

SSAPO 1.0

(Simultaneous Source Apportionment
with Profile Optimization)

User Guide

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SSAPO 1.0

SSAPO 1.0 (Simultaneous Source Apportionment with Profile Optimization) can generate new local source profiles, based on the reference (original) profile and local ambient dataset. The simulated (new) profile can be more compatible for local areas, comparing with the reference profile.

SSAPO 1.0

SSAPO (Simultaneous Source Apportionment with Profile Optimization)

Loading
 Run
 Save

Ambient species concentration

Species select

	Species	Mean	Uncertainty
<input checked="" type="checkbox"/>	EC25	1.3910	0.3900
<input checked="" type="checkbox"/>	Na	0.0155	0.02066
<input checked="" type="checkbox"/>	Al	0.0455	0.01800
<input checked="" type="checkbox"/>	Si	0.1740	0.01900
<input checked="" type="checkbox"/>	Cl	0.0039	0.005200
<input checked="" type="checkbox"/>	K	0.1290	0.009800
<input checked="" type="checkbox"/>	Ca	0.0748	0.006000
<input checked="" type="checkbox"/>	Ti	0.0027	0.003533
<input checked="" type="checkbox"/>	Mn	9.5000e-04	0.001266
<input checked="" type="checkbox"/>	Fe	0.1350	0.009700
<input checked="" type="checkbox"/>	Cu	0.0033	0.0006500

Source Category

Source select

	Source category
<input checked="" type="checkbox"/>	AG
<input checked="" type="checkbox"/>	AIRC
<input checked="" type="checkbox"/>	BIOG
<input checked="" type="checkbox"/>	COAL
<input checked="" type="checkbox"/>	DUST
<input checked="" type="checkbox"/>	FIRE
<input checked="" type="checkbox"/>	FOIL
<input checked="" type="checkbox"/>	MEAT
<input checked="" type="checkbox"/>	METAL

Up bound coefficient

Low bound coefficient

Original source profile (unit: g/g)

Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	METAL
EC25	0	0.77100	0	0.020500	0.0017...	0.099947	0.049100	
Na	0	0	0	0.0011...	0.0011...	0.0041...	0	
Al	0	0	0	0.043500	0.059400	0.0005...	0	
Si	0	0	0	0.080200	0.17400	0.0010...	0.0034...	
Cl	0	0.0002...	0	0.0059...	0.0014...	0.023139	0.0017...	
K	0	3.8000...	0	0.0042...	0.017100	0.016599	0.0001...	
Ca	0	0.0005...	0	0.039300	0.053800	0.0023...	0.0002...	
Ti	0	4.0000...	0	0.0024...	0.0038...	0.0003...	0.0003...	
Mn	0	0	0	0.0001...	0.0011...	6.3356...	2.0900...	
Fe	0	0.0002...	0	0.020600	0.044300	0.0004...	0.0005...	
Cu	0	0	0	0.0001...	0.0001...	1.8692...	8.6800...	
Zn	0	0.0006...	0	0.0005...	0.0005...	0.0011...	0.0007...	

Profile ratio of N/O (New/Original)

Speci...	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE
EC25	1.00	1.19	1.01	1.37	1.01	1.01	1.04	1.19	1.01	1.05	1.091
Na	1.00	1.01	1.01	0.54	1.01	1.01	1.01	0.55	0.97	0.83	1.011
Al	1.00	1.01	1.01	0.91	1.01	1.01	1.01	0.90	0.92	1.01	1.011
Si	1.00	1.01	1.01	1.50	1.01	1.01	1.50	1.50	1.50	1.50	1.011
Cl	1.00	0.50	1.01	0.50	1.01	1.00	0.50	0.50	0.50	0.50	0.501
K	1.00	1.50	1.01	1.50	1.02	1.03	1.50	1.50	1.50	1.50	1.501
Ca	1.00	1.01	1.01	1.44	1.01	1.01	1.01	1.06	1.02	1.04	1.081
Ti	1.00	1.01	1.01	0.53	1.01	1.01	0.93	0.95	1.00	0.94	0.991
Mn	1.00	1.01	1.01	1.50	1.01	1.01	1.48	1.50	1.50	1.50	1.011

New source profile (unit: g/g)

Species	AG	AIRC	BIOG	COAL	DUST	FIRE
EC25	0	0.919558...	0	0.028118	0.0017476	0.10
Na	0	0	0	0.00062988	0.0011413	0.00
Al	0	0	0	0.039697	0.060006	5.5642e-
Si	0	0	0	0.12030	0.17578	0.00
Cl	0	1.025000...	0	0.0029950	0.0014141	0.02
K	0	5.700000...	0	0.0063750	0.017495	0.01
Ca	0	5.888399...	0	0.056671	0.054349	0.00
Ti	0	4.038996...	0	0.0013010	0.0039289	3.3695e-
Mn	0	0	0	0.00026400	0.0011820	6.3990e-
Fe	0	0.000000...	0	0.000000	0.000000	0.000000

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- **RUNNING ENVIRONMENT :**

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

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

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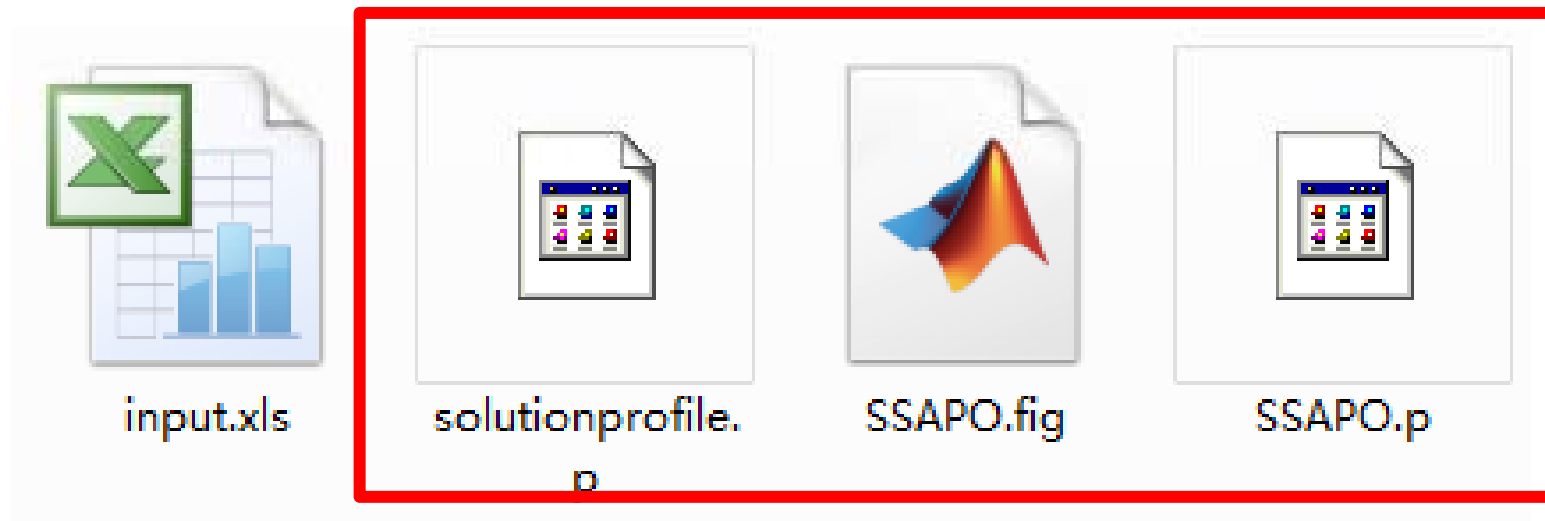
SSAPO.zip



