CMBGC-Iteration 1.0 User Guide

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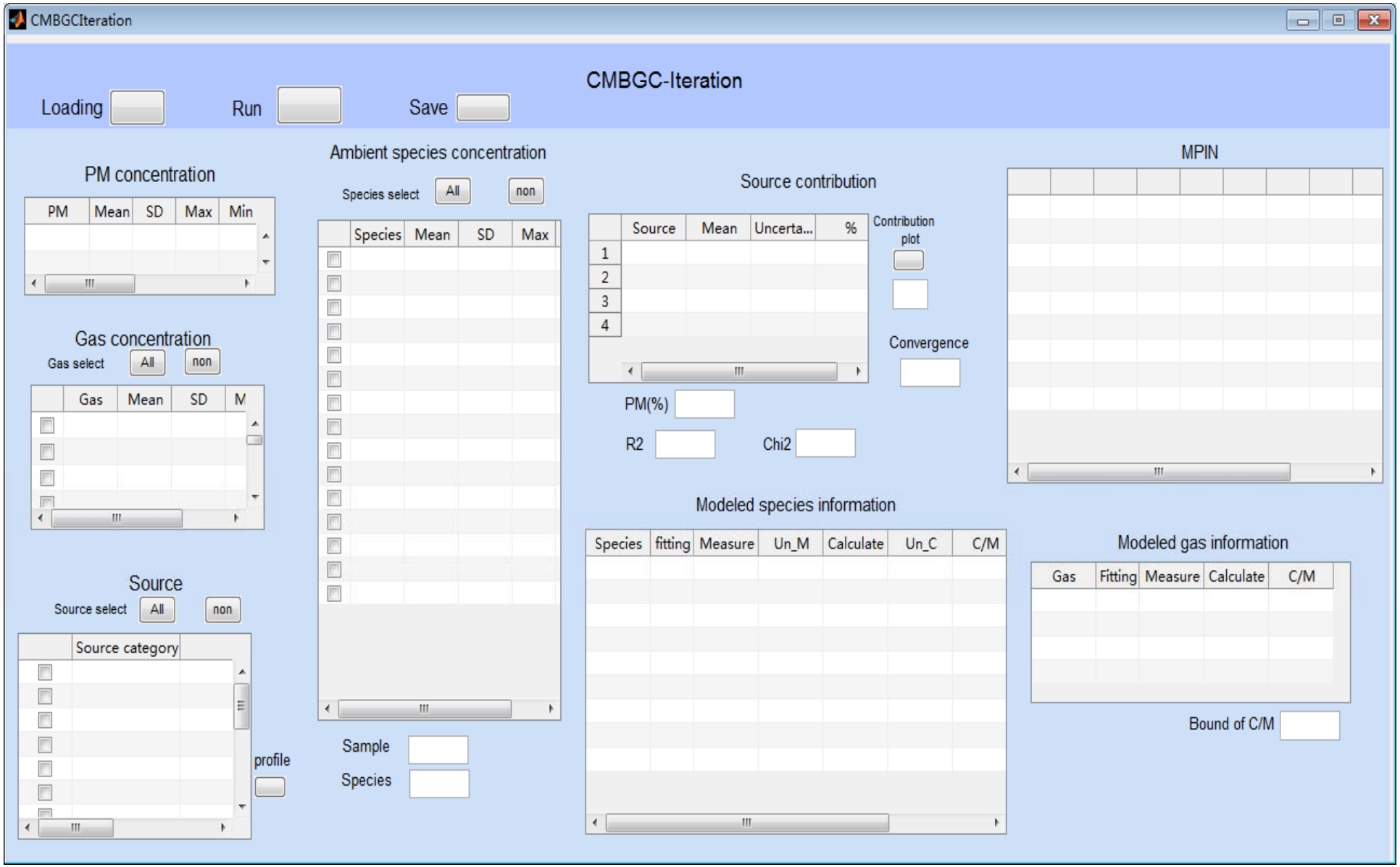
CMBGC-Iteration 1.0

Chemical mass balance gas constraint-Iteration model (CMBGC-Iteration) is an extension to the more traditional CMB model and can be applied to estimate the contribution of sources to particulate matter, using gas phase species concentration constraints.
In this model, the uncertainties of ambient dataset and source profiles are involved in the iterative solution.

CMBGC-Iteration 1.0



CMBGC-Iteration 1.0

- **RUNNING ENVIRONMENT：**

  Win XP、Win7、Win8（32 bit or 64 bit system）

  Before running the program, **Matlab (2009 or higher) should be** install firstly.

CMBGC-Iteration 1.0

- **Download address:**

http://russellgroup.ce.gatech.edu/node/16

or

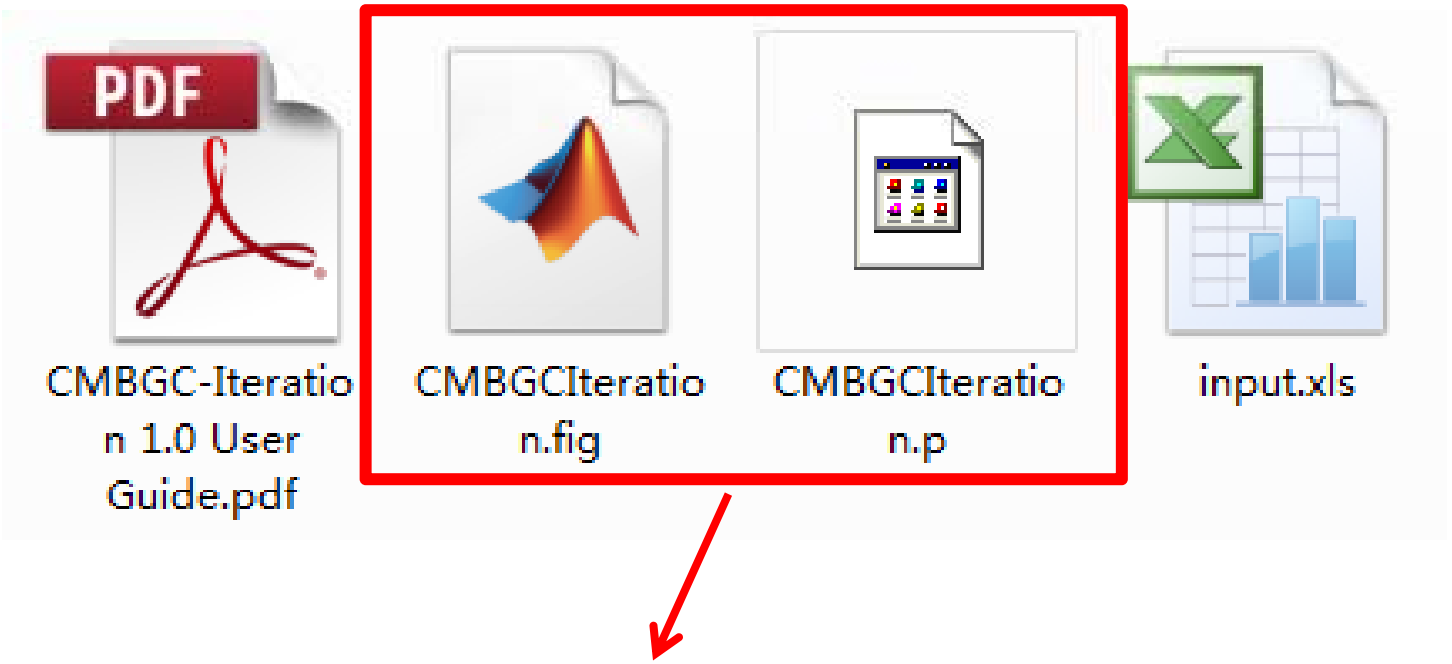
http://env.nankai.edu.cn/air/list/?110_1.html

CMBGC-Iteration 1.0

Extract the CMBGC-Iteration.zip file

CMBGC-Iteration 1.0

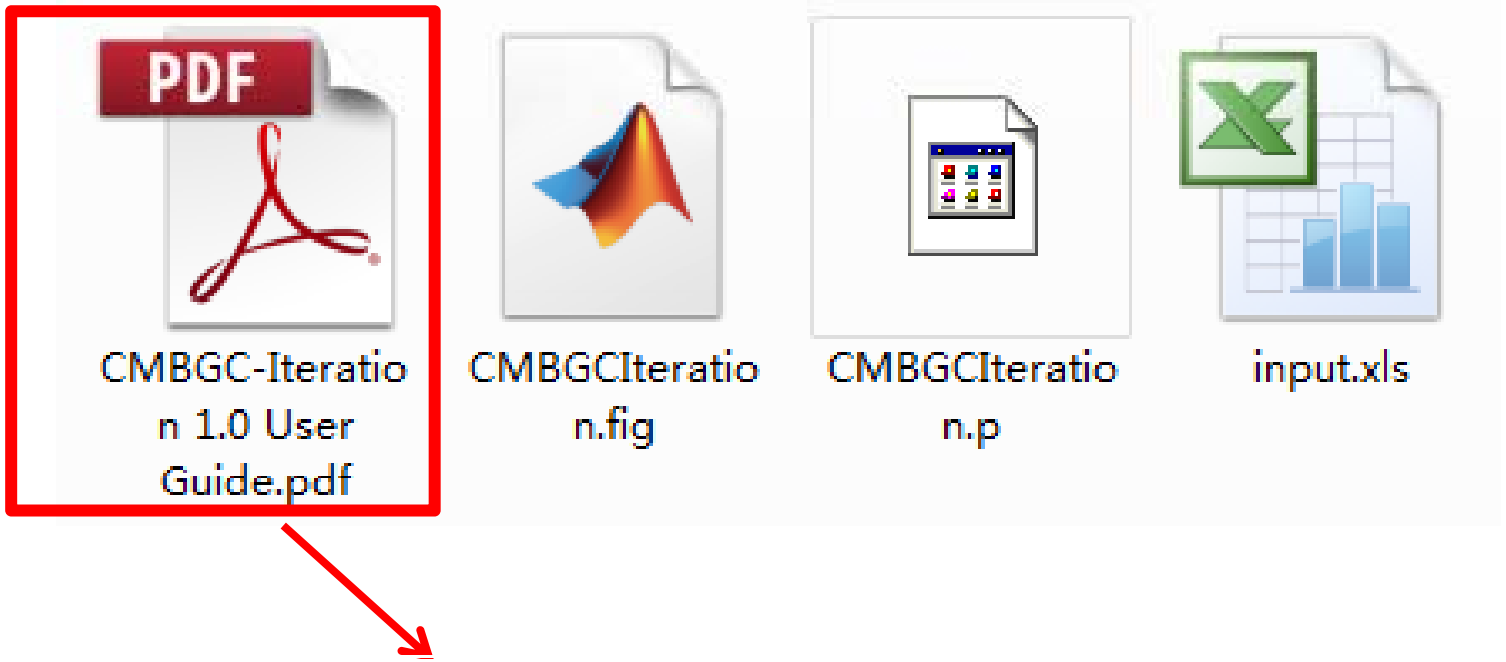
Four files in CMBGC-Iteration.zip



Matlab program files

CMBGC-Iteration 1.0

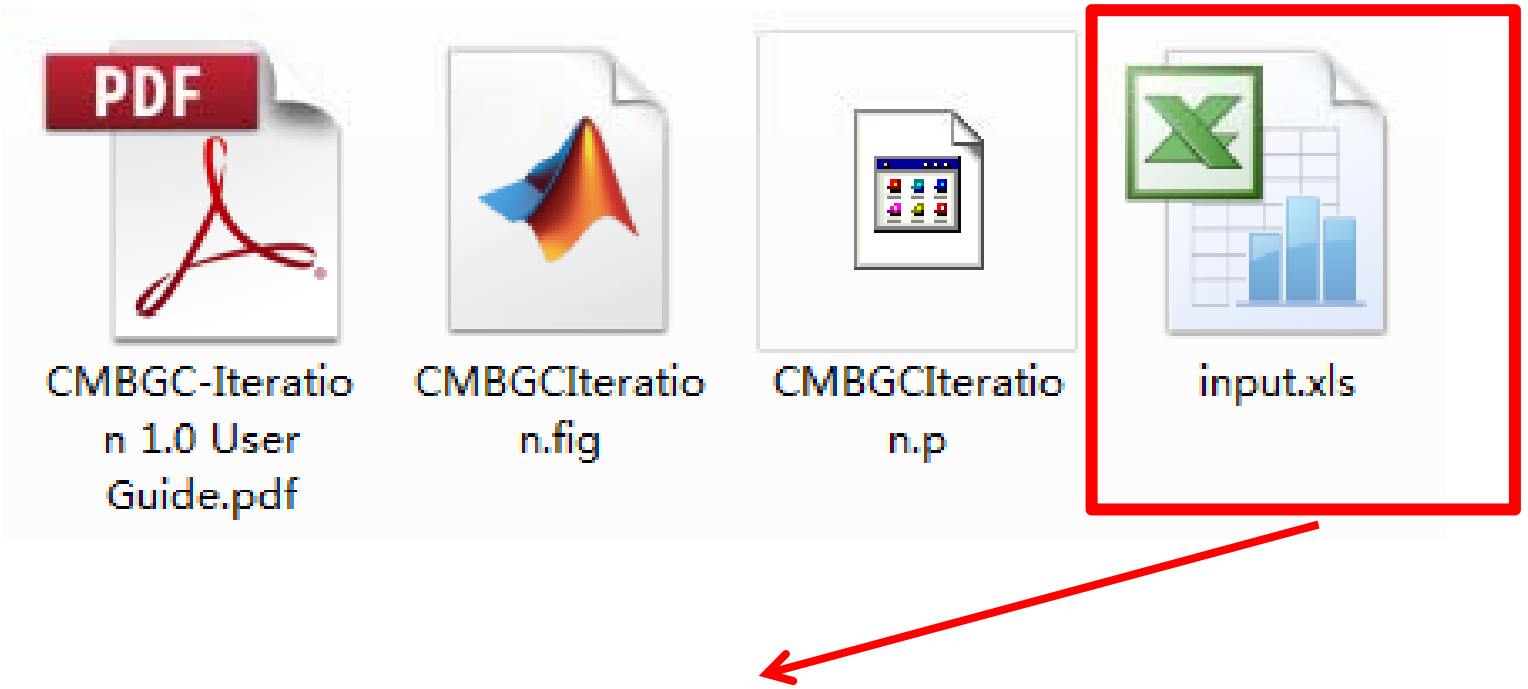
Four files in CMBGC-Iteration.zip



User Guide for CMBGC-Iteration

CMBGC-Iteration 1.0

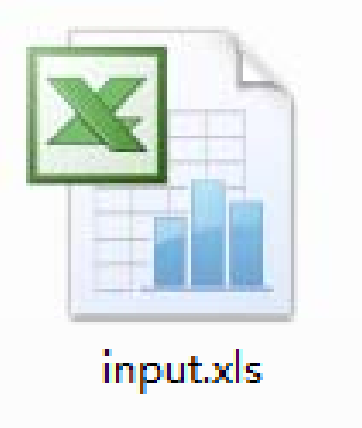
Four files in CMBGC-Iteration.zip



Example of input file

CMBGC-Iteration 1.0

- Input file

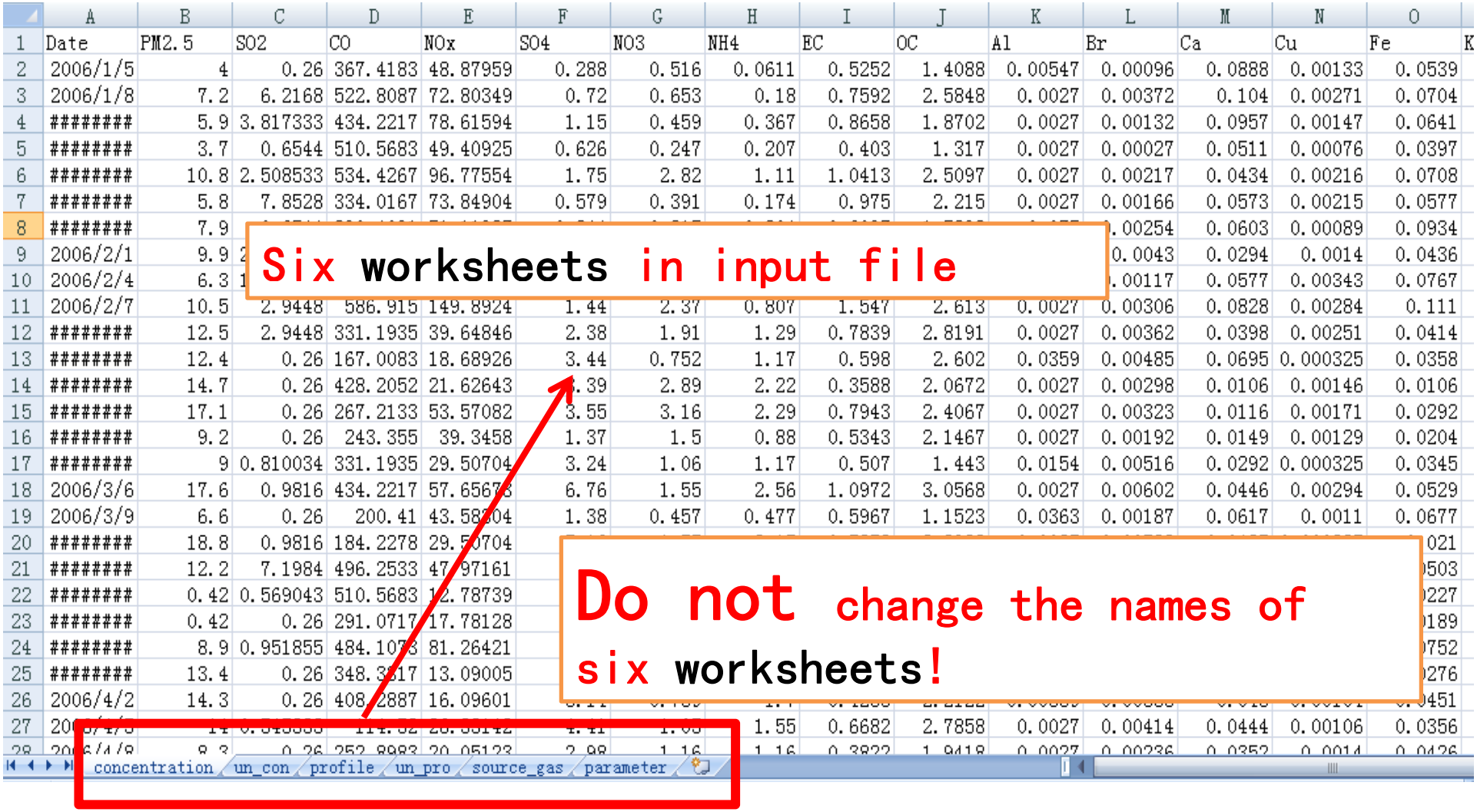


Input file of CMBGC-Iteration 1.0 is .xls file

(User can modify the name of input file)

CMBGC-Iteration 1.0

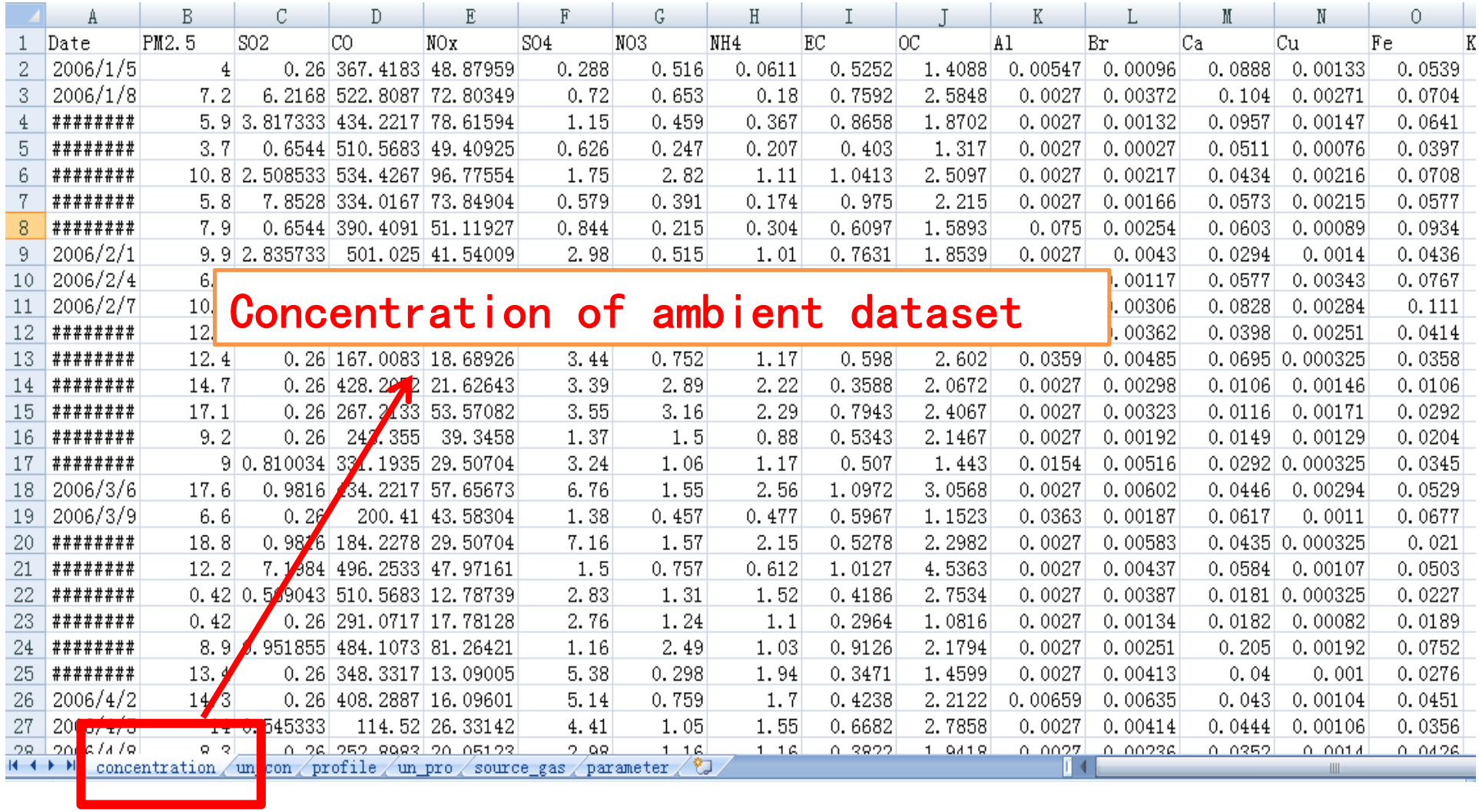
Input file



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe
2	2006/1/5	4	0.26	367.4183	48.87959	0.288	0.516	0.0611	0.5252	1.4088	0.00547	0.00096	0.0888	0.00133	0.0539
3	2006/1/8	7.2	6.2168	522.8087	72.80349	0.72	0.653	0.18	0.7592	2.5848	0.0027	0.00372	0.104	0.00271	0.0704
4	########	5.9	3.817333	434.2217	78.61594	1.15	0.459	0.367	0.8658	1.8702	0.0027	0.00132	0.0957	0.00147	0.0641
5	########	3.7	0.6544	510.5683	49.40925	0.626	0.247	0.207	0.403	1.317	0.0027	0.00027	0.0511	0.00076	0.0397
6	########	10.8	2.508533	534.4267	96.77554	1.75	2.82	1.11	1.0413	2.5097	0.0027	0.00217	0.0434	0.00216	0.0708
7	########	5.8	7.8528	334.0167	73.84904	0.579	0.391	0.174	0.975	2.215	0.0027	0.00166	0.0573	0.00215	0.0577
8	########	7.9										0.00254	0.0603	0.00089	0.0934
9	2006/2/1	9.9										0.0043	0.0294	0.0014	0.0436
10	2006/2/4	6.3										0.00117	0.0577	0.00343	0.0767
11	2006/2/7	10.5	2.9448	586.915	149.8924	1.44	2.37	0.807	1.547	2.613	0.0027	0.00306	0.0828	0.00284	0.111
12	########	12.5	2.9448	331.1935	39.64846	2.38	1.91	1.29	0.7839	2.8191	0.0027	0.00362	0.0398	0.00251	0.0414
13	########	12.4	0.26	167.0083	18.68926	3.44	0.752	1.17	0.598	2.602	0.0359	0.00485	0.0695	0.000325	0.0358
14	########	14.7	0.26	428.2052	21.62643	3.39	2.89	2.22	0.3588	2.0672	0.0027	0.00298	0.0106	0.00146	0.0106
15	########	17.1	0.26	267.2133	53.57082	3.55	3.16	2.29	0.7943	2.4067	0.0027	0.00323	0.0116	0.00171	0.0292
16	########	9.2	0.26	243.355	39.3458	1.37	1.5	0.88	0.5343	2.1467	0.0027	0.00192	0.0149	0.00129	0.0204
17	########	9	0.810034	331.1935	29.50704	3.24	1.06	1.17	0.507	1.443	0.0154	0.00516	0.0292	0.000325	0.0345
18	2006/3/6	17.6	0.9816	434.2217	57.65678	6.76	1.55	2.56	1.0972	3.0568	0.0027	0.00602	0.0446	0.00294	0.0529
19	2006/3/9	6.6	0.26	200.41	43.58304	1.38	0.457	0.477	0.5967	1.1523	0.0363	0.00187	0.0617	0.0011	0.0677
20	########	18.8	0.9816	184.2278	29.50704										021
21	########	12.2	7.1984	496.2533	47.97161										503
22	########	0.42	0.569043	510.5683	12.78739										227
23	########	0.42	0.26	291.0717	17.78128										189
24	########	8.9	0.951855	484.1073	81.26421										752
25	########	13.4	0.26	348.3617	13.09005										276
26	2006/4/2	14.3	0.26	408.2887	16.09601										451
27	2006/4/5	14	0.345833	114.32	28.38142	4.41	1.05	1.55	0.6682	2.7858	0.0027	0.00414	0.0444	0.00106	0.0356
28	2006/4/8	8.3	0.26	252.8983	20.05123	2.98	1.16	1.16	0.3822	1.9418	0.0027	0.00236	0.0352	0.0014	0.0426

