	50.84	Nov	129.36		176.92	176.95	85.43	72.80	128.29	49.12
Dec	139.07	218.41	83.21		174.12	197.72	162.51	53.24	Dec	138.12		176.93	176.96	74.47	72.80	127.86	51.98
<b>Seas_4</b>	<b>352.90</b>	<b>684.92</b>	<b>268.32</b>	<b>80.54</b>	<b>528.09</b>	<b>599.75</b>	<b>419.09</b>	<b>226.68</b>	<b>Seas_4</b>	<b>347.41</b>	<b>389.63</b>	<b>536.66</b>	<b>536.74</b>	<b>234.06</b>	<b>218.40</b>	<b>377.15</b>	<b>139.73</b>
<b>Annual</b>	<b>1388.98</b>	<b>3929.82</b>	<b>848.89</b>	<b>291.58</b>	<b>2119.02</b>	<b>2405.59</b>	<b>1830.65</b>	<b>1292.12</b>	<b>Annual</b>	<b>1152.81</b>	<b>1385.26</b>	<b>2140.47</b>	<b>2140.66</b>	<b>731.58</b>	<b>732.00</b>	<b>1380.46</b>	<b>640.14</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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;

a - SimpleBox data presented here are overall mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates;

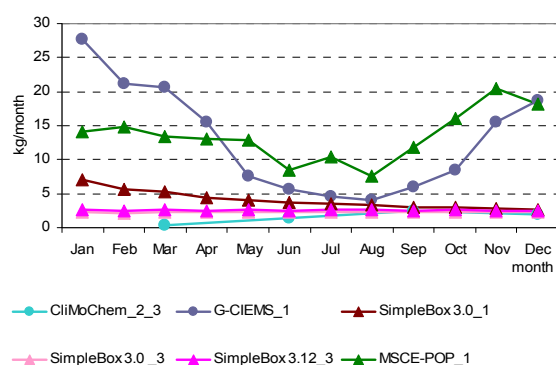
b - ADEPT results refer to bulk depositions (sum of dry and wet deposition mass flows).

### 3.4.4. Comparison of calculated values of PCB-153 mass flows transported from the atmosphere to vegetation

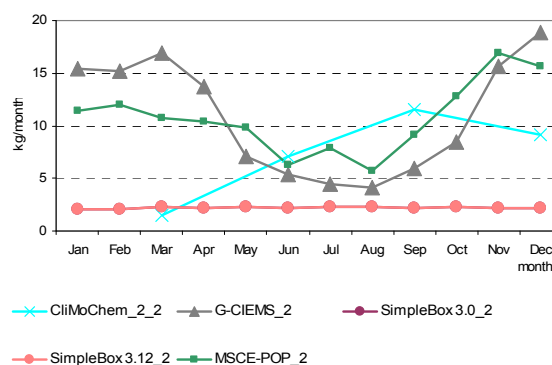
#### Dry deposition

**Reference data set.** Calculation results on PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.81.

Monthly values of PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition 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. 3.105 a and b, respectively.



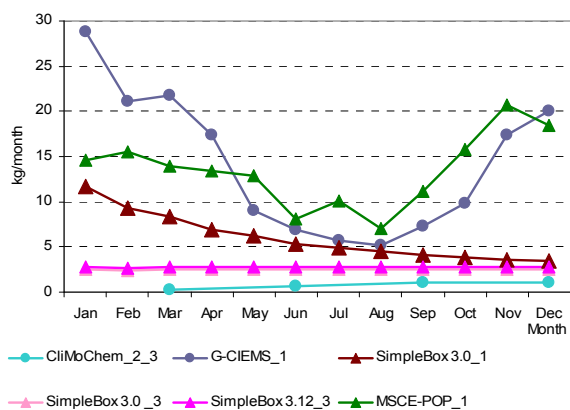
**Fig. 3.105a.** PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions



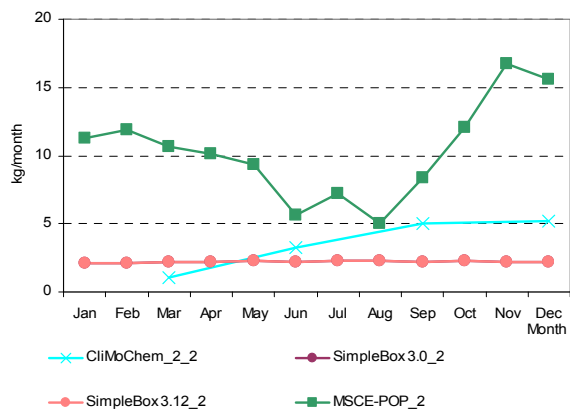
**Fig. 3.105b.** PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions

**Own/alternative data set.** Calculation results on PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table 3.82.

Monthly values of PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition 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. 3.106 a and b, respectively.



