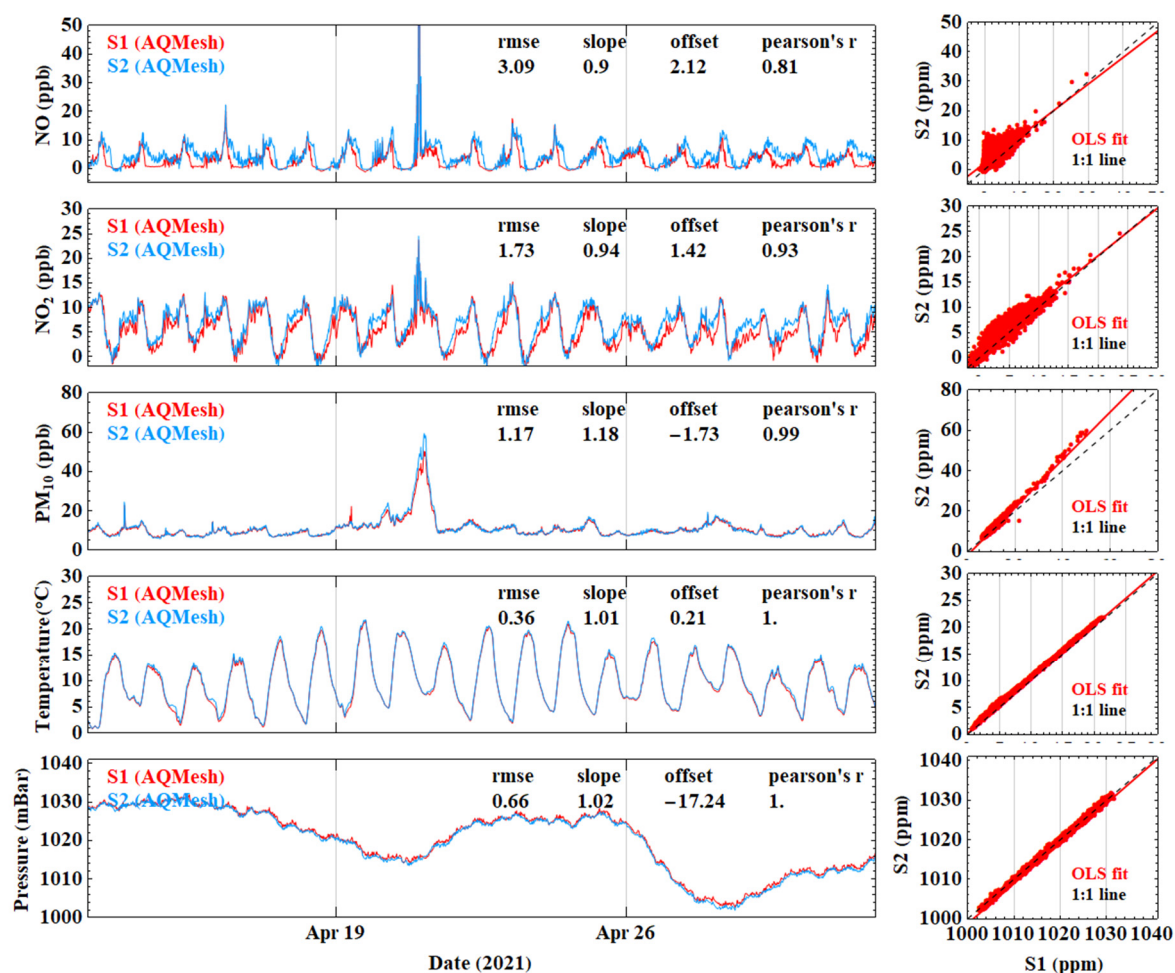
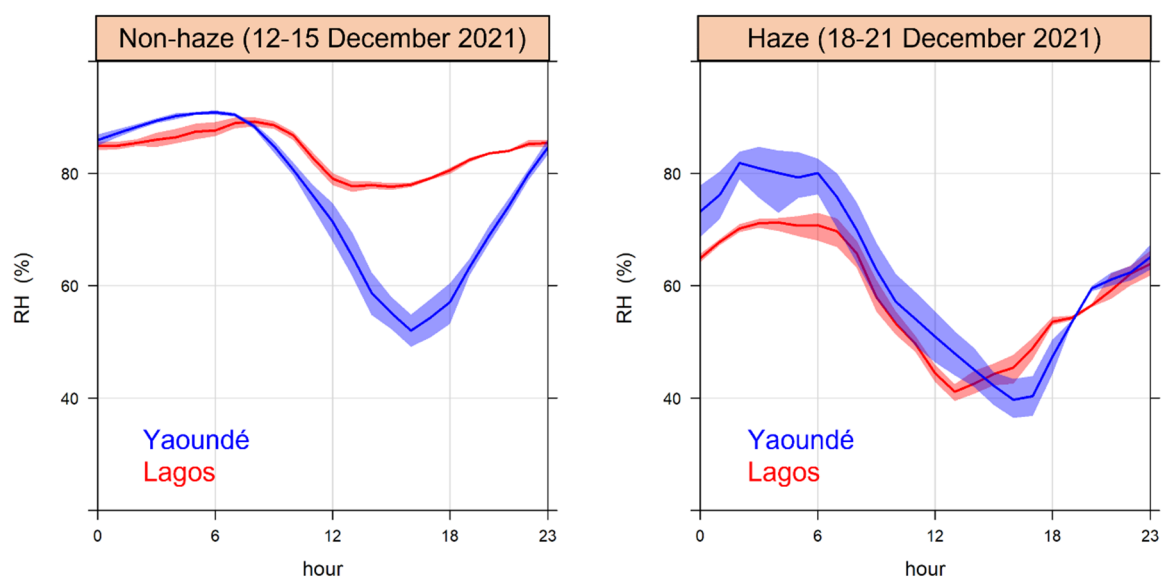


