<u>Supplementary Information</u> for

Takeda, S., Hosono, S., Masunaga, S.:

Source apportionment of dioxin pollution in river sediment using Positive Matrix Factorization,

Environmental Chemistry, (2011)

Supplementary Tables

Supplementary Table 1. Eigen value and cumulative contribution of each factor

Supplementary Table 2. Number of factor loadings based on normal varimax rotation criterion
(Number of factor loadings whose absolute value are larger than 0.1 in each factor)

Supplementary Figures

Supplementary Fig. 1. Screeplot of principle component analysis result

Supplementary Fig. 2. Spatial distributions factors interpreted as incineration source
(Factor 1 extracted by four-factor PMF and Factor 1 extracted by five-factor PMF.)
The two numbers on the horizontal axis indicate site number and core slice number in
each site.

Supplementary Fig. 3. Spatial distributions factors interpreted as CNP impurity
(Factor 3 extracted by from four-factor PMF and Factor 3 extracted by five-factor PMF.)
The two numbers on the horizontal axis indicate site number and core slice number in
each site.

Supplementary Fig. 4. Spatial distributions factors interpreted as PCP impurity
(Factor 4 extracted by four-factor PMF and Factor 5 extracted by five-factor PMF.)
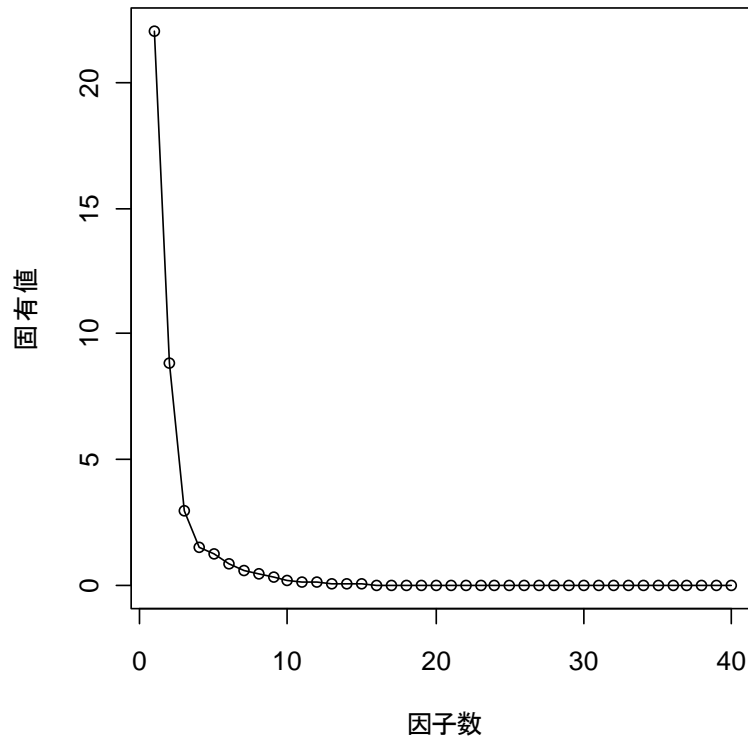The two numbers on the horizontal axis indicate site number and core slice number in
each site.