**Fig. 3.106a.** PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions (all models)



**Fig. 3.106b.** PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and zero-initial conditions

**Table 3.81** Calculation results: PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations					<i>m</i>	$\sigma$
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMo Chem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2		
Jan	27.76	7.12	14.10		2.36	2.64	10.80	10.61	Jan	15.46		2.11	2.11	11.40	7.77	6.74
Feb	21.13	5.71	14.90		2.19	2.47	9.28	8.39	Feb	15.23		2.10	2.11	12.00	7.86	6.77
Mar	20.69	5.25	13.50		2.34	2.64	8.88	8.00	Mar	16.92		2.25	2.26	10.70	8.03	7.14
<b>Seas_1</b>	<b>69.58</b>	<b>18.08</b>	<b>42.50</b>	<b>0.97</b>	<b>6.88</b>	<b>7.74</b>	<b>24.29</b>	<b>26.62</b>	<b>Seas_1</b>	<b>47.61</b>	<b>4.52</b>	<b>6.47</b>	<b>6.47</b>	<b>34.10</b>	<b>19.83</b>	<b>19.79</b>
Apr	15.54	4.46	13.10		2.26	2.55	7.58	6.27	Apr	13.73		2.19	2.19	10.40	7.13	5.86
May	7.52	4.14	12.90		2.34	2.64	5.91	4.42	May	7.05		2.26	2.26	9.83	5.35	3.74
Jun	5.62	3.66	8.45		2.26	2.55	4.51	2.57	Jun	5.41		2.19	2.19	6.24	4.01	2.13
<b>Seas_2</b>	<b>28.68</b>	<b>12.26</b>	<b>34.45</b>	<b>4.45</b>	<b>6.86</b>	<b>7.74</b>	<b>15.74</b>	<b>12.65</b>	<b>Seas_2</b>	<b>26.20</b>	<b>21.15</b>	<b>6.64</b>	<b>6.64</b>	<b>26.47</b>	<b>17.42</b>	<b>10.07</b>
Jul	4.56	3.52	10.50		2.34	2.64	4.71	3.35	Jul	4.48		2.27	2.27	7.90	4.23	2.66
Aug	4.09	3.31	7.58		2.34	2.64	3.99	2.12	Aug	4.06		2.27	2.27	5.66	3.57	1.63
Sep	6.00	3.04	11.80		2.26	2.55	5.13	4.02	Sep	6.00		2.20	2.20	9.15	4.89	3.36
<b>Seas_3</b>	<b>14.65</b>	<b>9.86</b>	<b>29.88</b>	<b>7.28</b>	<b>6.94</b>	<b>7.83</b>	<b>12.74</b>	<b>8.87</b>	<b>Seas_3</b>	<b>14.54</b>	<b>34.63</b>	<b>6.73</b>	<b>6.73</b>	<b>22.71</b>	<b>17.07</b>	<b>11.84</b>
Oct	8.41	3.01	16.00		2.34	2.64	6.48	5.88	Oct	8.45		2.27	2.27	12.80	6.45	5.14
Nov	15.57	2.81	20.40		2.26	2.55	8.72	8.63	Nov	15.67		2.20	2.20	16.90	9.24	8.15
Dec	18.70	2.73	18.20		2.26	2.55	8.89	8.73	Dec	18.85		2.20	2.20	15.70	9.74	8.80
<b>Seas_4</b>	<b>42.69</b>	<b>8.55</b>	<b>54.60</b>	<b>5.68</b>	<b>6.86</b>	<b>7.74</b>	<b>21.02</b>	<b>21.75</b>	<b>Seas_4</b>	<b>42.97</b>	<b>27.54</b>	<b>6.67</b>	<b>6.67</b>	<b>45.40</b>	<b>25.85</b>	<b>18.80</b>
<b>Annual</b>	<b>155.60</b>	<b>48.76</b>	<b>161.43</b>	<b>18.38</b>	<b>27.54</b>	<b>31.06</b>	<b>73.79</b>	<b>66.39</b>	<b>Annual</b>	<b>131.32</b>	<b>87.85</b>	<b>26.51</b>	<b>26.51</b>	<b>128.68</b>	<b>80.17</b>	<b>51.93</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.82.** Calculation results: PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations				<i>m</i>	$\sigma$
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				CliMo Chem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2		
Jan	28.86	11.69	14.60		2.55	2.81	12.10	10.78	Jan		2.08	2.08	11.30	5.15	5.32
Feb	21.15	9.35	15.50		2.37	2.63	10.20	8.17	Feb		2.09	2.09	11.90	5.36	5.67
Mar	21.72	8.36	14.00		2.54	2.82	9.89	8.11	Mar		2.24	2.24	10.70	5.06	4.88
<b>Seas_1</b>	<b>71.72</b>	<b>29.40</b>	<b>44.10</b>	<b>0.68</b>	<b>7.45</b>	<b>8.26</b>	<b>26.93</b>	<b>27.29</b>	<b>Seas_1</b>	<b>3.09</b>	<b>6.41</b>	<b>6.41</b>	<b>33.90</b>	<b>12.45</b>	<b>14.39</b>
Apr	17.39	6.89	13.40		2.46	2.73	8.57	6.62	Apr		2.18	2.18	10.10	4.82	4.58
May	8.98	6.20	12.90		2.54	2.82	6.69	4.37	May		2.25	2.25	9.30	4.60	4.07
Jun	6.90	5.32	8.13		2.46	2.73	5.11	2.50	Jun		2.19	2.19	5.68	3.35	2.02
<b>Seas_2</b>	<b>33.27</b>	<b>18.42</b>	<b>34.43</b>	<b>2.09</b>	<b>7.46</b>	<b>8.29</b>	<b>17.33</b>	<b>13.85</b>	<b>Seas_2</b>	<b>9.82</b>	<b>6.62</b>	<b>6.62</b>	<b>25.08</b>	<b>12.03</b>	<b>8.83</b>
Jul	5.69	4.96	10.10		2.54	2.83	5.22	3.04	Jul		2.26	2.26	7.23	3.92	2.87
Aug	5.15	4.53	7.08		2.55	2.83	4.43	1.85	Aug		2.27	2.27	5.02	3.19	1.59
Sep	7.27	4.05	11.20		2.47	2.74	5.54	3.69	Sep		2.20	2.20	8.36	4.25	3.56
<b>Seas_3</b>	<b>18.11</b>	<b>13.53</b>	<b>28.38</b>	<b>3.24</b>	<b>7.56</b>	<b>8.40</b>	<b>13.20</b>	<b>9.04</b>	<b>Seas_3</b>	<b>15.04</b>	<b>6.73</b>	<b>6.73</b>	<b>20.61</b>	<b>12.28</b>	<b>6.80</b>
Oct	9.84	3.91	15.80		2.55	2.83	6.99	5.75	Oct		2.27	2.27	12.10	5.55	5.67
Nov	17.33	3.57	20.70		2.47	2.74	9.36	8.90	Nov		2.20	2.20	16.70	7.04	8.37
Dec	20.06	3.39	18.50		2.47	2.74	9.43	9.01	Dec		2.21	2.21	15.60	6.67	7.73
<b>Seas_4</b>	<b>47.23</b>	<b>10.87</b>	<b>55.00</b>	<b>3.24</b>	<b>7.48</b>	<b>8.31</b>	<b>22.02</b>	<b>22.80</b>	<b>Seas_4</b>	<b>15.52</b>	<b>6.68</b>	<b>6.68</b>	<b>44.40</b>	<b>18.32</b>	<b>17.88</b>
<b>Annual</b>	<b>170.33</b>	<b>72.23</b>	<b>161.91</b>	<b>9.25</b>	<b>29.94</b>	<b>33.26</b>	<b>79.49</b>	<b>70.18</b>	<b>Annual</b>	<b>43.47</b>	<b>26.44</b>	<b>26.44</b>	<b>123.99</b>	<b>55.08</b>	<b>46.63</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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 mass flows (to regional and continental cells) 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 3.83.

**Table 3.83.** The percentage difference between calculation results on PCB-153 mass flows transported from the atmosphere to vegetation: dry deposition 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	G-CIEMS_1	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			4.0%	64.1%	-1.3%	-1.3%	8.1%	6.5%	3.5%	-0.9%
Feb			0.1%	63.7%	-0.9%	-0.9%	8.4%	6.6%	4.0%	-0.8%
Mar			4.9%	59.3%	-0.7%	-0.7%	8.5%	6.8%	3.7%	0.0%
<b>Seas_1</b>	<b>-31.8%</b>	<b>-30.1%</b>	<b>3.1%</b>	<b>62.6%</b>	<b>-0.9%</b>	<b>-0.9%</b>	<b>8.3%</b>	<b>6.6%</b>	<b>3.8%</b>	<b>-0.6%</b>
Apr			11.9%	54.6%	-0.5%	-0.5%	8.6%	6.9%	2.3%	-2.9%
May			19.5%	49.8%	-0.3%	-0.3%	8.7%	7.0%	0.0%	-5.4%
Jun			22.6%	45.2%	-0.2%	-0.2%	8.8%	7.1%	-3.8%	-9.0%
<b>Seas_2</b>	<b>-53.5%</b>	<b>-53.0%</b>	<b>16.0%</b>	<b>50.2%</b>	<b>-0.3%</b>	<b>-0.3%</b>	<b>8.7%</b>	<b>7.0%</b>	<b>-0.1%</b>	<b>-5.3%</b>
Jul			24.9%	40.9%	-0.1%	-0.1%	8.9%	7.2%	-3.8%	-8.5%
Aug			26.0%	36.9%	0.0%	0.0%	8.9%	7.3%	-6.6%	-11.3%
Sep			21.0%	33.3%	0.1%	0.1%	9.0%	7.3%	-5.1%	-8.6%
<b>Seas_3</b>	<b>-56.6%</b>	<b>-55.5%</b>	<b>23.6%</b>	<b>37.2%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>8.9%</b>	<b>7.2%</b>	<b>-5.0%</b>	<b>-9.2%</b>
Oct			16.9%	30.0%	0.2%	0.1%	9.0%	7.3%	-1.3%	-5.5%
Nov			11.3%	27.0%	0.2%	0.2%	9.0%	7.3%	1.5%	-1.2%
Dec			7.3%	24.4%	0.3%	0.3%	9.1%	7.3%	1.6%	-0.6%
<b>Seas_4</b>	<b>-43.7%</b>	<b>-43.0%</b>	<b>10.6%</b>	<b>27.2%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>9.0%</b>	<b>7.3%</b>	<b>0.7%</b>	<b>-2.2%</b>
<b>Annual</b>	<b>-50.5%</b>	<b>-49.7%</b>	<b>9.5%</b>	<b>48.1%</b>	<b>-0.3%</b>	<b>-0.3%</b>	<b>8.7%</b>	<b>7.1%</b>	<b>0.3%</b>	<b>-3.6%</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

