

# **Influence of Time–Activity Patterns on Indoor Air Quality in Italian Restaurant Kitchens**

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## **Supplementary Materials**

Figure S1. Violin plots of indoor pollutant concentrations measured in winter during or in the absence of different cooking activities. \*:  $p_{MW} < 0.01$  and \*\*:  $p_{MW} < 0.001$ .

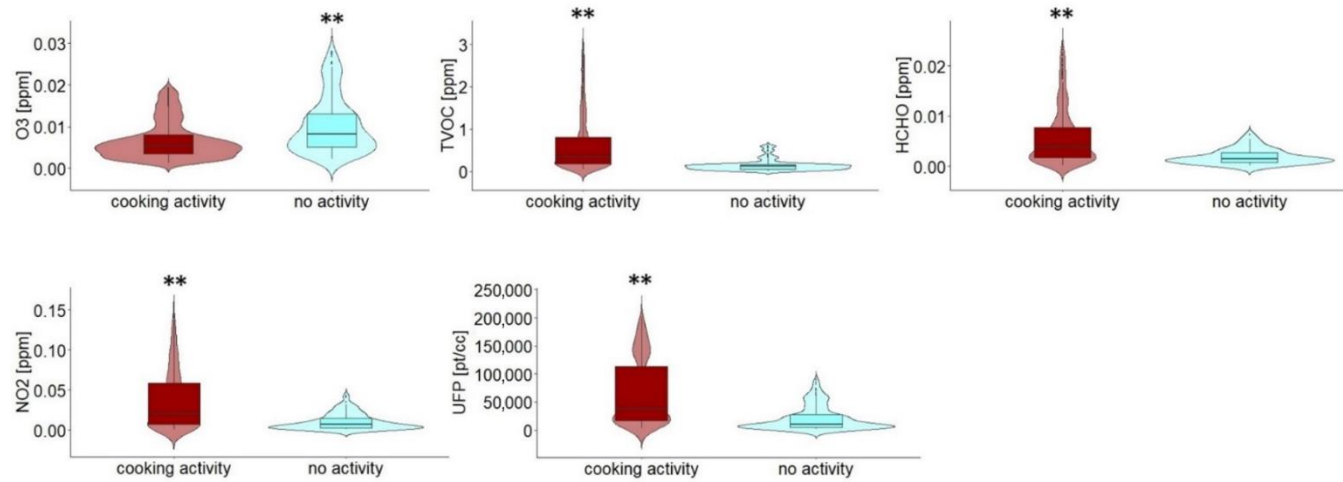


Figure S2. Violin plots of indoor pollutant concentrations measured in summer during or in the absence of different cooking activities. \*:  $p_{MW} < 0.01$  and \*\*:  $p_{MW} < 0.001$ .