Supplementary Table 1. Eigen value and cumulative contribution of each factor

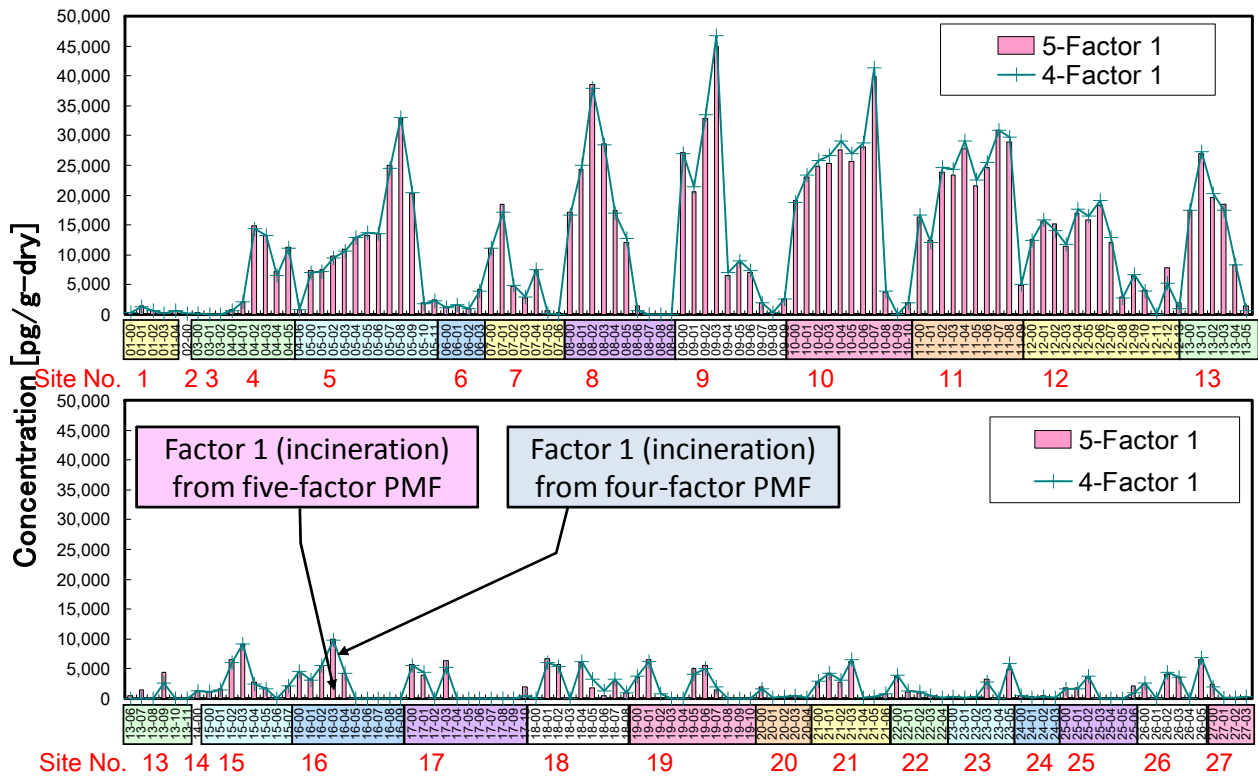| Factor No.	1	2	3	4	5	6	7	8	9	10
Eigen value	22.046	8.872	2.969	1.538	1.245	0.883	0.621	0.506	0.315	0.203
Cumulative contribution [%]	55.1	77.2	84.7	88.6	91.7	93.9	95.4	96.7	97.5	98.0

Supplementary Table 2. Number of factor loadings based on normal varimax rotation criterion

(Number of factor loadings whose absolute value are larger than 0.1 in each factor)

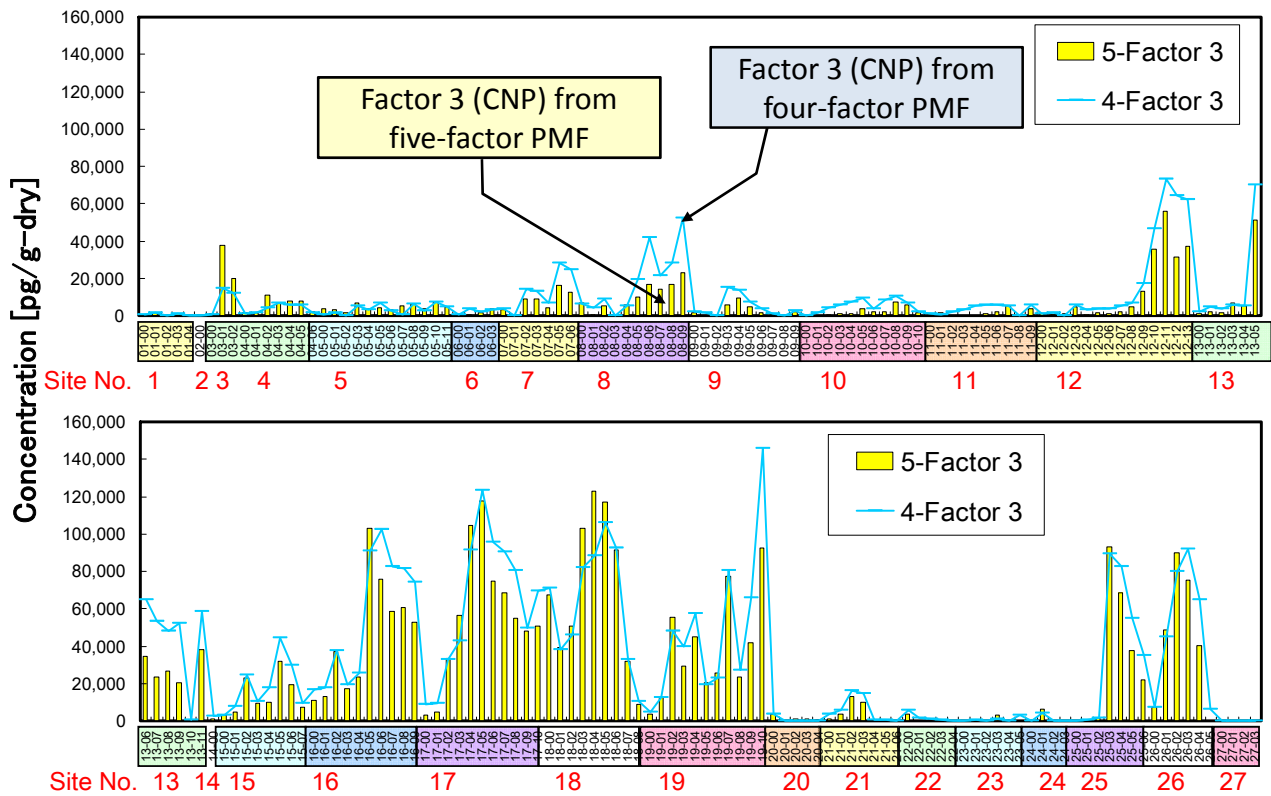| Factor No.	1	2	3	4	5	6	7	8	9	10
Number of factor loadings >0.1	32	28	27	28	18	7	8	8	2	6