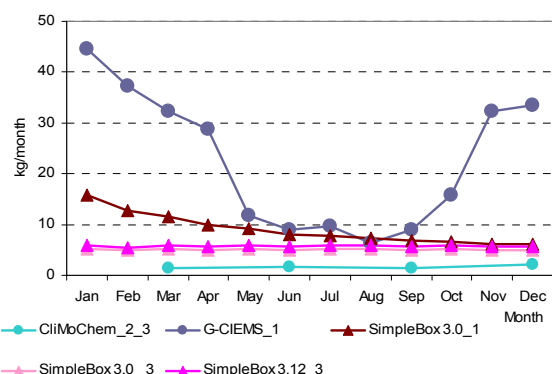
SimpleBox 3.0\_2 and SimpleBox 3.12\_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;

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;

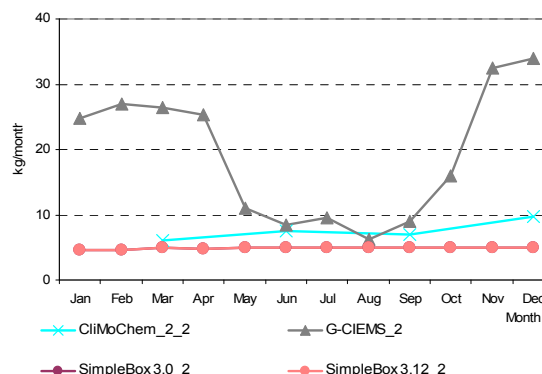
## Wet deposition

**Reference data set.** Calculation results on PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.84.

Monthly values of PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition 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. 3.107 a and b, respectively.



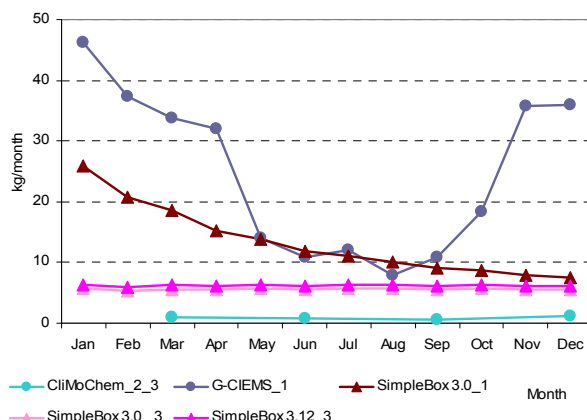
**Fig. 3.107a.** PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions (all models)



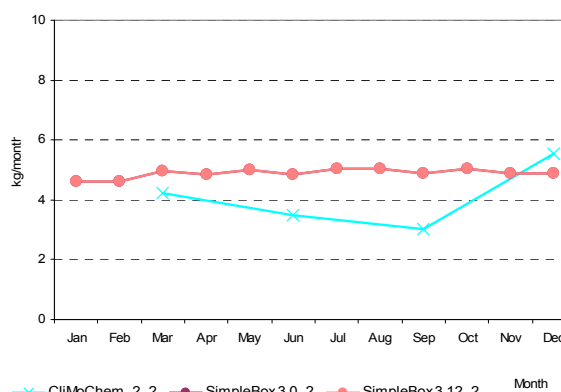
**Fig. 3.107b.** PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions

**Own/alternative data set.** Calculation results on PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table 3.85.

Monthly values of PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition 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. 3.108 a and b, respectively.



**Fig. 3.108a.** PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions



**Fig. 3.108b.** PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and zero-initial conditions



**Table 3.84.** Calculation results: PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations				<i>m</i>	$\sigma$
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	CliMoChem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMoChem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>		
Jan	44.54	15.81		5.23	5.86	17.86	18.43	Jan	24.80		4.67	4.67	11.38	11.62
Feb	37.35	12.68		4.85	5.48	15.09	15.26	Feb	26.92		4.67	4.67	12.09	12.84
Mar	32.30	11.64		5.19	5.86	13.75	12.70	Mar	26.41		5.01	5.01	12.14	12.36
<b>Seas_1</b>	<b>114.18</b>	<b>40.14</b>	<b>3.94</b>	<b>15.27</b>	<b>17.19</b>	<b>38.14</b>	<b>44.49</b>	<b>Seas_1</b>	<b>78.12</b>	<b>18.32</b>	<b>14.35</b>	<b>14.35</b>	<b>31.29</b>	<b>31.28</b>
Apr	28.70	9.90		5.02	5.67	12.32	11.13	Apr	25.37		4.85	4.85	11.69	11.84
May	11.80	9.19		5.19	5.86	8.01	3.07	May	11.08		5.02	5.02	7.04	3.50
Jun	8.85	8.13		5.02	5.67	6.92	1.86	Jun	8.50		4.86	4.86	6.08	2.10
<b>Seas_2</b>	<b>49.34</b>	<b>27.22</b>	<b>4.70</b>	<b>15.23</b>	<b>17.19</b>	<b>22.74</b>	<b>16.89</b>	<b>Seas_2</b>	<b>44.95</b>	<b>22.34</b>	<b>14.74</b>	<b>14.74</b>	<b>24.19</b>	<b>14.29</b>
Jul	9.69	7.81		5.19	5.86	7.14	2.03	Jul	9.53		5.03	5.03	6.53	2.60
Aug	6.35	7.34		5.19	5.86	6.18	0.91	Aug	6.30		5.03	5.04	5.46	0.73
Sep	9.00	6.75		5.02	5.67	6.61	1.74	Sep	9.00		4.88	4.88	6.25	2.38
<b>Seas_3</b>	<b>25.04</b>	<b>21.90</b>	<b>4.38</b>	<b>15.40</b>	<b>17.38</b>	<b>16.82</b>	<b>7.91</b>	<b>Seas_3</b>	<b>24.84</b>	<b>20.83</b>	<b>14.94</b>	<b>14.94</b>	<b>18.89</b>	<b>4.84</b>
Oct	15.87	6.68		5.19	5.86	8.40	5.02	Oct	15.94		5.04	5.04	8.68	6.29
Nov	32.19	6.24		5.02	5.67	12.28	13.29	Nov	32.44		4.88	4.88	14.07	15.91
Dec	33.57	6.05		5.02	5.67	12.58	14.00	Dec	33.90		4.88	4.88	14.56	16.75
<b>Seas_4</b>	<b>81.63</b>	<b>18.97</b>	<b>6.03</b>	<b>15.23</b>	<b>17.19</b>	<b>27.81</b>	<b>30.50</b>	<b>Seas_4</b>	<b>82.28</b>	<b>29.21</b>	<b>14.80</b>	<b>14.81</b>	<b>35.28</b>	<b>32.07</b>
<b>Annual</b>	<b>270.19</b>	<b>108.22</b>	<b>19.04</b>	<b>61.13</b>	<b>68.95</b>	<b>105.51</b>	<b>97.35</b>	<b>Annual</b>	<b>230.19</b>	<b>90.70</b>	<b>58.84</b>	<b>58.84</b>	<b>109.64</b>	<b>81.76</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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;

a - SimpleBox data presented here are overall mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

\* - In MSCE-POP model wet deposition on vegetation is not taken into account since it is considered as a part of deposition directly to soil.