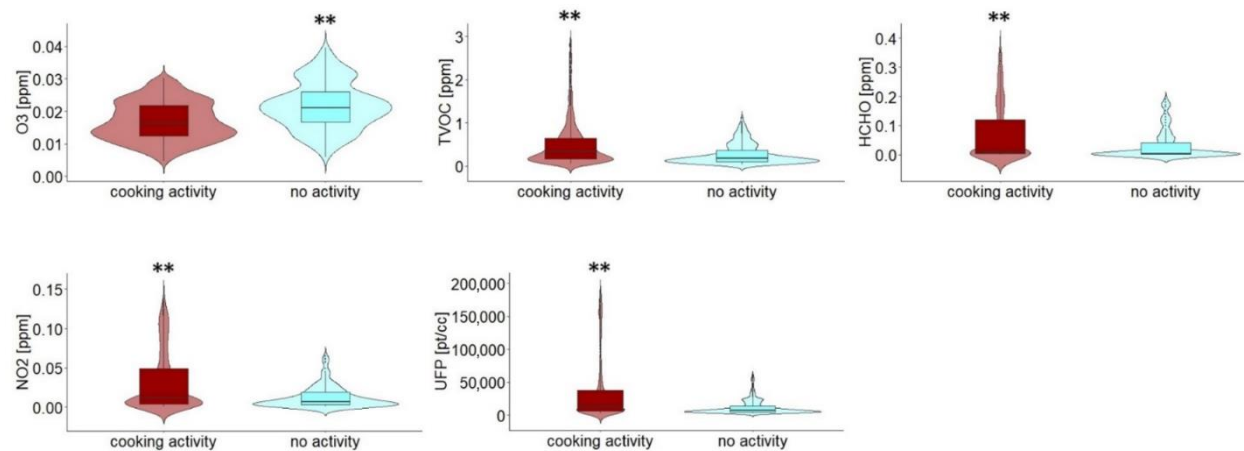


Figure S3. Violin plots of indoor pollutant concentrations measured in winter during or in the absence of different washing activities. \*:  $p_{MW} < 0.01$  and \*\*:  $p_{MW} < 0.001$ .

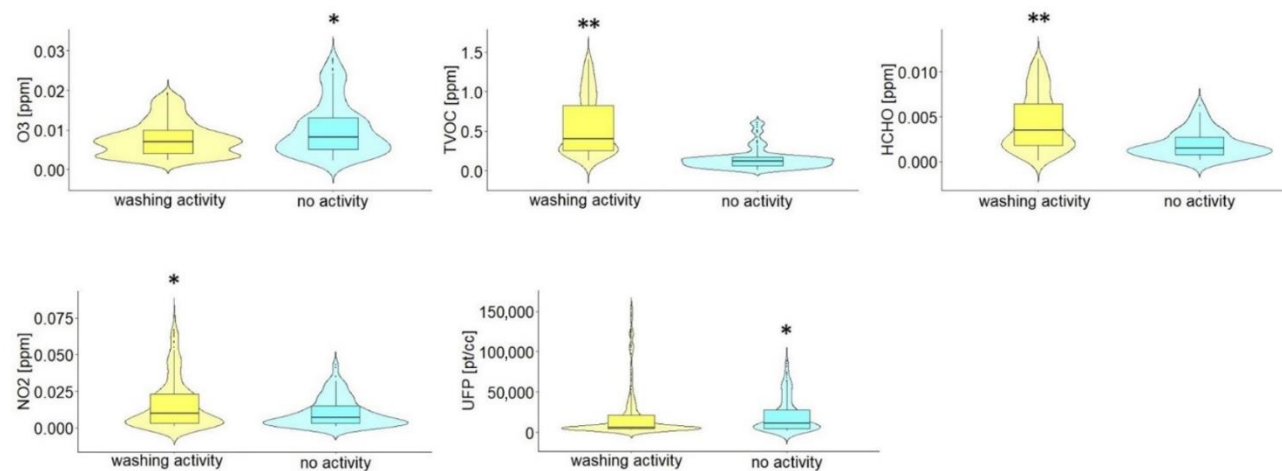


Figure S4. Violin plots of indoor pollutant concentrations measured in summer during or in the absence of different washing activities. \*:  $p_{MW} < 0.01$  and \*\*:  $p_{MW} < 0.001$ .