## Supplementary Materials:

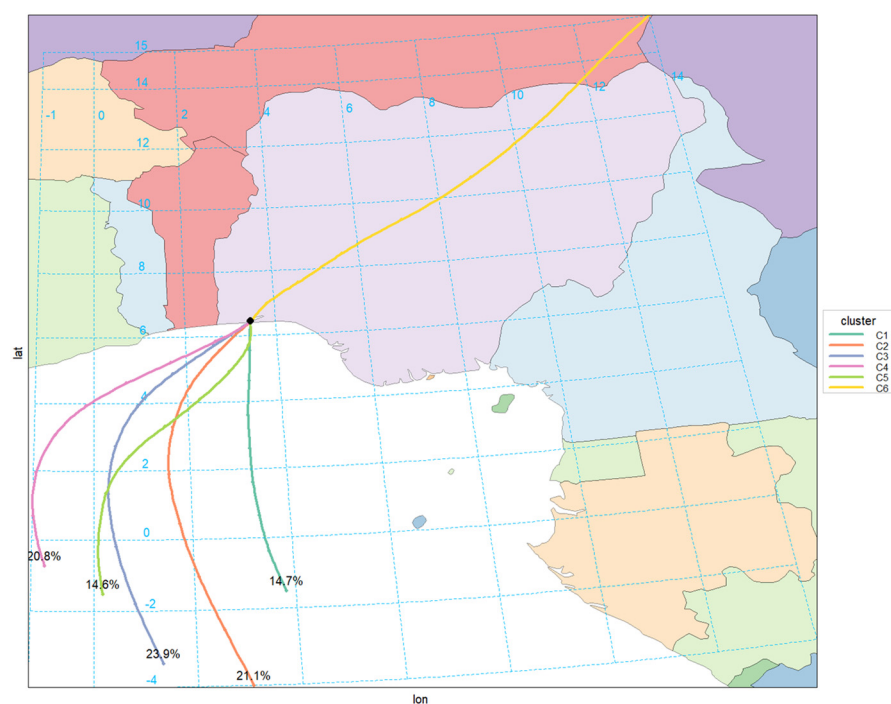
Olalekan A. M. Popoola <sup>1,\*</sup>, Rose Alani <sup>2</sup>, Felix Assah <sup>3</sup>, Taibat Lawanson <sup>4</sup>, Awah K. Tchouaffi <sup>3,5</sup>, Clarisse Mapa-Tassou <sup>6</sup>, Nfondoh Blanche <sup>3,5</sup>, Damilola Odekunle <sup>4</sup>, Richard Unuigboje <sup>4</sup>, Victor A. Onifade <sup>4</sup>, Toluwalope Ogunro <sup>4</sup>, Meelan Thondoo <sup>7</sup>, Roderic L. Jones <sup>1</sup> and Tolu Oni <sup>7</sup>