CMBGC-Iteration 1.0

Input file



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	K
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe	
2	2006/1/5	4	0.26	367.4183	48.87959	0.288	0.516	0.0611	0.5252	1.4088	0.00547	0.00096	0.0888	0.00133	0.0539	
3	2006/1/8	7.2	6.2168	522.8087	72.80349	0.72	0.653	0.18	0.7592	2.5848	0.0027	0.00372	0.104	0.00271	0.0704	
4	########	5.9	3.817333	434.2217	78.61594	1.15	0.459	0.367	0.8658	1.8702	0.0027	0.00132	0.0957	0.00147	0.0641	
5	########	3.7	0.6544	510.5683	49.40925	0.626	0.247	0.207	0.403	1.317	0.0027	0.00027	0.0511	0.00076	0.0397	
6	########	10.8	2.508533	534.4267	96.77554	1.75	2.82	1.11	1.0413	2.5097	0.0027	0.00217	0.0434	0.00216	0.0708	
7	########	5.8	7.8528	334.0167	73.84904	0.579	0.391	0.174	0.975	2.215	0.0027	0.00166	0.0573	0.00215	0.0577	
8	########	7.9	0.6544	390.4091	51.11927	0.844	0.215	0.304	0.6097	1.5893	0.075	0.00254	0.0603	0.00089	0.0934	
9	2006/2/1	9.9	2.835733	501.025	41.54009	2.98	0.515	1.01	0.7631	1.8539	0.0027	0.0043	0.0294	0.0014	0.0436	
10	2006/2/4	6.										.00117	0.0577	0.00343	0.0767	
11	2006/2/7	10.										.00306	0.0828	0.00284	0.111	
12	########	12.										.00362	0.0398	0.00251	0.0414	
13	########	12.4	0.26	167.0083	18.68926	3.44	0.752	1.17	0.598	2.602	0.0359	0.00485	0.0695	0.000325	0.0358	
14	########	14.7	0.26	428.2	21.62643	3.39	2.89	2.22	0.3588	2.0672	0.0027	0.00298	0.0106	0.00146	0.0106	
15	########	17.1	0.26	267.2	53.57082	3.55	3.16	2.29	0.7943	2.4067	0.0027	0.00323	0.0116	0.00171	0.0292	
16	########	9.2	0.26	243.355	39.3458	1.37	1.5	0.88	0.5343	2.1467	0.0027	0.00192	0.0149	0.00129	0.0204	
17	########	9	0.810034	331.1935	29.50704	3.24	1.06	1.17	0.507	1.443	0.0154	0.00516	0.0292	0.000325	0.0345	
18	2006/3/6	17.6	0.9816	434.2217	57.65673	6.76	1.55	2.56	1.0972	3.0568	0.0027	0.00602	0.0446	0.00294	0.0529	
19	2006/3/9	6.6	0.26	200.41	43.58304	1.38	0.457	0.477	0.5967	1.1523	0.0363	0.00187	0.0617	0.0011	0.0677	
20	########	18.8	0.9816	184.2278	29.50704	7.16	1.57	2.15	0.5278	2.2982	0.0027	0.00583	0.0435	0.000325	0.021	
21	########	12.2	7.1984	496.2533	47.97161	1.5	0.757	0.612	1.0127	4.5363	0.0027	0.00437	0.0584	0.00107	0.0503	
22	########	0.42	0.589043	510.5683	12.78739	2.83	1.31	1.52	0.4186	2.7534	0.0027	0.00387	0.0181	0.000325	0.0227	
23	########	0.42	0.26	291.0717	17.78128	2.76	1.24	1.1	0.2964	1.0816	0.0027	0.00134	0.0182	0.00082	0.0189	
24	########	8.9	0.951855	484.1073	81.26421	1.16	2.49	1.03	0.9126	2.1794	0.0027	0.00251	0.205	0.00192	0.0752	
25	########	13.4	0.26	348.3317	13.09005	5.38	0.298	1.94	0.3471	1.4599	0.0027	0.00413	0.04	0.001	0.0276	
26	2006/4/2	14.3	0.26	408.2887	16.09601	5.14	0.759	1.7	0.4238	2.2122	0.00659	0.00635	0.043	0.00104	0.0451	
27	200	14	0.545333	114.52	26.33142	4.41	1.05	1.55	0.6682	2.7858	0.0027	0.00414	0.0444	0.00106	0.0356	
28	200	8.3	0.26	252.8983	20.05123	2.98	1.16	1.16	0.3822	1.9418	0.0027	0.00236	0.0352	0.0014	0.0426	

Concentration of ambient dataset

concentration | un_con | profile | un_pro | source_gas | parameter

CMBGC-Iteration 1.0

Input file

Concentration of ambient dataset

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe
2	2006/1/5	4	0.26	367.4183	48.87959	0.288	0.516	0.0611	0.5252	1.4088	0.00547	0.00096	0.0888	0.00133	0.0539
3	2006/1/8	7.2	6.2168	522.8087	72.80349	0.72	0.653	0.18	0.7592	2.5848	0.0027	0.00372	0.104	0.00271	0.0704
4	########	5.9	3.817333	434.2217	78.61594	1.15	0.459	0.367	0.8658	1.8702	0.0027	0.00132	0.0957	0.00147	0.0641
5	########	3.7	0.6544	510.5683	49.40925	0.626	0.247	0.207	0.403	1.317	0.0027	0.00027	0.0511	0.00076	0.0397
6	########	10.8	2.508533	534.4267	96.77654	1.75	2.82	1.11	1.0413	2.5097	0.0027	0.00217	0.0434	0.00216	0.0708
7	########	5.8	7.8528	334.0167	73.84904	0.579	0.391	0.174	0.975	2.215	0.0027	0.00166	0.0573	0.00215	0.0577
8	########	7.9	0.6544	390.4091	51.11927	0.844	0.215	0.304	0.6097	1.5893	0.075	0.00254	0.0603	0.00089	0.0934
9	2006/2/1	9.9	2.835733	501.025	41.54009	2.98	0.515	1.01	0.7631	1.8539	0.0027	0.0043	0.0294	0.0014	0.0436
10	2006/2/4	6.3	1.934748	796.8683	105.477	0.711	0.63	0.247	1.1401	2.4669	0.0027	0.00117	0.0577	0.00343	0.0767
11	2006/2/7	10.5	2.9448	586.915	149.8924	1.44	2.37	0.807	1.547	2.613	0.0027	0.00306	0.0828	0.00284	0.111
12	########	12.5	2.9448	331.1									398	0.00251	0.0414
13	########	12.4	0.26	167.0									695	0.000325	0.0358
14	########	14.7	0.26	428.2									106	0.00146	0.0106
15	########	17.1	0.26	267.2133	53.57082	3.55	3.16	2.29	0.7943	2.4067	0.0027	0.00323	0.0116	0.00171	0.0292
16	########	9.2	0.26	243.355	39.3458	1.37	1.5	0.88	0.5343	2.1467	0.0027	0.00192	0.0149	0.00129	0.0204
17	########	9	0.810034	331.1935	29.50704	3.24	1.06	1.17	0.507	1.443	0.0154	0.00516	0.0292	0.000325	0.0345
18	2006/3/6	17.6	0.9816	434.2217	57.65673	6.76	1.55	2.56	1.0972	3.0568	0.0027	0.00602	0.0446	0.00294	0.0529
19	2006/3/9	6.6	0.26	200.41	43.58304	1.38	0.457	0.477	0.5967	1.1523	0.0363	0.00187	0.0617	0.0011	0.0677
20	########	18.8	0.9816	184.2278	29.50704	7.16	1.57	2.15	0.5278	2.2982	0.0027	0.00583	0.0435	0.000325	0.021
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22	########	0.42	0.569043	510.5683	12.78739	2.83	1.31	1.52	0.4186	2.7534	0.0027	0.00387	0.0181	0.000325	0.0227
23	########	0.42	0.26	291.0717	17.78128	2.76	1.24	1.1	0.2964	1.0816	0.0027	0.00134	0.0182	0.00082	0.0189
24	########	8.9	0.951855	484.1073	81.26421	1.16	2.49	1.03	0.9126	2.1794	0.0027	0.00251	0.205	0.00192	0.0752
25	########	13.4	0.26	348.3317	13.09005	5.38	0.298	1.94	0.3471	1.4599	0.0027	0.00413	0.04	0.001	0.0276
26	2006/4/2	14.3	0.26	408.2887	16.09601	5.14	0.759	1.7	0.4238	2.2122	0.00659	0.00635	0.043	0.00104	0.0451
27	2006/4/5	14	0.545333	114.52	26.33142	4.41	1.05	1.55	0.6682	2.7858	0.0027	0.00414	0.0444	0.00106	0.0356
28	2006/4/8	8.3	0.26	252.8983	20.05123	2.98	1.16	1.16	0.3822	1.9418	0.0027	0.00236	0.0352	0.0014	0.0426

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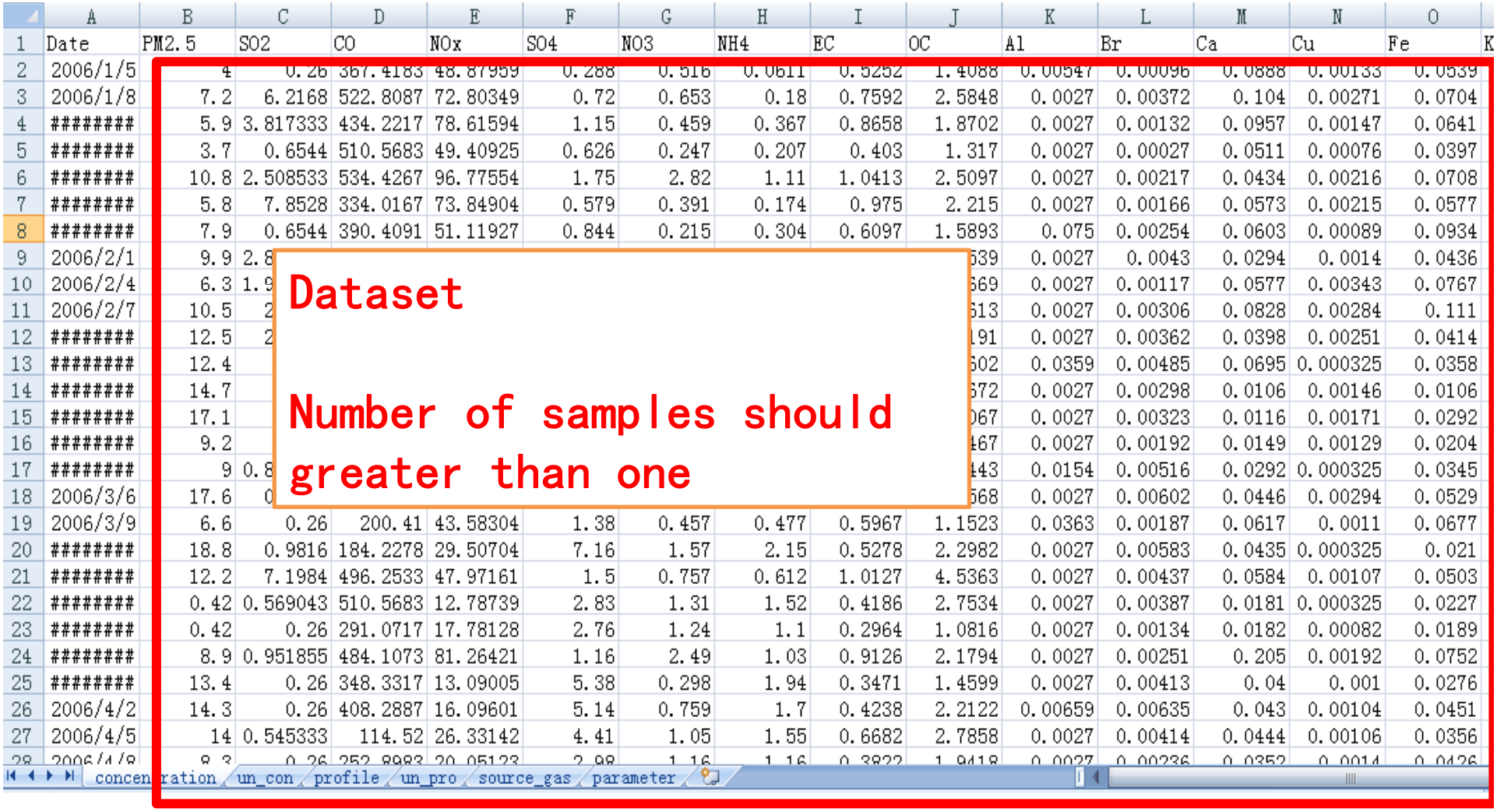
concentration | un_con | profile | un_pro | source_gas | parameter

CMBGC-Iteration 1.0

Input file

Concentration of ambient dataset



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe
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6	########	10.8	2.508533	534.4267	96.77554	1.75	2.82	1.11	1.0413	2.5097	0.0027	0.00217	0.0434	0.00216	0.0708
7	########	5.8	7.8528	334.0167	73.84904	0.579	0.391	0.174	0.975	2.215	0.0027	0.00166	0.0573	0.00215	0.0577
8	########	7.9	0.6544	390.4091	51.11927	0.844	0.215	0.304	0.6097	1.5893	0.075	0.00254	0.0603	0.00089	0.0934
9	2006/2/1	9.9	2.8							539	0.0027	0.0043	0.0294	0.0014	0.0436
10	2006/2/4	6.3	1.9							569	0.0027	0.00117	0.0577	0.00343	0.0767
11	2006/2/7	10.5	2							613	0.0027	0.00306	0.0828	0.00284	0.111
12	########	12.5	2							191	0.0027	0.00362	0.0398	0.00251	0.0414
13	########	12.4								602	0.0359	0.00485	0.0695	0.000325	0.0358
14	########	14.7								672	0.0027	0.00298	0.0106	0.00146	0.0106
15	########	17.1								067	0.0027	0.00323	0.0116	0.00171	0.0292
16	########	9.2								467	0.0027	0.00192	0.0149	0.00129	0.0204
17	########	9	0.8							443	0.0154	0.00516	0.0292	0.000325	0.0345
18	2006/3/6	17.6	0							568	0.0027	0.00602	0.0446	0.00294	0.0529
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21	########	12.2	7.1984	496.2533	47.97161	1.5	0.757	0.612	1.0127	4.5363	0.0027	0.00437	0.0584	0.00107	0.0503
22	########	0.42	0.569043	510.5683	12.78739	2.83	1.31	1.52	0.4186	2.7534	0.0027	0.00387	0.0181	0.000325	0.0227
23	########	0.42	0.26	291.0717	17.78128	2.76	1.24	1.1	0.2964	1.0816	0.0027	0.00134	0.0182	0.00082	0.0189
24	########	8.9	0.951855	484.1073	81.26421	1.16	2.49	1.03	0.9126	2.1794	0.0027	0.00251	0.205	0.00192	0.0752
25	########	13.4	0.26	348.3317	13.09005	5.38	0.298	1.94	0.3471	1.4599	0.0027	0.00413	0.04	0.001	0.0276
26	2006/4/2	14.3	0.26	408.2887	16.09601	5.14	0.759	1.7	0.4238	2.2122	0.00659	0.00635	0.043	0.00104	0.0451
27	2006/4/5	14	0.545333	114.52	26.33142	4.41	1.05	1.55	0.6682	2.7858	0.0027	0.00414	0.0444	0.00106	0.0356
28	2006/4/8	8.3	0.26	252.8983	20.05123	2.98	1.16	1.16	0.3822	1.9418	0.0027	0.00236	0.0352	0.0014	0.0426

Dataset

Number of samples should greater than one

concentration | un_con | profile | un_pro | source_gas | parameter

CMBGC-Iteration 1.0

Input file

Concentration of ambient dataset

First column: Date column

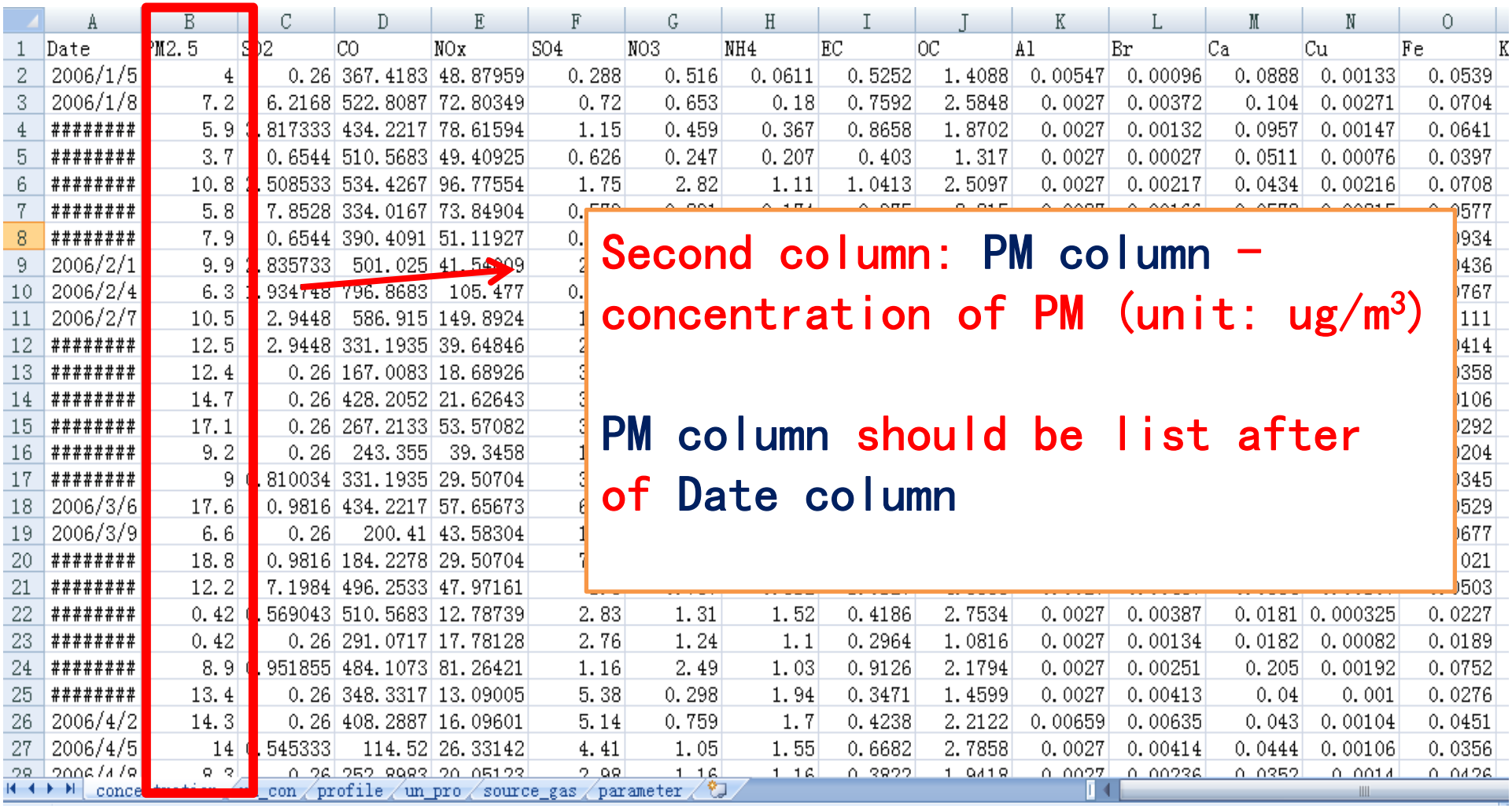
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe	K
2	2006/1/5	4	0.26	367.4183	48.87959	0.288	0.516	0.0611	0.5252	1.4088	0.00547	0.00096	0.0888	0.00133	0.0539	
3	2006/1/8	7.2	6.2168	522.8087	72.80349	0.72	0.653	0.18	0.7592	2.5848	0.0027	0.00372	0.104	0.00271	0.0704	
4	########	5.9	3.817333	434.2217	78.61594	1.15	0.459	0.367	0.8658	1.8702	0.0027	0.00132	0.0957	0.00147	0.0641	
5	########	3.7	0.6544	510.5683	49.40925	0.626	0.247	0.207	0.403	1.317	0.0027	0.00027	0.0511	0.00076	0.0397	
6	########	10.8	2.508533	534.4267	96.77554	1.75	2.82	1.11	1.0413	2.5097	0.0027	0.00217	0.0434	0.00216	0.0708	
7	########	5.8	7.8528	334.0167	73.84904	0.579	0.391	0.174	0.975	2.215	0.0027	0.00166	0.0573	0.00215	0.0577	
8	########	7.9	0.6544	390.40									03	0.00089	0.0934	
9	2006/2/1	9.9	2.835733	501.0									94	0.0014	0.0436	
10	2006/2/4	6.3	1.934748	86									77	0.00343	0.0767	
11	2006/2/7	10.5	2.9448	586.915	149.8924	1.44	2.37	0.807	1.547	2.613	0.0027	0.00306	0.0828	0.00284	0.111	
12	########	12.5	2.9448	331.1935	39.64846	2.38	1.91	1.29	0.7839	2.8191	0.0027	0.00362	0.0398	0.00251	0.0414	
13	########	12.4	0.26	167.0083	18.68926	3.44	0.752	1.17	0.598	2.602	0.0359	0.00485	0.0695	0.000325	0.0358	
14	########	14.7	0.26	428.2052	21.62643	3.39	2.89	2.22	0.3588	2.0672	0.0027	0.00298	0.0106	0.00146	0.0106	
15	########	17.1	0.26	267.2133	53.57082	3.55	3.16	2.29	0.7943	2.4067	0.0027	0.00323	0.0116	0.00171	0.0292	
16	########	9.2	0.26	243.355	39.3458	1.37	1.5	0.88	0.5343	2.1467	0.0027	0.00192	0.0149	0.00129	0.0204	
17	########	9	0.810034	331.1935	29.50704	3.24	1.06	1.17	0.507	1.443	0.0154	0.00516	0.0292	0.000325	0.0345	
18	2006/3/6	17.6	0.9816	434.2217	57.65673	6.76	1.55	2.56	1.0972	3.0568	0.0027	0.00602	0.0446	0.00294	0.0529	
19	2006/3/9	6.6	0.26	200.41	43.58304	1.38	0.457	0.477	0.5967	1.1523	0.0363	0.00187	0.0617	0.0011	0.0677	
20	########	18.8	0.9816	184.2278	29.50704	7.16	1.57	2.15	0.5278	2.2982	0.0027	0.00583	0.0435	0.000325	0.021	
21	########	12.2	7.1984	496.2533	47.97161	1.5	0.757	0.612	1.0127	4.5363	0.0027	0.00437	0.0584	0.00107	0.0503	
22	########	0.42	0.569043	510.5683	12.78739	2.83	1.31	1.52	0.4186	2.7534	0.0027	0.00387	0.0181	0.000325	0.0227	
23	########	0.42	0.26	291.0717	17.78128	2.76	1.24	1.1	0.2964	1.0816	0.0027	0.00134	0.0182	0.00082	0.0189	
24	########	8.9	0.951855	484.1073	81.26421	1.16	2.49	1.03	0.9126	2.1794	0.0027	0.00251	0.205	0.00192	0.0752	
25	########	13.4	0.26	348.3317	13.09005	5.38	0.298	1.94	0.3471	1.4599	0.0027	0.00413	0.04	0.001	0.0276	
26	2006/4/2	14.3	0.26	408.2887	16.09601	5.14	0.759	1.7	0.4238	2.2122	0.00659	0.00635	0.043	0.00104	0.0451	
27	2006/4/5	14	0.545333	114.52	26.33142	4.41	1.05	1.55	0.6682	2.7858	0.0027	0.00414	0.0444	0.00106	0.0356	
28	2006/4/8	8.3	0.26	252.8983	20.05123	2.98	1.16	1.16	0.3822	1.9418	0.0027	0.00236	0.0352	0.0014	0.0426	