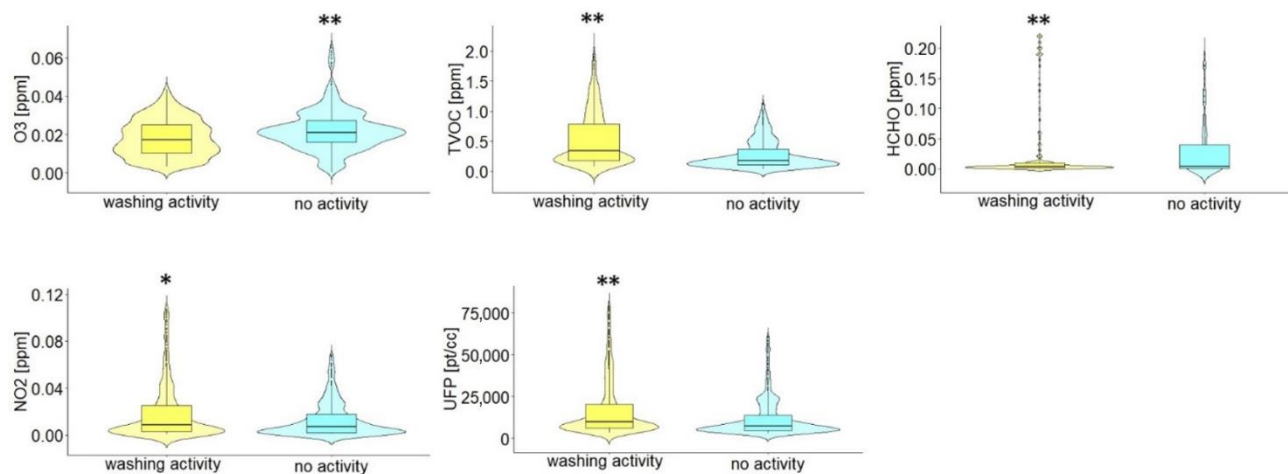


Figure S5. Box-plots of TVOC levels for the main activities observed during the monitoring campaigns (winter and summer, respectively).

