

# Characterization of fine particulate matter (PM<sub>2.5</sub>) in selected urban mixed background and traffic sites in A Southeast Asian Megacity: A Case Study of Metro Manila, Philippines



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Manila Observatory

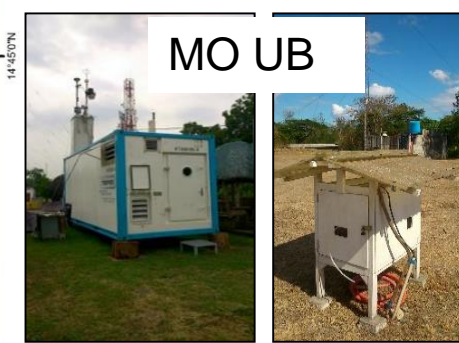
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## INTRODUCTION

This work presents results from a comprehensive chemical characterization of fine particulate matter at an urban background and two roadside sites in Metro Manila, Philippines.

Science Question:

***“What is the spatial and temporal distribution, chemical composition, and sources of PM<sub>2.5</sub> in key sites in Metro Manila?”***



Study Area

## METHODOLOGY

### A. Sampling Sites

- ADMU-Katipunan Avenue roadside, “KAT RS”
- Manila Observatory urban background, “MO UB”
- DLSU-Taft Avenue, “TAFT RS”

### B. Sample Collection

**Short-term:** April to June, 2015

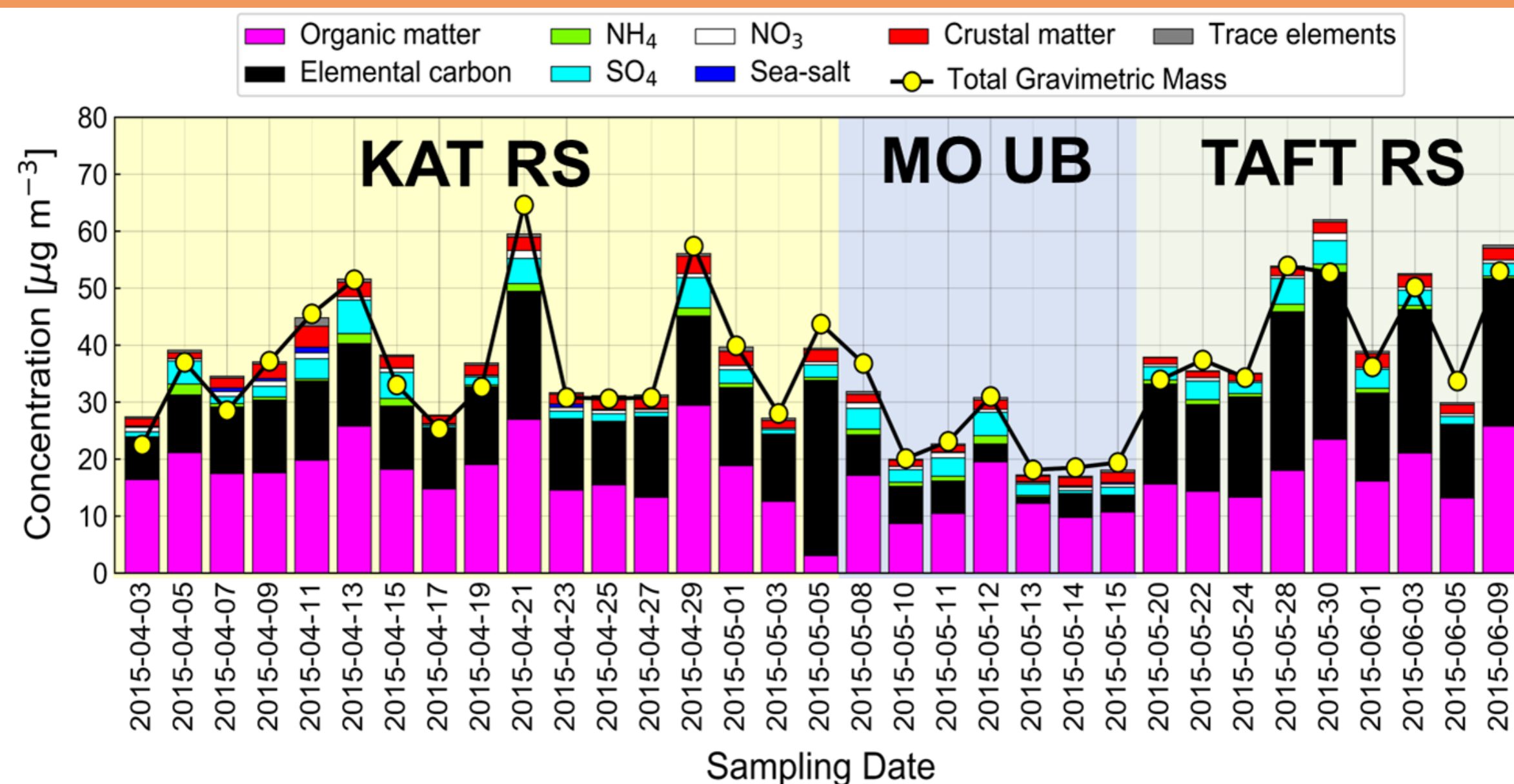
- MiniVol air sampler (5L/min)
- Two (2) samplers operated in parallel – loaded with Teflon and quartz-fiber filters
- Average collecting time: 24 hours