concentration / un_con / profile / un_pro / source_gas / parameter

CMBGC-Iteration 1.0

Input file

Concentration of ambient dataset



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe
2	2006/1/5	4	0.26	367.4183	48.87959	0.288	0.516	0.0611	0.5252	1.4088	0.00547	0.00096	0.0888	0.00133	0.0539
3	2006/1/8	7.2	6.2168	522.8087	72.80349	0.72	0.653	0.18	0.7592	2.5848	0.0027	0.00372	0.104	0.00271	0.0704
4	########	5.9	3.817333	434.2217	78.61594	1.15	0.459	0.367	0.8658	1.8702	0.0027	0.00132	0.0957	0.00147	0.0641
5	########	3.7	0.6544	510.5683	49.40925	0.626	0.247	0.207	0.403	1.317	0.0027	0.00027	0.0511	0.00076	0.0397
6	########	10.8	2.508533	534.4267	96.77554	1.75	2.82	1.11	1.0413	2.5097	0.0027	0.00217	0.0434	0.00216	0.0708
7	########	5.8	7.8528	334.0167	73.84904	0.									0577
8	########	7.9	0.6544	390.4091	51.11927	0.									0934
9	2006/2/1	9.9	2.835733	501.025	41.56909	2									0436
10	2006/2/4	6.3	1.934748	796.8683	105.477	0.									0767
11	2006/2/7	10.5	2.9448	586.915	149.8924	1									111
12	########	12.5	2.9448	331.1935	39.64846	2									0414
13	########	12.4	0.26	167.0083	18.68926	3									0358
14	########	14.7	0.26	428.2052	21.62643	3									0106
15	########	17.1	0.26	267.2133	53.57082	3									0292
16	########	9.2	0.26	243.355	39.3458	1									0204
17	########	9	0.810034	331.1935	29.50704	3									0345
18	2006/3/6	17.6	0.9816	434.2217	57.65673	6									0529
19	2006/3/9	6.6	0.26	200.41	43.58304	1									0677
20	########	18.8	0.9816	184.2278	29.50704	7									021
21	########	12.2	7.1984	496.2533	47.97161										0503
22	########	0.42	0.569043	510.5683	12.78739	2.83	1.31	1.52	0.4186	2.7534	0.0027	0.00387	0.0181	0.000325	0.0227
23	########	0.42	0.26	291.0717	17.78128	2.76	1.24	1.1	0.2964	1.0816	0.0027	0.00134	0.0182	0.00082	0.0189
24	########	8.9	0.951855	484.1073	81.26421	1.16	2.49	1.03	0.9126	2.1794	0.0027	0.00251	0.205	0.00192	0.0752
25	########	13.4	0.26	348.3317	13.09005	5.38	0.298	1.94	0.3471	1.4599	0.0027	0.00413	0.04	0.001	0.0276
26	2006/4/2	14.3	0.26	408.2887	16.09601	5.14	0.759	1.7	0.4238	2.2122	0.00659	0.00635	0.043	0.00104	0.0451
27	2006/4/5	14	0.545333	114.52	26.33142	4.41	1.05	1.55	0.6682	2.7858	0.0027	0.00414	0.0444	0.00106	0.0356
28	2006/4/8	8.3	0.26	252.8983	20.05123	2.98	1.16	1.16	0.3822	1.9418	0.0027	0.00236	0.0352	0.0014	0.0426

conce tration con profile un_pro source_gas parameter

Second column: PM column – concentration of PM (unit: ug/m^3)

PM column should be list after of Date column

CMBGC-Iteration 1.0

Input file

Concentration of ambient dataset

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	K
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe	
2	2006/1/5		0.26	367.4183	48.87959	0.288	0.516	0.0611	0.5252	1.4088	0.00547	0.00096	0.0888	0.00133	0.0539	
3	2006/1/8	7.	6.2168	522.8087	72.80349	0.72	0.653	0.18	0.7592	2.5848	0.0027	0.00372	0.104	0.00271	0.0704	
4	########	5.	3.817333	434.2217	78.61594	1.15	0.459	0.367	0.8658	1.8702	0.0027	0.00132	0.0957	0.00147	0.0641	
5	########	3.	0.6544	510.5683	49.40925	0.626	0.247	0.207	0.403	1.317	0.0027	0.00027	0.0511	0.00076	0.0397	
6	########	10.	2.508533	534.4267	96.77554	1.75	2.82	1.11	1.0413	2.5097	0.0027	0.00217	0.0434	0.00216	0.0708	
7	########	5.	7.8528	334.0167	73.84904	0.579	0.391	0.174	0.975	2.215	0.0027	0.00166	0.0573	0.00215	0.0577	
8	########	7.	0.6544	390.4091	51.11927	0.844	0.21	0.304	0.6097	1.5893	0.075	0.00254	0.0603	0.00089	0.0934	
9	2006/2/1	9.	2.835733	501.025	41.54009	2.98	0.515	1.01	0.7631	1.8539	0.0027	0.0043	0.0294	0.0014	0.0436	
10	2006/2/4	6.	1.934748	796.8683	105.477										0767	
11	2006/2/7	10.	2.9448	586.915	149.8924										.111	
12	########	12.	2.9448	331.1935	39.64846										0414	
13	########	12.	0.26	167.0083	18.68926										0358	
14	########	14.	0.26	428.2052	21.62643										0106	
15	########	17.	0.26	267.2133	53.57082										0292	
16	########	9.	0.26	243.355	39.3458										0204	
17	########		0.810034	331.1935	29.50704										0345	
18	2006/3/6	17.	0.9816	434.2217	57.65673										0529	
19	2006/3/9	6.	0.26	200.41	43.58304										0677	
20	########	18.	0.9816	184.2278	29.50704										.021	
21	########	12.	7.1984	496.2533	47.97161										0503	
22	########	0.4	0.569043	510.5683	12.78739										0227	
23	########	0.4	0.26	291.0717	17.78128										0189	
24	########	8.	0.951855	484.1073	81.26421										0752	
25	########	13.	0.26	348.3317	13.09005										0276	
26	2006/4/2	14.	0.26	408.2887	16.09601										0451	
27	2006/4/5	1	0.545333	114.52	26.33142										0356	
28	2006/4/8	8	0.26	252.8983	20.05123										0426	

concentration | un_con | profile | un_pro | source_gas | parameter

Gases columns: concentration of ambient gases (unit: ug/m^3)

Gases columns should be list after of PM column

User can modify the number of gas categories

CMBGC-Iteration 1.0

Input file

Concentration of ambient dataset

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe
2	2006/1/5	4	0.26	367.4183	48.87959	0.288	0.516	0.0611	0.5252	1.4088	0.00547	0.00096	0.0888	0.00133	0.0539
3	2006/1/8	7.2	6.2168	522.8087	72.80349	0.72	0.653	0.18	0.7592	2.5848	0.0027	0.00372	0.104	0.00271	0.0704
4	########	5.9	3.817333	434.2217	78.61594	1.15	0.459	0.367	0.8658	1.8702	0.0027	0.00132	0.0957	0.00147	0.0641
5	########	3.7	0.6544	510.5683	49.40925	0.626	0.247	0.207	0.403	1.317	0.0027	0.00027	0.0511	0.00076	0.0397
6	########	10.8	2.508533	534.4267	96.77554	1.75	2.82	1.11	1.0413	2.5097	0.0027	0.00217	0.0434	0.00216	0.0708
7	########	5.8	7.8528	334.0167	73.84904	0.579	0.391	0.174	0.975	2.215	0.0027	0.00166	0.0573	0.00215	0.0577
8	########	7.9	0.6544	390.4081	51.11927	0.844	0.215	0.304	0.6097	1.5893	0.075	0.00254	0.0603	0.00089	0.0934
9	2006/2/1	9.9	2.835733	501.025	41.54009	2.98	0.515	1.01	0.7631	1.8539	0.0027	0.0043	0.0294	0.0014	0.0436
10	2006/2/4	6.3	1.934748	758.8683	105.477	0.711	0.63	0.247	1.1401	2.4669	0.0027	0.00117	0.0577	0.00343	0.0767
11										2.613	0.0027	0.00306	0.0828	0.00284	0.111
12										2.8191	0.0027	0.00362	0.0398	0.00251	0.0414
13										2.602	0.0359	0.00485	0.0695	0.000325	0.0358
14										2.0672	0.0027	0.00298	0.0106	0.00146	0.0106
15										2.4067	0.0027	0.00323	0.0116	0.00171	0.0292
16										2.1467	0.0027	0.00192	0.0149	0.00129	0.0204
17										1.443	0.0154	0.00516	0.0292	0.000325	0.0345
18										3.0568	0.0027	0.00602	0.0446	0.00294	0.0529
19										1.1523	0.0363	0.00187	0.0617	0.0011	0.0677
20										2.2982	0.0027	0.00583	0.0435	0.000325	0.021
21										4.5363	0.0027	0.00437	0.0584	0.00107	0.0503
22										2.7534	0.0027	0.00387	0.0181	0.000325	0.0227
23										1.0816	0.0027	0.00134	0.0182	0.00082	0.0189
24										2.1794	0.0027	0.00251	0.205	0.00192	0.0752
25										1.4599	0.0027	0.00413	0.04	0.001	0.0276
26										2.2122	0.00659	0.00635	0.043	0.00104	0.0451
27										2.7858	0.0027	0.00414	0.0444	0.00106	0.0356
28										1.9418	0.0027	0.00236	0.0352	0.0014	0.0426

Species columns: concentration of species in PM(unit: ug/m^3)

Species columns should be list after of Gases columns

User can modify the number of Species categories

CMBGC-Iteration 1.0

Input file

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu
2	2006/1/5	0.533333333	0	0	0	0.021	0.032	0.0043	0.156	0.190392	0.003	0.00026	0.0064	0.00034
3	2006/1/8	0.741333333	0	0	0	0.052	0.04	0.013	0.169	0.266566	0.0045	0.00038	0.0075	0.00034
4	########	0.656833333	0	0	0	0.083	0.026	0.026	0.182	0.219606	0.0045	0.00026	0.0069	0.00034
5	########	0.513833333	0	0	0	0.045	0.015	0.015	0.143	0.180834	0.0045	0.00045	0.0038	0.00034
6	########	0.975333333	0	0	0	0.12	0.14	0.078	0.182	0.266502	0.0045	0.00029	0.0033	0.00034
7	########	0.650333333	0	0	0	0.042	0.021	0.012	0.182	0.24747	0.0045	0.00028	0.0042	0.00034
8	########	0.786833333	0	0	0	0.061	0.012	0.021	0.156	0.199925	0.0066	0.00031	0.0044	0.00034
9	2006/2/1	0.916833									0.0045	0.0004	0.0023	0.00034
10	2006/2/4	0.682833									0.0045	0.00026	0.0042	0.00035
11	2006/2/7	0.955833									0.0045	0.00033	0.006	0.00034
12	########	1.085833									0.0045	0.00038	0.003	0.00034
13	########	1.079333									0.0035	0.00043	0.0051	0.000542
14	########	1.228833333	0	0	0	0.24	0.2	0.16	0.143	0.228882	0.0045	0.00034	0.0012	0.00034
15	########	1.384833333	0	0	0	0.25	0.22	0.16	0.169	0.257532	0.0045	0.00035	0.0013	0.00034
16	########	0.871333333	0	0	0	0.098	0.092	0.062	0.156	0.238356	0.0045	0.00027	0.0014	0.00034
17	########	0.858333333	0	0	0	0.23	0.062	0.083	0.156	0.191484	0.003	0.00045	0.0023	0.000542
18	2006/3/6	1.417333333	0	0	0	0.48	0.1	0.18	0.195	0.30515	0.0045	0.00051	0.0034	0.00034
19	2006/3/9	0.702333333	0	0	0	0.099	0.026	0.034	0.156	0.172439	0.0036	0.00026	0.0045	0.00034
20	########	1.495333333	0	0	0	0.51	0.087	0.15	0.156	0.247501	0.0045	0.00049	0.0033	0.000542
21	########	1.066333333	0	0	0	0.11	0.039	0.043	0.182	0.401203	0.0045	0.00041	0.0043	0.00034
22	########	0.546666667	0	0	0	0.2	0.088	0.11	0.156	0.276236	0.0045	0.00037	0.0017	0.000542
23	########	0.546666667	0	0	0	0.2	0.08	0.078	0.143	0.163017	0.0045	0.00025	0.0017	0.00034
24	########	0.851833333	0	0	0	0.083	0.15	0.073	0.182	0.247622	0.0045	0.00029	0.015	0.00034
25	########	1.144333333	0	0	0	0.38	0.016	0.14	0.143	0.190628	0.0045	0.00039	0.0031	0.00034
26	2006/4/2	1.202833333	0	0	0	0.36	0.041	0.12	0.156	0.239145	0.003	0.00053	0.0033	0.00034
27	2006/4/5	1.183333333	0	0	0	0.31	0.066	0.11	0.169	0.286122	0.0045	0.0004	0.0034	0.00034
28	2006/4/8	0.812833333	0	0	0	0.21	0.078	0.082	0.143	0.219988	0.0045	0.0003	0.0027	0.00034

Uncertainties of ambient dataset (Unit: ug/m^3)

concentration | un_con | profile | un_pro | source_gas | parameter

CMBGC-Iteration 1.0

Input file

Uncertainties of ambient dataset (Unit: ug/m^3)

Pattern of "un_con" is the same to that of "concentration"

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu
2	2006/1/5	0.533333333	0	0	0	0.021	0.032	0.0043	0.156	0.190392	0.003	0.00026	0.0064	0.00034
3	2006/1/8	0.741333333	0	0	0	0.052	0.04	0.013	0.169	0.266566	0.0045	0.00038	0.0075	0.00034
4	########	0.65								0.219606	0.0045	0.00026	0.0069	0.00034
5	########	0.51								0.180834	0.0045	0.00045	0.0038	0.00034
6	########	0.97								0.266502	0.0045	0.00029	0.0033	0.00034
7	########	0.65								0.24747	0.0045	0.00028	0.0042	0.00034
8	########	0.78								0.199925	0.0066	0.00031	0.0044	0.00034
9	2006/2/1	0.91								0.219877	0.0045	0.0004	0.0023	0.00034
10	2006/2/4	0.682833333	0	0	0	0.051	0.036	0.017	0.195	0.267329	0.0045	0.00026	0.0042	0.00035
11	2006/2/7	0.955833333	0	0	0	0.1	0.12	0.057	0.221	0.286328	0.0045	0.00033	0.006	0.00034
12	########	1.085833333	0	0	0	0.17	0.11	0.091	0.169	0.285971	0.0045	0.00038	0.003	0.00034
13	########	1.079333333	0	0	0	0.24	0.039	0.083	0.156	0.266989	0.0035	0.00043	0.0051	0.000542
14	########	1.228833333	0	0	0	0.24	0.2	0.16	0.143	0.228882	0.0045	0.00034	0.0012	0.00034
15	########	1.384833333	0	0	0	0.25	0.22	0.16	0.169	0.257532	0.0045	0.00035	0.0013	0.00034
16	########	0.871333333	0	0	0	0.098	0.092	0.062	0.156	0.238356	0.0045	0.00027	0.0014	0.00034
17	########	0.858333333	0	0	0	0.23	0.062	0.083	0.156	0.191484	0.003	0.00045	0.0023	0.000542
18	2006/3/6	1.417333333	0	0	0	0.48	0.1	0.18	0.195	0.30515	0.0045	0.00051	0.0034	0.00034
19	2006/3/9	0.702333333	0	0	0	0.099	0.026	0.034	0.156	0.172439	0.0036	0.00026	0.0045	0.00034
20	########	1.495333333	0	0	0	0.51	0.087	0.15	0.156	0.247501	0.0045	0.00049	0.0033	0.000542
21	########	1.066333333	0	0	0	0.11	0.039	0.043	0.182	0.401203	0.0045	0.00041	0.0043	0.00034
22	########	0.546666667	0	0	0	0.2	0.088	0.11	0.156	0.276236	0.0045	0.00037	0.0017	0.000542
23	########	0.546666667	0	0	0	0.2	0.08	0.078	0.143	0.163017	0.0045	0.00025	0.0017	0.00034
24	########	0.851833333	0	0	0	0.083	0.15	0.073	0.182	0.247622	0.0045	0.00029	0.015	0.00034
25	########	1.144333333	0	0	0	0.38	0.016	0.14	0.143	0.190628	0.0045	0.00039	0.0031	0.00034
26	2006/4/2	1.202833333	0	0	0	0.36	0.041	0.12	0.156	0.239145	0.003	0.00053	0.0033	0.00034
27	2006/4/5	1.183333333	0	0	0	0.31	0.066	0.11	0.169	0.286122	0.0045	0.0004	0.0034	0.00034
28	2006/4/8	0.812833333	0	0	0	0.21	0.078	0.082	0.143	0.219988	0.0045	0.0003	0.0027	0.00034

concentration | un_con | profile | un_pro | source_gas | parameter

CMBGC-Iteration 1.0

Input file

Uncertainties of ambient dataset (Unit: ug/m^3)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu
2	2006/1/5	0.53333333	0	0	0	0.021	0.032	0.0043	0.156	0.190392	0.003	0.00026	0.0064	0.00034
3	2006/1/8	0.74133333	0	0	0	0.052	0.04	0.013	0.169	0.266566	0.0045	0.00038	0.0075	0.00034
4	########	0.65683333	0	0	0	0.083	0.026	0.026	0.182	0.219606	0.0045	0.00026	0.0069	0.00034
5	########	0.51383333	0	0	0	0.045	0.015	0.015	0.143	0.180834	0.0045	0.00045	0.0038	0.00034
6	########	0.97533333	0	0	0	0.12	0.14	0.078	0.182	0.266502	0.0045	0.00029	0.0033	0.00034
7	########	0.65033333	0	0	0	0.042	0.021	0.012	0.182	0.24747	0.0045	0.00028	0.0042	0.00034
8	########	0.78683333	0	0	0	0.061	0.018	0.021	0.156	0.199925	0.0066	0.00031	0.0044	0.00034
9	2006/2/1	0.91683333	0	0	0	0.21	0.027	0.072	0.169	0.219877	0.0045	0.0004	0.0023	0.00034
10	2006/2/4	0.68283333	0	0	0									0.00035
11	2006/2/7	0.95583333	0	0	0									0.00034
12	########	1.08583333	0	0	0									0.00034
13	########	1.07933333	0	0	0									000542
14	########	1.22883333	0	0	0									0.00034
15	########	1.38483333	0	0	0	0.25	0.22	0.16	0.169	0.257532	0.0045	0.00035	0.0013	0.00034
16	########	0.87133333	0	0	0	0.098	0.092	0.062	0.156	0.238356	0.0045	0.00027	0.0014	0.00034
17	########	0.85833333	0	0	0	0.23	0.062	0.083	0.156	0.191484	0.003	0.00045	0.0023	0.000542
18	2006/3/6	1.41733333	0	0	0	0.48	0.1	0.18	0.195	0.30515	0.0045	0.00051	0.0034	0.00034
19	2006/3/9	0.70233333	0	0	0	0.099	0.026	0.034	0.156	0.172439	0.0036	0.00026	0.0045	0.00034
20	########	1.49533333	0	0	0	0.51	0.087	0.15	0.156	0.247501	0.0045	0.00049	0.0033	0.000542
21	########	1.06633333	0	0	0	0.11	0.039	0.043	0.182	0.401203	0.0045	0.00041	0.0043	0.00034
22	########	0.54666666	0	0	0	0.2	0.088	0.11	0.156	0.276236	0.0045	0.00037	0.0017	0.000542
23	########	0.54666666	0	0	0	0.2	0.08	0.078	0.143	0.163017	0.0045	0.00025	0.0017	0.00034
24	########	0.85183333	0	0	0	0.083	0.15	0.073	0.182	0.247622	0.0045	0.00029	0.015	0.00034
25	########	1.14433333	0	0	0	0.38	0.016	0.14	0.143	0.190628	0.0045	0.00039	0.0031	0.00034
26	2006/4/2	1.20283333	0	0	0	0.36	0.041	0.12	0.156	0.239145	0.003	0.00053	0.0033	0.00034
27	2006/4/5	1.18333333	0	0	0	0.31	0.066	0.11	0.169	0.286122	0.0045	0.0004	0.0034	0.00034
28	2006/4/8	0.81283333				0.21	0.078	0.082	0.143	0.219988	0.0045	0.0003	0.0027	0.00034