**Figure S1.** Time series and scatter plots of NO, NO<sub>2</sub>, PM<sub>10</sub>, temperature and pressure for the two AQMesh nodes during the co-location trial at the urban background station in Cambridge, UK. Statistics shown inset in the time series are for S1 relative to S2.

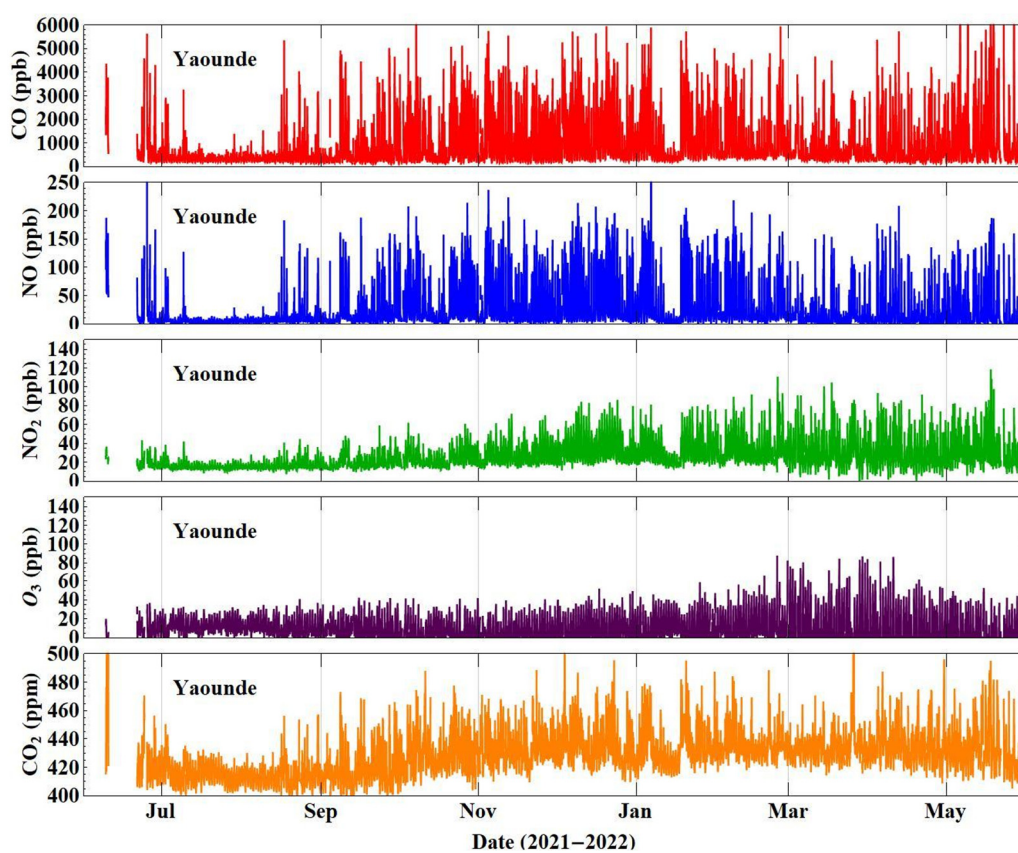


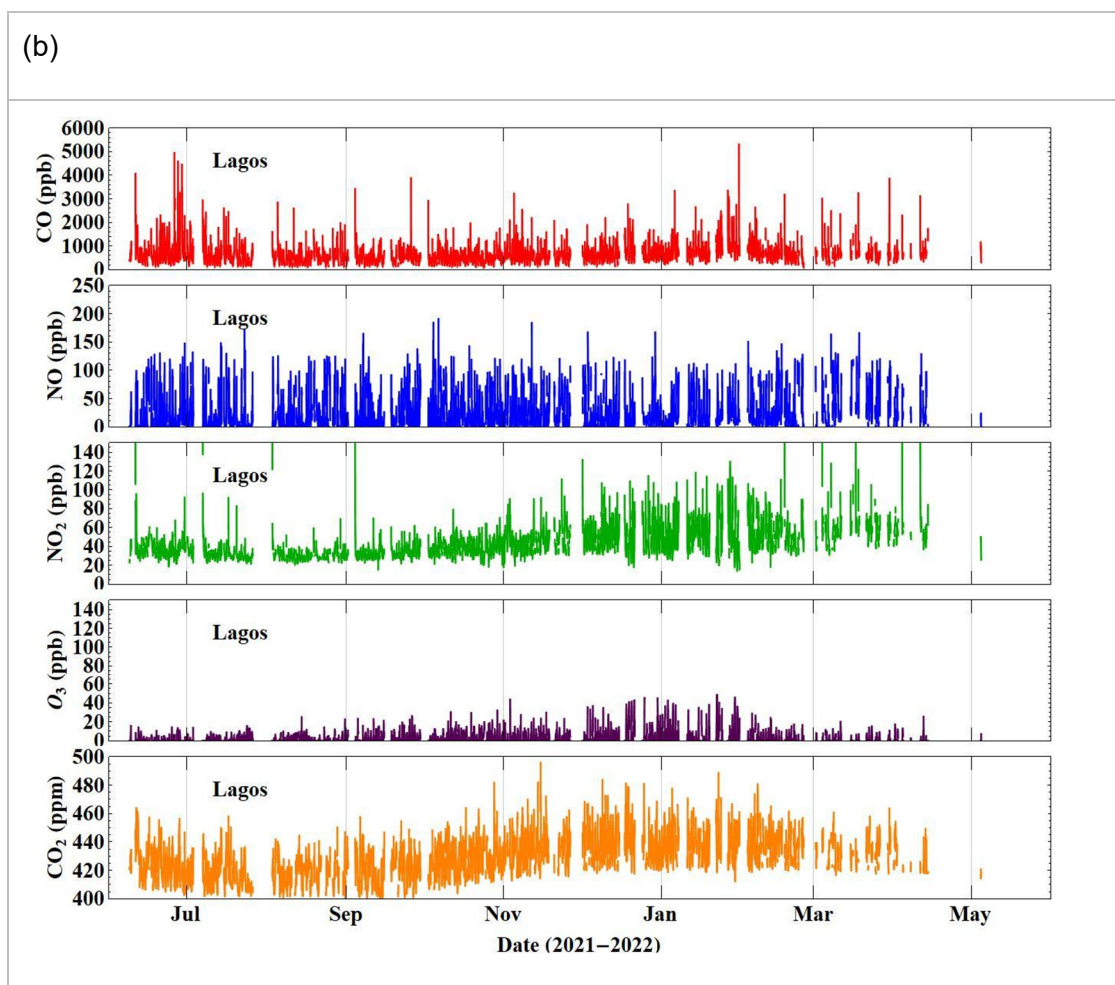
**Figure S2.** Diel profiles at AW-VI, Lagos and MM-F, Yaoundé for a 4-day period during haze and non-haze episodes.



**Figure S3.** Map showing the 6-cluster solution to back trajectories for AW-VI, Lagos, Nigeria (pink bordered area) for the duration of the campaign (2021-2022). The number represents the percentage mean for each cluster relative to the overall trajectory.