**Table 3.85.** Calculation results: PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition (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			<i>m</i>	$\sigma$	Month	Results obtained on the basis of zero initial concentrations			<i>m</i>	$\sigma$
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	CliMoChem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				CliMoChem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>		
Jan	46.18	25.95		5.65	6.24	21.01	19.25	Jan		4.62	4.62	4.62	0.00
Feb	37.27	20.75		5.26	5.84	17.28	15.14	Feb		4.63	4.63	4.63	0.00
Mar	33.78	18.55		5.63	6.25	16.05	13.23	Mar		4.97	4.97	4.97	0.00
<b>Seas_1</b>	<b>117.23</b>	<b>65.25</b>	<b>2.80</b>	<b>16.54</b>	<b>18.33</b>	<b>44.03</b>	<b>47.24</b>	<b>Seas_1</b>	<b>12.72</b>	<b>14.22</b>	<b>14.22</b>	<b>13.72</b>	<b>0.86</b>
Apr	31.98	15.30		5.45	6.06	14.70	12.37	Apr		4.83	4.83	4.83	0.00
May	14.02	13.77		5.64	6.27	9.92	4.59	May		5.00	5.00	5.00	0.00
Jun	10.78	11.81		5.46	6.07	8.53	3.23	Jun		4.86	4.85	4.86	0.00
<b>Seas_2</b>	<b>56.78</b>	<b>40.88</b>	<b>2.22</b>	<b>16.56</b>	<b>18.40</b>	<b>26.97</b>	<b>21.66</b>	<b>Seas_2</b>	<b>10.42</b>	<b>14.69</b>	<b>14.69</b>	<b>13.27</b>	<b>2.46</b>
Jul	12.01	11.00		5.65	6.28	8.73	3.24	Jul		5.03	5.03	5.03	0.00
Aug	7.94	10.04		5.65	6.28	7.48	1.96	Aug		5.04	5.04	5.04	0.00
Sep	10.82	8.99		5.47	6.08	7.84	2.51	Sep		4.88	4.88	4.88	0.00
<b>Seas_3</b>	<b>30.77</b>	<b>30.04</b>	<b>1.95</b>	<b>16.77</b>	<b>18.64</b>	<b>19.63</b>	<b>11.77</b>	<b>Seas_3</b>	<b>9.05</b>	<b>14.94</b>	<b>14.94</b>	<b>12.98</b>	<b>3.40</b>
Oct	18.45	8.69		5.65	6.29	9.77	5.93	Oct		5.05	5.05	5.05	0.00
Nov	35.69	7.92		5.47	6.08	13.79	14.64	Nov		4.89	4.89	4.89	0.00
Dec	35.89	7.53		5.48	6.08	13.74	14.79	Dec		4.90	4.90	4.90	0.00
<b>Seas_4</b>	<b>90.03</b>	<b>24.14</b>	<b>3.48</b>	<b>16.60</b>	<b>18.45</b>	<b>30.54</b>	<b>34.11</b>	<b>Seas_4</b>	<b>16.65</b>	<b>14.84</b>	<b>14.84</b>	<b>15.44</b>	<b>1.04</b>
<b>Annual</b>	<b>294.82</b>	<b>160.32</b>	<b>10.45</b>	<b>66.47</b>	<b>73.82</b>	<b>121.17</b>	<b>110.88</b>	<b>Annual</b>	<b>48.85</b>	<b>58.69</b>	<b>58.69</b>	<b>55.41</b>	<b>5.68</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

a - SimpleBox data presented here are overall mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

\* - In MSCE-POP model wet deposition on vegetation is not taken into account since it is considered as a part of deposition directly to soil.

**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 3.86.

**Table 3.86.** The percentage difference between calculation results on PCB-153 mass flows transported from the atmosphere to vegetation: wet deposition obtained by models on the basis of two data sets: “reference” and “own or alternative” data sets

Month	CliMoChem_2_2	CliMoChem_2_3	G-CIEMS_1	Simple Box 3.0_1	SimpleBox 3.0_2	SimpleBox 3.12_2	SimpleBox 3.0_3	SimpleBox 3.12_3
Jan			3.7%	64.1%	-1.3%	-1.3%	8.1%	6.5%
Feb			-0.2%	63.7%	-0.9%	-0.9%	8.4%	6.6%
Mar			4.6%	59.3%	-0.7%	-0.7%	8.5%	6.8%
<b>Seas_1</b>	<b>-30.5%</b>	<b>-28.8%</b>	<b>2.7%</b>	<b>62.6%</b>	<b>-0.9%</b>	<b>-0.9%</b>	<b>8.3%</b>	<b>6.6%</b>
Apr			11.4%	54.6%	-0.5%	-0.5%	8.6%	6.9%
May			18.8%	49.8%	-0.3%	-0.3%	8.7%	7.0%
Jun			21.8%	45.2%	-0.2%	-0.2%	8.8%	7.1%
<b>Seas_2</b>	<b>-53.3%</b>	<b>-52.8%</b>	<b>15.1%</b>	<b>50.2%</b>	<b>-0.3%</b>	<b>-0.3%</b>	<b>8.7%</b>	<b>7.0%</b>
Jul			23.9%	40.9%	-0.1%	-0.1%	8.9%	7.2%
Aug			25.0%	36.9%	0.0%	0.0%	8.9%	7.3%
Sep			20.3%	33.3%	0.1%	0.1%	9.0%	7.3%
<b>Seas_3</b>	<b>-56.5%</b>	<b>-55.5%</b>	<b>22.9%</b>	<b>37.2%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>8.9%</b>	<b>7.2%</b>
Oct			16.3%	30.0%	0.2%	0.1%	9.0%	7.3%
Nov			10.9%	27.0%	0.2%	0.2%	9.0%	7.3%
Dec			6.9%	24.4%	0.3%	0.3%	9.1%	7.3%
<b>Seas_4</b>	<b>-43.0%</b>	<b>-42.3%</b>	<b>10.3%</b>	<b>27.2%</b>	<b>0.2%</b>	<b>0.2%</b>	<b>9.0%</b>	<b>7.3%</b>
<b>Annual</b>	<b>-46.1%</b>	<b>-45.1%</b>	<b>9.1%</b>	<b>48.1%</b>	<b>-0.3%</b>	<b>-0.3%</b>	<b>8.7%</b>	<b>7.1%</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

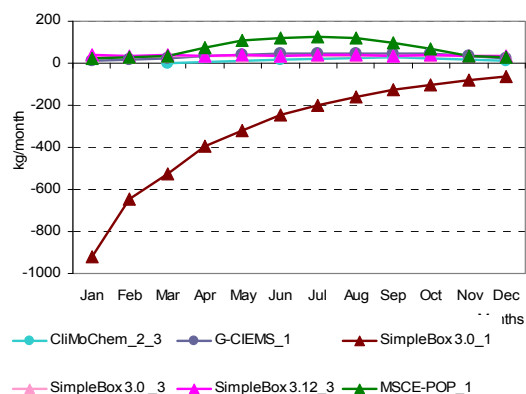
SimpleBox 3.0\_2 and SimpleBox 3.12\_2 – SimpleBox results of versions 3.0 and 3.12, respectively, calculated on the basis of zero initial concentrations;

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.