Extract the SSAPO.zip file

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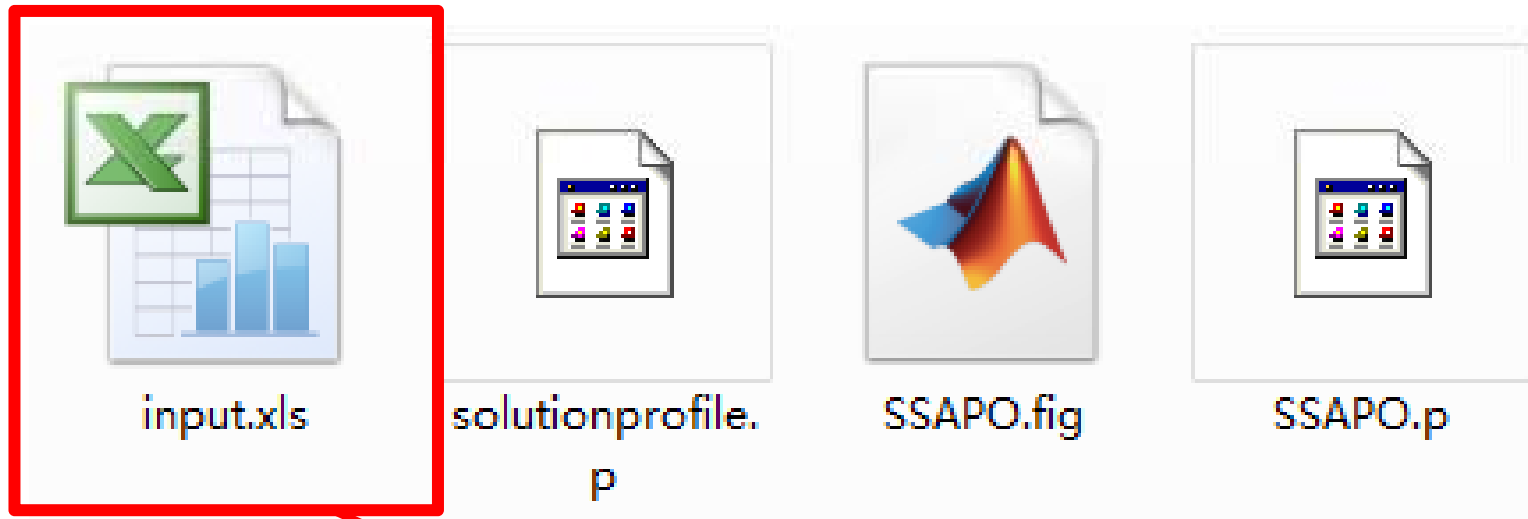
Four files in CMBGC-Iteration.zip



Matlab program files

SSAPOO 1.0

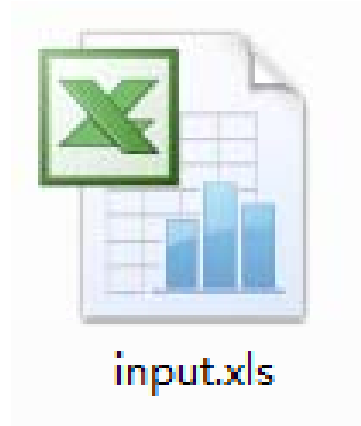
Four files in CMBGC1.zip



Example of input file

SSAPO 1.0

- Input file



Input file of SSAPO 1.0 is .xls file

(User can modify the name of input file)

SSAPOO 1.0

Input file

	A	B	C	D	E	F	G	H	I	J	K
1		Conc	Unc								
2	EC25	1.391	0.39								
3	Na	0.0155	0.020668								
4	Al	0.0455	0.018								
5	Si	0.174	0.019								
6	Cl	0.0039	0.0052								
7	K	0.129	0.0098								
8	Ca	0.0									
9	Ti	0.00									
10	Mn	0.0065	0.001287								
11	Fe	0.135	0.0097								
12	Cu	0.00326	0.00065								
13	Zn	0.00573	0.00077								
14	As	0.00232	0.00043								
15	Se	0.00065	0.000867								
16	Br	0.00065	0.000867								
17	Sn	0.01	0.013334								
18	Sb	0.0195	0.026001								
19	Ba	0.0055	0.007334								
20	Pb	0.0013	0.001733								
21											
22											
23											
24											
25											
26											
27											
28											

Five worksheets in input file

Do not change the names of Five worksheets!

ambient profile un_profile Source contribution parameter

SSAPOO 1.0

Input file

	A	B	C	D	E	F	G	H	I	J	K
1		Conc	Unc								
2	EC25	1.391	0.39								
3	Na	0.0155	0.020668								
4	Al	0.0455	0.018								
5	Si	0.174	0.019								
6	Cl	0.0039	0.0052								
7	K	0.129	0.0098								
8	Ca	0.0748	0.006								
9	Ti	0.00005	0.000001								
10	Mn	0.00005	0.000001								
11	Fe	0.00005	0.000001								
12	Cu	0.00005	0.000001								
13	Zn	0.00005	0.000001								
14	As	0.00232	0.000003								
15	Se	0.00065	0.000007								
16	Br	0.00065	0.000007								
17	Sn	0.01	0.013334								
18	Sb	0.0195	0.026001								
19	Ba	0.0055	0.007334								
20	Pb	0.0013	0.001733								
21											
22											
23											
24											
25											
26											
27											
28											

Concentration and uncertainties of ambient dataset

ambient profile un_profile Source contribution parameter

SSAPO 1.0

Input file

Concentration of ambient dataset

	A	B	C	D	E	F	G	H	I	J	K	L
1		Conc	Unc									
2	EC25	1.391	0.39									
3	Na	0.0155	0.020668									
4	Al	0.0455	0.018									
5	Si	0.174	0.019									
6	Cl	0.0039	0.0052									
7	K	0.129	0.0098									
8	Ca	0.0748	0.006									
9	Ti	0.00265	0.003534									
10	Mn	0.00095	0.001267									
11	Fe	0.135	0.009									
12	Cu	0.00326	0.0006									
13	Zn	0.00573	0.0007									
14	As	0.00232	0.00043									
15	Se	0.00065	0.000867									
16	Br	0.00065	0.000867									
17	Sn	0.01	0.013334									
18	Sb	0.0195	0.026001									
19	Ba	0.0055	0.007334									
20	Pb	0.0013	0.001733									
21												
22												
23												
24												
25												
26												
27												
28												

First line: title line

SSAPOO 1.0

Input file

Concentration of ambient dataset

	A	B	C	D	E	F	G	H	I	J	K	L
1		Conc	Unc									
2	EC25	1.391	0.39									
3	Na	0.0155	0.020668									
4	Al	0.0455	0.018									
5	Si	0.174	0.019									
6	Cl	0.0039	0.0052									
7	K	0.129	0.0095									
8	Ca	0.0748	0.0095									
9	Ti	0.00265	0.00353									
10	Mn	0.00095	0.001267									
11	Fe	0.135	0.0097									
12	Cu	0.00326	0.00065									
13	Zn	0.00573	0.00077									
14	As	0.00232	0.00043									
15	Se	0.00065	0.000867									
16	Br	0.00065	0.000867									
17	Sn	0.01	0.013334									
18	Sb	0.0195	0.026001									
19	Ba	0.0055	0.007334									
20	Pb	0.0013	0.001733									
21												
22												
23												
24												
25												
26												
27												

