List of Supplementary Material

Total suspended particulate matter (TSP)-bound carbonaceous components in a roadside area in Eastern Indonesia

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Table S1. Meteorological condition during the sampling period in each site, in Sultan Alauddin Street, Makassar city, South Sulawesi, Eastern region Indonesia

Location	Times	Parameter			
		Pressure (hpa)	Temperature (°C)	Humidy (%)	Wind velocity (m/s)
PA	Morning	1013.33	29.55	75.18	0.94
	Noon	1011.73	28.14	84.27	0.83
	Late noon-night	1010.41	26.38	86.15	0.96
GR	Morning	1012.15	29.66	70.48	1.31
	Noon	1010.50	31.94	65.28	0.99
	Late noon-night	1010.58	27.78	80.78	2.36
PP	Morning	1013.00	32.33	59.97	1.25
	Noon	1009.83	39.45	40.22	1.50
	Late noon-night	1010.29	31.07	66.08	1.88
UP	Morning	1012.20	33.00	59.98	1.12
	Noon	1009.22	34.66	55.15	1.28
	Late noon-night	1009.76	28.35	75.20	0.86

Table S2. Primary and secondary organic carbon (POC and SOC) in Sultan Alauddin Street, Makassar city, South Sulawesi, Eastern region Indonesia

Location	Period	POC (μg/m^3)	SOC (μg/m^3)	POC/SOC (-)
PA	Morning	6.7	3.0	2.3
	Noon	6.6	4.1	3.0
	Late-noon	5.8	1.1	6.2
GR	Morning	17.6	11.0	1.6
	Noon	2.8	3.9	0.9
	Late-noon	25.5	7.7	3.4
PP	Morning	17.2	5.6	3.5
	Noon	17.0	10.2	3.1
	Late-noon	26.8	6.3	4.3
UP	Morning	11.7	8.1	1.6
	Noon	9.4	4.6	2.1
	Late-noon	18.5	11.1	1.7

Description:

To separate and quantify the POC and SOC is very challenging due to no simple direct analytical technique to solve this issue. Commonly indirect methods are used to calculate the SOC such as by using the EC tracer method. In this study, we used this method to estimate the level of SOC in TSP in Makassar city.

$OC_{total} = POC + SOC$

where POC is derived as:

$POC = (OC/EC)_{min} * EC_{total}$

Table S3. Inhalation dose based on elemental carbon in Sultan Alauddin Street, Makassar city, South Sulawesi, Eastern region Indonesia

Location	Period	EC ($\mu g/m^3$)	Inhalation rate (IR) Adult	Inhalation rate (IR) Children	Time exposure (t) (hours)	Inhalation Dose (D) (Adult, 16–61 years old)(μg)	Inhalation Dose (D) (Children, 6–15 years old)(μg)
PA	Morning	3.94 ±0.68	0.0111	0.0094	8	0.35 ±0.06	0.30 ±0.05
	Afternoon	3.83 ±1.00	0.0111	0.0094	8	0.34 ±0.09	0.2 9±0.07
	Late-noon	3.36 ±0.77	0.0111	0.0094	8	0.30 ±0.07	0.25 ±0.06
GR	Morning	9.53 ±3.75	0.0111	0.0094	8	0.85 ±0.33	0.72 ±0.28
	Afternoon	1.59 ±0.45	0.0111	0.0094	8	0.14 ±0.04	0.12 ±0.03
	Late-noon	14.86 ±4.95	0.0111	0.0094	8	**1.32 ±0.44**	**1.12 ±0.37**
PP	Morning	10.06 ±0.78	0.0111	0.0094	8	0.89 ±0.07	0.76 ±0.06
	Afternoon	8.35 ±2.85	0.0111	0.0094	8	0.74 ±0.25	0.63 ±0.21
	Late-noon	15.62 ±3.15	0.0111	0.0094	8	**1.39 ±0.28**	**1.17 ±0.24**
UP	Morning	6.80 ±1.27	0.0111	0.0094	8	0.60 ±0.11	0.51 ±0.10
	Afternoon	5.51 ±3.49	0.0111	0.0094	8	0.49 ±0.31	0.4 1±0.26
	Late-noon	10.82 ±2.40	0.0111	0.0094	8	**0.96 ±0.21**	**0.81 ±0.18**

Description:

To calculate the potential health risk due to of carbonaceous components, EC concentration was used to of its sources and characteristic. The following equation was applied.