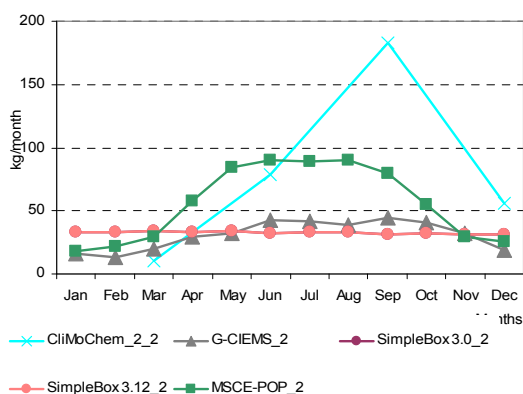
### Gaseous exchange

**Reference data set.** Calculation results on PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.87.

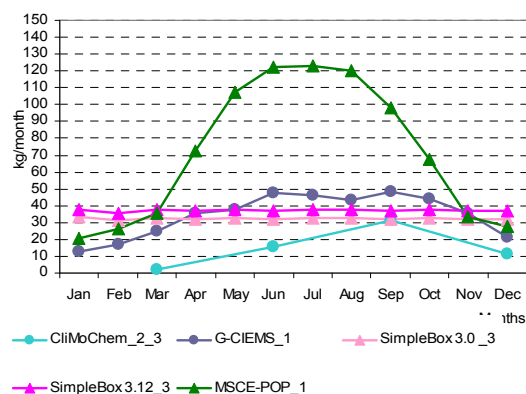
Monthly values of PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange calculated by participating models on the basis of “reference” data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. 3.109a and b, respectively. Seasonal variations for models with positive values of gaseous exchange flows between the atmosphere and vegetation calculated by the participating models on the basis of “reference” data set and non-zero initial conditions are also shown in Fig. 3.109c in more detail.



**Fig. 3.109a.** PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions (all models)



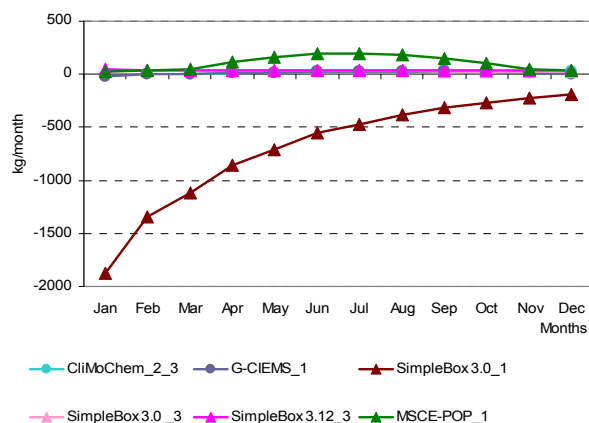
**Fig. 3.109b.** PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions



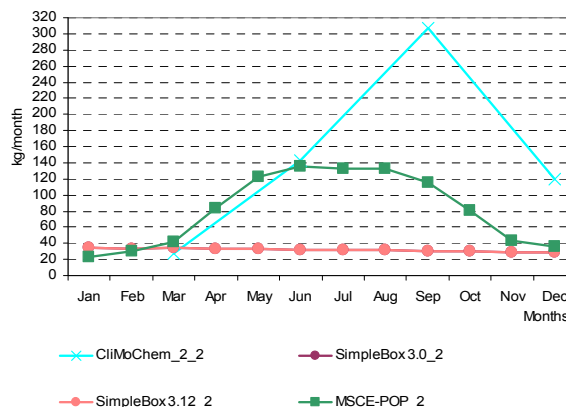
**Fig. 3.109c.** PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions (models with positive values)

**Own/alternative data set.** Calculation results on PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table 3.88.

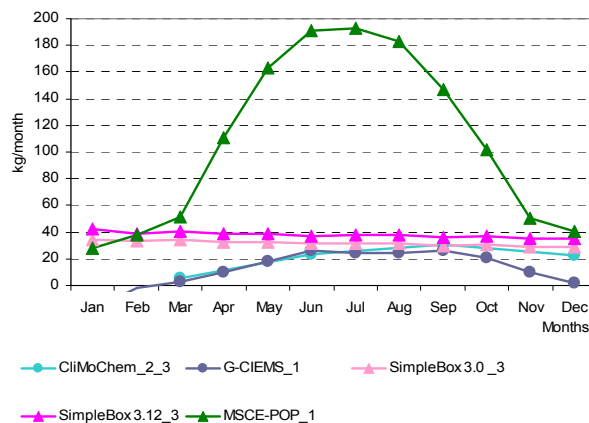
Monthly values of PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange calculated by participating models on the basis of “own or alternative” data sets and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. 3.110a and b, respectively. Seasonal variations for models with positive values of gaseous exchange flows between the atmosphere and vegetation calculated by the participating models on the basis of “own or alternative” data set and non-zero initial conditions are also shown in Fig. 3.110c in more detail.



**Fig. 3.110a.** PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions (all models)



**Fig. 3.110b.** PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange (kg/month) calculated by the participating models on the basis of “own or alternative” data sets and zero-initial conditions



**Fig. 3.110c.** PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange (kg/month) calculated by the participating models on the basis of “own or alternative” data set and non-zero initial conditions (models with positive values)