First column: species names

SSAPOO 1.0

Input file

Concentration of ambient dataset

	A	B	C	D	E	F	G	H	I	J	K
1		Conc	unc								
2	EC25	1.391	0.39								
3	Na	0.0155	0.020668								
4	Al	0.0455	0.018								
5	Si	0.174	0.019								
6	Cl	0.0039	0.0052								
7	K	0.129	0.009								
8	Ca	0.0748	0.00								
9	Ti	0.00265	0.00353								
10	Mn	0.00095	0.00126								
11	Fe	0.135	0.009								
12	Cu	0.00326	0.00065								
13	Zn	0.00573	0.00077								
14	As	0.00232	0.00043								
15	Se	0.00065	0.000867								
16	Br	0.00065	0.000867								
17	Sn	0.01	0.013334								
18	Sb	0.0195	0.026001								
19	Ba	0.0055	0.007334								
20	Pb	0.0013	0.001733								
21											
22											
23											
24											
25											
26											
27											
28											

Second column: species concentration (ug/m³)

SSAPOO 1.0

Input file

Concentration of ambient dataset

	A	B	C	D	E	F	G	H	I	J	K
1		Conc	Unc								
2	EC25	1.391	0.39								
3	Na	0.0155	0.020668								
4	Al	0.0455	0.018								
5	Si	0.174	0.019								
6	Cl	0.0039	0.0052								
7	K	0.129	0.0098								
8	Ca	0.0748	0.006								
9	Ti	0.00265	0.003534								
10	Mn	0.00095	0.001267								
11	Fe	0.135	0.0097								
12	Cu	0.00326	0.00065								
13	Zn	0.00573	0.00077								
14	As	0.00232	0.00043								
15	Se	0.00065	0.000867								
16	Br	0.00065	0.000867								
17	Sn	0.01	0.013334								
18	Sb	0.0195	0.026001								
19	Ba	0.0055	0.007334								
20	Pb	0.0013	0.001733								
21											
22											
23											
24											
25											
26											
27											
28											

Third column: species uncertainties (ug/m³)

SSAPOO 1.0

Input file

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1		AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE	NRGAS	NROTH
2	EC25	0	0.771	0	0.0205	0.00173	0.099947	0.0491	0.0341	0.0141	0.0851	0.771	0.122	0.09
3	Na	0	0	0	0.00116	0.00113	0.004114	0	0.00323	0.0309	0.0201	0	0	0.00
4	Al	0	0	0	0.0435	0.0594	0.000551	0	0.000436	0.0348	0.00207	0	0	0.00
5	Si	0	0	0	0.0802	0.174	0.001015	0.00347	0.000808	0.0401	0.00264	0	0.0012	0.00
6	Cl	0	0.000205	0	0.00599	0.0014	0.023139	0.00177	0.00875	0.101	0.0366	0.000205	0	0.01
7	K	0	0.000038	0	0.00425	0.0171	0.016599	0.000174	0.00265	0.0374	0.0016	0.000038	0	0.00
8	Ca	0	0.000583	0	0.0393	0.0538	0.002326	0.000285	0.000522	0.0131	0.00981	0.000583	0.0003	0.00
9	Ti	0	0.000004	0	0.00244	0.00389	0.000334	0.000364	0.000028	0.000886	0.000943	0.000004	0	0.00
10	Mn	0	0	0	0.000176	0.00117	6.34E-05	2.09E-05	6.68E-05	0.00506	0.000189	0	0	9.56
11	Fe	0	0.000262	0	0.0206	0.0443	0.000435	0.000556	0.000772	0.0749	0.000849	0.000262	0.0001	0.0
12	Cu	0	0	0									0	
13	Zn	0	0.000682	0									0.0003	9.5
14	As	0	0.000003	0									0	2.41
15	Se	0	0	0									0	0.00
16	Br	0	0.000015	0									0	0.00
17	Sn	0	0.000075	0									0	2.01
18	Sb	0	0.000019	0									0.0002	0.00
19	Ba	0	0.000035	0									0	2.81
20	Pb	0	0.000001	0									0.0003	3.32
21														
22														
23														
24														
25														
26														
27														
28														

Profiles of source categories
(Unit: g/g)

Line: species
Column: source categories

SSAPOO 1.0

Input file

	A	B	C	D	E	F	G	H	I	J	K	L	M	N		
1		AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE	NRGAS	NROTH		
2	EC25		0	0.111	0	0.0206	0.00113	0.004114	0.0435	0.0594	0.000551	0.0401	0.00264	0	0.0012	0.00
3	Na		0	0	0	0.00116	0.00113	0.004114	0	0.00323	0.0309	0.0201	0	0	0	0.00
4	Al		0	0	0	0.0435	0.0594	0.000551	0	0.000436	0.0348	0.00207	0	0	0	0.00
5	Si		0	0	0	0.0802	0.174	0.001015	0.00347	0.000808	0.0401	0.00264	0	0.0012	0	0.00
6	Cl		0	0.000								366	0.000205	0	0	0.01
7	K		0	0.000								016	0.000038	0	0	0.00
8	Ca		0	0.000								981	0.000583	0.0003	0	0.00
9	Ti		0	0.000								943	0.000004	0	0	0.00
10	Mn		0									189	0	0	0	9.56
11	Fe		0	0.000262	0	0.0206	0.0443	0.000435	0.000556	0.000772	0.0749	0.000849	0.000262	0.0001	0	0.0
12	Cu		0	0	0	0.000146	0.000111	1.87E-05	8.68E-05	0.00012	0.00548	0	0	0	0	
13	Zn		0	0.000682	0	0.000507	0.000515	0.001133	0.000714	0.000258	0.00255	0	0.000682	0.0003	0	9.5
14	As		0	0.000003	0	1.24E-06	1.77E-05	6.2E-05	0	2.93E-06	0.000409	0	0.000003	0	0	2.41
15	Se		0	0	0	0.00281	1.1E-06	3.03E-06	2.84E-05	1.01E-05	0.000168	0.000575	0	0	0	0.00
16	Br		0	0.000015	0	0.000293	1.23E-05	0.000265	0	0.000167	0.00142	0.000377	0.000015	0	0	0.00
17	Sn		0	0.000025	0	0.00013	0.000028	9.85E-05	0	1.17E-05	0.000378	0	0.000025	0	0	2.01
18	Sb		0	0.000019	0	8.13E-06	3.22E-05	3.53E-06	0.000133	2.26E-05	0.000815	0	0.000019	0.0002	0	0.00
19	Ba		0	0.00035	0	0.00391	0.000788	1.4E-05	0	0.000915	0.00281	0	0.00035	0	0	2.81
20	Pb		0	0.000001	0	0.000122	0.000222	7.66E-05	0	0.000377	0.0021	0	0.000001	0.0003	0	3.32
21																
22																
23																
24																
25																
26																
27																
28																

First line:
Name of source categories

SSAPOO 1.0

Input file

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	AG		AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE	NRGAS	NROTH
2	EC25	0	0.771	0	0.0205	0.00173	0.099947	0.0491	0.0341	0.0141	0.0851	0.771	0.122	0.09
3	Na	0	0	0	0.00116	0.00113	0.004114	0	0.00323	0.0309	0.0201	0	0	0.00
4	Al	0	0	0	0.0435	0.0594	0.000551	0	0.000436	0.0348	0.00207	0	0	0.00
5	Si	0	0	0	0.0802	0.174	0.001015	0.00347	0.000808	0.0401	0.00264	0	0.0012	0.00
6	Cl	0	0.0001								366	0.000205	0	0.01
7	K	0	0.0001								016	0.000038	0	0.00
8	Ca	0	0.0001								981	0.000583	0.0003	0.00
9	Ti	0	0.0001								943	0.000004	0	0.00
10	Mn	0									189	0	0	9.56
11	Fe	0	0.000262	0	0.0206	0.0443	0.000435	0.000556	0.000772	0.0749	0.000849	0.000262	0.0001	0.0
12	Cu	0	0	0	0.000146	0.000111	1.87E-05	8.68E-05	0.00012	0.00548	0	0	0	
13	Zn	0	0.000682	0	0.000507	0.000515	0.001133	0.000714	0.000258	0.00255	0	0.000682	0.0003	9.5
14	As	0	0.000003	0	1.24E-06	1.77E-05	6.2E-05	0	2.93E-06	0.000409	0	0.000003	0	2.41
15	Se	0	0	0	0.00281	1.1E-06	3.03E-06	2.84E-05	1.01E-05	0.000168	0.000575	0	0	0.00
16	Br	0	0.000015	0	0.000293	1.23E-05	0.000265	0	0.000167	0.00142	0.000377	0.000015	0	0.00
17	Sn	0	0.000025	0	0.00013	0.000028	9.85E-05	0	1.17E-05	0.000378	0	0.000025	0	2.01
18	Sb	0	0.000019	0	8.13E-06	3.22E-05	3.53E-06	0.000133	2.26E-05	0.000815	0	0.000019	0.0002	0.00
19	Ba	0	0.00035	0	0.00391	0.000788	1.4E-05	0	0.000915	0.00281	0	0.00035	0	2.81
20	Pb	0	0.000001	0	0.000122	0.000222	7.66E-05	0	0.000377	0.0021	0	0.000001	0.0003	3.32
21														
22														
23														
24														
25														
26														
27														
28														