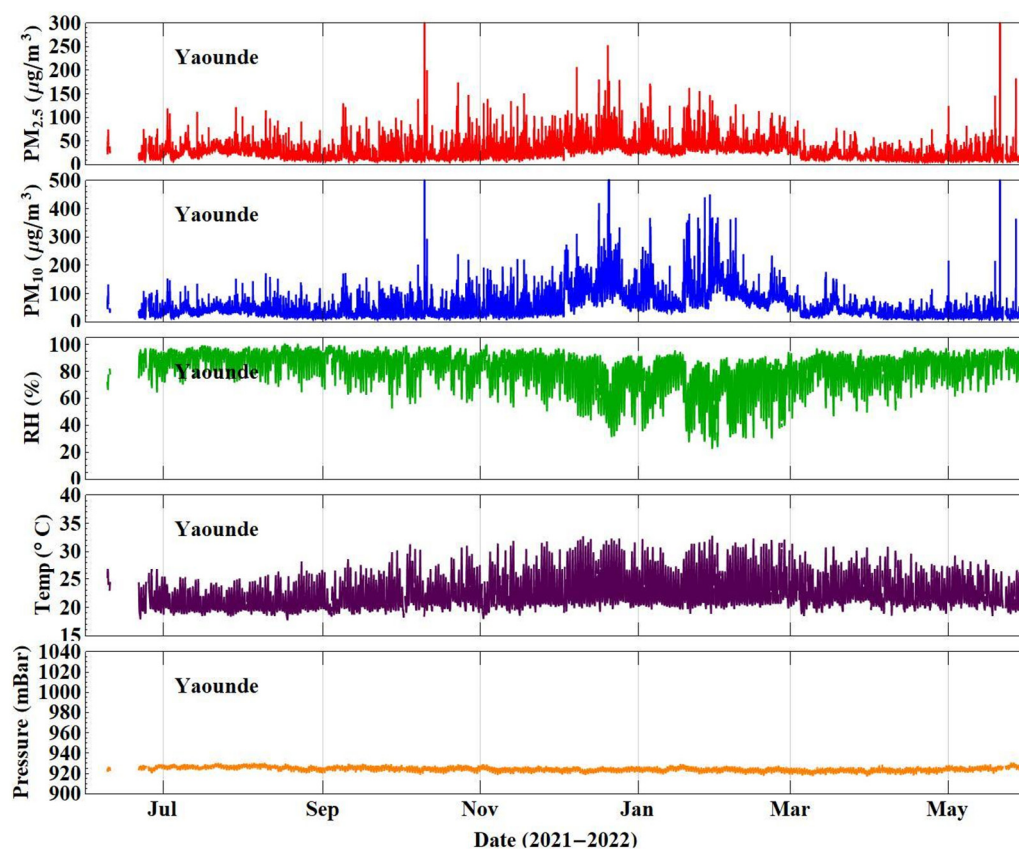
(a)