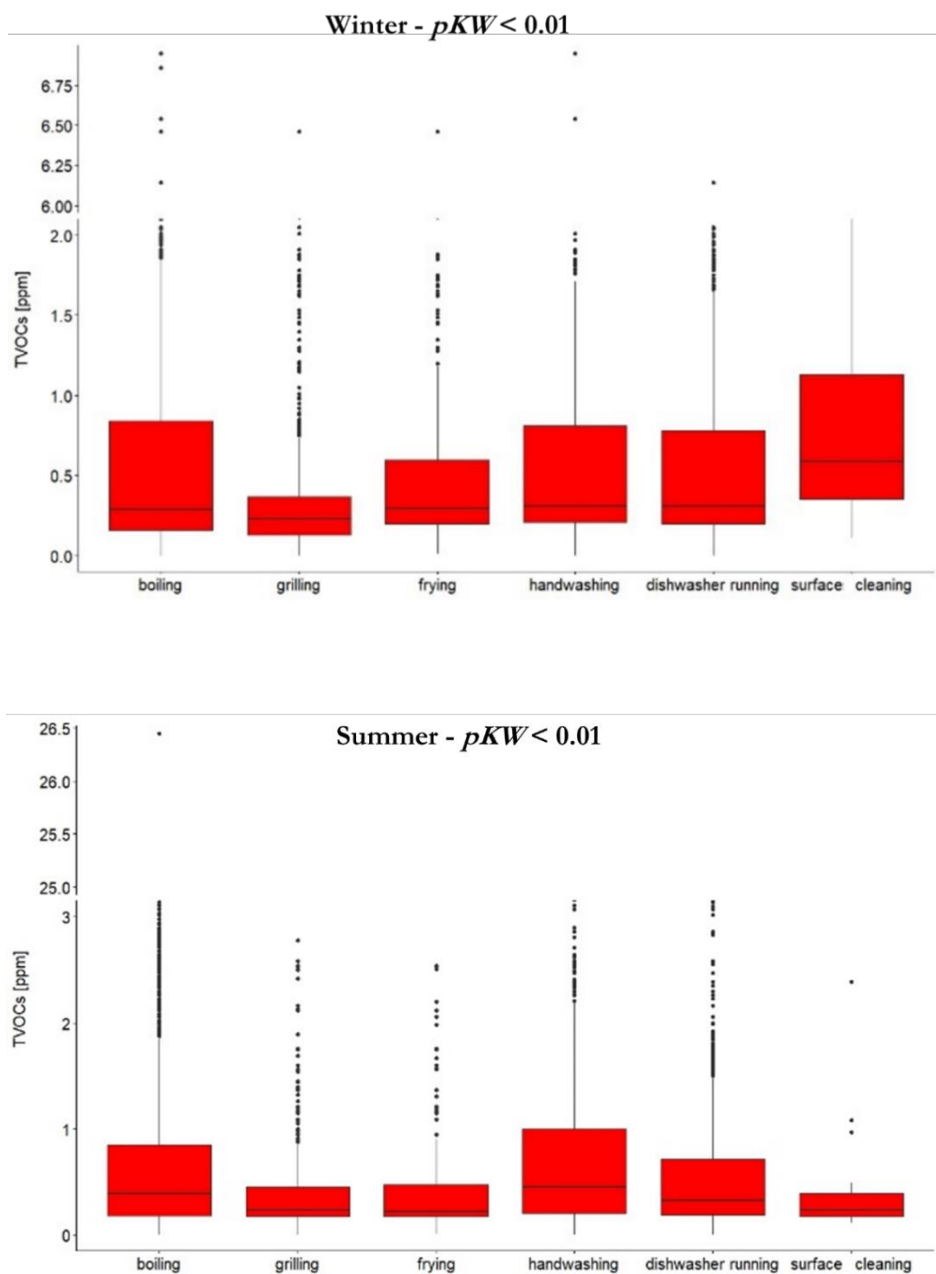


Figure S6. Box-plots of HCHO levels for the main activities identified during the monitoring campaigns (winter and summer, respectively).