First column:
Name of species

ambient | profile | un_profile | Source contribution | parameter

SSAPOO 1.0

Input file

1		AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE	N
2	EC25	1.0E-05	1.0E-05	1.0E-05	1.0E-01	1.0E-05	5.1E-01	2.6E-01	1.8E-01	6.6E-02	4.5E-01	1.0E-05	
3	Na	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	
4	Al	1.0E-05	3.0E-05	1.0E-05	3.3E-05	3.4E-05	3.0E-05	3.0E-05	3.0E-05	3.2E-05	3.0E-05	3.0E-05	
5	Si	1.0E-05	4.6E-02	1.0E-05	1.7E-01	3.1E-01	4.8E-02	5.2E-02	4.8E-02	1.1E-01	5.0E-02	4.6E-02	
6	Cl	1.0E-05	5.1E-04	1.0E-05	1.0E-05	2.8E-04	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	5.1E-04	
7	K	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	
8	Ca	1.0E-05	1.0E-05	1.0E-05	2.2E-01	2.6E-01	1.1E-02	1.0E-05	1.0E-05	8.6E-02	6.4E-02	1.0E-05	
9	Ti	1.0E-05	2.4E-04	1.0E-05	2.0E-02	2.6E-02	3.8E-03	4.1E-03	5.1E-04	9.1E-03	9.7E-03	2.4E-04	
10	Mn	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	8.4E-04	1.0E-05	
11	Fe	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	6.8E-02	1.0E-05	1.0E-05	
12	Cu	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	2.5E-02	1.0E-05	1.0E-05	
13	Zn	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	2.7E-05	2.0E-05	2.2E-05	
14	As	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	
15	Se	1.0E-05	1.0E-05	1.0E-05	1.2E-02	1.0E-05	1.0E-05	1.2E-04	3.8E-05	7.1E-04	2.5E-03	1.0E-05	
16	Br	1.0E-05	1.0E-05	1.0E-05	6.9E-04	1.0E-05	6.3E-04	1.0E-05	4.2E-04	2.3E-04	8.3E-04	1.0E-05	
17	Sn	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	
18	Sb	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	
19	Ba	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	
20	Pb	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	1.0E-05	
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Uncertainties of source profile
(Unit: g/g)

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

un_profile

SSAPOO 1.0

Input file

1		AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE	NRGAS	NROTH
2	EC25	0.00	0.02	0.00	0.05	0.00	0.00	0.01	0.04	0.00	0.01	0.62	0.05	0.00
3	Na	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
4	Al	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Si	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
6	Cl	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Ca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00
9	Ti	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Mn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Fe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
12	Cu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Zn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.00
14	As	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Se	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	Br	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Sn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Sb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	Ba	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
20	Pb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21														
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Source contribution or source impact
(Unit: ug/m³)
Line: species
Column: source categories

Contributions of sources to species, which estimated by receptor model (CMB or PMF) or CMAQ

Source contribution

SSAPOO 1.0

Input file

1		AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE
2	LO25	0.00	0.02	0.00	0.05	0.00	0.00	0.01	0.01	0.00	0.01	0.02
3	Na	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.06	0.00	0.00	0.00
4	Al	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.01	0.00	0.00	0.00
5	Si	0.00	0.00	0.00	0.36	0.00	0.00	0.02	0.01	0.00	0.00	0.00
6	Cl	0.00	0.00	0.00	0.03	0.00	0.00	0.01	0.15	0.00	0.00	0.00
7	K	0.00								0.00	0.00	0.00
8	Ca	0.00								0.00	0.00	0.01
9	Ti	0.00								0.00	0.00	0.00
10	Mn	0.00								0.00	0.00	0.00
11	Fe	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.01	0.00	0.00	0.00
12	Cu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Zn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
14	As	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Se	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	Br	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Sn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Sb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	Ba	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.01
20	Pb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
21												
22												
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First line:
Name of source categories

ambient / profile / un profile / Source contribution / parameter

SSAPOO 1.0

Input file

1		AIR	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE
2	EC25	0.00	0.02	0.00	0.05	0.00	0.00	0.01	0.04	0.00	0.01	0.62
3	Na	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.06	0.00	0.00	0.00
4	Al	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.01	0.00	0.00	0.00
5	Si	0.00	0.00	0.00	0.36	0.00	0.00	0.02	0.01	0.00	0.00	0.00
6	Cl	0.00	0.00	0.00	0.03	0.00	0.00	0.01	0.15	0.00	0.00	0.00
7	K	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	Ca	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
9	Ti	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Mn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Fe	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Cu	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13	Zn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
14	As	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Se	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	Br	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	Sn	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	Sb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	Ba	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.00	0.00	0.01
20	Pb	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
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First column:
Name of species

ambient / profile / un_profile / Source contribution / parameter

SSAPOO 1.0

Input file

	A	B	C	D	E	F	G	H	I	J	K	L
1	0.5	coefficient for up bound										
2	0.5	coefficient for low bound										
3	0.01	sensitivity term for optimatation										
4												
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Key parameters for solution

parameter

SSAPOO 1.0

Input file

	A	B	C	D	E	F	G	H	I	J	K	L
1	0.5	coefficient for up bound										
2	0.5	coefficient for low bound										
3	0.01	sensitivity term for optimization										
4												
5												
6												
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ambiant / profile / un_profile / Source contribution / parameter

SSAPOO 1.0

Input file

	A	B	C	D	E	F	G	H	I	J	K	L
1	0.5	coefficient for up bound										
2	0.5	coefficient for low bound										
3	0.01	sensitivity term for optimization										
4												
5												
6												
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ambiant / profile / un_profile / Source contribution / parameter