**Long-term:** January-December, 2015

- Gent sampler (16L/min)
- Nuclepore filter samples

## RESULTS

### SHORT-TERM

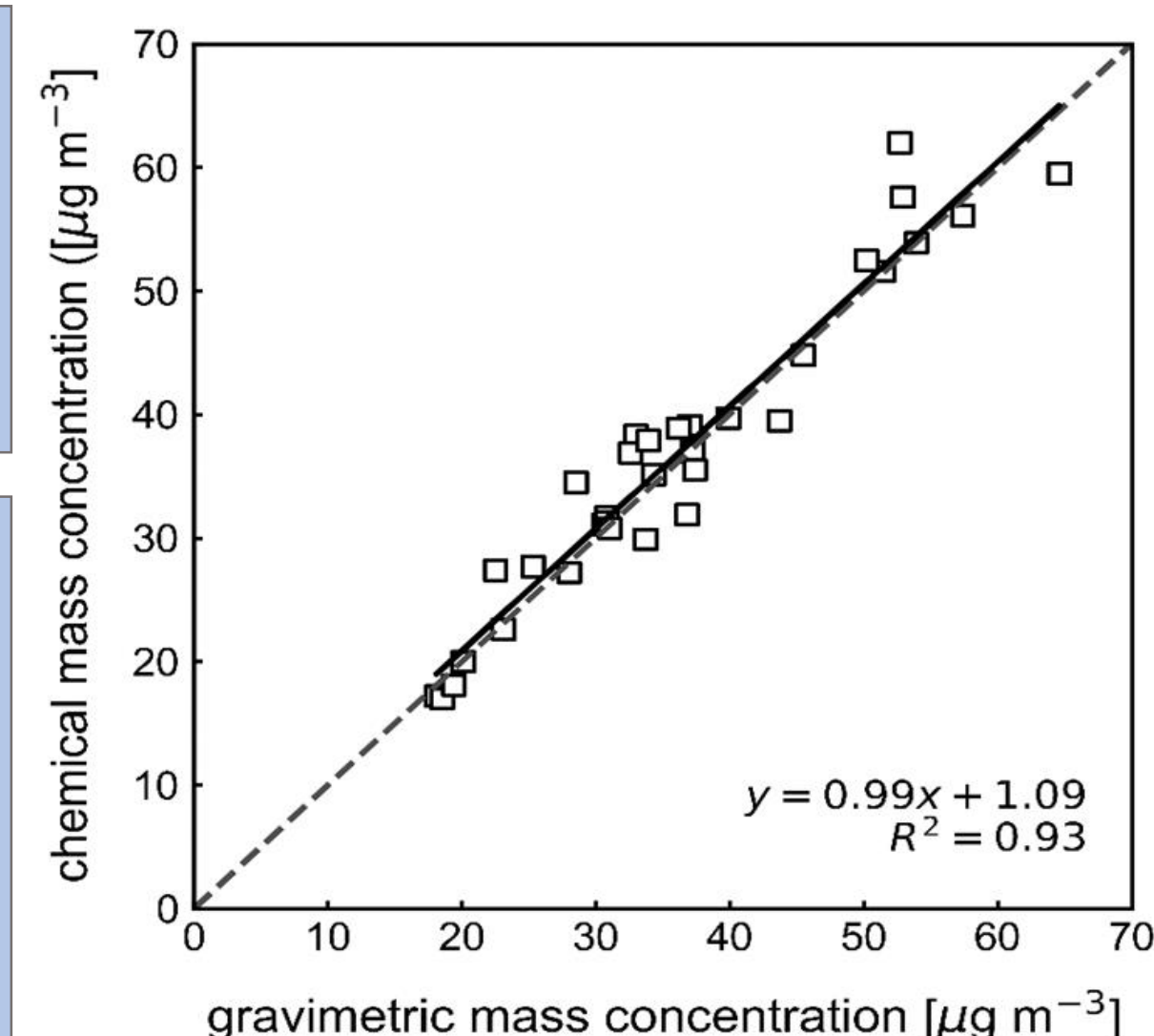