**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 3.89.

**Table 3.87.** Calculation results: PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange (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			<i>m</i>	<i>σ</i>	Month	Results obtained on the basis of zero initial concentrations					<i>m</i>	<i>σ</i>
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMoChem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMoChem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2		
Jan	13.08	-921.76	20.70		33.45	37.94	-163.32	424.10	Jan	15.77		33.46	33.46	18.00	25.17	9.61
Feb	16.91	-646.79	26.00		30.93	35.49	-107.49	301.55	Feb	13.10		32.73	32.73	21.50	25.01	9.55
Mar	24.93	-528.35	35.30		33.01	37.94	-79.43	251.00	Mar	19.45		34.46	34.47	29.10	29.37	7.08
<b>Seas_1</b>	<b>54.92</b>	<b>-2096.89</b>	<b>82.00</b>	<b>6.67</b>	<b>97.39</b>	<b>111.36</b>	<b>-290.76</b>	<b>885.59</b>	<b>Seas_1</b>	<b>48.31</b>	<b>31.22</b>	<b>100.65</b>	<b>100.65</b>	<b>68.60</b>	<b>69.89</b>	<b>31.04</b>
Apr	35.81	-394.13	72.60		31.90	36.71	-43.42	196.74	Apr	29.42		32.94	32.94	57.90	38.30	13.17
May	37.82	-318.06	107.00		32.91	37.94	-20.48	169.16	May	32.57		33.69	33.69	84.00	45.99	25.35
Jun	47.76	-242.90	122.00		31.81	36.71	-0.92	140.11	Jun	42.24		32.33	32.33	90.20	49.28	27.68
<b>Seas_2</b>	<b>121.39</b>	<b>-955.09</b>	<b>301.60</b>	<b>46.39</b>	<b>96.62</b>	<b>111.36</b>	<b>-46.29</b>	<b>453.64</b>	<b>Seas_2</b>	<b>104.23</b>	<b>235.86</b>	<b>98.96</b>	<b>98.97</b>	<b>232.10</b>	<b>154.03</b>	<b>73.03</b>
Jul	46.28	-199.87	123.00		32.84	37.94	8.04	121.87	Jul	41.29		33.17	33.18	89.00	49.16	26.83
Aug	43.35	-159.53	120.00		32.80	37.94	14.91	103.84	Aug	39.08		32.97	32.98	89.80	48.71	27.55
Sep	48.30	-124.08	98.30		31.72	36.71	18.19	83.80	Sep	44.11		31.75	31.75	79.80	46.85	22.72
<b>Seas_3</b>	<b>137.93</b>	<b>-483.48</b>	<b>341.30</b>	<b>92.90</b>	<b>97.36</b>	<b>112.58</b>	<b>49.77</b>	<b>277.56</b>	<b>Seas_3</b>	<b>124.48</b>	<b>547.97</b>	<b>97.89</b>	<b>97.90</b>	<b>258.60</b>	<b>225.37</b>	<b>192.26</b>
Oct	44.19	-103.13	67.50		32.75	37.94	15.85	67.82	Oct	40.36		32.67	32.67	55.00	40.18	10.53
Nov	35.83	-80.01	33.70		31.67	36.71	11.58	51.24	Nov	32.31		31.50	31.50	29.10	31.10	1.39
Dec	21.43	-63.98	28.00		31.66	36.71	10.76	42.15	Dec	18.63		31.40	31.40	25.50	26.73	6.08
<b>Seas_4</b>	<b>101.45</b>	<b>-247.12</b>	<b>129.20</b>	<b>33.39</b>	<b>96.08</b>	<b>111.36</b>	<b>37.39</b>	<b>143.12</b>	<b>Seas_4</b>	<b>91.30</b>	<b>168.33</b>	<b>95.56</b>	<b>95.58</b>	<b>109.60</b>	<b>112.07</b>	<b>32.20</b>
<b>Annual</b>	<b>415.68</b>	<b>-3782.58</b>	<b>854.10</b>	<b>179.35</b>	<b>387.46</b>	<b>446.66</b>	<b>-249.89</b>	<b>1744.55</b>	<b>Annual</b>	<b>368.33</b>	<b>983.38</b>	<b>393.07</b>	<b>393.10</b>	<b>668.90</b>	<b>561.36</b>	<b>266.25</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.88.** Calculation results: PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange (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			<i>m</i>	<i>σ</i>	Month	Results obtained on the basis of zero initial concentrations				<i>m</i>	<i>σ</i>
	G-CIEMS_1	SimpleBox 3.0_1a	MSCE-POP_1	CliMo Chem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				CliMo Chem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2		
Jan	-17.60	-1878.15	27.50		38.03	42.37	-357.57	850.36	Jan		34.68	34.68	23.00	30.79	6.74
Feb	-2.15	-1344.85	37.40		34.42	38.58	-247.32	613.77	Feb		33.33	33.33	29.70	32.12	2.10
Mar	3.02	-1123.03	51.80		36.05	40.36	-198.36	517.22	Mar		34.52	34.52	41.20	36.75	3.86
<b>Seas_1</b>	<b>-16.74</b>	<b>-4346.03</b>	<b>116.70</b>	<b>17.13</b>	<b>108.51</b>	<b>121.30</b>	<b>-666.52</b>	<b>1803.50</b>	<b>Seas_1</b>	<b>80.58</b>	<b>102.53</b>	<b>102.53</b>	<b>93.90</b>	<b>94.89</b>	<b>10.37</b>
Apr	9.57	-857.32	111.00		34.28	38.33	-132.83	406.76	Apr		32.52	32.51	84.30	49.78	29.90
May	17.71	-708.67	163.00		34.89	38.97	-90.82	350.21	May		32.84	32.84	122.00	62.56	51.47
Jun	25.69	-555.27	191.00		33.33	37.20	-53.61	288.78	Jun		31.18	31.17	135.00	65.78	59.94
<b>Seas_2</b>	<b>52.96</b>	<b>-2121.25</b>	<b>465.00</b>	<b>69.07</b>	<b>102.50</b>	<b>114.49</b>	<b>-219.54</b>	<b>944.24</b>	<b>Seas_2</b>	<b>427.54</b>	<b>96.53</b>	<b>96.53</b>	<b>341.30</b>	<b>240.48</b>	<b>169.90</b>
Jul	24.75	-469.76	193.00		34.05	37.98	-35.99	252.32	Jul		31.69	31.69	133.00	65.46	58.49
Aug	24.47	-386.87	183.00		33.71	37.58	-21.62	214.46	Aug		31.23	31.23	132.00	64.82	58.18
Sep	25.91	-311.56	147.00		32.36	36.03	-14.05	173.71	Sep		29.86	29.86	115.00	58.24	49.16
<b>Seas_3</b>	<b>75.13</b>	<b>-1168.18</b>	<b>523.00</b>	<b>93.15</b>	<b>100.12</b>	<b>111.59</b>	<b>-44.20</b>	<b>576.76</b>	<b>Seas_3</b>	<b>921.25</b>	<b>92.78</b>	<b>92.77</b>	<b>380.00</b>	<b>371.70</b>	<b>390.59</b>
Oct	20.69	-269.49	102.00		33.18	36.95	-15.34	145.56	Oct		30.53	30.53	80.50	47.18	28.85
Nov	9.71	-219.13	50.70		31.89	35.50	-18.26	113.24	Nov		29.27	29.27	42.70	33.75	7.75
Dec	1.81	-185.10	40.30		31.73	35.28	-15.20	96.16	Dec		29.04	29.04	35.90	31.33	3.96
<b>Seas_4</b>	<b>32.22</b>	<b>-673.73</b>	<b>193.00</b>	<b>66.60</b>	<b>96.80</b>	<b>107.73</b>	<b>-29.56</b>	<b>320.11</b>	<b>Seas_4</b>	<b>360.49</b>	<b>88.84</b>	<b>88.83</b>	<b>159.10</b>	<b>174.32</b>	<b>128.46</b>
<b>Annual</b>	<b>143.58</b>	<b>-8309.19</b>	<b>1297.70</b>	<b>245.94</b>	<b>407.92</b>	<b>455.11</b>	<b>-959.82</b>	<b>3623.64</b>	<b>Annual</b>	<b>1789.87</b>	<b>380.69</b>	<b>380.67</b>	<b>974.30</b>	<b>881.38</b>	<b>667.18</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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 mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

**Table 3.89.** Comparison of the calculation results on PCB-153 mass flows between the atmosphere and vegetation: gaseous exchange (kg/month) obtained by models on the basis of two data sets: “reference” and “own or alternative” data sets