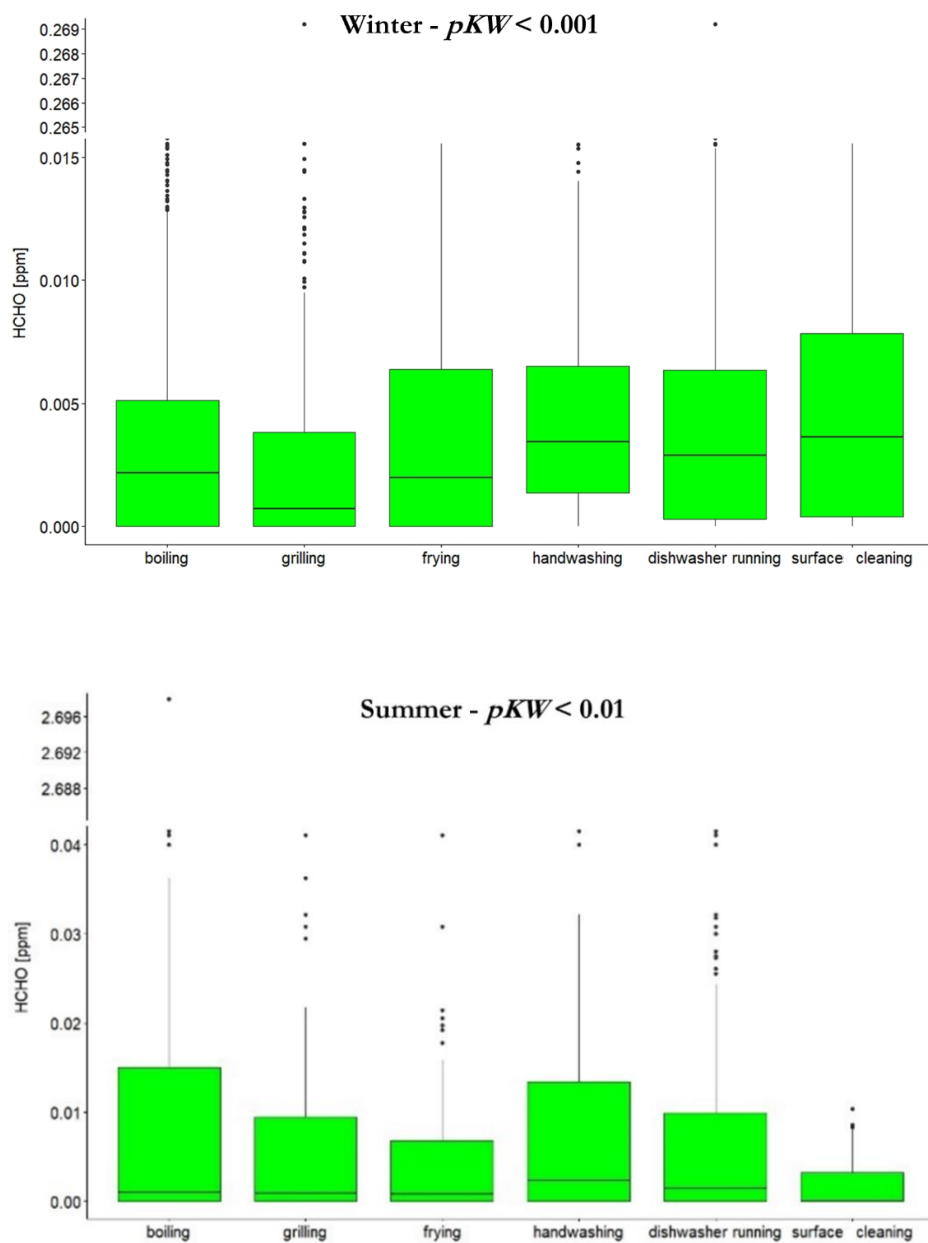