$D = Cp \times IR_{(\Delta t)} \times dt$

Where *D* is the total inhalation dose (μg) of EC, *Cp* is the concentration of EC ($\mu g/m^3$), *IR* is the inhalation rate of human (average IR for males and females with ages of 16–61 years is 0.0111 m^3/min while for the children with age 6–15, the IR for male and female is 0.0094 m^3/min) and *dt* is the exposure time of a person spending outside (8 hours was used as reported previously as the minimum time spent by a person outdoors) [US EPA, 2011]

U.S. EPA (Environmental Protection Agency). Exposure factors handbook: 2011 edition. National Center for Environmental Assessment, Washington, DC (2011) EPA/600/R-09/052F. Available from the National Technical Information Service, Springfield, VA, and online at http://www.epa.gov/ncea/efh.

Figure S1. Detail of sampling site in Sultan Alauddin Street, Makassar city, South Sulawesi, Eastern region Indonesia (a) PA (b) GR (c) PP (d) UP sites

Figure S2. Pearson correlation between TSP, carbonaceous components, and meteorological condition at each sampling site in Sultan Alauddin Street, Makassar city, South Sulawesi, Eastern region Indonesia (a) PA (b) GR (c) PP (d) UP sites

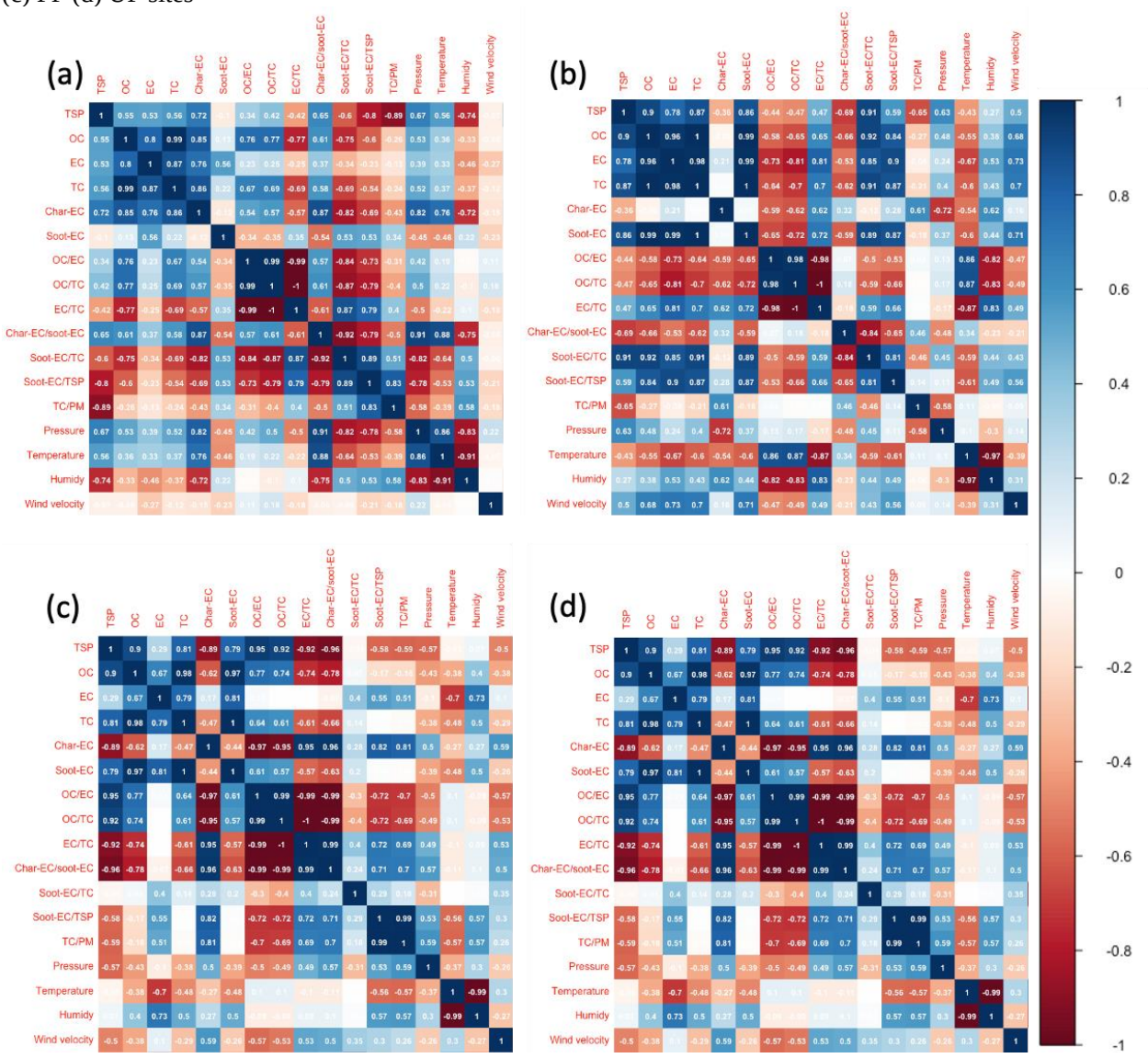


Figure S3. Pearson correlation between TSP, carbonaceous components, and meteorological condition at all sampling site in Sultan Alauddin Street, Makassar city, South Sulawesi, Eastern region Indonesia (a) Morning (b) Afternoon (c) Late-afternoon