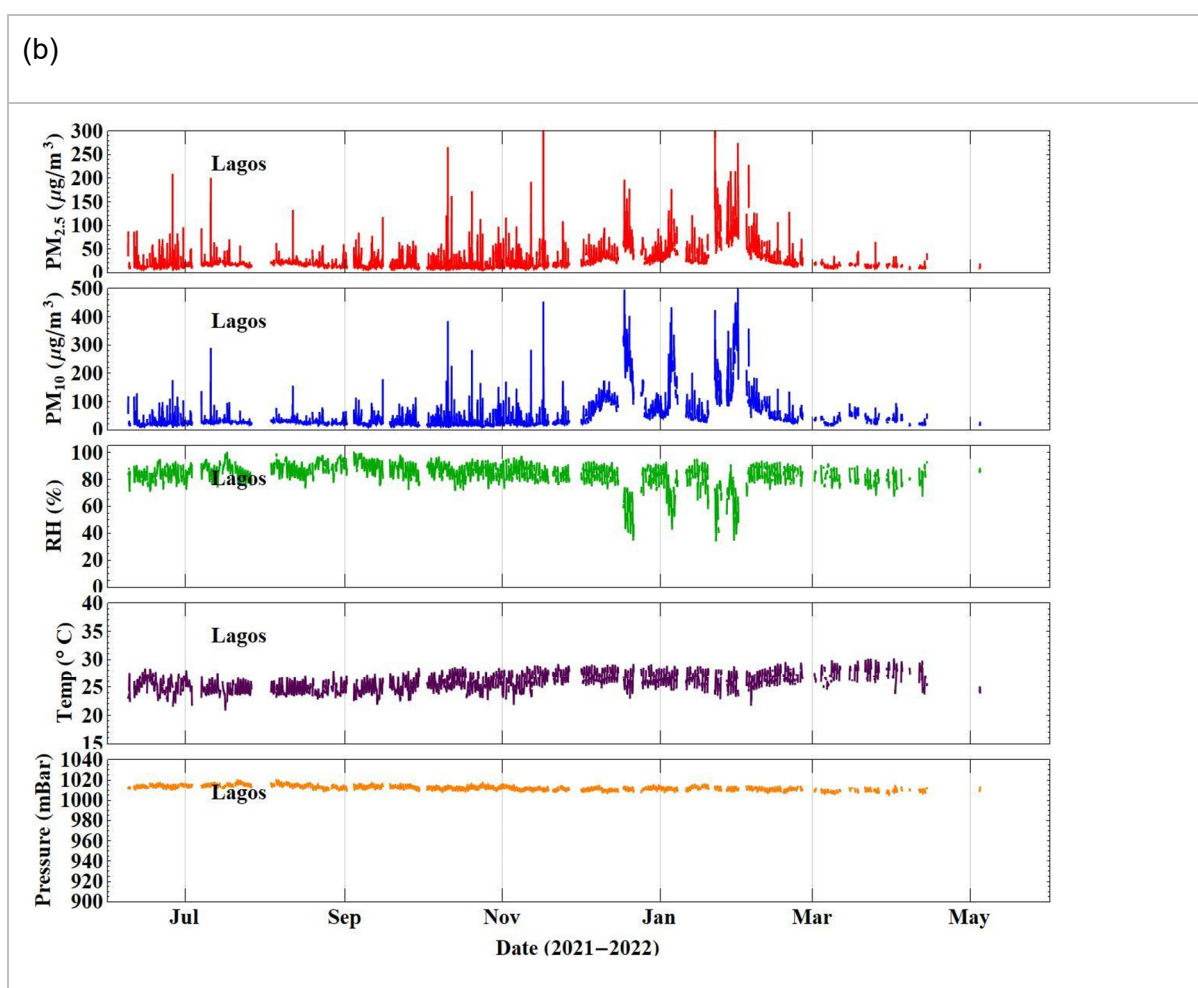


**Figure S4.** Time series of 15-minutes CO, NO, NO<sub>2</sub>, O<sub>3</sub> and CO<sub>2</sub> observation from June 2021 to May 2022. (a) MM-F, Yaoundé, Cameroon and (b) AW-VI, Lagos, Nigeria. Gaps in data are due to power outages at the sites.

(a)







**Figure S5.** Time series of 15-minutes CO<sub>2</sub>, pressure, temperature and RH observation from May 2021 to May 2022. (a) MM-F, Yaoundé, Cameroon and (b) AW-VI, Lagos, Nigeria. Gaps in data are due to power outages at the sites.

**Table S1.** Summary statistics of measured parameters for the entire duration (May 2021 to May 2022) of the deployment at AW-VI, Lagos, Nigeria and MM-F, Yaoundé, Cameroon.

Parameter	Lagos					Yaoundé				
	Mean	Max	Min	SD	N data (%)	Mean	Max	Min	SD	N data (%)
CO (ppb)	568	5315	112	343	46	806	10,600	118	851	95.2
NO (ppb)	21.0	193	‡	28.0	46	22.2	263	‡	33.0	95.2
NO <sub>2</sub> (ppb)	41.0	445	4.00	15.0	45.0	26.0	119	‡	14.0	95
O <sub>3</sub> (ppb)	3.0	52	0.00	6.00	45	9.00	88.0	0.00	11.0	95
CO <sub>2</sub> (ppm)	428	497	390	14.0	44.0	428	544	396	14.0	95
PM <sub>2.5</sub> (μg/m <sup>3</sup> )	26	347	6.00	23.0	46	26.0	366	5.00	17.0	95.2
PM <sub>10</sub> (μg/m <sup>3</sup> )	49.0	559	10.0	55.0	46	51.0	835	8.00	45.0	95.2
Temp (°C)	26	30	21	2.0	46	22.0	33	18	3.00	95.3
RH (%)	84.0	100	34.0	8.00	46	83.0	100	23.0	13.0	95.3
Pressure (mBar)	1012.4	1020.2	1005.2	2.0	46	924.50	930.70	917.10	2.0	95.3

‡ Indicates value below instrument detection limit ~ 2 ppb.