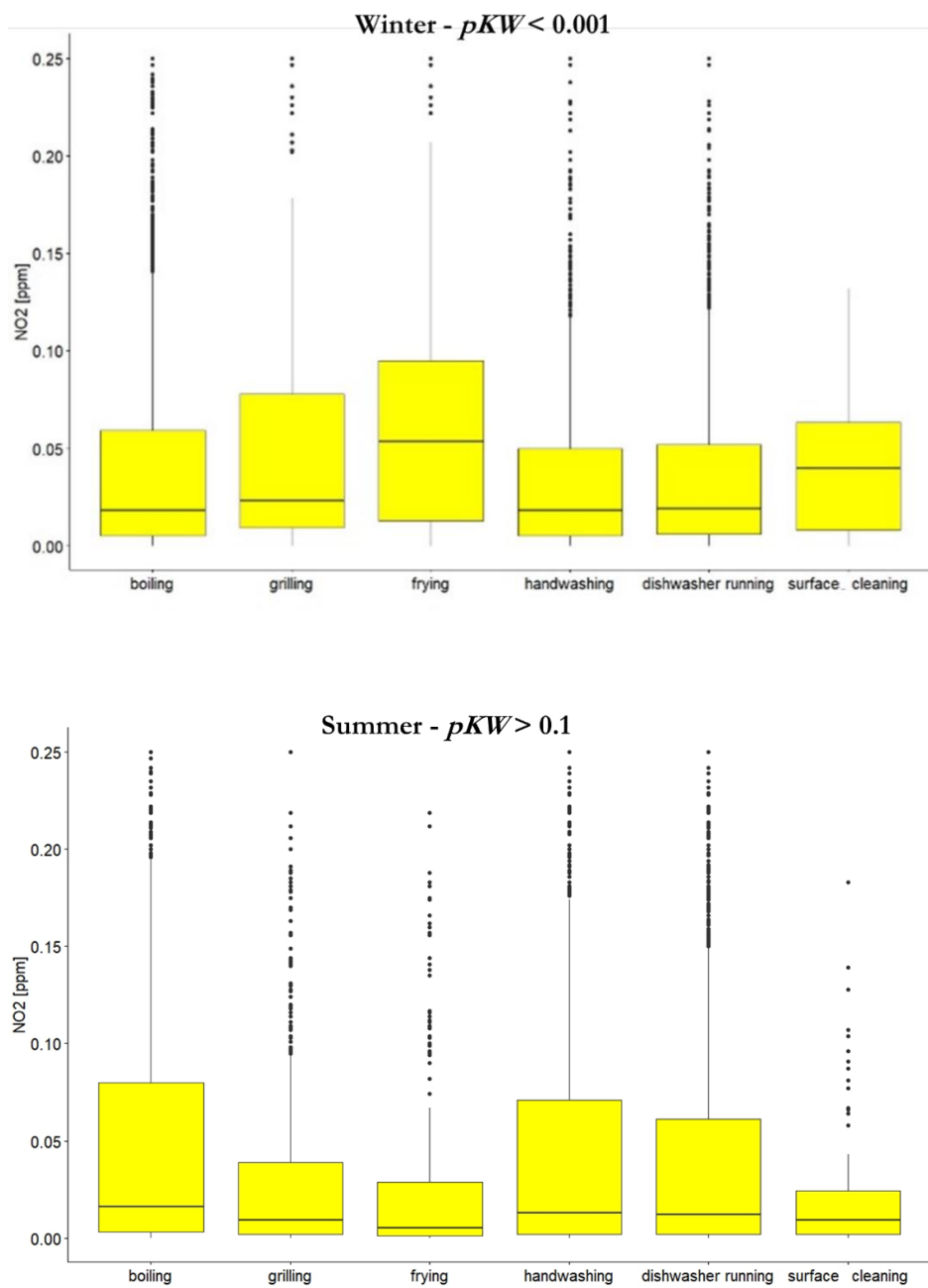