SSAPOO 1.0

Input file

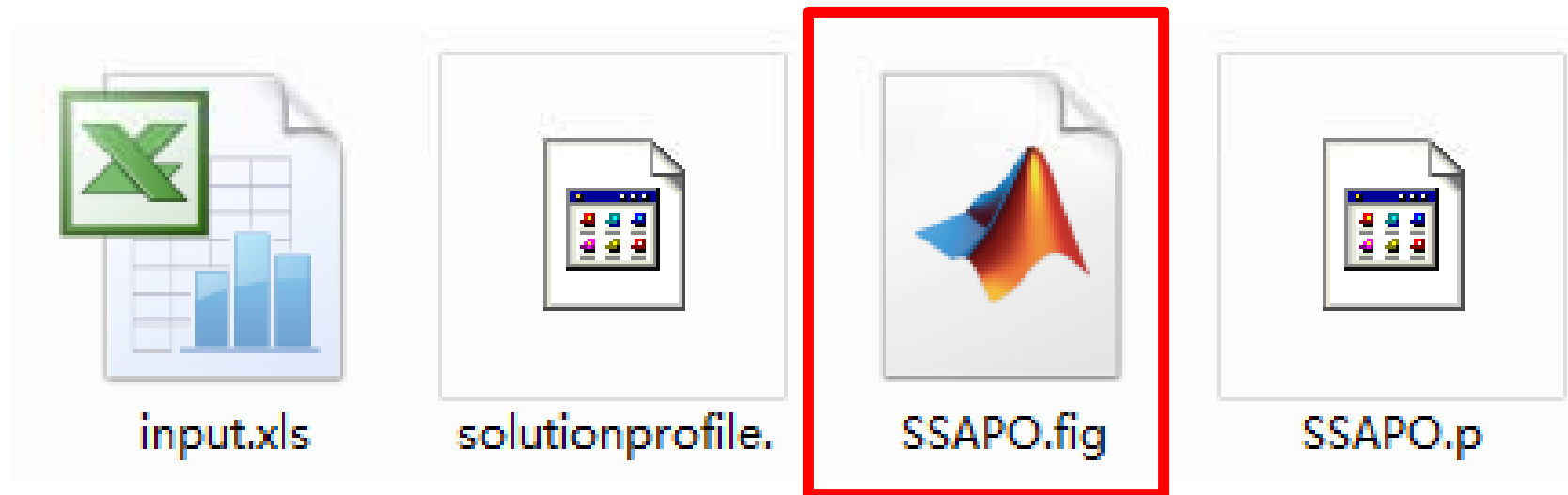
	A	B	C	D	E	F	G	H	I	J	K	L
1	0.5 coefficient for up bound											
2	0.5 coefficient for low bound											
3	0.01 sensitivity term for optimization											
4												
5												
6												
7												
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Coefficient of sensitivity term for optimization solution in the model

Can be set as the default value

SSAPO 1.0

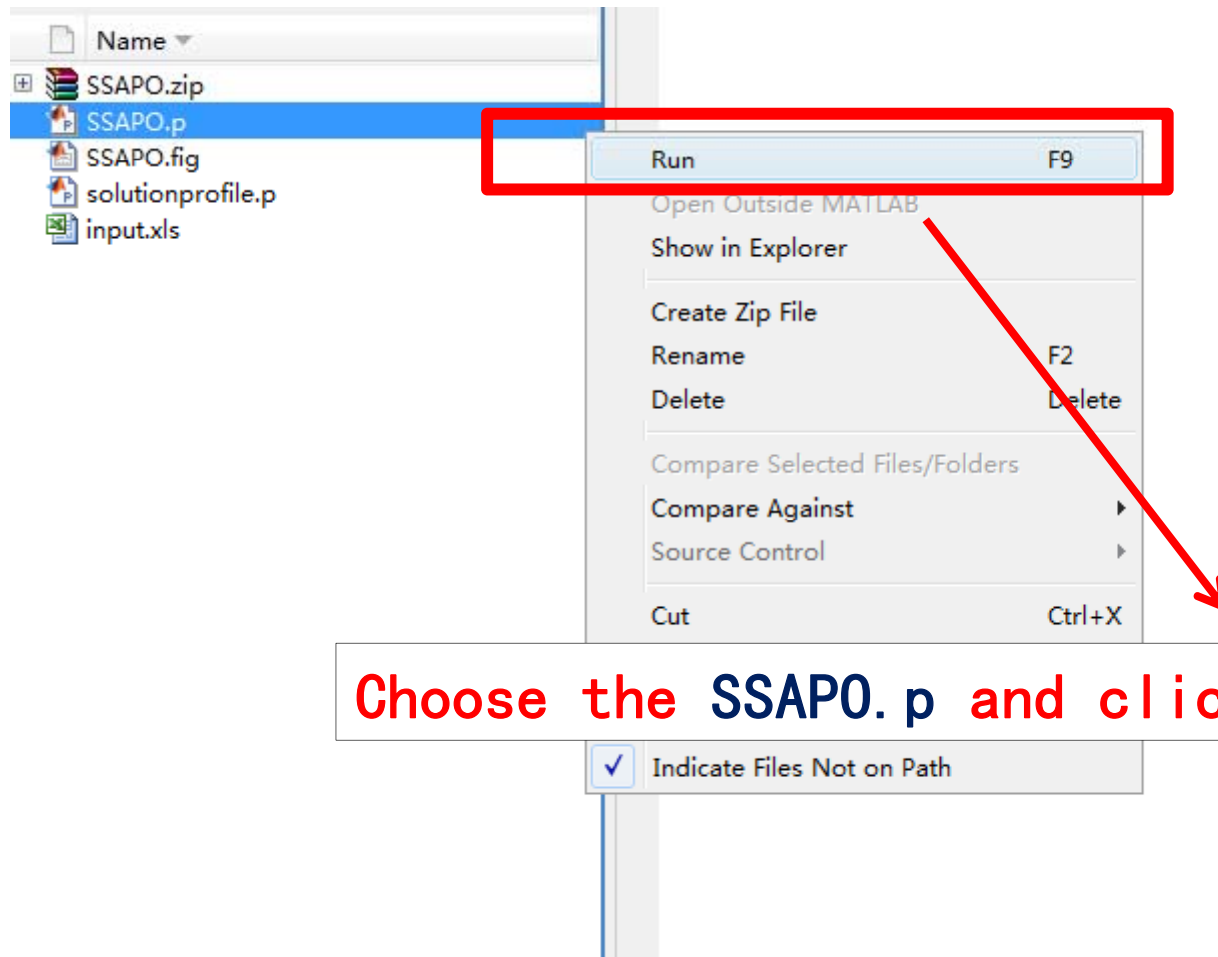
- Run the model



Double click the SSAPO.fig file

SSAPOO 1.0

- Run the model



SSAPO 1.0

Panel display of SSAP0

SSAPO 1.0

[illegible]

SSAPO 1.0

[illegible]

SSAPO 1.0

SSAPO (Simultaneous Source Apportionment with Profile Optimization)

Loading Run Save

a Ambient species concentration

Species select

	Species	Mean	Uncertainty
<input checked="" type="checkbox"/>	EC25	1.3910	0.3900
<input checked="" type="checkbox"/>	Na	0.0155	0.02066
<input checked="" type="checkbox"/>	Al	0.0455	0.01800
<input checked="" type="checkbox"/>	Si	0.1740	0.01900
<input checked="" type="checkbox"/>	Cl	0.0	
<input checked="" type="checkbox"/>	K	0.1	
<input checked="" type="checkbox"/>	Ca	0.0	
<input checked="" type="checkbox"/>	Ti	0.0	
<input checked="" type="checkbox"/>	Mn	9.5	
<input checked="" type="checkbox"/>	Fe	0.1	
<input checked="" type="checkbox"/>	Cu	0.0	

b Source Category

Source select

	Source category
<input checked="" type="checkbox"/>	AG
<input checked="" type="checkbox"/>	AIRC
<input checked="" type="checkbox"/>	BIOG
<input checked="" type="checkbox"/>	COAL
<input checked="" type="checkbox"/>	DUST

c Original source profile (unit: g/g)

Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	M
EC25	0	0.77100	0	0.020500	0.0017...	0.099947	0.049100	
Na	0	0	0	0.0011...	0.0011...	0.0041...	0	
Al	0	0	0	0.043500	0.059400	0.0005...	0	
Si	0	0	0	0.080200	0.17400	0.0010...	0.0034...	
Cl	0	0.0002...	0	0.0059...	0.0014...	0.023139	0.0017...	
K	0	3.8000...	0	0.0042...	0.017100	0.016599	0.0001...	
	0	0.0005...	0	0.000000	0.000000	0.0000...	0.0002...	
							0.0003...	
							2.0900...	
							0.0005...	
							8.6800...	
							0.0007...	