concentration | un_con | profile | un_pro | source_gas | parameter

Uncertainties of gases can be set as zeros

CMBGC-Iteration 1.0

Input file

Uncertainties of ambient dataset (Unit: ug/m^3)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Date	PM2.5	SO2	CO	NOx	SO4	NO3	NH4	EC	OC	Al	Fe	Ca	Cu
2	2006/1/5	0.533333333	0	0	0	0.021	0.032	0.0043	0.156	0.190392	0.003	0.00026	0.0064	0.0003
3	2006/1/8	0.741333333	0	0	0	0.052	0.04	0.013	0.169	0.266566	0.0045	0.00038	0.0075	0.0003
4	########	0.656833333	0	0	0	0.083	0.026	0.026	0.182	0.219606	0.0045	0.00026	0.0069	0.0003
5	########	0.513833333	0	0	0	0.045	0.015	0.015	0.143	0.180834	0.0045	0.00045	0.0038	0.0003
6	########	0.975333333	0	0	0	0.12	0.14	0.078	0.182	0.266502	0.0045	0.00029	0.0033	0.0003
7	######												0.0042	0.0003
8	######												0.0044	0.0003
9	2006/												0.0023	0.0003
10	2006/												0.0042	0.0003
11	2006/												0.006	0.0003
12	######												0.003	0.0003
13	######												0.0051	0.00054
14	######												0.0012	0.0003
15	######												0.0013	0.0003
16	######												0.0014	0.0003
17	######												0.0023	0.00054
18	2006/												0.0034	0.0003
19	2006/												0.0045	0.0003
20	######												0.0033	0.00054
21	######												0.0043	0.0003
22	######												0.0017	0.00054
23	######												0.0017	0.0003
24	######												0.015	0.0003
25	######												0.0031	0.0003
26	2006/4/2	1.202833333	0	0	0	0.36	0.041	0.12	0.156	0.239145	0.003	0.00053	0.0033	0.0003
27	2006/4/5	1.183333333	0	0	0	0.31	0.066	0.11	0.169	0.286122	0.0045	0.0004	0.0034	0.0003
28	2006/4/8	0.812833333	0	0	0	0.21	0.078	0.082	0.143	0.219988	0.0045	0.0003	0.0027	0.0003

concentration | un_con | profile | un_pro | source_gas | parameter

Daily uncertainties of species can be measured or calculated as:

$$Un_{ij} = \sqrt{a \cdot x_{ij}^{\ 2} + b \cdot (MDL)^2}$$

Un is the uncertainties of species, a is the error fractions, b is the coefficient of MDL (can be set as 0.5), MDL is the Minimum Detectable Limits of species.

CMBGC-Iteration 1.0

Input file

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SID	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe	K	Mn	Pb	Se
2	LDGV	0.0133	0	0	0.2355	0.5486	0.0019	0	0.0118	0.0004	0.012	0.0001	0.0001	0.0006	
3	HDDV	0.0046	0.002	0	0.7351	0.1981	0	0	0.0006	0	0.0002	0.0001	0	0	
4	SDUST	0.001	0.001	0	0.006	0.044	0.095	0	0.018	0.0003	0.053	0.0092	0.0016	0.0001	
5	BURN	0.0239	0.0024	0.0165	0.1575	0.6441	0.0011	0.0008	0.004	0	0.0007	0.0573	0	0	
6	CFPP	0.2874	0.0069	0.0179	0.0138	0.2718	0.053	0.0003	0.1655	0.0009	0.0361	0.0052	0.0012	0.0006	0.005
7	AMSULF	0.727	0	0.273	0	0	0	0	0	0	0	0	0	0	
8	AMBSLF	0.835	0	0.156	0	0	0	0	0	0	0	0	0	0	
9	AMNITR										0	0	0	0	
10	SOC										0	0	0	0	
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															

Profiles of source categories (Unit: g/g)

concentration | un_con | profile | un_pro | source_gas | parameter

CMBGC-Iteration 1.0

Input file

Profiles of source categories (Unit: g/g)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SID	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe	K	Mn	Pb	Se
2															
3	HDDV	0.0046	0.002	0	0.7351	0.1981	0	0	0.0006	0	0.0002	0.0001	0	0	
4	SDUST	0.001	0.001	0	0.006	0.044	0.095	0	0.018	0.0003	0.053	0.0092	0.0016	0.0001	
5	BURN	0.0239	0.0024	0.0165	0.1575	0.6441	0.0011	0.0008	0.004	0	0.0007	0.0573	0	0	
6	CFPP	0.2874	0.0069	0.0179	0.0138	0.2718	0.053	0.0003	0.1655	0.0009	0.0361	0.0052	0.0012	0.0006	0.005
7	AMSULF	0.727	0	0.273	0	0	0	0	0	0	0	0	0	0	
8	AMBSLF	0.835	0	0.156	0	0	0	0	0	0	0	0	0	0	
9	AMNITR	0	0.775	0.225	0	0	0	0	0	0	0	0	0	0	
10	SOC	0	0	0	0	1	0	0	0	0	0	0	0	0	
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															

concentration | un_con | profile | un_pro | source_gas | parameter

Title Line

The sequence of species should be the same to that in “concentration” worksheet

CMBGC-Iteration 1.0

Input file

Profiles of source categories (Unit: g/g)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SID	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe	K	Mn	Pb	Se
2	LDGV	0.0133	0	0	0.2355	0.5486	0.0019	0	0.0118	0.0004	0.012	0.0001	0.0001	0.0006	
3	HDDV	0.0046	0.002	0	0.7351	0.1981	0	0	0.0006	0	0.0002	0.0001	0	0	
4	SDUST	0.001	0.001	0	0.006	0.044	0.095	0	0.018	0.0003	0.053	0.0092	0.0016	0.0001	
5	BURN	0.0239	0.0024	0.0165	0.1575	0.6441	0.0011	0.0008	0.004	0	0.0007	0.0573	0	0	
6	CFPP	0.2874	0.0069	0.0179	0.0138	0.2718	0.053	0.0003	0.1655	0.0009	0.0361	0.0052	0.0012	0.0006	0.005
7	AMSULF	0.727	0	0.273	0	0	0	0	0	0	0	0	0	0	
8	AMBSLF	0.835	0	0.156	0	0	0	0	0	0	0	0	0	0	
9	AMNITR	0	0.775	0.225	0	0	0	0	0	0	0	0	0	0	
10	SOC	0	0	0	0	1	0	0	0	0	0	0	0	0	
11															
12															
13															
14															
15															
16															
17															
18															
19															
20															
21															
22															
23															
24															
25															
26															
27															

concentration | un_con | profile | un_pro | source_gas | parameter

Source name column

User can change the order or number of source categories

CMBGC-Iteration 1.0

Input file

Profiles of source categories (Unit: g/g)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	SID	SO4	NO3	NH4	EC	OC	Al	Ba	Ca	Cu	Fe	K	Mn	Pb	Se
2	LDGV	0.0133	0	0	0.2355	0.5486	0.0019	0	0.0118	0.0004	0.012	0.0001	0.0001	0.0006	
3	HDDV	0.0046	0.002	0	0.7351	0.1981	0	0	0.0006	0	0.0002	0.0001	0	0	
4	SDUST	0.001	0.001	0	0.006	0.044	0.095	0	0.018	0.0003	0.053	0.0092	0.0016	0.0001	
5	BURN	0.0239	0.0024	0.0165	0.1575	0.6441	0.0011	0.0008	0.004	0	0.0007	0.0573	0	0	
6	CFPP	0.2874	0.0069	0.0179	0.0138	0.2718	0.053	0.0003	0.1655	0.0009	0.0361	0.0052	0.0012	0.0006	0.005
7	AMSULF	0.727	0	0.273	0	0	0	0	0	0	0	0	0	0	
8	AMBSLF	0.835	0	0.156	0	0	0	0	0	0	0	0	0	0	
9	AMNITR	0	0.775	0.225	0	0	0	0	0	0	0	0	0	0	
10	SOC	0	0	0	0	1	0	0	0	0	0	0	0	0	
11															
12															
13															
14															
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23															
24															
25															
26															
27															

concentration | un_con | profile | un_pro | source_gas | parameter

Source profile dataset (g/g)

Sum of species in one source should ≤ 1

CMBGC-Iteration 1.0

Input file

SID	SO4	NO3	NH4	EC	OC	Al	Br	Ca	Cu	Fe	K	Mn	Pb	Se	Si
LDGV	0.0056	0.0052	0.01	0.0277	0.0642	0.0024	0.0003	0.0016	0.0006	0.0016	0.0015	0.0008	0.0008	0.0003	0.01
HDDV	0.0048	0.0014	0.01	0.1014	0.0774	0.01	0	0.0005	0.0001	0.0001	0.0002	0.0001	0.0001	0.0001	0.
SDUST	0.0004	0.0004	0	0.004	0.017	0.001	0	0.004	0.0003	0.006	0.0033	0.0007	0	0	0.0
BURN	0.0227	0.0018	0.0253	0.1545	0.1645	0.001	0.0009	0.005	0	0.0008	0.0563	0	0	0	0.00
CFPP	0.2256	0.0109	0.0213	0.0222	0.2577	0.0326	0.0006	0.1053	0.0007	0.0202	0.0026	0.0011	0.0009	0.0083	0.06
AMSULF	0.0360	0.0000	0.0140	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00
AMBSLF	0.0420	0.0000	0.0080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00
AMNITR	0.0000	0.0390	0.0110	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.00
OTHROC	0.0000										0	0.0000	0.0000	0.0000	0.00

Uncertainties of source profile
(Unit: g/g)

Pattern of “un_pro” is the same to that of “profile”

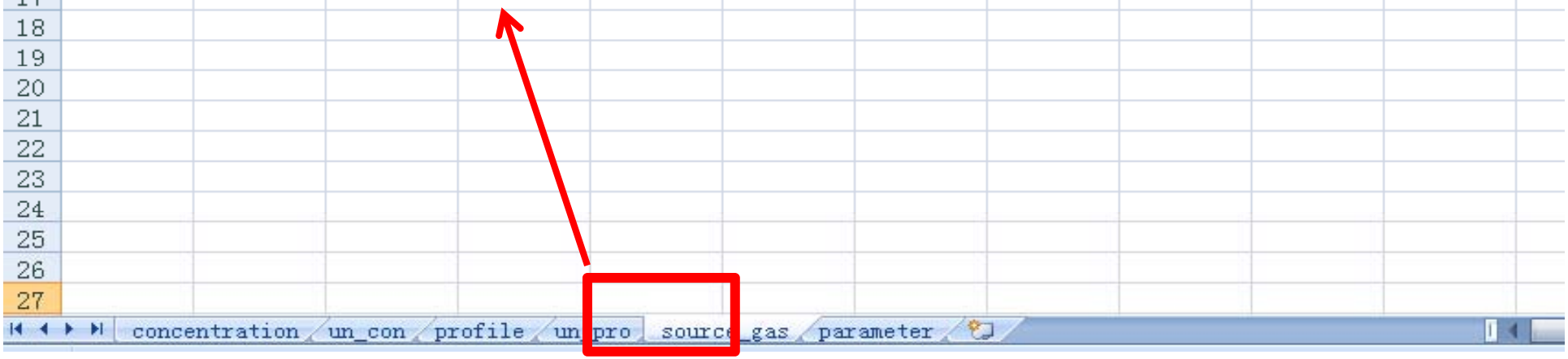
concentration | un_con | profile | un_pro | source_gas | parameter

CMBGC-Iteration 1.0

Input file

	SID	SO2	CO	NOx
2	LDGV	4	800	83.7
3	HDDV	0.71	13.4	21.9
4	SDUST	0	0	0
5	BURN	0.013	10.1	0.24
6	CFPP	128	2.1	41
7	AMSULF	0.0000	0.0000	0.0000
8	AMBSLF	0.0000	0.0000	0.0000
9	AMNITR	0.0000	0.0000	0.0000
10	OTHROC	0.0000	0.0000	0.0000

Gas-to-PM2.5 Ratios for source emissions used as Constraints (Unit: g/g)



CMBGC-Iteration 1.0

Input file

	SID	SO2	CO	NOx
2	LDGV	4	800	83.7
3	HDDV	0.71	13.4	21.9
4	SDUST	0	0	0
5	BURN	0.013	10.1	0.24
6	CFPP	128	2.1	41
7	AMSULF	0.0000		
8	AMBSLF	0.0000		
9	AMNITR	0.0000		
10	OTHROC	0.0000		

Gases name line:

The number and sequence of gases should be the same to that in "concentration" worksheet

concentration | un_con | profile | un_pro | source_gas | parameter

CMBGC-Iteration 1.0

Input file

	SID	SO2	CO	NOx
2	LDGV	4	800	83.7
3	HDDV	0.71	13.4	21.9
4	SDUST	0	0	0
5	BURN	0.013	10.1	0.24
6	CFPP	128	2.1	41
7	AMSULF	0.0000	0.0000	0.0000
8	AMBSLF	0.0000	0.0000	0.0000
9	AMNITR	0.0000	0.0000	0.0000
10	OTHROC	0.0000	0.0000	0.0000

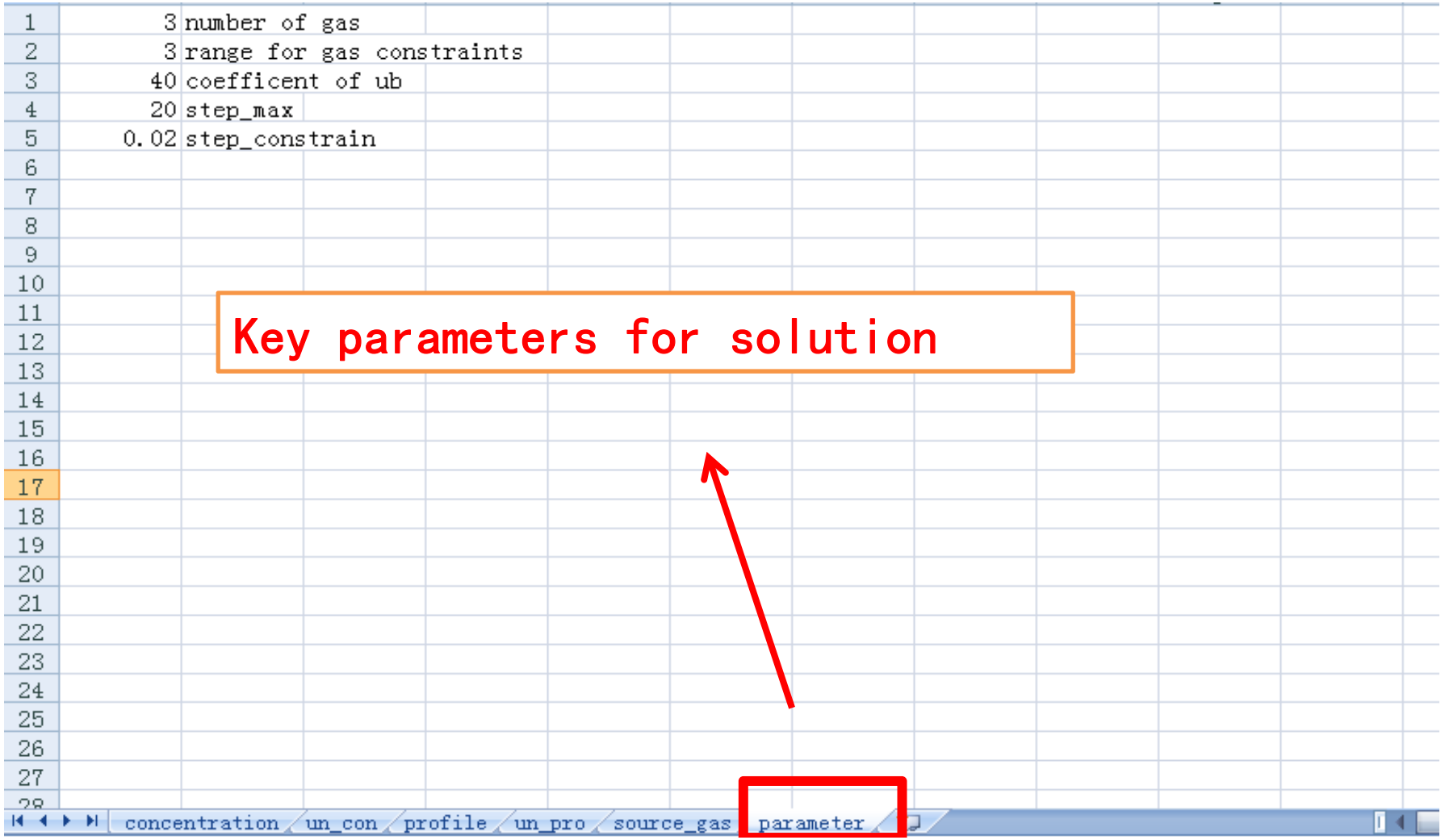
Sources name column:

The number and sequence of source should be the same to that in "profile" worksheet