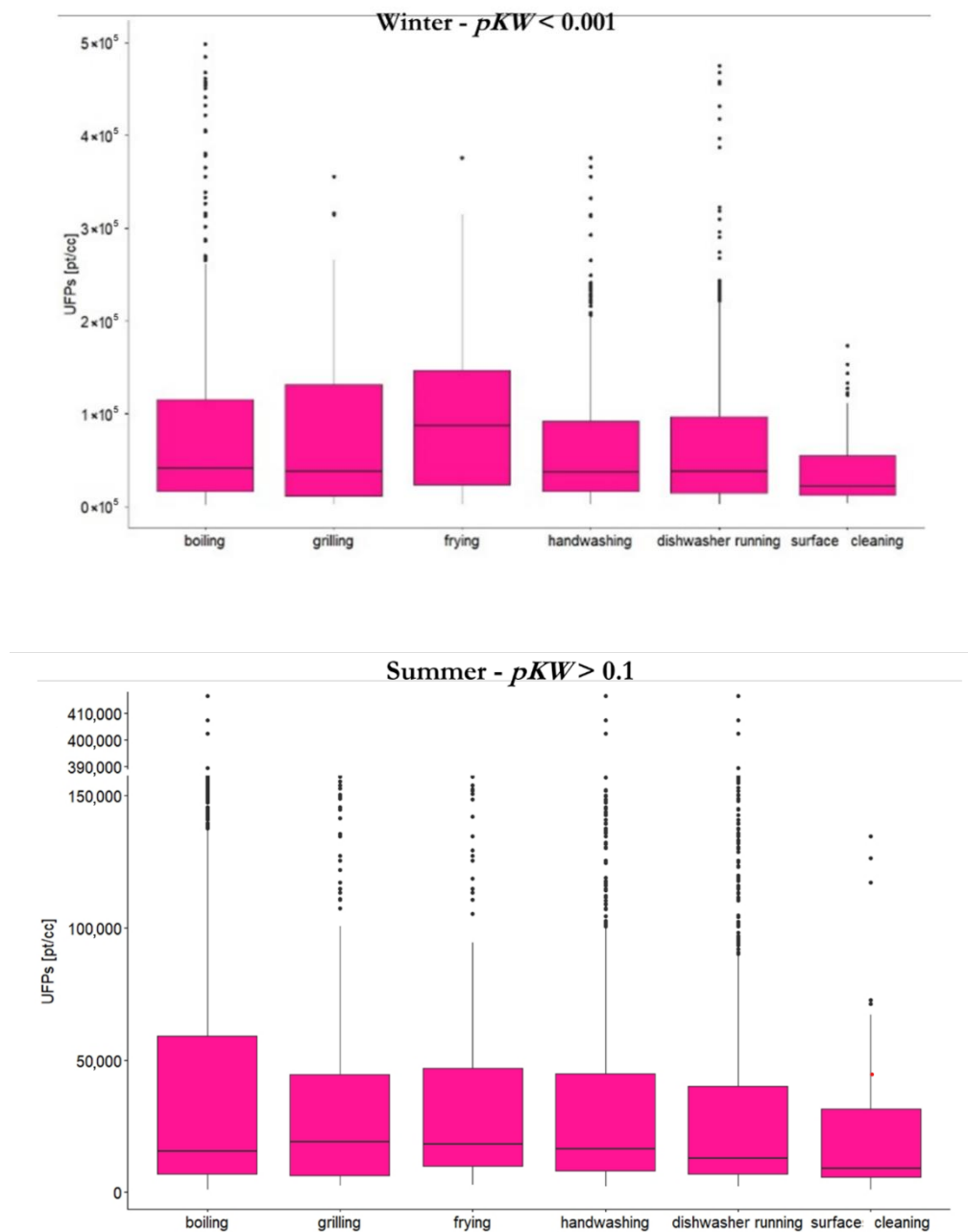