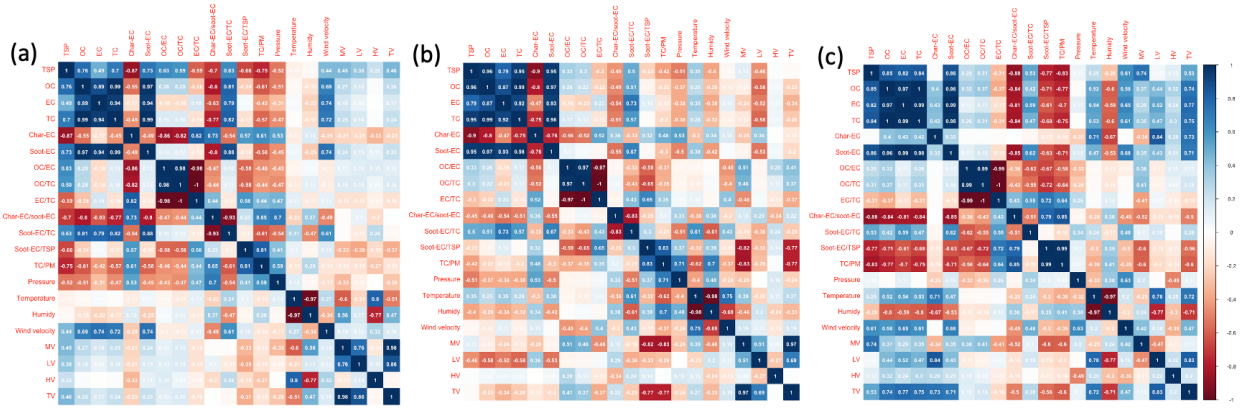
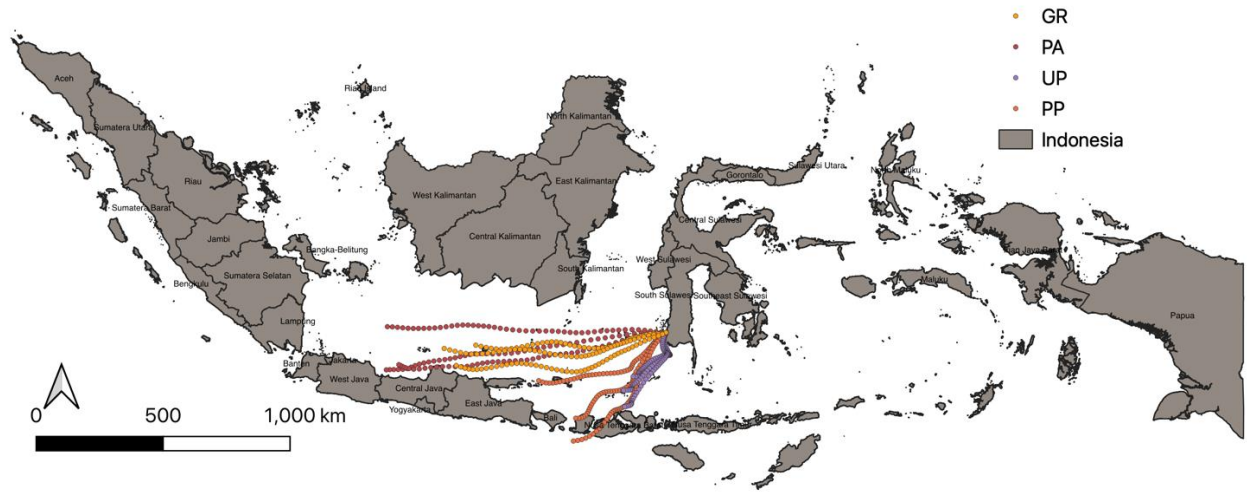


Figure S4. Air mass backward trajectory arrived at the sampling site in Sultan Alauddin Street, Makassar city, South Sulawesi, Eastern region Indonesia



Description:

As shown in the figure S4 above, there was no different in term of the sources of air mass arrived at the sampling sites which commonly originated from Southwest (SW) and west (W) of Makassar city and passing through ocean. Thus, the different of characteristic of TSP and its carbonaceous component might be related to the local characteristic.