Month	CliMoChem_2_3		G-CIEMS_1		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	alt	ref	own	ref	own	ref	own
Jan			13.1	-17.6	-921.8	-1878.2	33.46	34.68	33.46	34.68	33.45	38.03	37.94	42.37	20.7	27.5	18.00	23.00		
Feb			16.9	-2.2	-646.8	-1344.9	32.73	33.33	32.73	33.33	30.93	34.42	35.49	38.58	26.0	37.4	21.50	29.70		
Mar			24.9	3.0	-528.3	-1123.0	34.46	34.52	34.47	34.52	33.01	36.05	37.94	40.36	35.3	51.8	29.10	41.20		
<b>Seas_1</b>	<b>6.7</b>	<b>17.1</b>	<b>54.9</b>	<b>-16.7</b>	<b>-2096.9</b>	<b>-4346.0</b>	<b>100.65</b>	<b>102.53</b>	<b>100.65</b>	<b>102.53</b>	<b>97.39</b>	<b>108.51</b>	<b>111.36</b>	<b>121.30</b>	<b>82.0</b>	<b>116.7</b>	<b>68.60</b>	<b>93.90</b>	<b>31.22</b>	<b>80.58</b>
Apr			35.8	9.6	-394.1	-857.3	32.94	32.52	32.94	32.51	31.90	34.28	36.71	38.33	72.6	111.0	57.90	84.30		
May			37.8	17.7	-318.1	-708.7	33.69	32.84	33.69	32.84	32.91	34.89	37.94	38.97	107.0	163.0	84.00	122.00		
Jun			47.8	25.7	-242.9	-555.3	32.33	31.18	32.33	31.17	31.81	33.33	36.71	37.20	122.0	191.0	90.20	135.00		
<b>Seas_2</b>	<b>46.4</b>	<b>69.1</b>	<b>121.4</b>	<b>53.0</b>	<b>-955.1</b>	<b>-2121.2</b>	<b>98.96</b>	<b>96.53</b>	<b>98.97</b>	<b>96.53</b>	<b>96.62</b>	<b>102.50</b>	<b>111.36</b>	<b>114.49</b>	<b>301.6</b>	<b>465.0</b>	<b>232.10</b>	<b>341.30</b>	<b>235.86</b>	<b>427.54</b>
Jul			46.3	24.8	-199.9	-469.8	33.17	31.69	33.18	31.69	32.84	34.05	37.94	37.98	123.0	193.0	89.00	133.00		
Aug			43.3	24.5	-159.5	-386.9	32.97	31.23	32.98	31.23	32.80	33.71	37.94	37.58	120.0	183.0	89.80	132.00		
Sep			48.3	25.9	-124.1	-311.6	31.75	29.86	31.75	29.86	31.72	32.36	36.71	36.03	98.3	147.0	79.80	115.00		
<b>Seas_3</b>	<b>92.9</b>	<b>93.1</b>	<b>137.9</b>	<b>75.1</b>	<b>-483.5</b>	<b>-1168.2</b>	<b>97.89</b>	<b>92.78</b>	<b>97.90</b>	<b>92.77</b>	<b>97.36</b>	<b>100.12</b>	<b>112.58</b>	<b>111.59</b>	<b>341.3</b>	<b>523.0</b>	<b>258.60</b>	<b>380.00</b>	<b>547.97</b>	<b>921.25</b>
Oct			44.2	20.7	-103.1	-269.5	32.67	30.53	32.67	30.53	32.75	33.18	37.94	36.95	67.5	102.0	55.00	80.50		
Nov			35.8	9.7	-80.0	-219.1	31.50	29.27	31.50	29.27	31.67	31.89	36.71	35.50	33.7	50.7	29.10	42.70		
Dec			21.4	1.8	-64.0	-185.1	31.40	29.04	31.40	29.04	31.66	31.73	36.71	35.28	28.0	40.3	25.50	35.90		
<b>Seas_4</b>	<b>33.4</b>	<b>66.6</b>	<b>101.4</b>	<b>32.2</b>	<b>-247.1</b>	<b>-673.7</b>	<b>95.56</b>	<b>88.84</b>	<b>95.58</b>	<b>88.83</b>	<b>96.08</b>	<b>96.80</b>	<b>111.36</b>	<b>107.73</b>	<b>129.2</b>	<b>193.0</b>	<b>109.60</b>	<b>159.10</b>	<b>168.33</b>	<b>360.49</b>
<b>Annual</b>	<b>179.4</b>	<b>245.9</b>	<b>415.7</b>	<b>143.6</b>	<b>-3782.6</b>	<b>-8309.2</b>	<b>393.07</b>	<b>380.69</b>	<b>393.10</b>	<b>380.67</b>	<b>387.46</b>	<b>407.92</b>	<b>446.66</b>	<b>455.11</b>	<b>854.1</b>	<b>1297.7</b>	<b>668.90</b>	<b>974.30</b>	<b>983.38</b>	<b>1789.87</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

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;

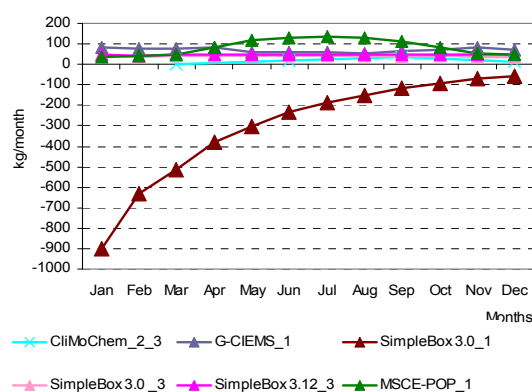


### Net mass flows between the atmosphere and vegetation

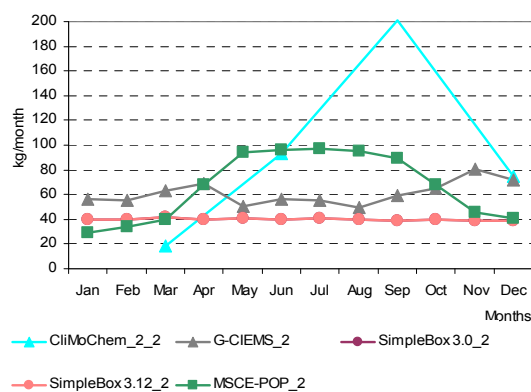
Net mass flows are equal to the total mass flows resulted from summing up of dry and wet depositions and gaseous exchange.

**Reference data set.** Calculation results on PCB-153 net mass flows between the atmosphere and vegetation calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.90.

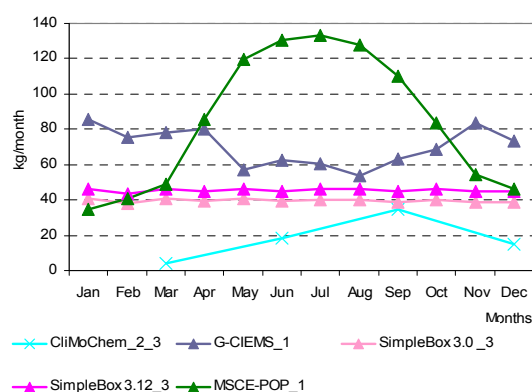
Monthly values of PCB-153 net mass flows between the atmosphere and vegetation calculated by participating models on the basis of “reference” data set and taking into account non-zero (initial concentrations in media or historical emissions) and zero initial conditions are compared in Fig. 3.111 a and b, respectively. Seasonal variations for models with low positive values of net mass flows between the atmosphere and vegetation calculated by the participating models on the basis of “reference” data set and non-zero initial conditions are also shown in Fig. 3.111c in more detail.



**Fig. 3.111a.** PCB-153 net mass flows between the atmosphere and vegetation (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions (all models)



**Fig. 3.111b.** PCB-153 net mass flows between the atmosphere and vegetation (kg/month) calculated by the participating models on the basis of “reference” data set and zero-initial conditions



**Fig. 3.111c.** PCB-153 net mass flows between the atmosphere and vegetation (kg/month) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions (models with low values)