concentration | un_con | profile | un_pro | source_gas | parameter

CMBGC-Iteration 1.0

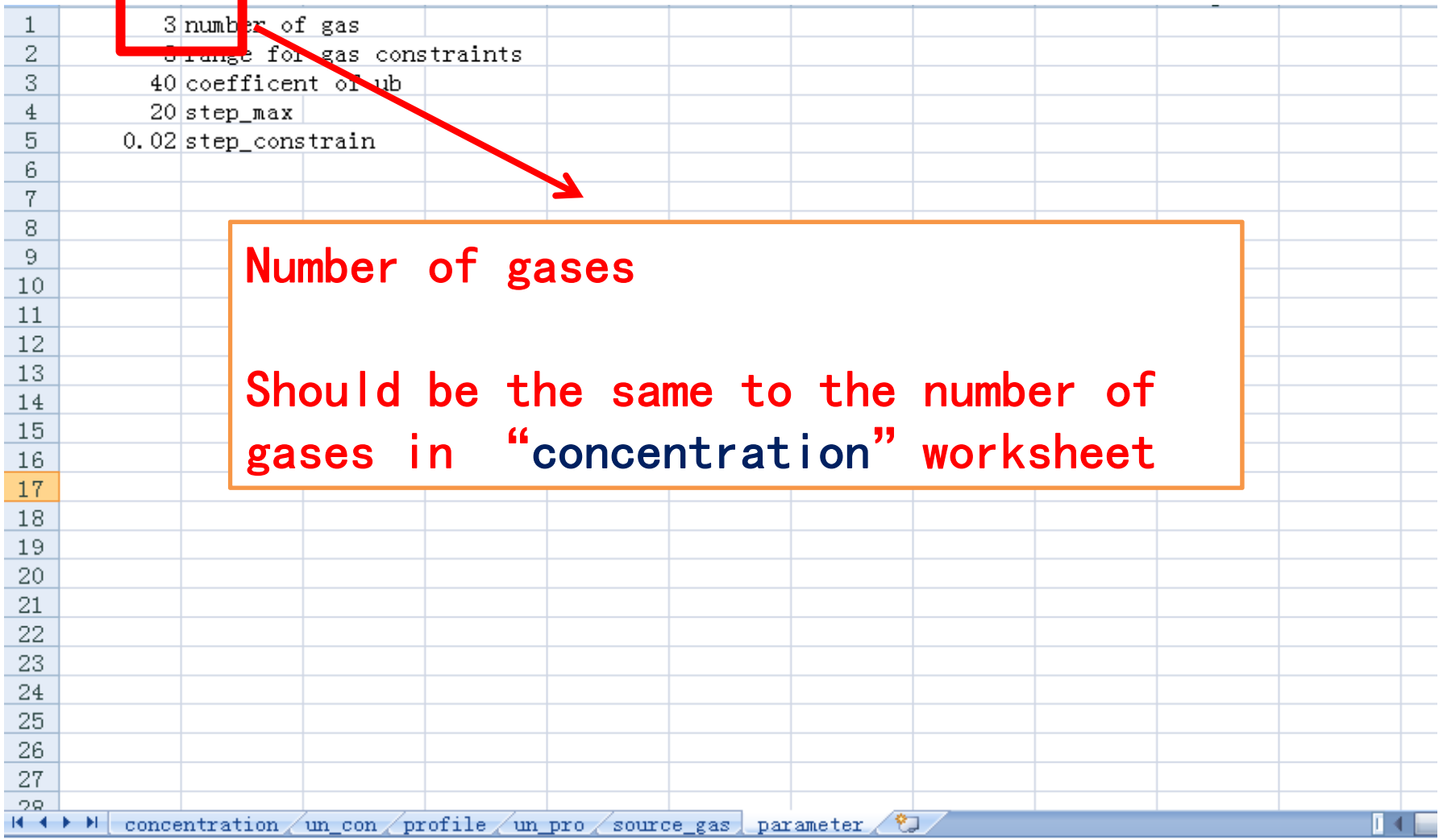
Input file



CMBGC-Iteration 1.0

Input file

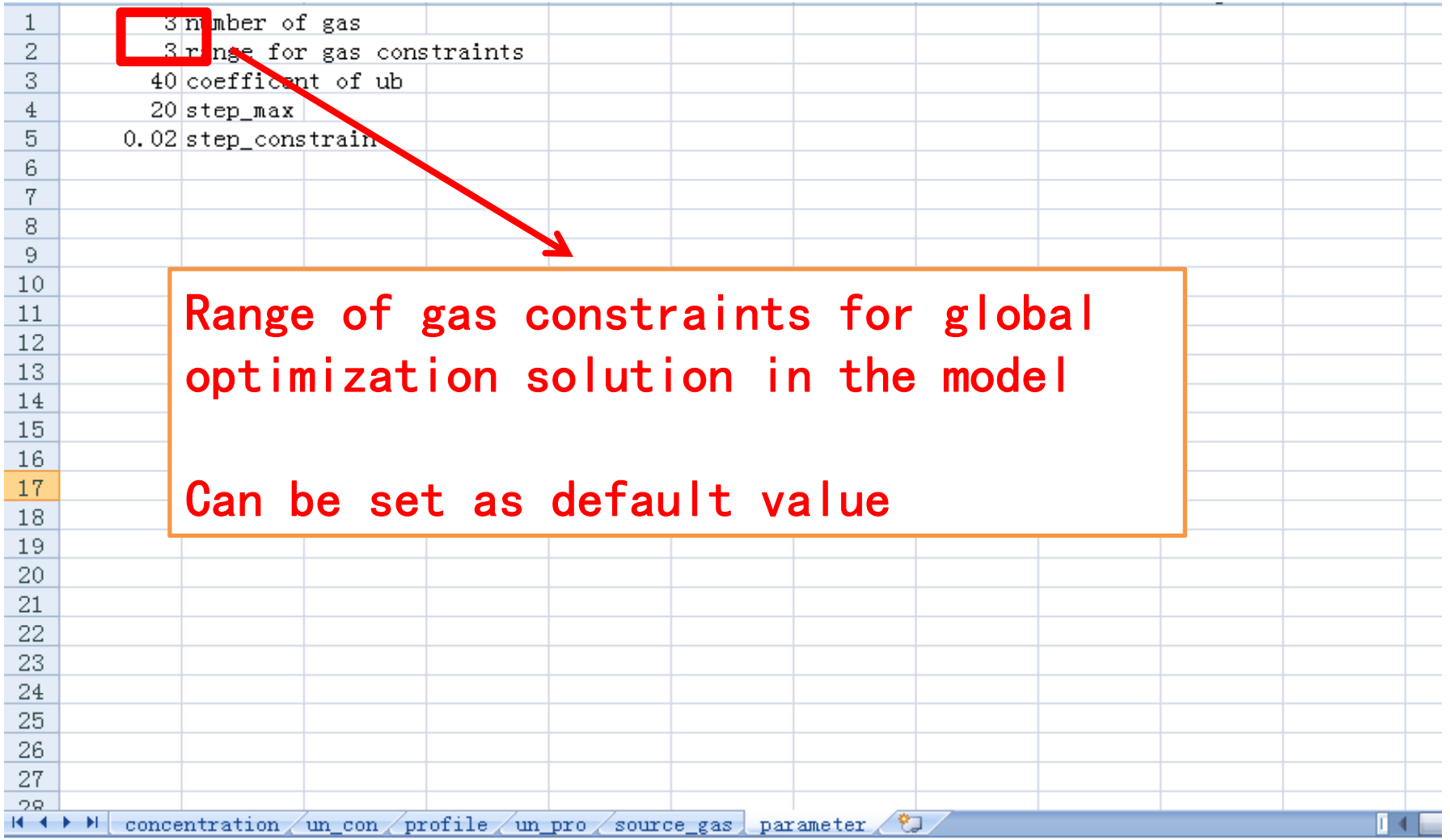
Key parameters for solution



CMBGC-Iteration 1.0

Input file

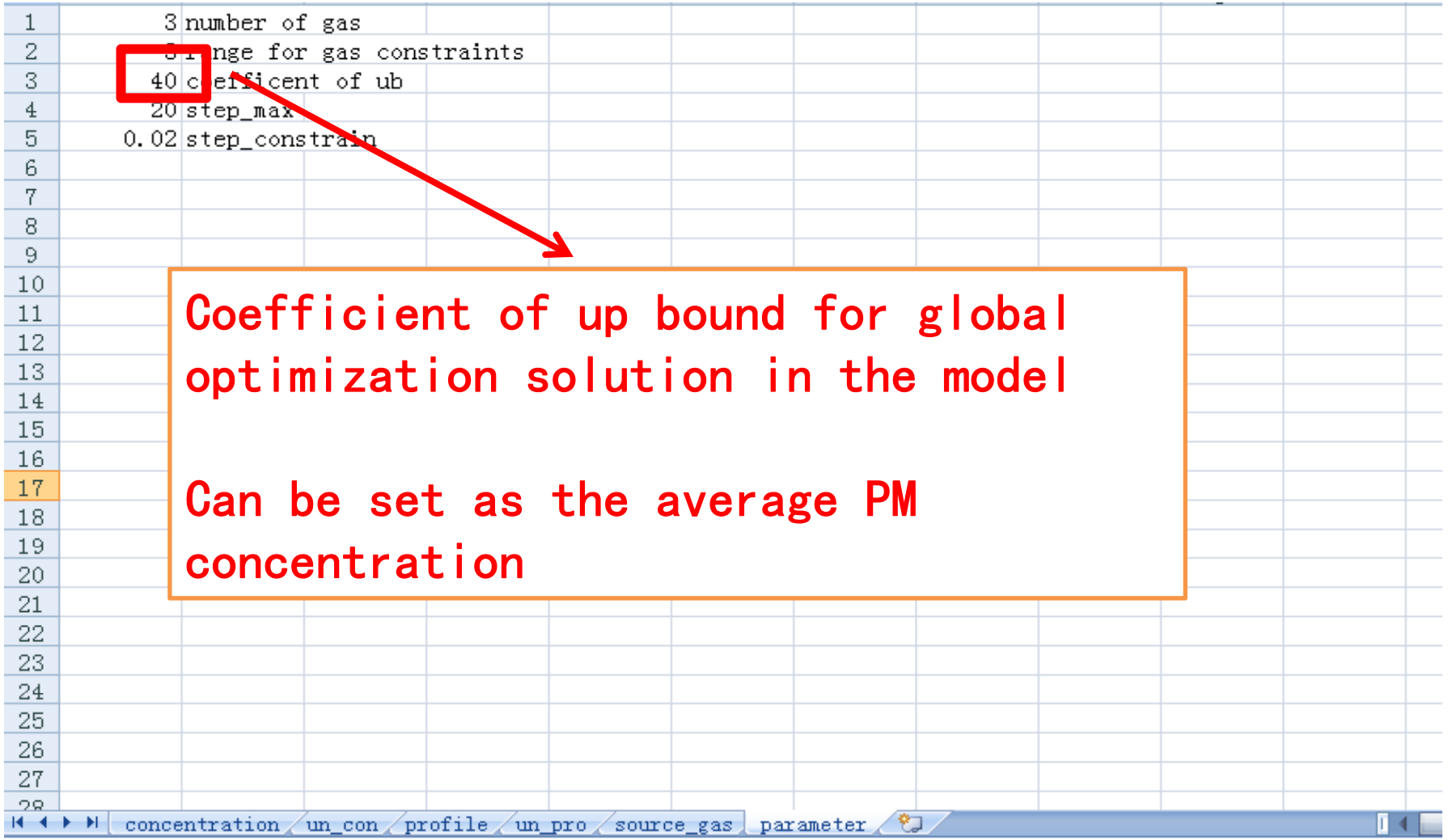
Key parameters for solution



CMBGC-Iteration 1.0

Input file

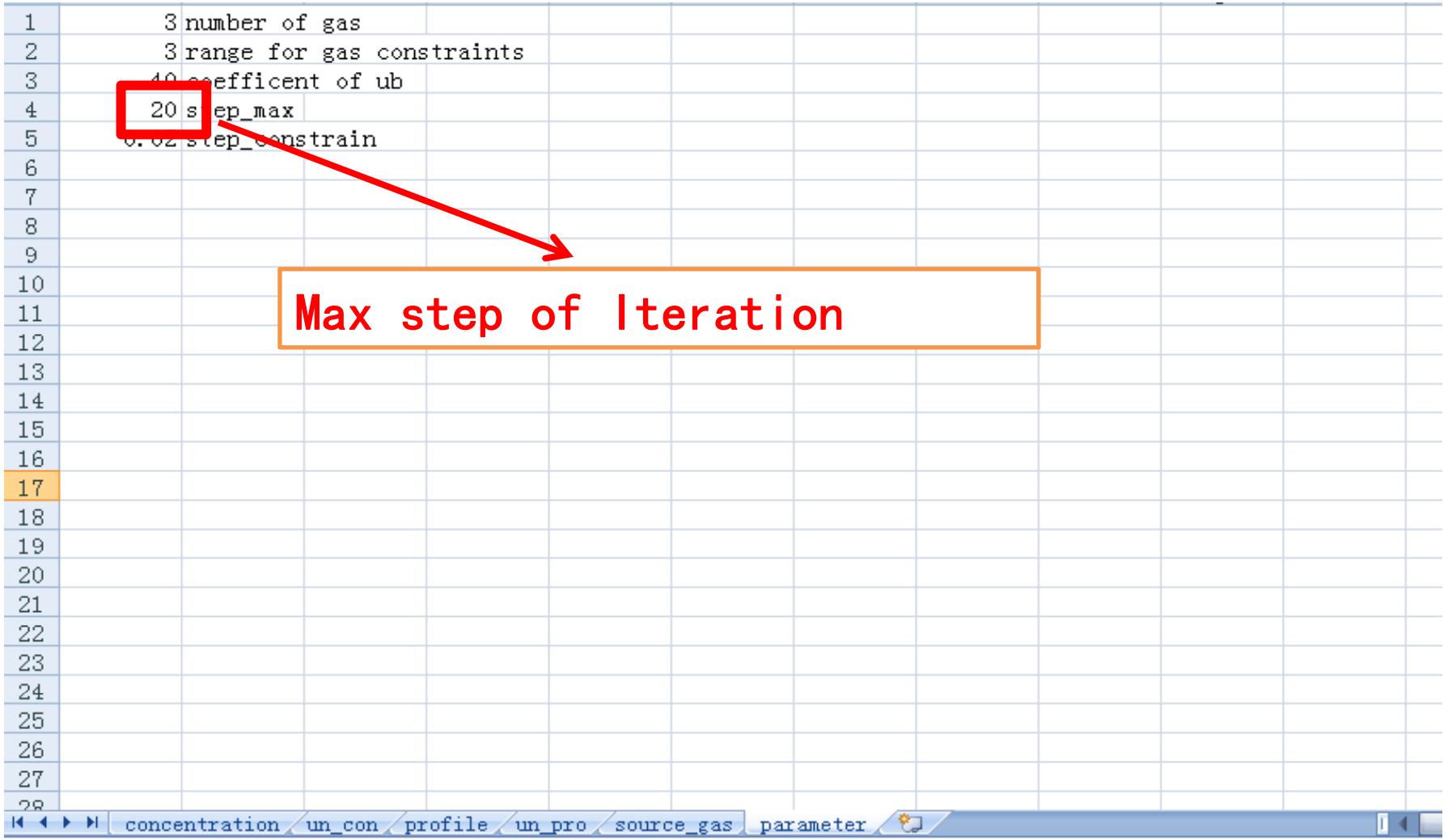
Key parameters for solution



CMBGC-Iteration 1.0

Input file

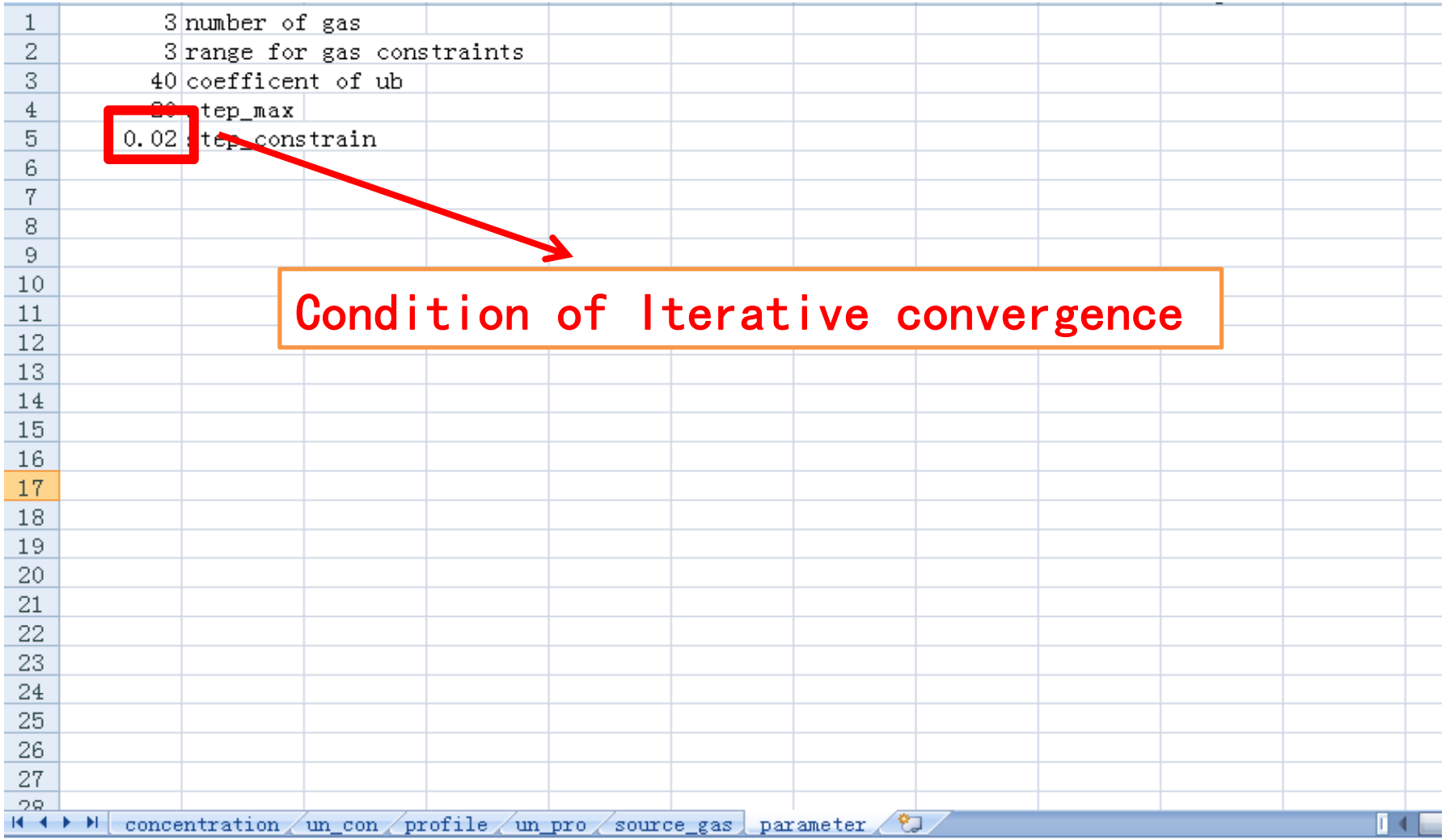
Key parameters for solution



CMBGC-Iteration 1.0

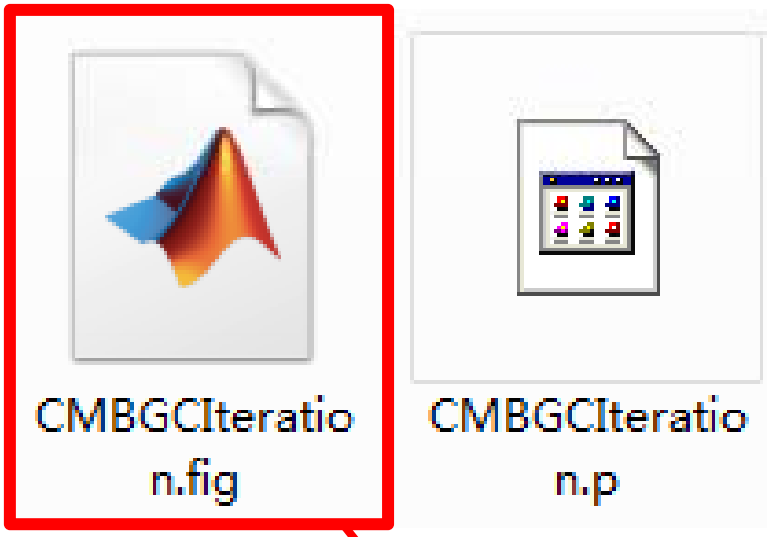
Input file

Key parameters for solution



CMBGC-Iteration 1.0