**Left Figure:**

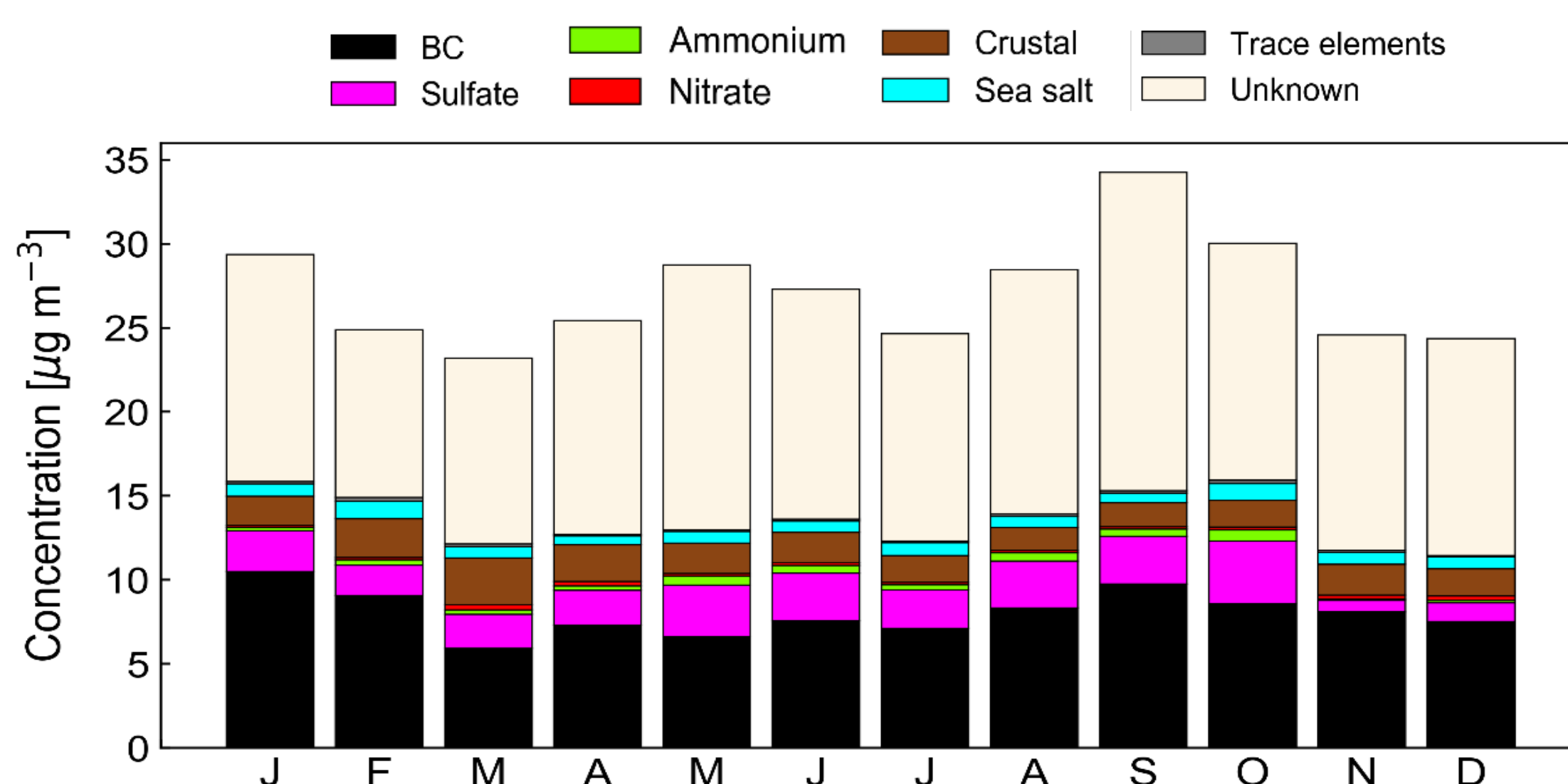
Mass closure of PM<sub>2.5</sub> at three key sites in Metro Manila, Philippines