Supplementary Fig. 1. Screeplot of principle component analysis result

Supplementary Fig. 2. Spatial distributions factors interpreted as incineration source

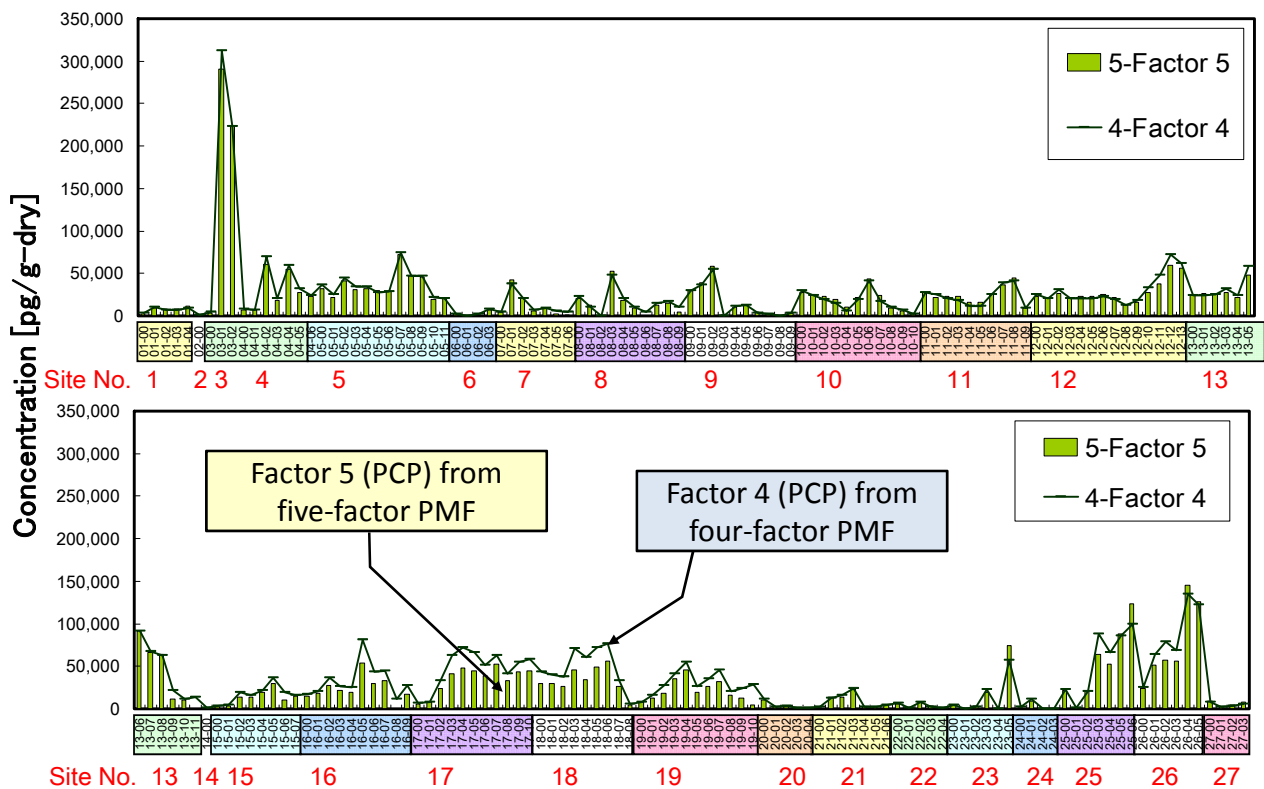(Factor 1 extracted by four-factor PMF and Factor 1 extracted by five-factor PMF.)

The two numbers on the horizontal axis indicate site number and core slice number in each site.

Supplementary Fig. 3. Spatial distributions factors interpreted as CNP impurity

(Factor 3 extracted by from four-factor PMF and Factor 3 extracted by five-factor PMF.)

The two numbers on the horizontal axis indicate site number and core slice number in each site.

Supplementary Fig. 4. Spatial distributions factors interpreted as PCP impurity

(Factor 4 extracted by four-factor PMF and Factor 5 extracted by five-factor PMF.)

The two numbers on the horizontal axis indicate site number and core slice number in each site.