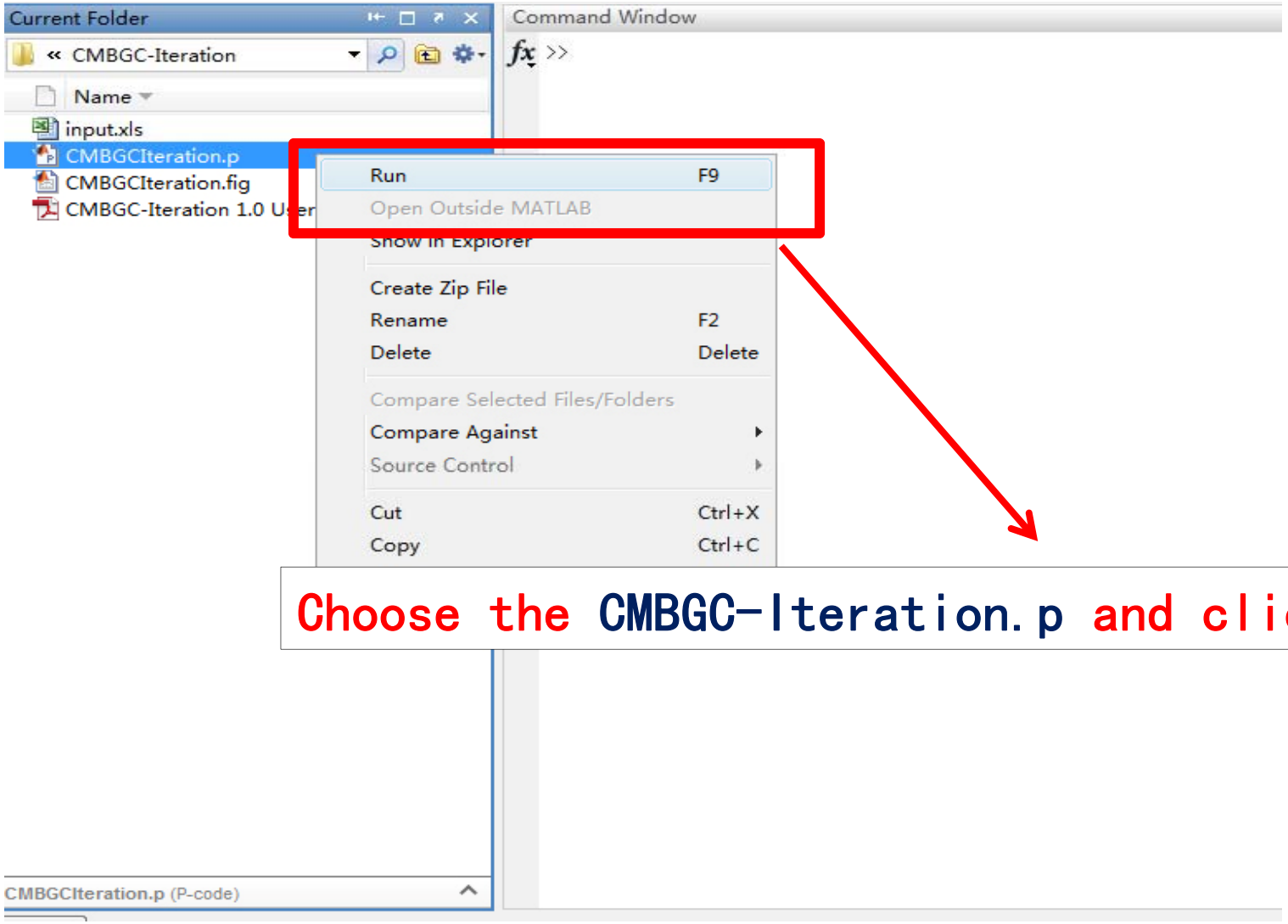
- Run the model



Double click the CMBGCIteration.fig file

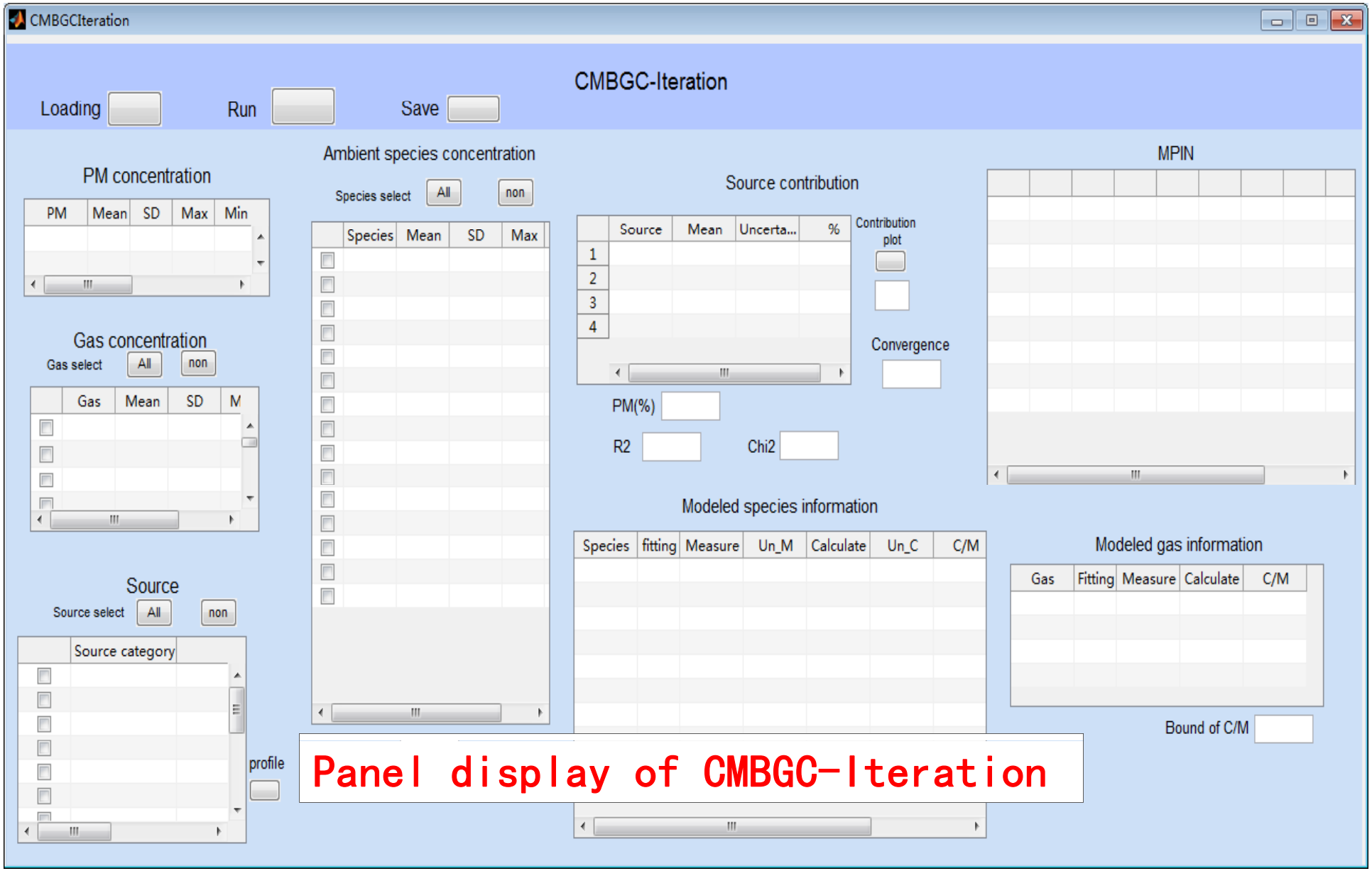
CMBGC-Iteration 1.0

- Run the model

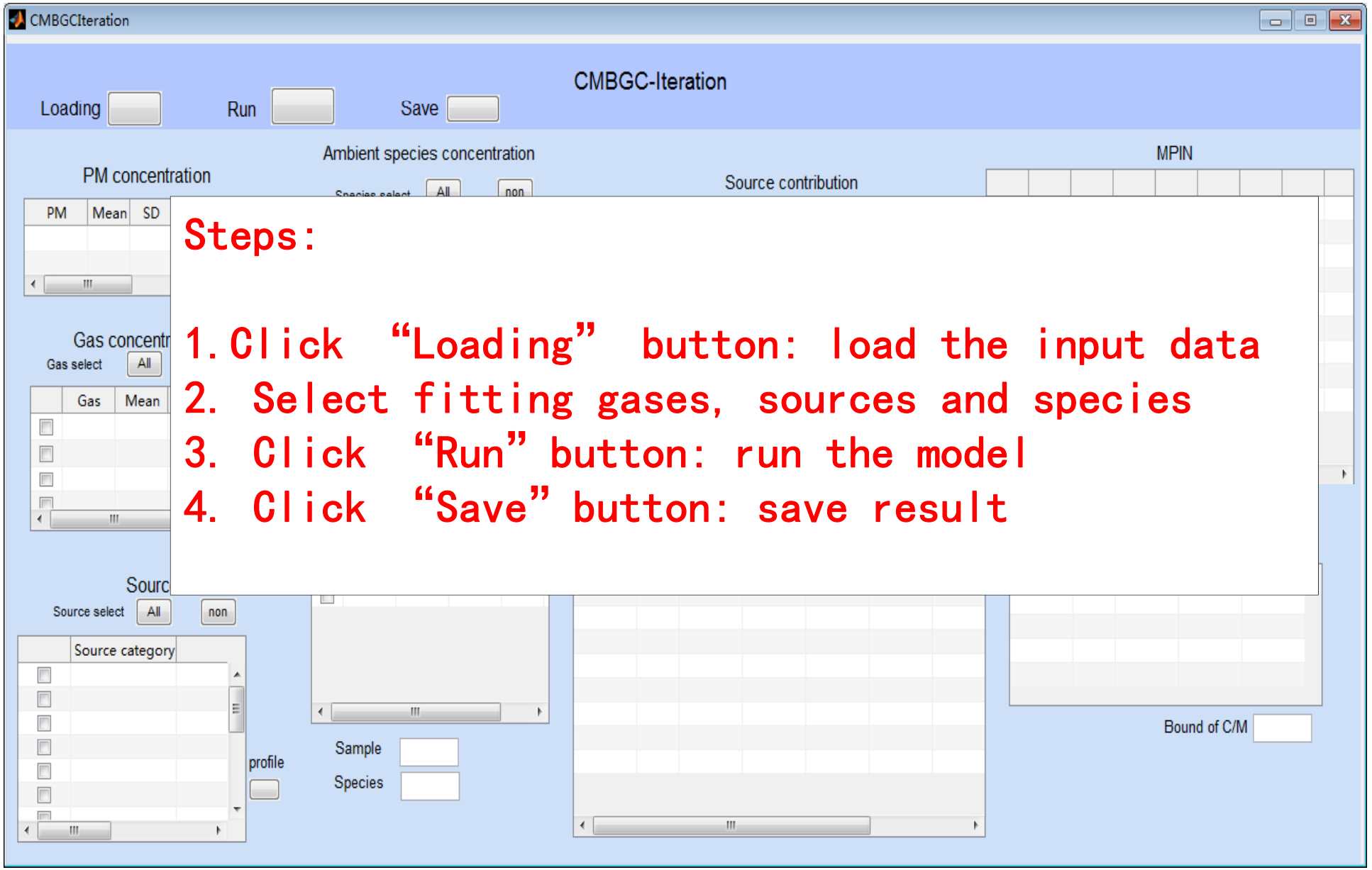


Choose the CMBGC-Iteration.p and click run

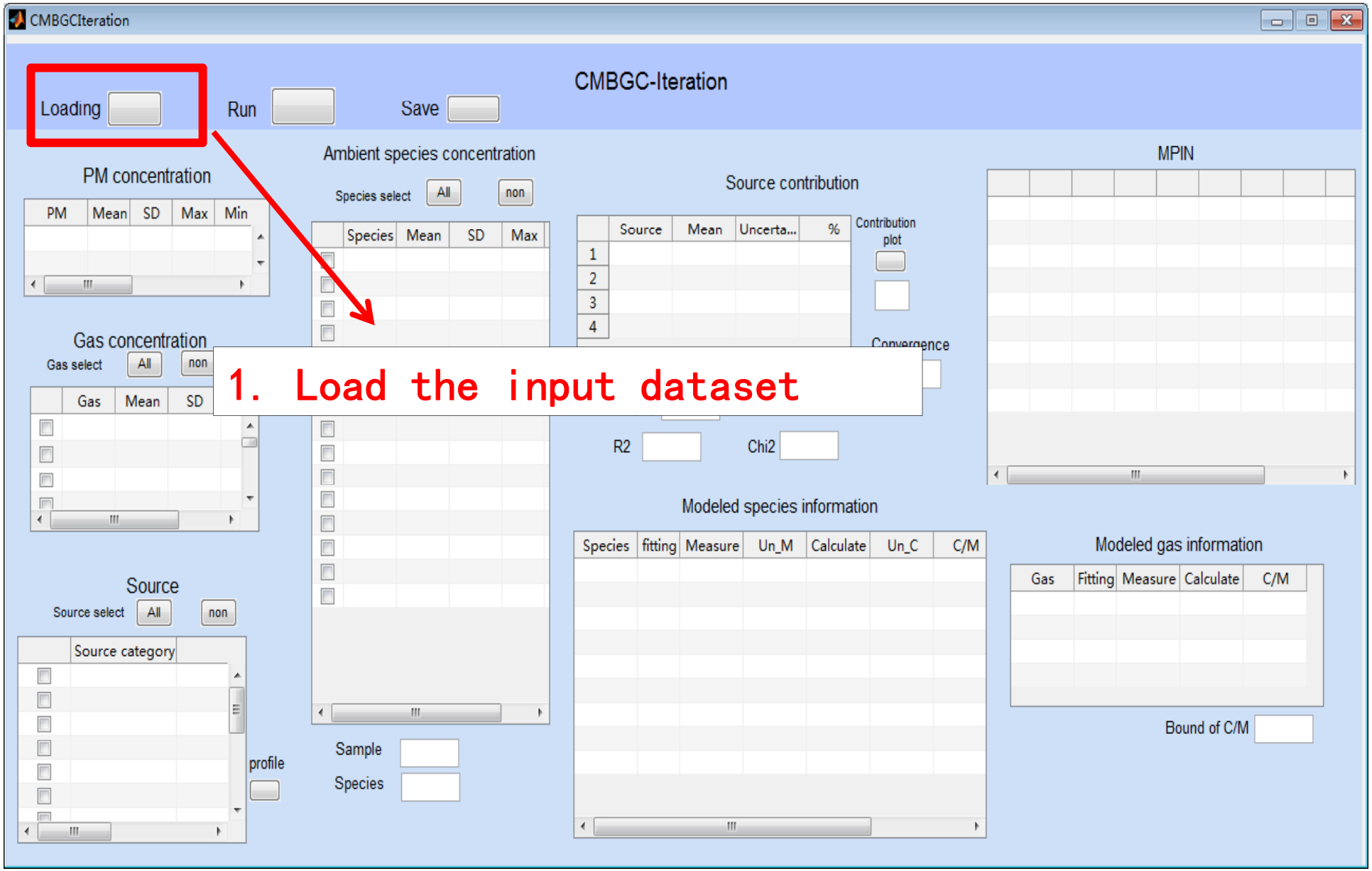
CMBGC-Iteration 1.0



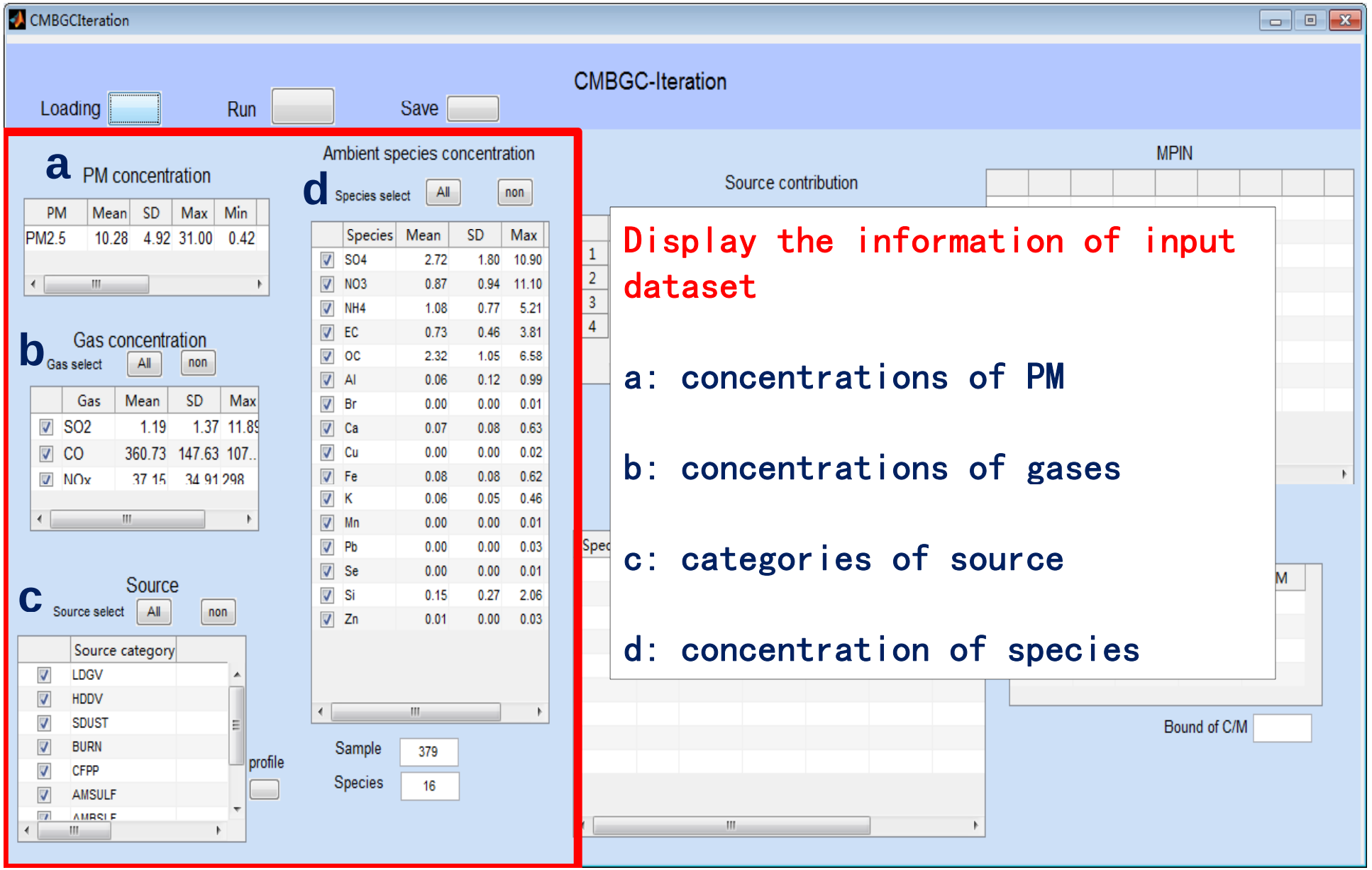
CMBGC-Iteration 1.0



CMBGC-Iteration 1.0



CMBGC-Iteration 1.0



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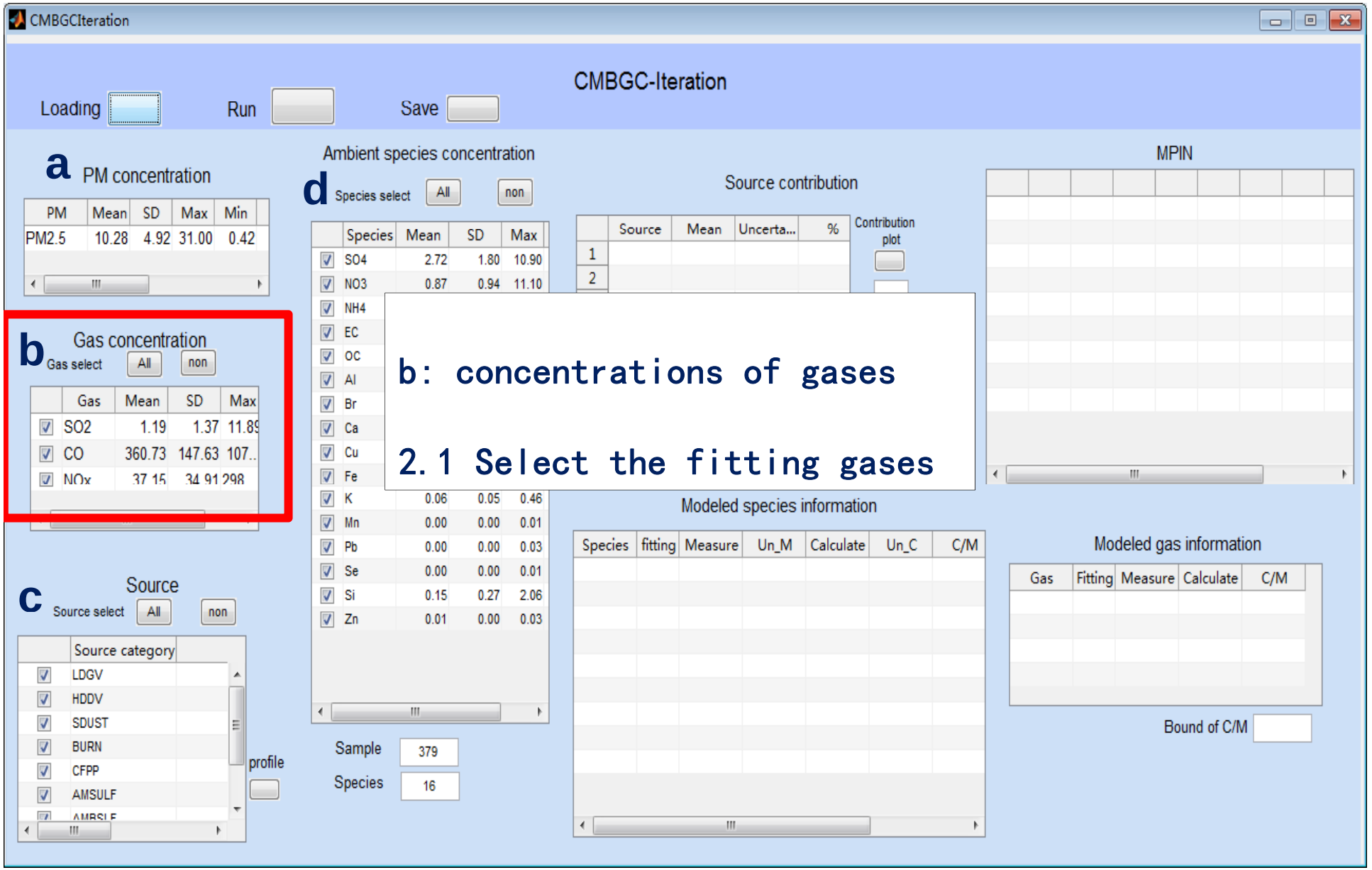

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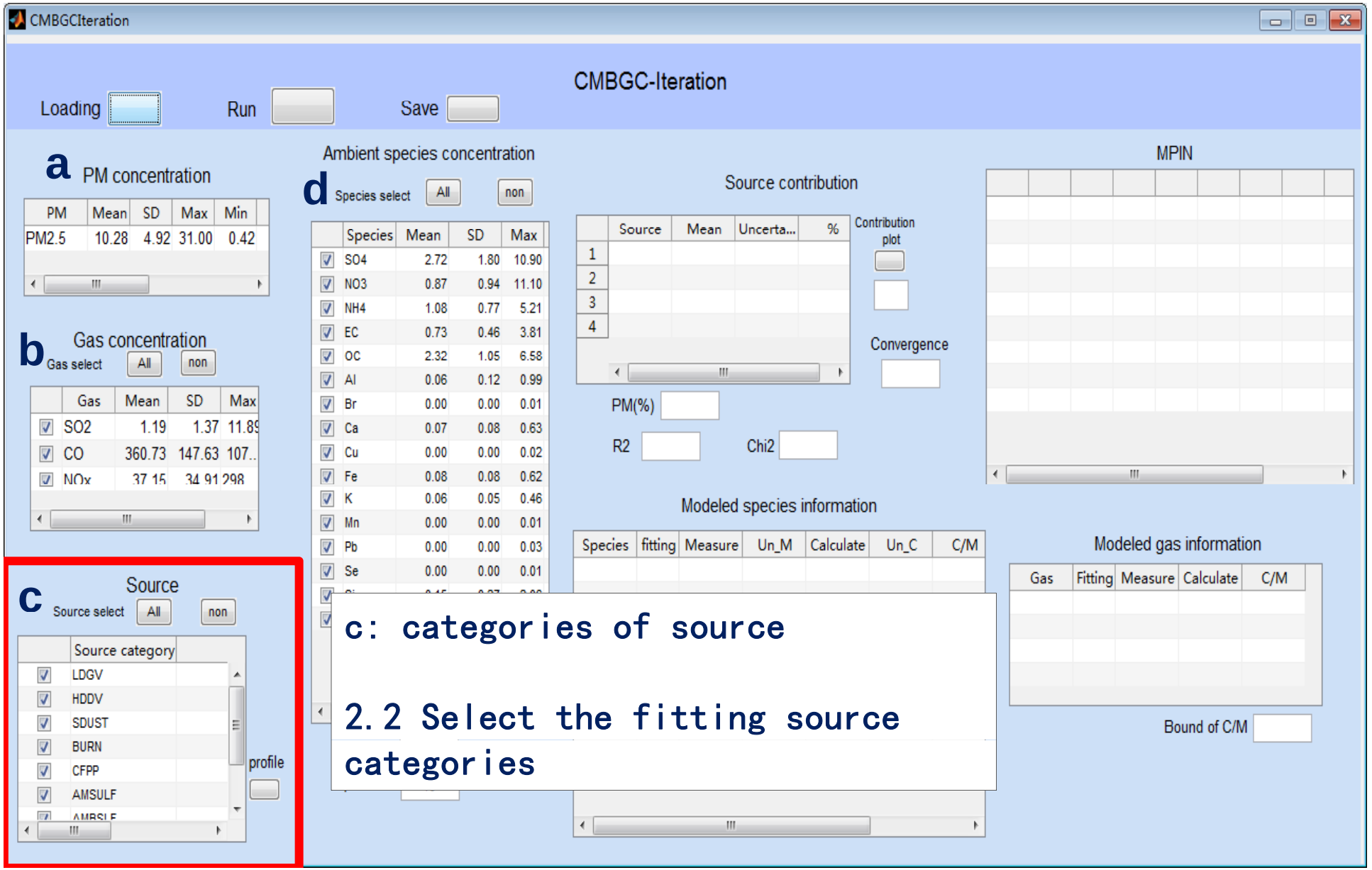

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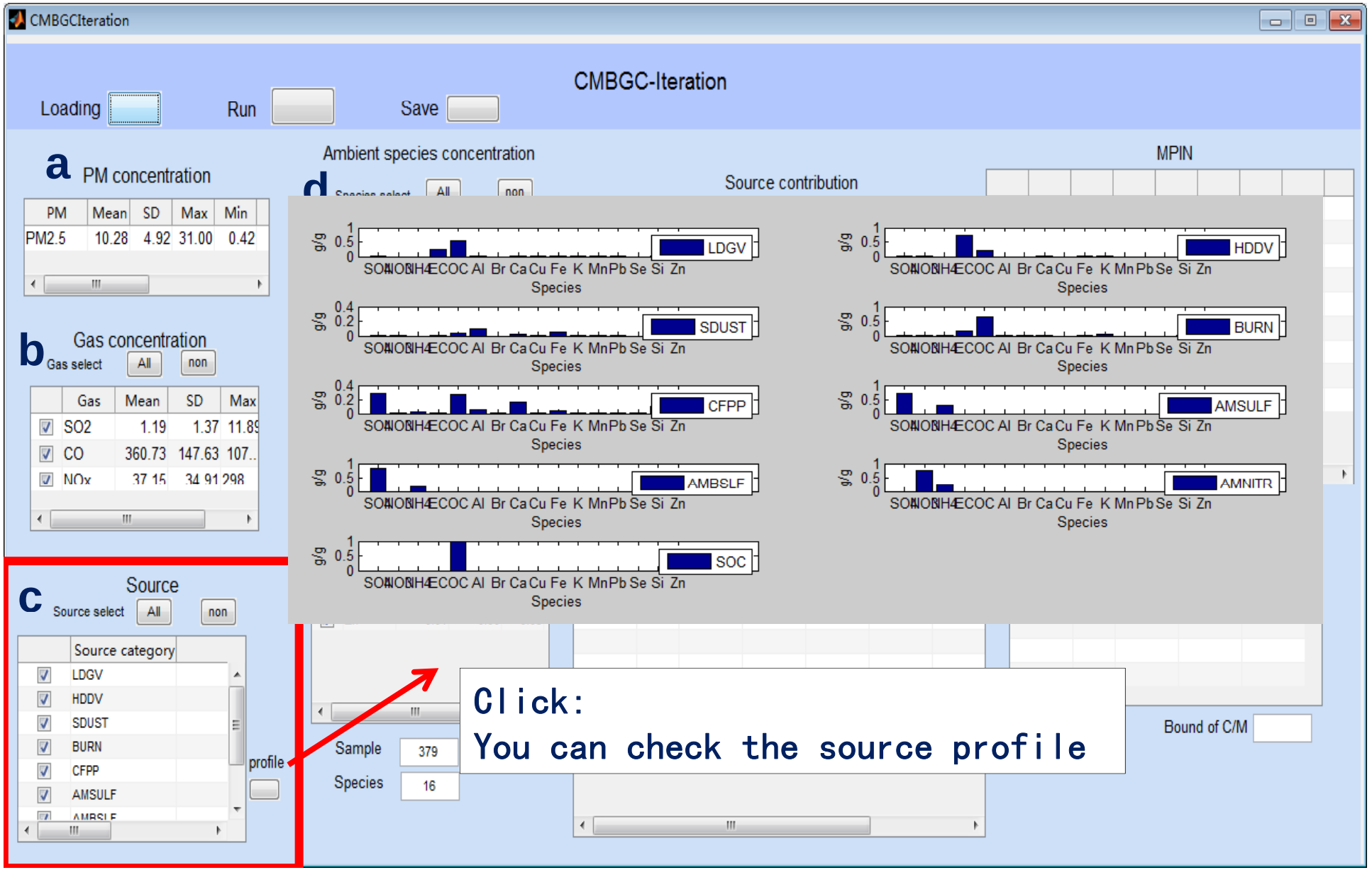