Display the information of input dataset

a: concentration of species

b: categories of source

c: original source profile

SSAPO 1.0

[illegible]

SSAPO 1.0

SSAPO (Simultaneous Source Apportionment with Profile Optimization)

Loading Run Save

a Ambient species concentration

Species select All non

	Species	Mean	Uncertainty
<input checked="" type="checkbox"/>	EC25	1.3910	0.3900
<input checked="" type="checkbox"/>	Na	0.0155	0.02066
<input checked="" type="checkbox"/>	Al	0.0455	0.01800
<input checked="" type="checkbox"/>	Si	0.1740	0.01900
<input checked="" type="checkbox"/>	Cl	0.0039	0.005200
<input checked="" type="checkbox"/>	K	0.1290	0.009800
<input checked="" type="checkbox"/>	Ca	0.0748	0.006000
<input checked="" type="checkbox"/>	Ti	0.0027	0.003533
<input checked="" type="checkbox"/>	Mn	9.5000e-04	0.001266
<input checked="" type="checkbox"/>	Fe	0.1350	0.009700
<input checked="" type="checkbox"/>	Cu	0.0033	0.0006500

b Source Category

Source select All non

	Source category
<input checked="" type="checkbox"/>	AG
<input checked="" type="checkbox"/>	AIRC
<input checked="" type="checkbox"/>	BIOG
<input checked="" type="checkbox"/>	COAL
<input checked="" type="checkbox"/>	DUST
<input checked="" type="checkbox"/>	FIRE
<input checked="" type="checkbox"/>	FOIL
<input checked="" type="checkbox"/>	MEAT
<input checked="" type="checkbox"/>	METAL

Up bound coefficient 0.5

c Original source profile (unit: g/g)

Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	M
EC25	0	0.77100	0	0.020500	0.0017...	0.099947	0.049100	
Na	0	0	0	0.0011...	0.0011...	0.0041...	0	
Al	0	0	0	0.043500	0.059400	0.0005...	0	
Si	0	0	0	0.080200	0.17400	0.0010...	0.0034...	
Cl	0	0.0002...	0	0.0059...	0.0014...	0.023139	0.0017...	
K	0	3.8000...	0	0.0042...	0.017100	0.016599	0.0001...	
Ca	0	0.0005...	0	0.039300	0.053800	0.0023...	0.0002...	
Ti	0	4.0000...	0	0.0024...	0.0038...	0.0003...	0.0003...	
Mn	0	0	0	0.0001...	0.0011...	6.3356...	2.0900...	
Fe	0	0.0002...	0	0.020600	0.044300	0.0004...	0.0005...	
Cu	0	0	0	0.0001...	0.0001...	1.8692...	8.6800...	
Zn	0	0.0006...	0	0.0005...	0.0005...	0.0011...	0.0007...	

Profile

New source profile (unit: g/g)

c: categories of source

2.2 Select the fitting source categories

SSAPO 1.0

The screenshot displays the SSAPO (Simultaneous Source Apportionment with Profile Optimization) software interface. The 'Source Category' section is highlighted with a red box, showing the 'Up bound coefficient' set to 0.5 and the 'Low bound coefficient' set to 0.01. The interface also includes sections for 'Ambient species concentration' (Table a), 'Original source profile (unit: g/g)' (Table c), and 'New source profile (unit: g/g)'. The 'Source select' dropdown is set to 'All', and the 'Species select' dropdown is set to 'All'.

Table a: Ambient species concentration

Species	Mean	Uncertainty
EC25	1.3910	0.3900
Na	0.0155	0.02066
Al	0.0455	0.01800
Si	0.1740	0.01900
Cl	0.0039	0.005200
K	0.1290	0.009800
Ca	0.0748	0.006000
Ti	0.0027	0.003533
Mn	9.5000e-04	0.001266
Fe	0.1350	0.009700
Cu	0.0033	0.0006500

Table c: Original source profile (unit: g/g)

Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	M...
EC25	0	0.77100	0	0.020500	0.0017...	0.099947	0.049100	
Na	0	0	0	0.0011...	0.0011...	0.0041...	0	
Al	0	0	0	0.043500	0.059400	0.0005...	0	
Si	0	0	0	0.080200	0.17400	0.0010...	0.0034...	
Cl	0	0.0002...	0	0.0059...	0.0014...	0.023139	0.0017...	
K	0	3.8000...	0	0.0042...	0.017100	0.016599	0.0001...	
Ca	0	0.0005...	0	0.039300	0.053800	0.0023...	0.0002...	
Ti	0	4.0000...	0	0.0024...	0.0038...	0.0003...	0.0003...	
Mn	0	0	0	0.0001...	0.0011...	6.3356...	2.0900...	
Fe	0	0.0002...	0	0.020600	0.044300	0.0004...	0.0005...	
Cu	0	0	0	0.0001...	0.0001...	1.8692...	8.6800...	
Zn	0	0.0006...	0	0.0005...	0.0005...	0.0011...	0.0007...	

SSAPO 1.0

The screenshot shows the SSAPO (Simultaneous Source Apportionment with Profile Optimization) software interface. At the top, there are buttons for 'Loading', 'Run', and 'Save'. The 'Run' button is highlighted with a red box, and a red arrow points to it from a text box that says '3. Run the model'. Below the 'Run' button, there are sections for 'Ambient species concentration' and 'Source Category'. The 'Ambient species concentration' section has a 'Species select' dropdown with 'All' and 'non' options. Below this is a table with columns 'Species', 'Mean', and 'Uncertainty'. The 'Source Category' section has a 'Source select' dropdown with 'All' and 'non' options. Below this is a table with columns 'Source category' and 'Source'. The 'Up bound coefficient' is set to 0.5 and the 'Low bound coefficient' is set to 0.01. At the bottom, there are two empty tables labeled 'Profile ratio of N/O (New/Original)' and 'New source profile (unit: g/g)'. The 'Original source profile (unit: g/g)' table is also visible, showing data for various species and sources.

Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MI
EC25	0	0.77100		0	0.020500	0.0017...	0.099947	0.049100
Na	0	0	0	0.0011...	0.0011...	0.0041...		0
Al	0	0	0	0.043500	0.059400	0.0005...		0
Si	0	0	0	0.080200	0.17400	0.0010...	0.0034...	
Cl	0	0.0002...	0	0.0059...	0.0014...	0.023139	0.0017...	
K	0	3.8000...	0	0.0042...	0.017100	0.016599	0.0001...	
Ca	0	0.0005...	0	0.039300	0.053800	0.0023...	0.0002...	
Ti	0	4.0000...	0	0.0024...	0.0038...	0.0003...	0.0003...	
Mn	0	0	0	0.0001...	0.0011...	6.3356...	2.0900...	
Fe	0	0.0002...	0	0.020600	0.044300	0.0004...	0.0005...	
Cu	0	0	0	0.0001...	0.0001...	1.8692...	8.6800...	
Zn	0	0.0006...	0	0.0005...	0.0005...	0.0011...	0.0007...	