Figure S7. Box-plots of NO<sub>2</sub> levels for the main activities identified during the identified during the monitoring campaigns (winter and summer, respectively).

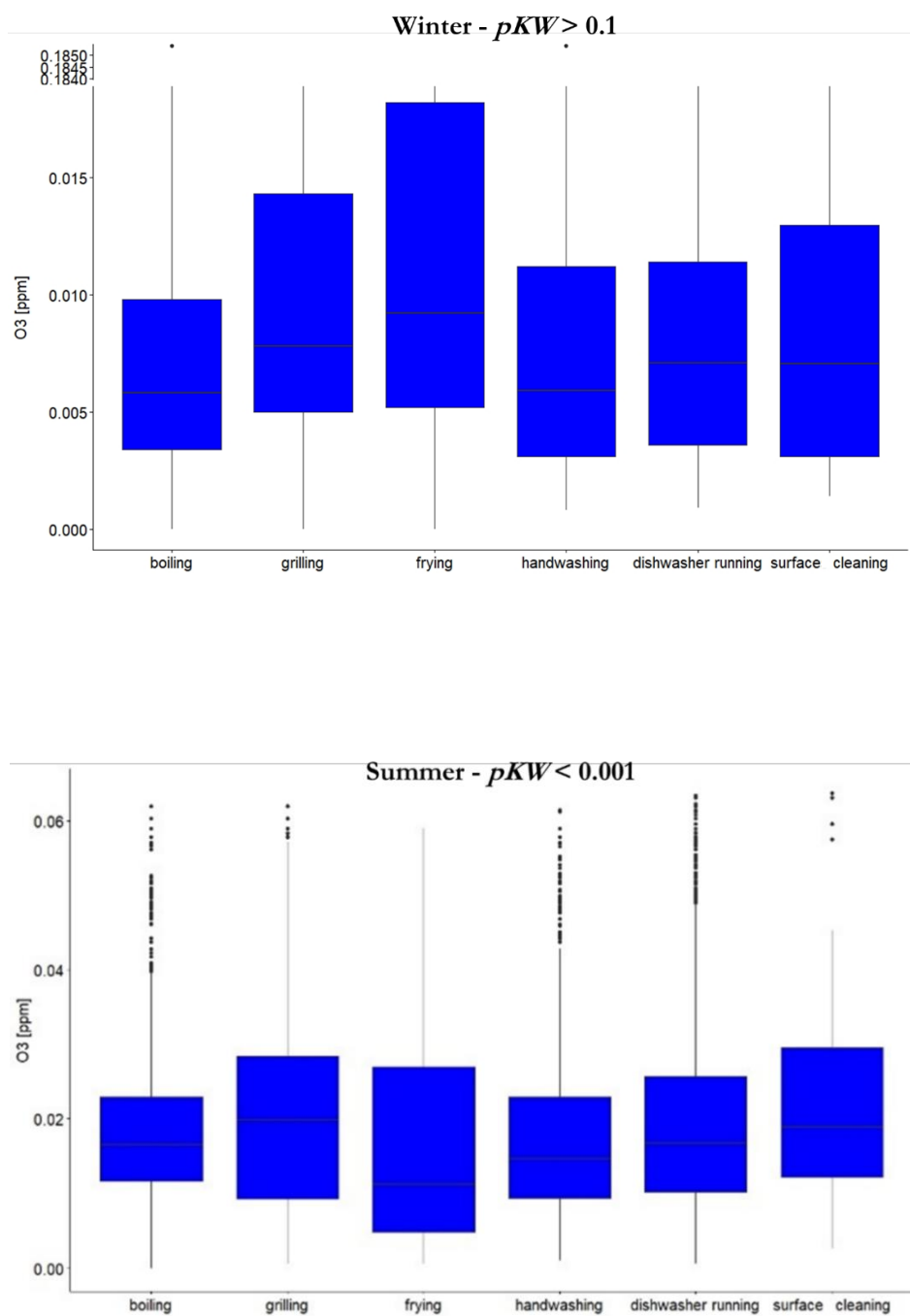


**Figure S8. Box-plots of UFP levels for the main activities identified during the identified during the monitoring campaigns (winter and summer, respectively).**





**Figure S9. Box-plots of O<sub>3</sub> levels for the main activities identified during the identified during the monitoring campaigns (winter and summer, respectively).**



**Table S1. Indoor concentrations of air pollutants and physical parameters (temperature and relative humidity) monitored on a real-time basis in restaurants' kitchens.**

Pollutants	Winter						Summer					
	N	Min	Mean	SD	Me- dian	Max	N	Min	Mean	SD	Me- dian	Max
<b>O<sub>3</sub> (ppm) *</b>	418 9	<LOD	0.009	0.009	0.006	0.185	419 2	<LOD	0.019	0.011	0.018	0.067
<b>TVOCs (ppm) *</b>	347 1	<LOD	0.577	0.762	0.280	6.95	417 4	<LOD	0.707	1.26	0.330	26.5
<b>UFPs * 10<sup>3</sup>(pt/cm<sup>3</sup>) *</b>	410 5	1.42	62.5	69.7	32.5	497	402 0	1.02	36.2	56.8	11.7	417
<b>HCHO (ppm)</b>	418 4	<LOD	0.005	0.011	0.002	0.27	408 0	<LOD	0.047	0.145	<LOD	2.70
<b>NO<sub>2</sub> (ppm) *</b>	394 2	<LOD	0.036	0.052	0.014	0.250	432 7	<LOD	0.034	0.049	0.010	0.250
<b>CO<sub>2</sub> (ppm) *</b>	418 9	387	678	220	623	1902	397 2	419	607	132	574	1276
<b>Temperature (C°)</b>	419 1	9.83	20.2	3.19	20.7	25.5	432 7	14.4	30.7	2.44	30.2	36.6
<b>RH (%)</b>	419 1	21.7	40.1	9.80	40.4	67.5	432 7	29.5	44.7	5.76	44.7	65.3

*N= number of kitchens sampled; LOD= limit of detection; Min= minimum concentration; SD= standard deviation; Max= maximum concentration; RH= Relative humidity*