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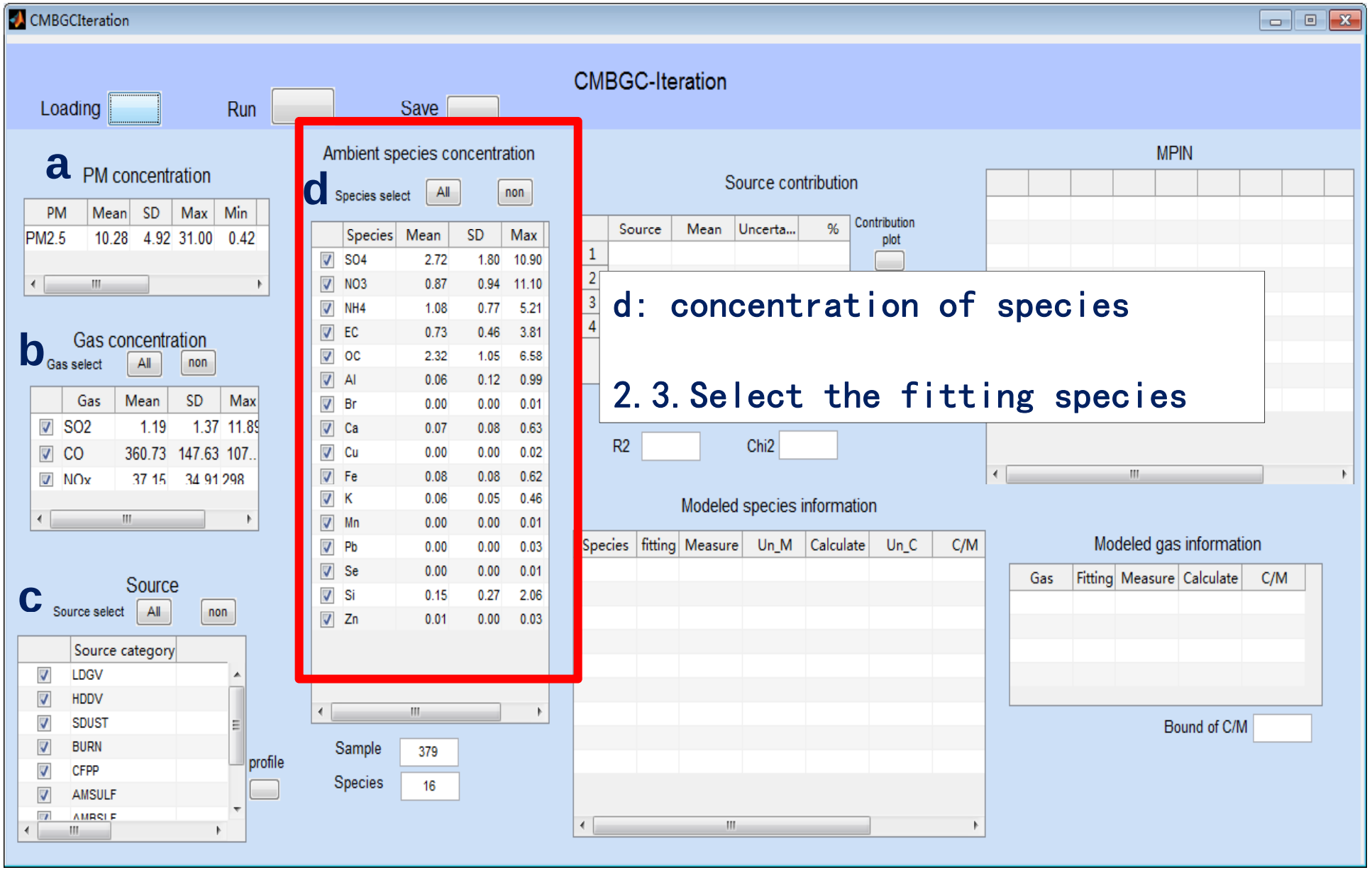

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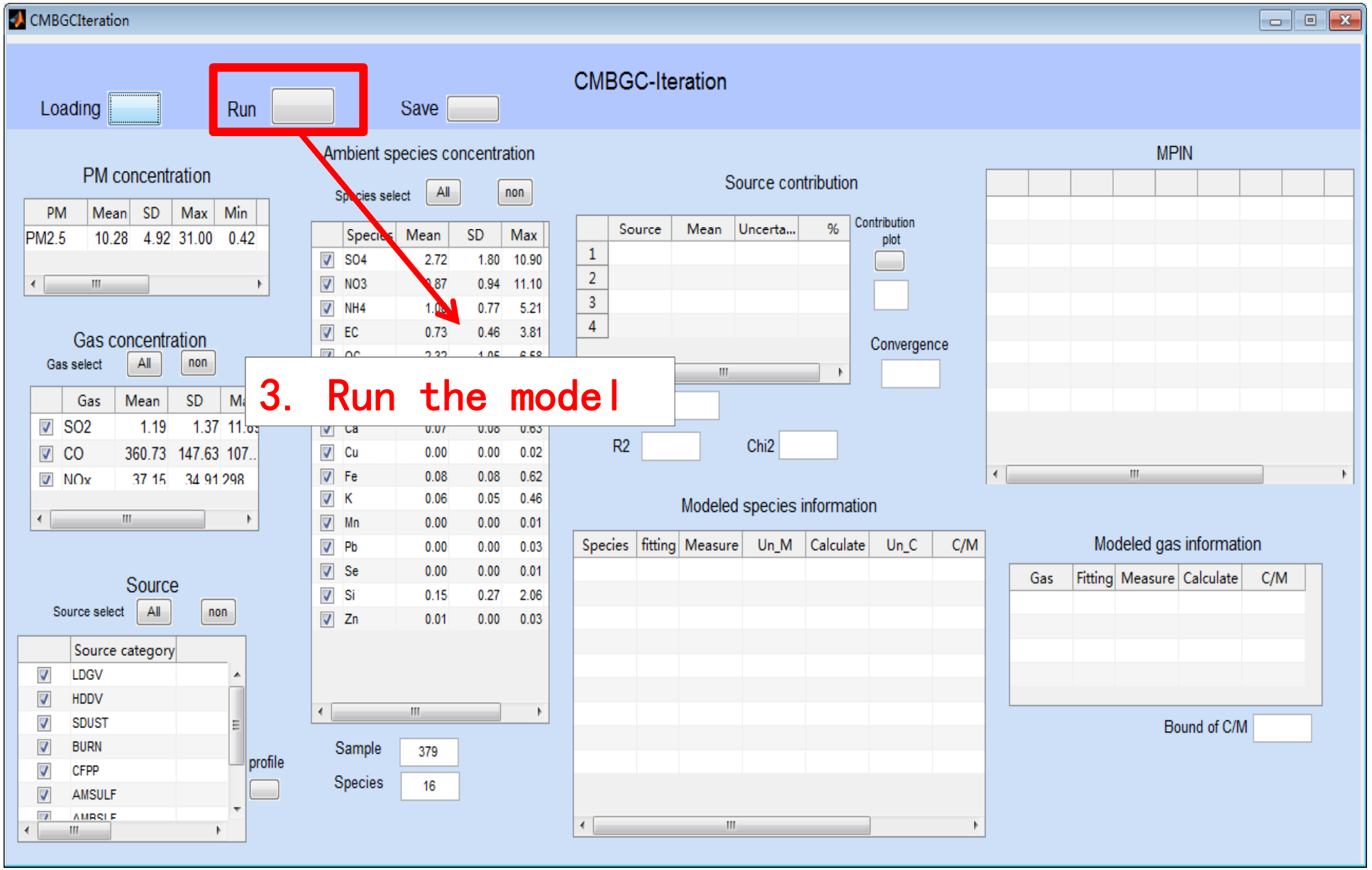

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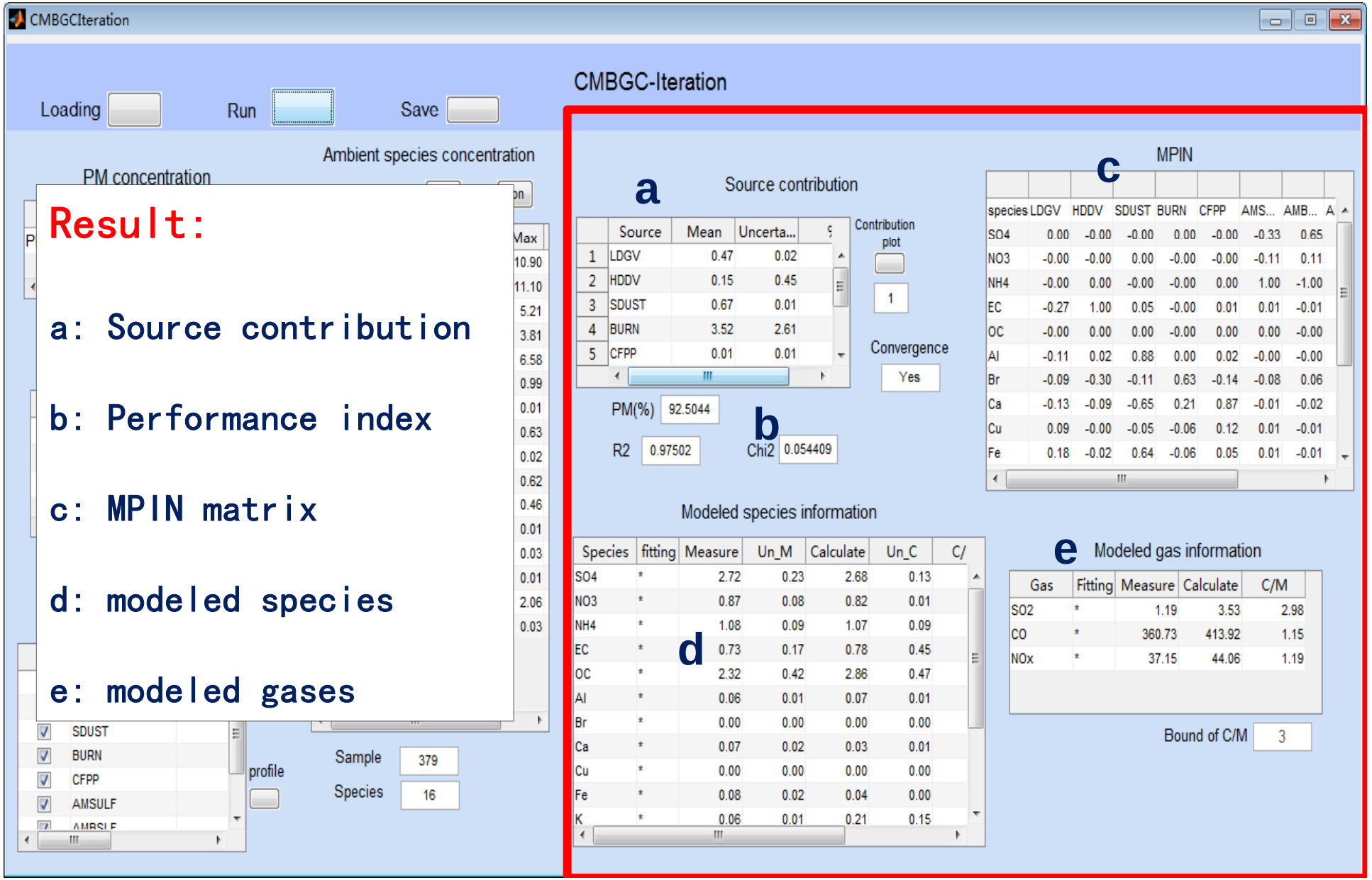

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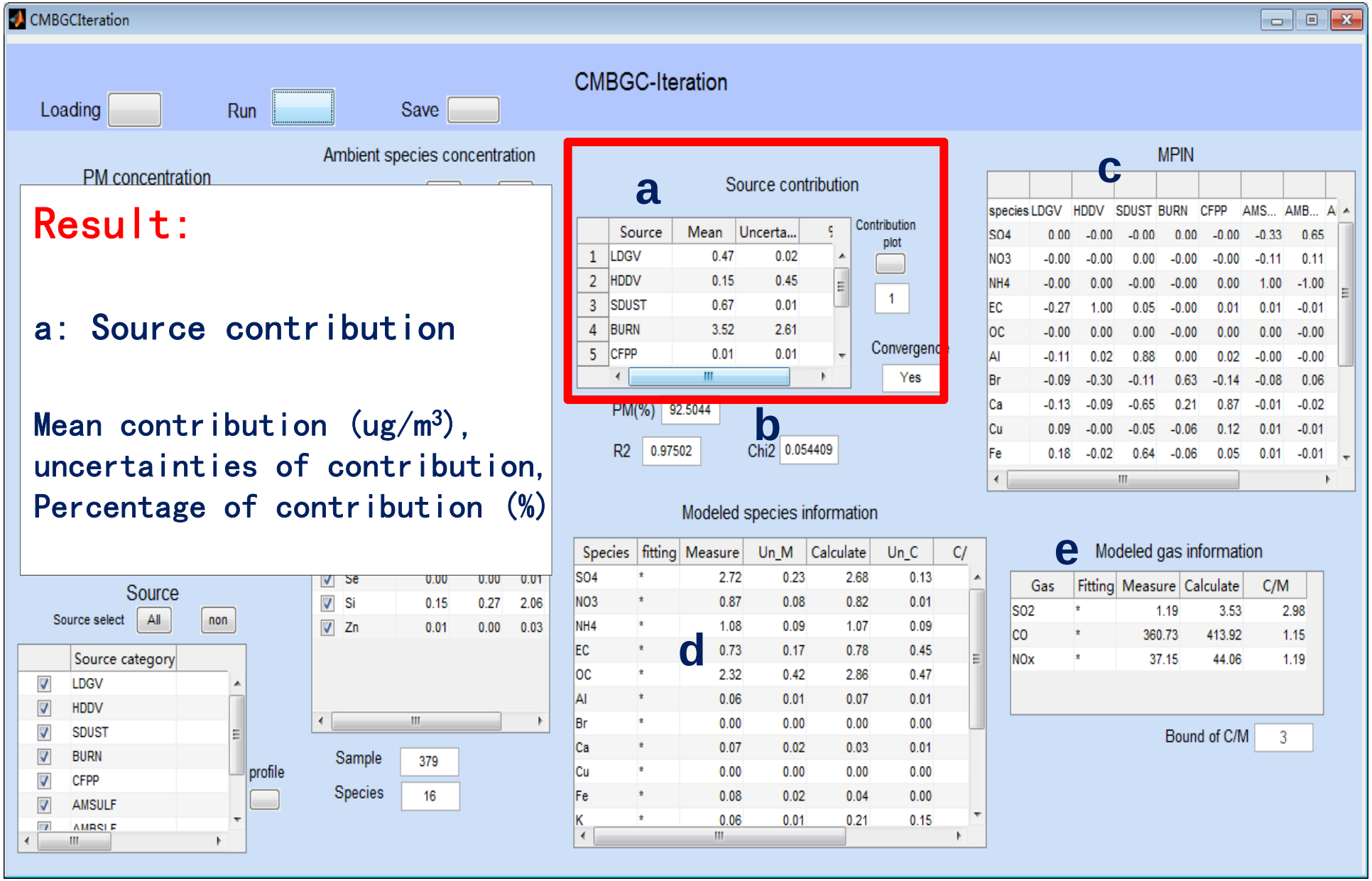

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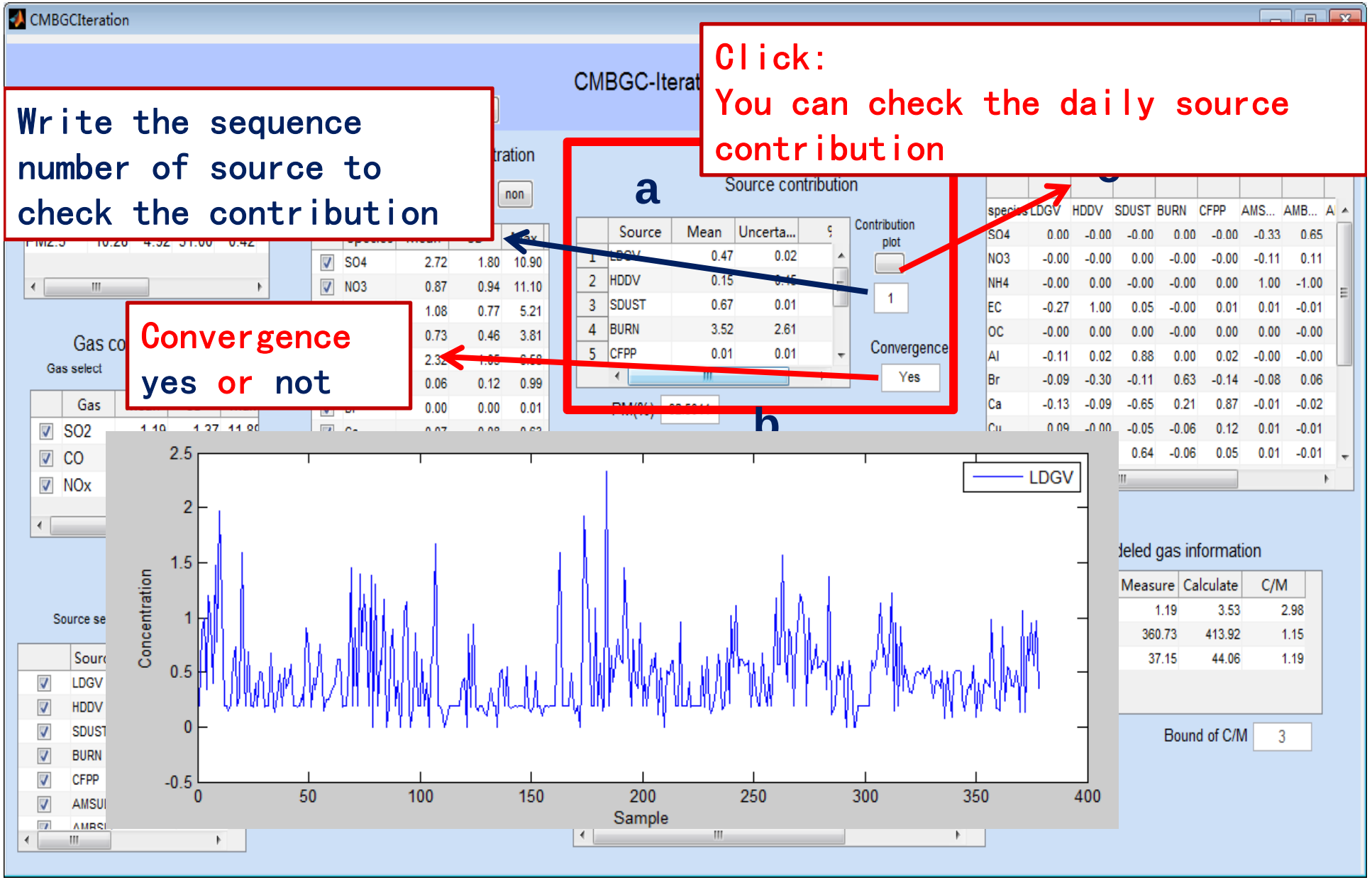

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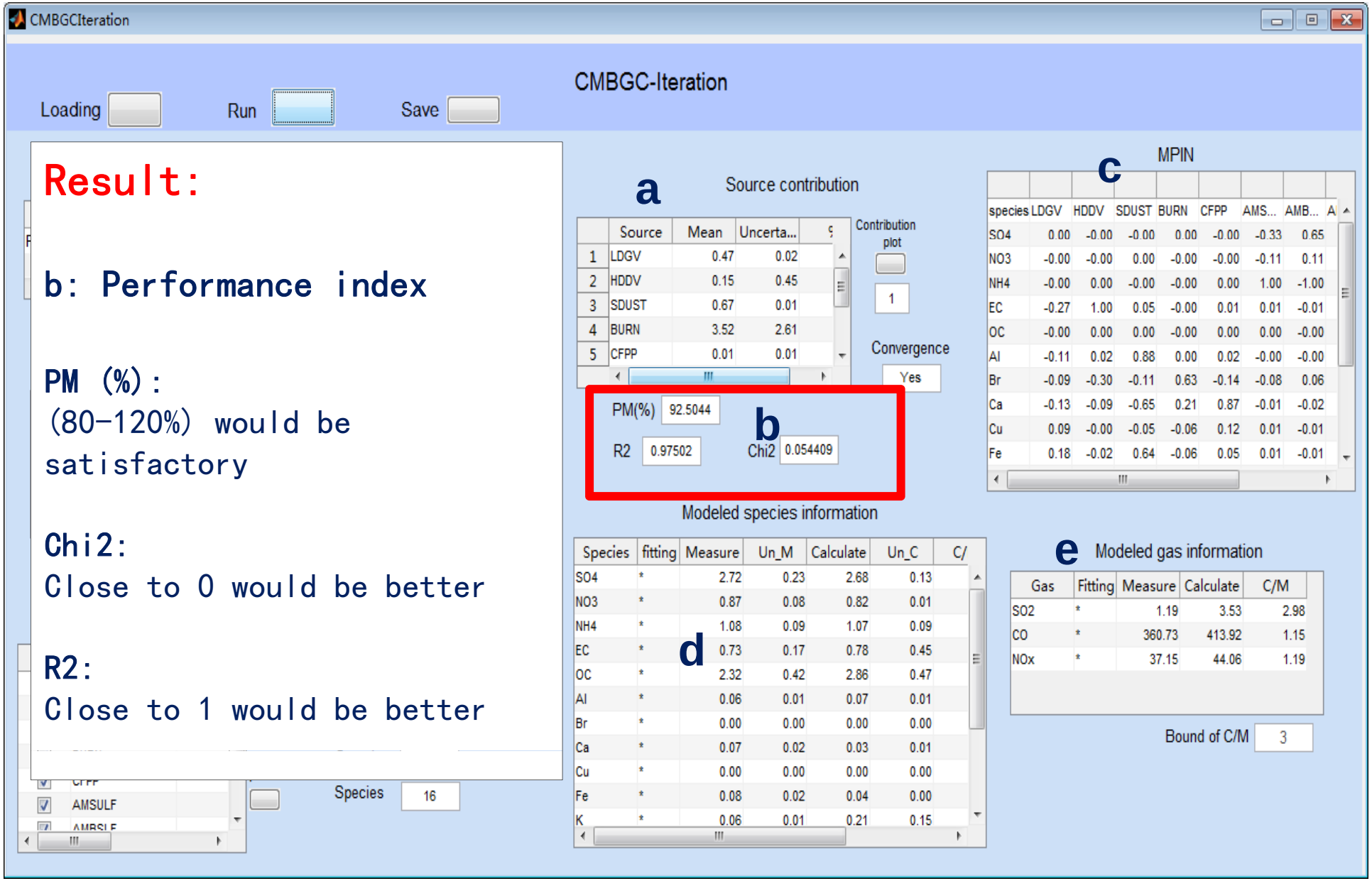