SSAPO 1.0

SSAPO (Simultaneous Source Apportionment with Profile Optimization)

Loading

Run

Ambient species concentration

Species select

All

non

Species	Mean	Uncertainty
<input checked="" type="checkbox"/> EC25	1.3910	0.3900
<input checked="" type="checkbox"/> Na	0.0155	0.02066
<input checked="" type="checkbox"/> Al	0.0455	0.01800
<input checked="" type="checkbox"/> Si	0.1740	0.01900
<input checked="" type="checkbox"/> Cl	0.0039	0.005200
<input checked="" type="checkbox"/> K	0.1290	0.009800
<input checked="" type="checkbox"/> Ca	0.0748	0.006000
<input checked="" type="checkbox"/> Ti	0.0027	0.003533

Ratios of species in new to original profiles

Profile ratio of N/O (New/Original)

Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE
EC25	1.00	1.19	1.01	1.37	1.01	1.01	1.04	1.19	1.01	1.05	1.09
Na	1.00	1.01	1.01	0.54	1.01	1.01	1.01	0.55	0.97	0.83	1.01
Al	1.00	1.01	1.01	0.91	1.01	1.01	1.01	0.90	0.92	1.01	1.01
Si	1.00	1.01	1.01	1.50	1.01	1.01	1.50	1.50	1.50	1.50	1.01
Cl	1.00	0.50	1.01	0.50	1.01	1.00	0.50	0.50	0.50	0.50	0.50
K	1.00	1.50	1.01	1.50	1.02	1.03	1.50	1.50	1.50	1.50	1.50
Ca	1.00	1.01	1.01	1.44	1.01	1.01	1.01	1.06	1.02	1.04	1.08
Ti	1.00	1.01	1.01	0.53	1.01	1.01	0.93	0.95	1.00	0.94	0.99
Mn	1.00	1.01	1.01	1.50	1.01	1.01	1.48	1.50	1.50	1.50	1.01

Modeled results

Source category
<input checked="" type="checkbox"/> AG
<input checked="" type="checkbox"/> AIRC
<input checked="" type="checkbox"/> BIOG
<input checked="" type="checkbox"/> COAL
<input checked="" type="checkbox"/> DUST
<input checked="" type="checkbox"/> FIRE
<input checked="" type="checkbox"/> FOIL
<input checked="" type="checkbox"/> MEAT
<input checked="" type="checkbox"/> METAL

Original source profile (unit: g/g)

Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	M
EC25	0	0.77100	0	0.020500	0.0017...	0.099947	0.049100	
Na	0	0	0	0.0011...	0.0011...	0.0041...	0	
Al	0	0	0	0.043500	0.059400	0.0005...	0	
Si	0	0	0	0.080200	0.17400	0.0010...	0.0034...	
Cl	0	0.0002...	0	0.0059...	0.0014...	0.023139	0.0017...	
K	0	3.8000...	0	0.0042...	0.017100	0.016599	0.0001...	
Ca	0	0.0005...	0	0.039300	0.053800	0.0023...	0.0002...	
Ti	0	4.0000...	0	0.0024...	0.0038...	0.0003...	0.0003...	
Mn	0	0	0	0.0001...	0.0011...	6.3356...	2.0900...	
Fe	0	0.0002...	0	0.020600	0.044300	0.0004...	0.0005...	
Cu	0	0	0	0.0001...	0.0001...	1.8692...	8.6800...	
Zn						0.0011...	0.0007...	

New profiles

New source profile (unit: g/g)

Species	AG	AIRC	BIOG	COAL	DUST	FIRE
EC25	0	0.919558...	0	0.028118	0.0017476	0.10
Na	0	0	0	0.00062988	0.0011413	0.00
Al	0	0	0	0.039697	0.060006	5.5642e-
Si	0	0	0	0.12030	0.17578	0.00
Cl	0	1.025000...	0	0.0029950	0.0014141	0.02
K	0	5.700000...	0	0.0063750	0.017495	0.01
Ca	0	5.888399...	0	0.056671	0.054349	0.00
Ti	0	4.038996...	0	0.0013010	0.0039289	3.3695e-
Mn	0	0	0	0.00026400	0.0011820	6.3990e-

SSAPO 1.0

SSAPO (Simultaneous Source Apportionment with Profile Optimization)

Loading

Run

Save

Ambient species concentration

Species select

All

non

	Species	Mean	Uncertainty
<input checked="" type="checkbox"/>	EC25	1.3910	0.3900
<input checked="" type="checkbox"/>	Na	0.0155	0.02066
<input checked="" type="checkbox"/>	Al	0.0455	0.01800
<input checked="" type="checkbox"/>	Si	0.1740	0.01900
<input checked="" type="checkbox"/>	Cl	0.0039	0.005200
<input checked="" type="checkbox"/>	K	0.1290	0.009800
<input checked="" type="checkbox"/>	Ca	0.0748	0.0
<input checked="" type="checkbox"/>	Ti	0.0027	0.0
<input checked="" type="checkbox"/>	Mn	9.5000e-04	0.0
<input checked="" type="checkbox"/>	Fe	0.1350	0.009700
<input checked="" type="checkbox"/>	Cu	0.0033	0.0006500

Source select

All

non

	Source category
<input checked="" type="checkbox"/>	AG
<input checked="" type="checkbox"/>	AIRC
<input checked="" type="checkbox"/>	BIOG
<input checked="" type="checkbox"/>	COAL
<input checked="" type="checkbox"/>	DUST
<input checked="" type="checkbox"/>	FIRE
<input checked="" type="checkbox"/>	FOIL

4. Save the result

Up bound coefficient 0.5

Low bound coefficient 0.5

Profile ratio of N/O (New/Original)

Speci...	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE
EC25	1.00	1.19	1.01	1.37	1.01	1.01	1.04	1.19	1.01	1.05	1.091
Na	1.00	1.01	1.01	0.54	1.01	1.01	1.01	0.55	0.97	0.83	1.011
Al	1.00	1.01	1.01	0.91	1.01	1.01	1.01	0.90	0.92	1.01	1.011
Si	1.00	1.01	1.01	1.50	1.01	1.01	1.50	1.50	1.50	1.50	1.011
Cl	1.00	0.50	1.01	0.50	1.01	1.00	0.50	0.50	0.50	0.50	0.501
K	1.00	1.50	1.01	1.50	1.02	1.03	1.50	1.50	1.50	1.50	1.501
Ca	1.00	1.01	1.01	1.44	1.01	1.01	1.01	1.06	1.02	1.04	1.081
Ti	1.00	1.01	1.01	0.53	1.01	1.01	0.93	0.95	1.00	0.94	0.991
Mn	1.00	1.01	1.01	1.50	1.01	1.01	1.48	1.50	1.50	1.50	1.011

Original source profile (unit: g/g)

Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	M
EC25	0	0.77100	0	0.020500	0.0017...	0.099947	0.049100	
Na	0	0	0	0.0011...	0.0011...	0.0041...	0	
Al	0	0	0	0.043500	0.059400	0.0005...	0	
Si	0	0	0	0.080200	0.17400	0.0010...	0.0034...	
Cl	0	0.0002...	0	0.0059...	0.0014...	0.023139	0.0017...	
K	0	3.8000...	0	0.0042...	0.017100	0.016599	0.0001...	
Ca	0	0.0005...	0	0.039300	0.053800	0.0023...	0.0002...	
Ti	0	4.0000...	0	0.0024...	0.0038...	0.0003...	0.0003...	
Mn	0	0	0	0.0001...	0.0011...	6.3356...	2.0900...	
Fe	0	0.0002...	0	0.020600	0.044300	0.0004...	0.0005...	
Cu	0	0	0	0.0001...	0.0001...	1.8692...	8.6800...	
Zn	0	0.0006...	0	0.0005...	0.0005...	0.0011...	0.0007...	