**Table 3.90.** Calculation results: PCB-153 net mass flows between the atmosphere and vegetation (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			<i>m</i>	<i>σ</i>	Month	Results obtained on the basis of zero initial concentrations					<i>m</i>	<i>σ</i>
	G-CIEMS_1	SimpleBox 3.0_1 <sup>a</sup>	MSCE-POP_1	CliMoChem_2_3	SimpleBox 3.0_3 <sup>a</sup>	SimpleBox 3.12_3 <sup>a</sup>				G-CIEMS_2	CliMoChem_2_2	SimpleBox 3.0_2 <sup>a</sup>	SimpleBox 3.12_2 <sup>a</sup>	MSCE-POP_2		
Jan	85.37	-898.82	34.80		41.04	46.43	-138.24	425.64	Jan	56.02		40.24	40.24	29.40	41.47	10.96
Feb	75.39	-628.40	40.90		37.97	43.43	-86.14	303.51	Feb	55.24		39.51	39.51	33.50	41.94	9.31
Mar	77.92	-511.46	48.80		40.53	46.43	-59.56	253.03	Mar	62.78		41.72	41.73	39.80	46.51	10.89
<b>Seas_1</b>	<b>238.68</b>	<b>-2038.67</b>	<b>124.50</b>	<b>11.57</b>	<b>119.54</b>	<b>136.29</b>	<b>-234.68</b>	<b>886.70</b>	<b>Seas_1</b>	<b>174.05</b>	<b>54.06</b>	<b>121.47</b>	<b>121.47</b>	<b>102.70</b>	<b>114.75</b>	<b>43.11</b>
Apr	80.04	-379.77	85.70		39.18	44.93	-25.98	198.84	Apr	68.52		39.98	39.98	68.30	54.20	16.42
May	57.14	-304.73	119.90		40.44	46.43	-8.17	168.79	May	50.71		40.98	40.98	93.83	56.62	25.23
Jun	62.23	-231.11	130.45		39.10	44.93	9.12	139.13	Jun	56.15		39.39	39.39	96.44	57.84	26.92
<b>Seas_2</b>	<b>199.41</b>	<b>-915.61</b>	<b>336.05</b>	<b>55.54</b>	<b>118.71</b>	<b>136.29</b>	<b>-11.60</b>	<b>452.99</b>	<b>Seas_2</b>	<b>175.38</b>	<b>279.35</b>	<b>120.34</b>	<b>120.35</b>	<b>258.57</b>	<b>190.80</b>	<b>75.17</b>
Jul	60.53	-188.54	133.50		40.36	46.43	18.46	121.57	Jul	55.29		40.47	40.47	96.90	58.28	26.67
Aug	53.79	-148.88	127.58		40.33	46.43	23.85	102.80	Aug	49.44		40.28	40.28	95.46	56.36	26.42
Sep	63.30	-114.29	110.10		39.00	44.93	28.61	84.62	Sep	59.12		38.82	38.83	88.95	56.43	23.70
<b>Seas_3</b>	<b>177.62</b>	<b>-451.72</b>	<b>371.18</b>	<b>104.55</b>	<b>119.70</b>	<b>137.79</b>	<b>76.52</b>	<b>276.58</b>	<b>Seas_3</b>	<b>163.85</b>	<b>603.43</b>	<b>119.57</b>	<b>119.58</b>	<b>281.31</b>	<b>257.55</b>	<b>204.36</b>
Oct	68.48	-93.43	83.50		40.28	46.43	29.05	70.62	Oct	64.76		39.98	39.98	67.80	53.13	15.23
Nov	83.59	-70.97	54.10		38.96	44.93	30.12	59.06	Nov	80.42		38.58	38.58	46.00	50.89	19.99
Dec	73.70	-55.20	46.20		38.94	44.93	29.71	49.33	Dec	71.38		38.48	38.49	41.20	47.39	16.05
<b>Seas_4</b>	<b>225.77</b>	<b>-219.60</b>	<b>183.80</b>	<b>45.11</b>	<b>118.17</b>	<b>136.29</b>	<b>81.59</b>	<b>159.76</b>	<b>Seas_4</b>	<b>216.55</b>	<b>225.08</b>	<b>117.03</b>	<b>117.05</b>	<b>155.00</b>	<b>166.14</b>	<b>52.35</b>
<b>Annual</b>	<b>841.48</b>	<b>-3625.60</b>	<b>1015.53</b>	<b>216.77</b>	<b>476.12</b>	<b>546.67</b>	<b>-88.17</b>	<b>1755.58</b>	<b>Annual</b>	<b>729.83</b>	<b>1161.93</b>	<b>478.41</b>	<b>478.45</b>	<b>797.58</b>	<b>729.24</b>	<b>281.82</b>

G-CIEMS\_1 - G-CIEMS results calculated on the basis of initial concentrations given as input data;

G-CIEMS\_2 - G-CIEMS results calculated on the basis of zero initial concentrations;

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;;

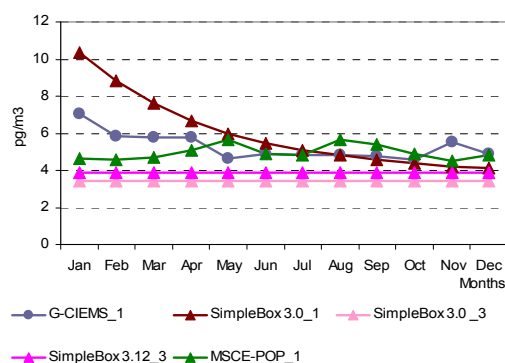
a - SimpleBox data presented here are overall mass flows (to regional and continental cells) calculated as sum of regional and continental level estimates.

### 3.5. Concentrations at each interface

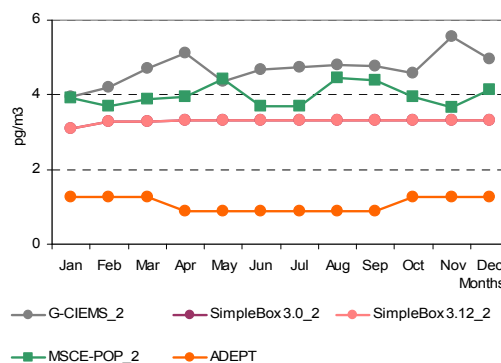
#### 3.5.1. Comparison of calculated values of PCB-153 concentration in the atmosphere at its interface with soil

**Reference data set.** Calculation results on PCB-153 concentration in the atmosphere at its interface with soil calculated by the models on the basis of “reference” data set together with statistical parameters used for evaluation are presented in Table 3.91.

Monthly values of PCB-153 concentration in the atmosphere at its interface with soil 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. 3.112 a and b, respectively.



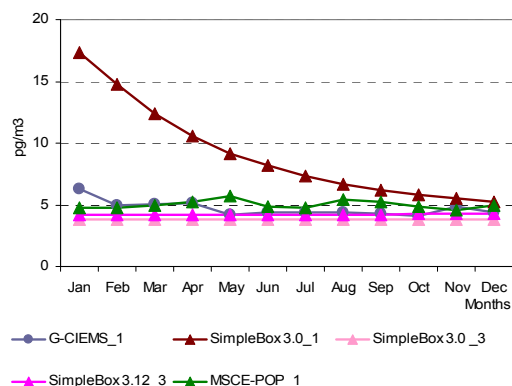
**Fig. 3.112a.** PCB-153 concentration in the atmosphere at its interface with soil (pg/m<sup>3</sup>) calculated by the participating models on the basis of “reference” data set and non-zero initial conditions



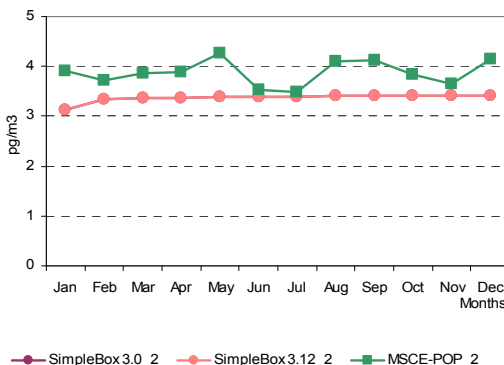
**Fig. 3.112b.** PCB-153 concentration in the atmosphere at its interface with soil (pg/m<sup>3</sup>) calculated by the participating models on the basis of “reference” data set and zero-initial conditions

**Own/alternative data set.** Calculation results on PCB-153 concentration in the atmosphere at its interface with soil calculated by models on the basis of “own or alternative” data sets together with statistical parameters used for evaluation are presented in Table 3.92.

Monthly values of PCB-153 concentration in the atmosphere at its interface with 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. 3.113 a and b, respectively.



**Fig. 3.113a.** PCB-153 concentration in the atmosphere at its interface with soil (pg/m<sup>3</sup>) calculated by the participating models on the basis of “own or alternative” data sets and non-zero initial conditions



**Fig. 3.113b.** PCB-153 concentration in the atmosphere at its interface with soil (pg/m<sup>3</sup>) calculated by the participating models on the basis of “own or alternative” data sets and zero-initial conditions