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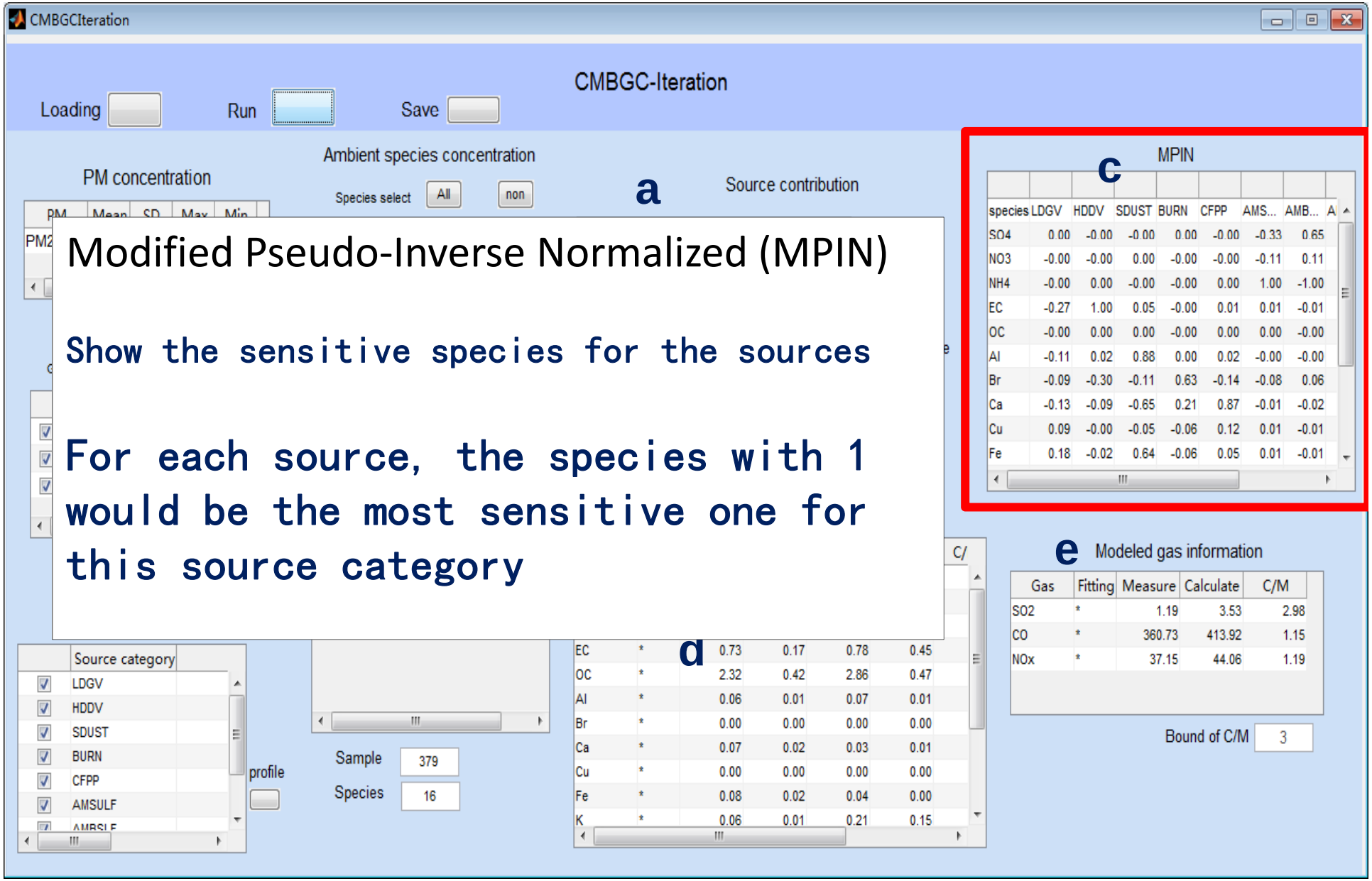

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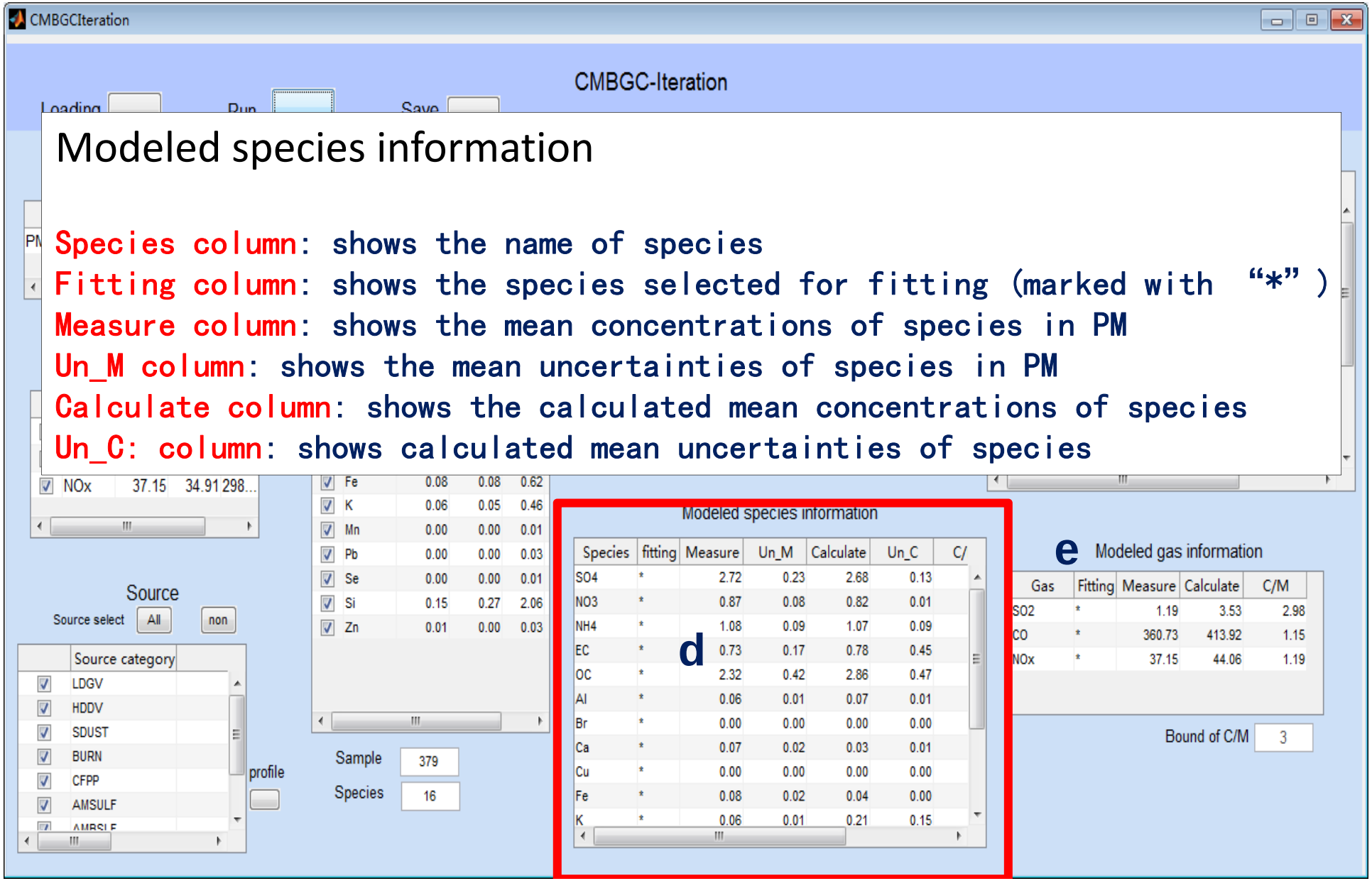

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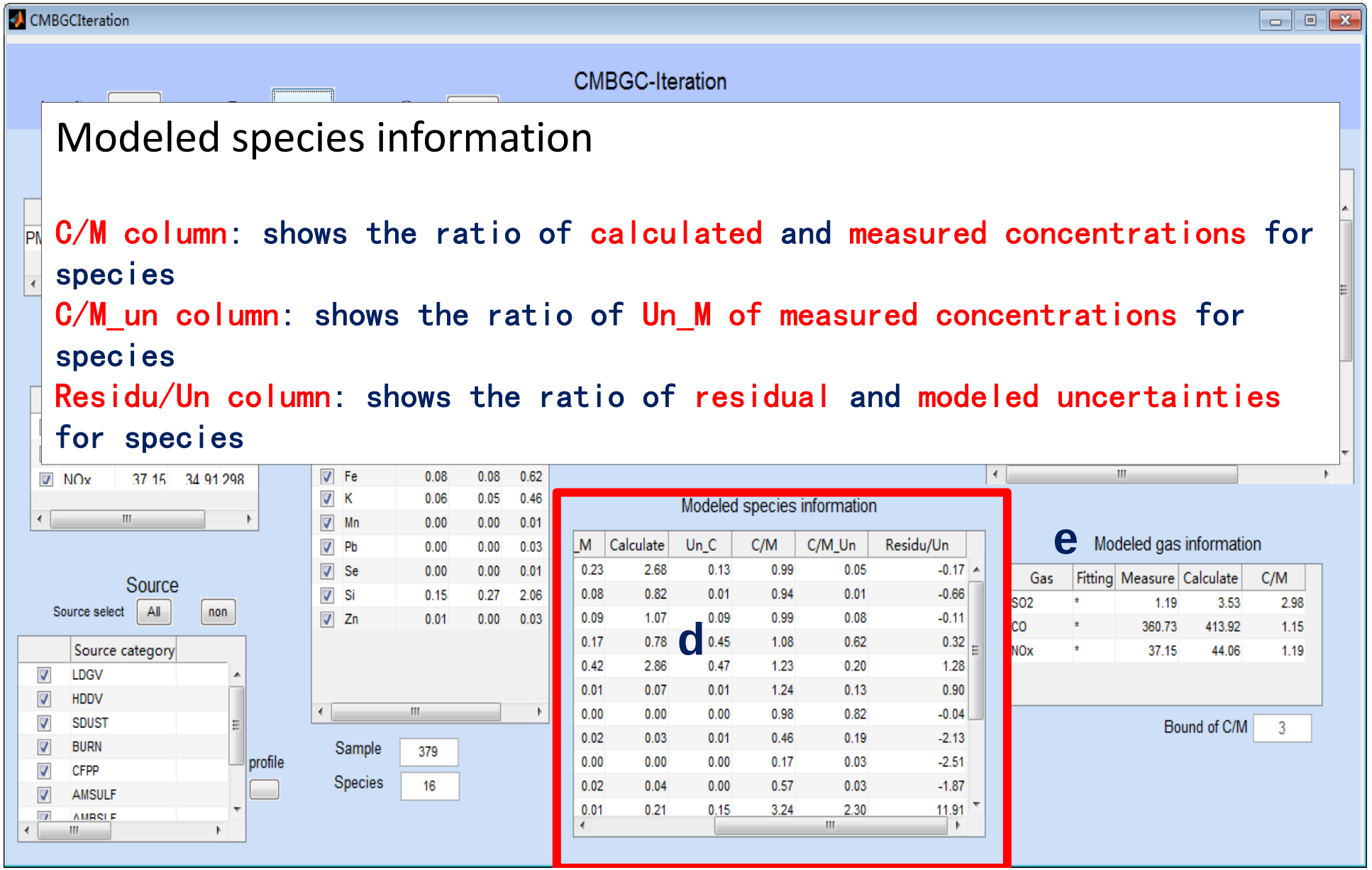

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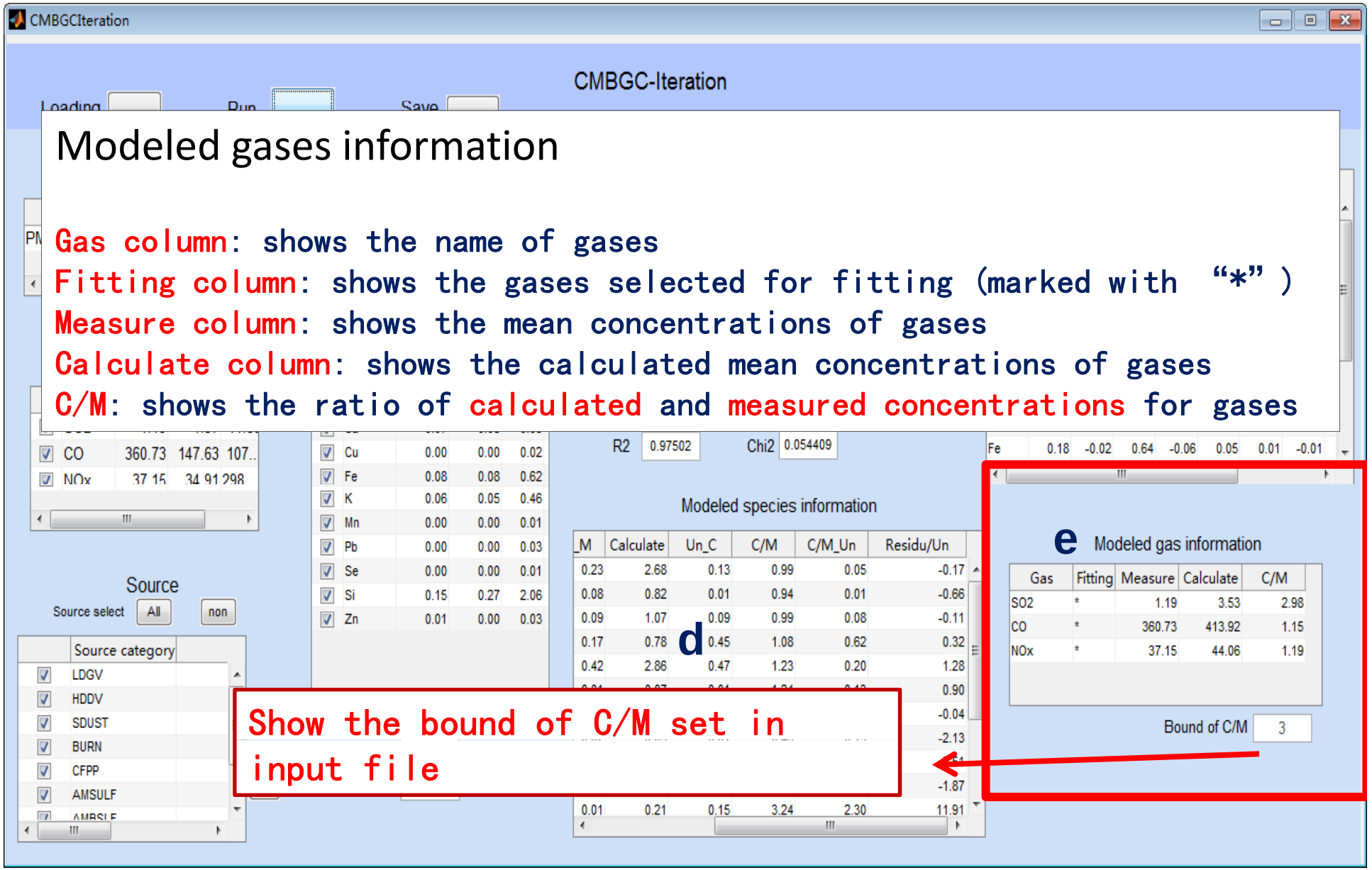

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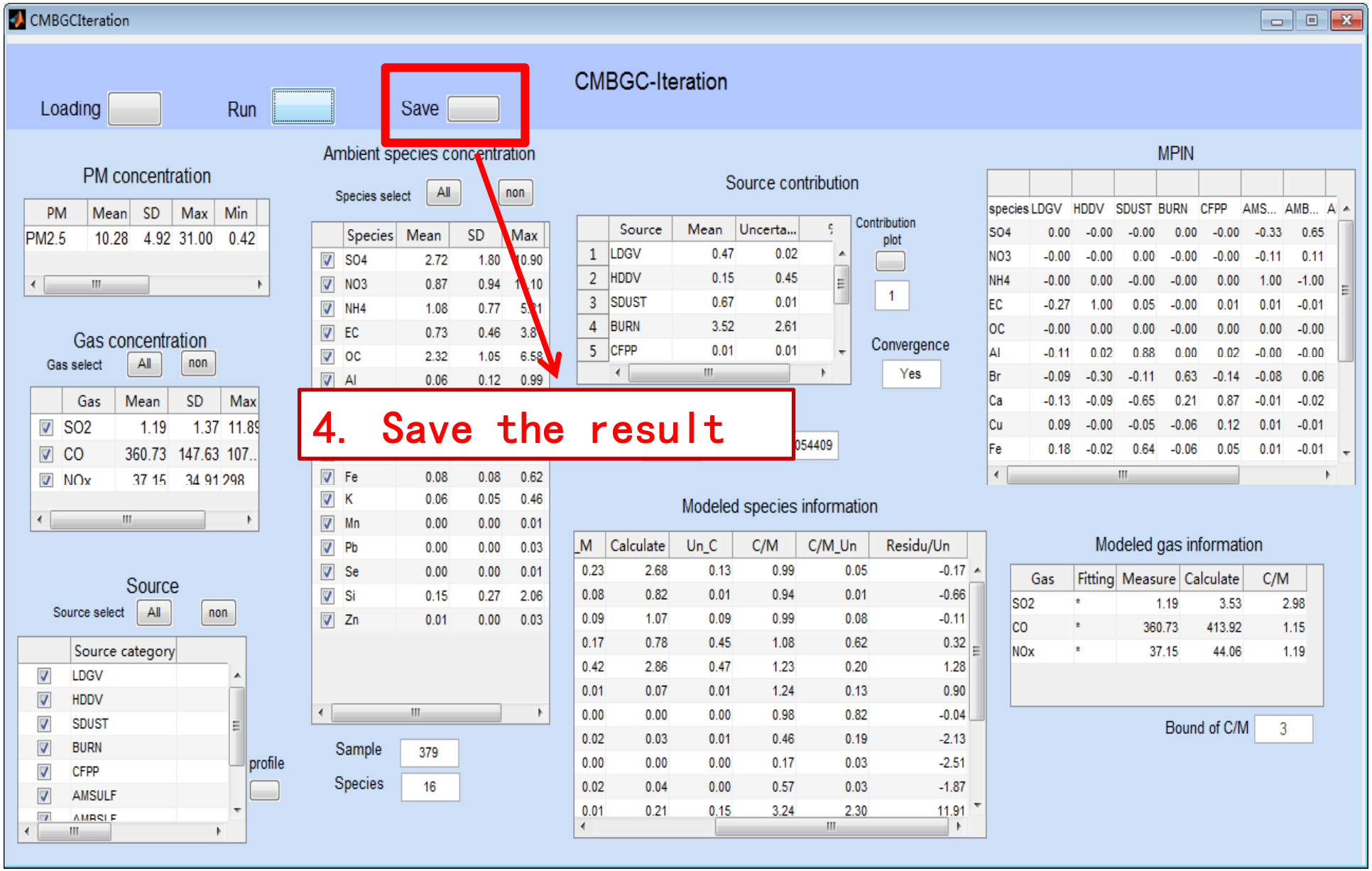

CMBGC-Iteration 1.0

- Result

	A	B	C	D	E	F	G	H	I	J	K
1	Date	LDGV	HDDV	SDUST	BURN	CFPP	AMSULF	AMBSLF	AMNITR	SOC	
2	2006/1/5	0.193993	0	0.189761	0.30992	-4.3E-20	0	0.213315	0.200402	1.094407	
3	2006/1/8	0.876502	0	0.200461	3.041995	0.118007	0	0.476396	0.592802	0.103708	
4	########	1.007543	0.540507	0.183157	0.692743	0.054915	0.120152	1.214659	0.587993	0.741207	
5	########	0.346507	0.23734	0.142343	0.232864	0.003169	0.124563	0.626495	0.317164	0.922777	
6	########	1.238296	0.658799	0.125292	0.690938	0.016373	0	2.031739	3.59948	1.244866	
7	########	1.018562	0.731049	0.146287	0.599467	0.148104	0	0.531261	0.468513	1.078588	
8	########	0.396992	0.3593	1.023218	1.180839	0.000819	0.52876	0.506801	0.271508	0.49451	
9	2006/2/1	1.476973	0	0.134121	0.699706	0.020236	2.189189	1.612148	0.661996	0.581551	
10	2006/2/4	0.816432	0.874691	0.155177	0.76253	0.014903	0	0.			
11	2006/2/7	2.017761	1.06293	0.167117	0.667417	0	0	1.			
12	########	1.078722	0	0.076773	3.723811	0.03493	1.841804	1.			
13	########	0.174339	0	0.239376	6.357181	0	1.731074	2.			
14	########	0.190209	0	0.142466	1.474295	0	4.690958				
15	########	0.147519	0.227849	0.073053	2.165643	-1.4E-17	4.829672				
16	########	0.191088	-3.6E-21	0.096328	1.203574	2.91E-19	1.278919	0.			
17	########	0.604079	-1.6E-22	0.156334	1.060559	1.32E-19	1.796884	2.			
18	2006/3/6	0.712073	1.42E-17	0.196413	7.423645	0	5.574883	3.			
19	2006/3/9	0.19296	-1.7E-21	0.523633	0.627631	1.1E-19	0.584028	1			
20	########	0.152698	7.64E-18	0.183394	7.229157	0.0175	2.009667	6.			
21	########	1.650678	0	0.083071	4.031656	0.116719	0.545484	1.			
22	########	0.423293	0	0.183426	1.073601	0	3.930665				
23	########	0.193979	-8.7E-22	0.114532	0.314035	2.69E-21	1.613499	1.			
24	########	0.707195	0.020388	0.166325	0.946737	-1.8E-18	0.594195	0.			
25	########	0.18032	0	0.235105	4.517053	-2.2E-19	5.815131	1.247675	0.370224	0	
26	2006/4/2	0.168761	0	0.222948	8.07362	0	3.12256	3.202961	0.954065	0	
27	2006/4/5	0.358642	7.62E-18	0.223367	5.608316	0.001004	2.614904	2.837898	1.337174	0	
28	2006/4/8	0.191468	0	0.380178	1.086889	0	1.857576	1.916932	1.492918	1.119968	

Contribution | Un_Contribution | Mean_contribution | Performance Index | MPIN | Modeled Species | Modeled ga

Output information:

Daily contributions;

Daily contribution uncertainties;

Mean source contribution;

Performance index;

MPIN matrix;

Modeled species information;

Modeled gases information

References

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