**Right Figure:**

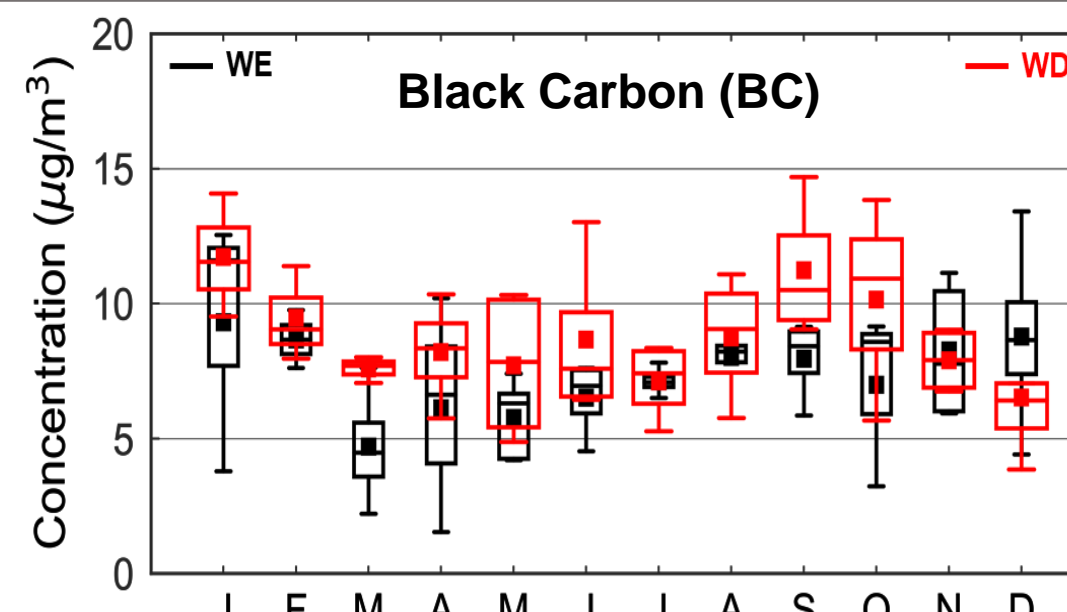
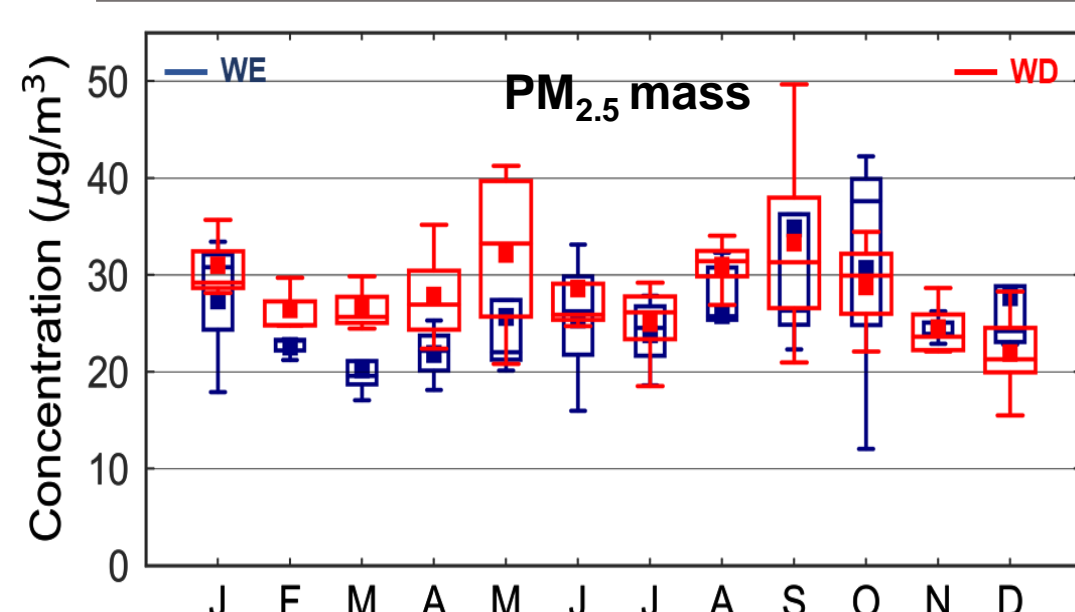
Linear regression analysis between the gravimetric and the chemically-derived PM<sub>2.5</sub> mass