New source profile (unit: g/g)

Species	AG	AIRC	BIOG	COAL	DUST	FIRE
EC25	0	0.919558...	0	0.028118	0.0017476	0.10
Na	0	0	0	0.00062988	0.0011413	0.00
Al	0	0	0	0.039697	0.060006	5.5642e-
Si	0	0	0	0.12030	0.17578	0.00
Cl	0	1.025000...	0	0.0029950	0.0014141	0.02
K	0	5.700000...	0	0.0063750	0.017495	0.01
Ca	0	5.888399...	0	0.056671	0.054349	0.00
Ti	0	4.038996...	0	0.0013010	0.0039289	3.3695e-
Mn	0	0	0	0.00026400	0.0011820	6.3990e-
Fe	0	0.000000...	0	0.000000	0.000000	1.0000e-

SSAPOO 1.0

• Result

	A	B	C	D	E	F	G	H	I	J	K	L	
1	Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE	NF
2	EC25	0	0.771	0	0.0205	0.00173	0.099947	0.0491	0.0341	0.0141	0.0851	0.771	
3	Na	0	0	0	0.00116	0.00113	0.004114	0	0.00323	0.0309	0.0201	0	
4	Al	0	0	0	0.0435	0.0594	0.000551	0	0.000436	0.0348	0.00207	0	
5	Si	0	0	0	0.0802	0.174	0.001015	0.00347	0.000808	0.0401	0.00264	0	
6	Cl	0	0.000205	0	0.00599	0.0014	0.023139	0.00177	0.00875	0.101	0.0366	0.000205	
7	K	0	0.000038	0	0.00425	0.0171	0.016599	0.000174	0.00265	0.0374	0.0016	0.000038	
8	Ca	0	0.000583	0	0.0393	0.0538	0.002326	0.000285	0.000522	0.0131	0.00981	0.000583	
9	Ti	0	0.000004	0	0.00244	0.00389	0.000334	0					
10	Mn	0	0	0	0.000176	0.00117	6.34E-05	2					
11	Fe	0	0.000262	0	0.0206	0.0443	0.000435	0					
12	Cu	0	0	0	0.000146	0.000111	1.87E-05	8					
13	Zn	0	0.000682	0	0.000507	0.000515	0.001133	0					
14	As	0	0.000003	0	1.24E-06	1.77E-05	6.2E-05						
15	Se	0	0	0	0.00281	1.1E-06	3.03E-06	2					
16	Br	0	0.000015	0	0.000293	1.23E-05	0.000265						
17	Sn	0	0.000025	0	0.00013	0.000028	9.85E-05						
18	Sb	0	0.000019	0	8.13E-06	3.22E-05	3.53E-06	0					
19	Ba	0	0.00035	0	0.00391	0.000788	1.4E-05						
20	Pb	0	0.000001	0	0.000122	0.000222	7.66E-05						
21													
22													
23													
24													
25													
26													
27													
28													

Output information:

Original profile;
 New profile;
 Ratio of N to O;
 Up bound of coefficient;
 Low bound of coefficient

original profile

original profile / new profile / Ratio of N to O / up bound / low bound

SSAPOO 1.0

• Result

	A	B	C	D	E	F	G	H	I	J	K	L
1	Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE
2	EC25	0	0.976742	0	0.030704	0.001747	0.100947	0.057361	0.048624	0.014262	0.092454	0.83418
3	Na	0	0	0	0.000869	0.001141	0.004155	0	0.002362	0.030118	0.019878	
4	Al	0	0	0	0.041925	0.059994	0.000556	0	0.000421	0.033028	0.002055	
5	Si	0	0	0	0.1203	0.175787	0.001025	0.005205	0.001212	0.06015	0.003485	
6	Cl	0	0.000146	0	0.004253	0.001414	0.023208	0.001257	0.006213	0.07171	0.025986	0.00014
7	K	0	0.000057	0	0.006375	0.017429	0.016999	0.000261	0.003975	0.0561	0.0024	0.00005
8	Ca	0	0.000589	0	0.056796	0.054338	0.002349	0.000289	0.000605	0.013368	0.010516	0.0006
9	Ti	0	3.98E-06	0	0.001732	0.003928	0.000337					
10	Mn	0	0	0	0.000264	0.001182	6.4E-05					
11	Fe	0	0.000393	0	0.0309	0.04554	0.00044					
12	Cu	0	0	0	0.000219	0.000112	1.89E-05					
13	Zn	0	0.001023	0	0.000761	0.000521	0.001147					
14	As	0	4.5E-06	0	1.86E-06	1.79E-05	6.27E-05					
15	Se	0	0	0	0.001995	1.11E-06	3.06E-06					
16	Br	0	1.52E-05	0	0.00032	1.24E-05	0.000267					
17	Sn	0	2.68E-05	0	0.000195	2.83E-05	9.95E-05					
18	Sb	0	1.97E-05	0	1.22E-05	3.25E-05	3.57E-06					
19	Ba	0	0.000351	0	0.003111	0.000796	1.41E-05					
20	Pb	0	1.02E-06	0	0.000183	0.000224	7.73E-05					
21												
22												
23												
24												
25												
26												
27												
28												

Output information:

Original profile;
 New profile;
 Ratio of N to O;
 Up bound of coefficient;
 Low bound of coefficient

original profile new profile Ratio of N to O up bound low bound

SSAPOO 1.0

• Result

	A	B	C	D	E	F	G	H	I	J	K	L
1	Species	AG	AIRC	BIOG	COAL	DUST	FIRE	FOIL	MEAT	METAL	NG	NRDIE
2	EC25	1.01	1.266851	1.01	1.497757	1.01	1.01	1.168249	1.425937	1.011514	1.086417	1.0819
3	Na	1.01	1.01	1.01	0.749168	1.01	1.01	1.01	0.731145	0.974692	0.988946	1.
4	Al	1.010005	1.01	1.01	0.963796	1.009999	1.01	1.01	0.966607	0.949068	0.99272	1.
5	Si	1.01	1.01	1.01	1.5	1.010268	1.010045	1.5	1.5	1.5	1.320028	1.
6	Cl	1.01	0.71	1.01	0.71	1.009819	1.002967	0.71	0.71	0.71	0.71	0.
7	K	1.01	1.5	1.01	1.5	1.019211	1.024044	1.5	1.5	1.5	1.5	1
8	Ca	1.009976	1.010983	1.01	1.445178	1.010001	1.01	1.014009	1.158721	1.020447	1.071923	1.1833
9	Ti	1.01	0.995271	1.01	0.71	1.009651	1.009934	0.71	0.71	0.710676	0.71	0.
10	Mn	1.009978	1.01	1.01	1.5	1.01	1.01	1.				
11	Fe	1.010015	1.5	1.01	1.5	1.027988	1.01					
12	Cu	1.010134	1.01	1.01	1.5	1.010093	1.010022					
13	Zn	1.010001	1.5	1.01	1.5	1.010798	1.012535					
14	As	1.01002	1.5	1.01	1.5	1.01003	1.010543					
15	Se	1.01	1.01	1.01	0.71	1.01	1.01					
16	Br	1.00986	1.01009	1.01	1.091642	1.01	1.01					
17	Sn	1.009999	1.073155	1.01	1.5	1.01	1.01					
18	Sb	1.010008	1.036447	1.01	1.5	1.01	1.01					
19	Ba	1.009986	1.003302	1.01	0.795559	1.01	1.01					
20	Pb	1.010008	1.019753	1.01	1.5	1.01	1.01					
21												
22												
23												
24												
25												
26												
27												
28												

Output information:

Original profile;

New profile;

Ratio of N to O;

Up bound of coefficient;

Low bound of coefficient

original profile new profile Ratio of N to O up bound low bound

SSAPOO 1.0

- Result

	A	B	C	D	E	F	G	H	I	J	K	L
1	0.5											
2												
3												
4												
5												
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7												
8												
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17												
18												
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21												
22												
23												
24												
25												
26												
27												
28												

Output information:

Original profile;
New profile;
Ratio of N to O;
Up bound of coefficient;
Low bound of coefficient

original profile / new profile / Ratio of N to O / up bound / low bound

SSAPO 1.0

- Result

Output information:

- Original profile;
- New profile;
- Ratio of N to O;
- Up bound of coefficient;
- Low bound of coefficient

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