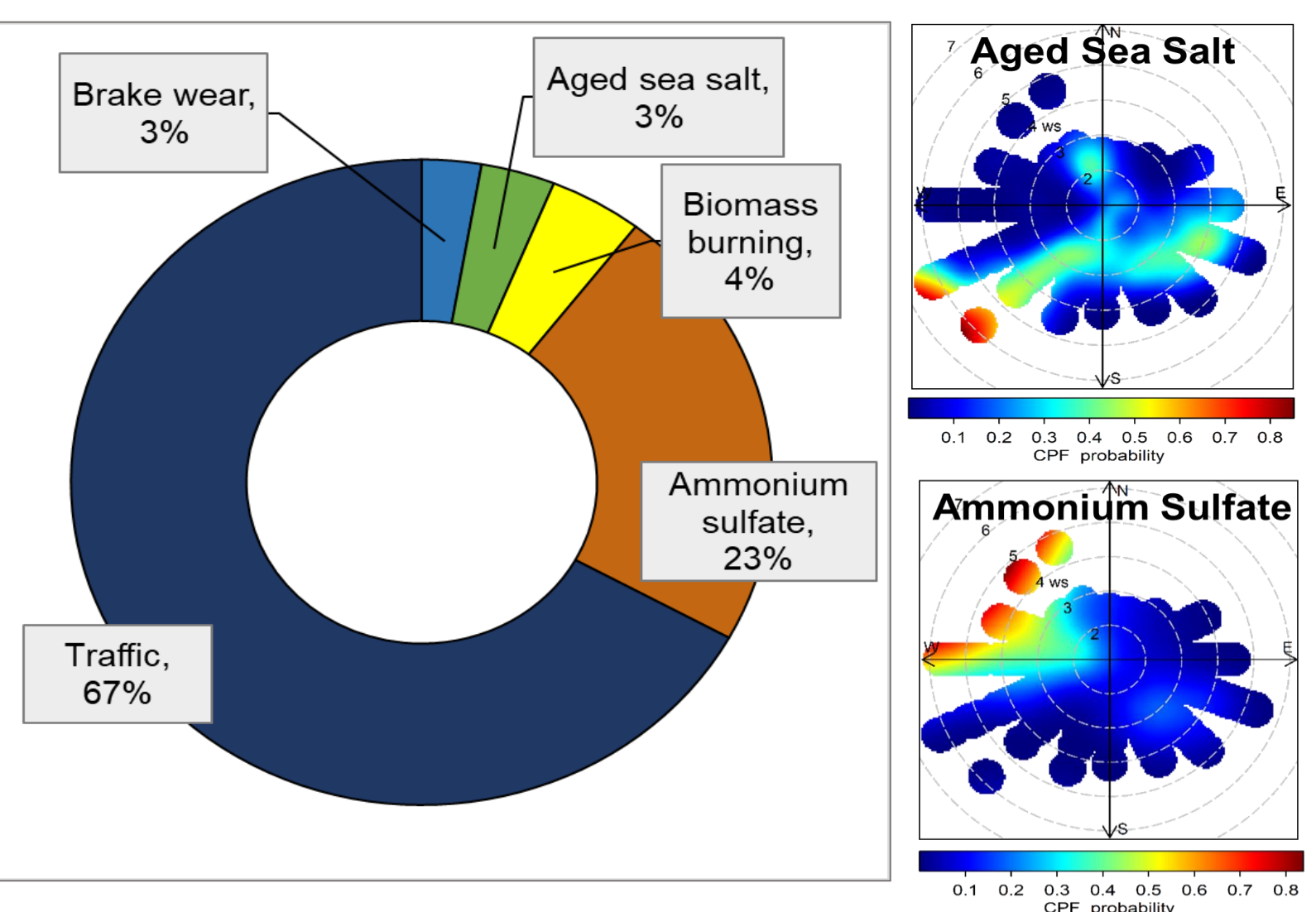
### LONG-TERM



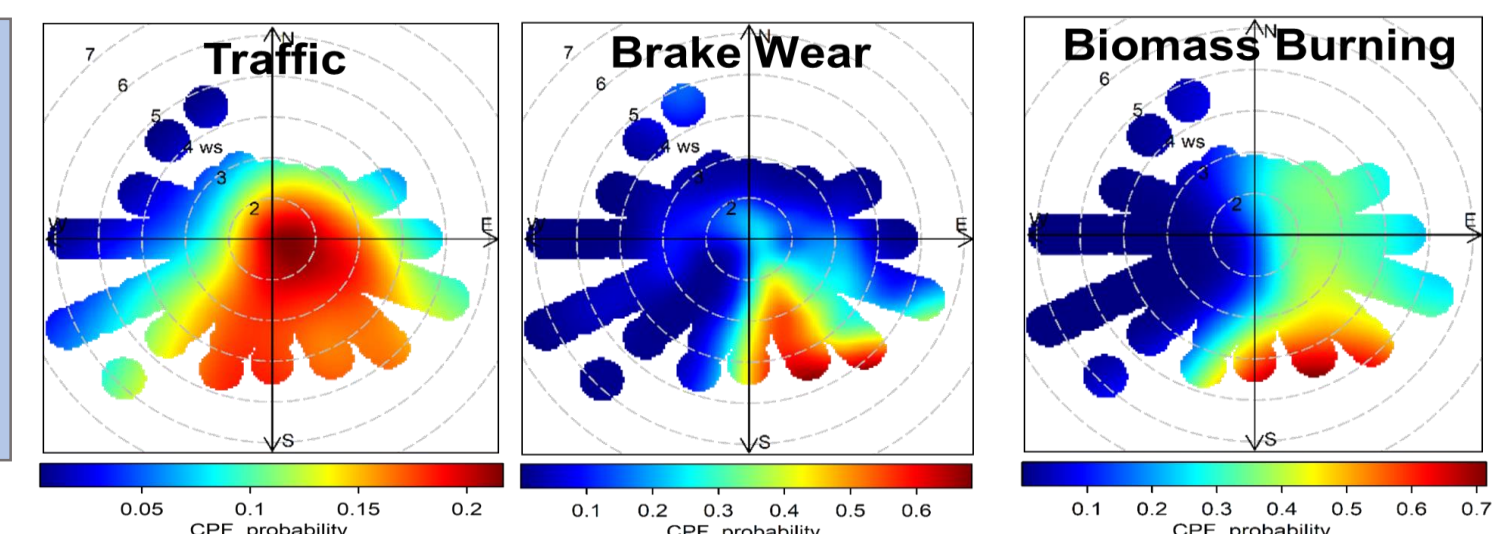
**Bottom Figure:** Weekday (WD) and weekend (WE) profile of PM and black carbon



**Left Figure:** Monthly chemical profile of PM<sub>2.5</sub> at MO UB



**Right Figure:** Sources of identified at MO UB using PMF and CPF



## ACKNOWLEDGEMENTS

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