

# 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



Ateneo de Manila University

Grace B. Betito<sup>1,2\*</sup>, M.O.L. Cambaliza<sup>1,2</sup>, M.T. Cruz<sup>2</sup>, P.C.B. Pabroa<sup>3</sup>, G.C. Catipay<sup>1</sup>, M.R. Hilario<sup>1</sup>, G.R.H. Lorenzo<sup>2</sup>, and J.B.B. Simpás<sup>1,2</sup>

<sup>1</sup>Department of Physics, Ateneo de Manila University, Philippine, <sup>2</sup>Manila Observatory, Ateneo de Manila University Campus, Philippines <sup>3</sup>Department of Science and Technology - Philippine Nuclear Research Institute (DOST-PNRI), Philippines



Manila Observatory

gbetito@observatory.ph

## 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

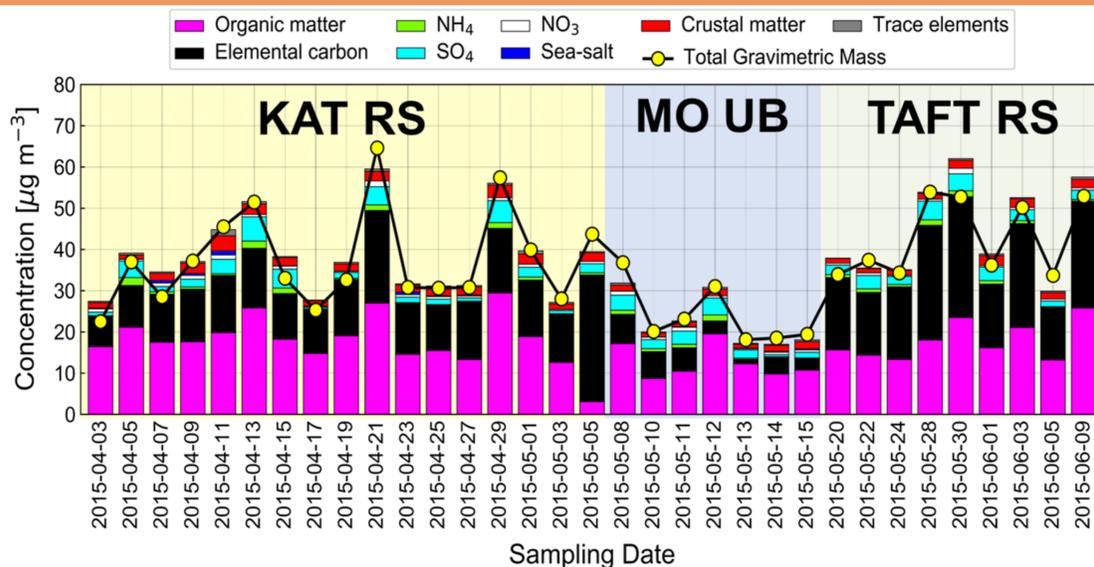
- ADMU-Katipunan Avenue roadside, “KAT RS”
- Manila Observatory urban background, “MO UB”
- DLSU-Taft Avenue, “TAFT RS”

### 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

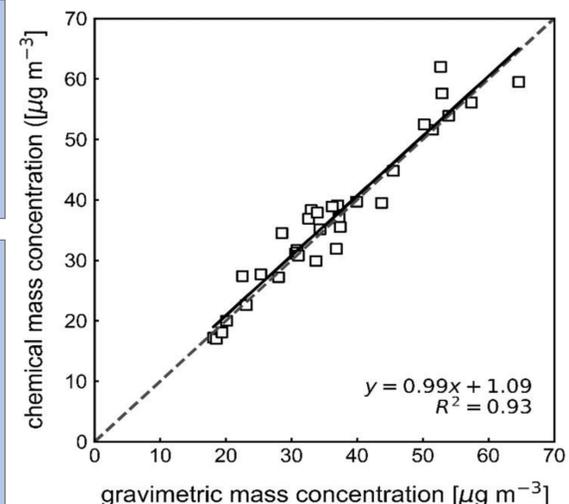
## RESULTS

### SHORT-TERM

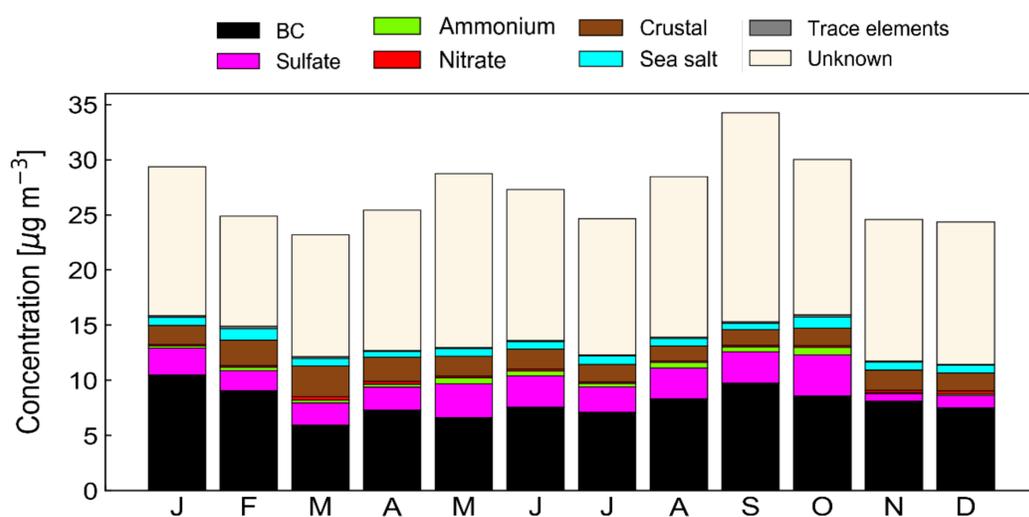


**Left Figure:** Mass closure of PM<sub>2.5</sub> at three key sites in Metro Manila, Philippines

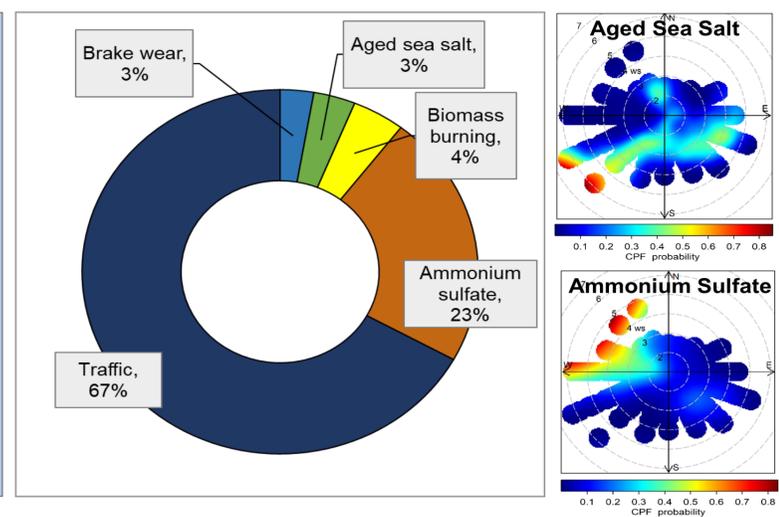
**Right Figure:** Linear regression analysis between the gravimetric and the chemically-derived PM<sub>2.5</sub> mass



### LONG-TERM

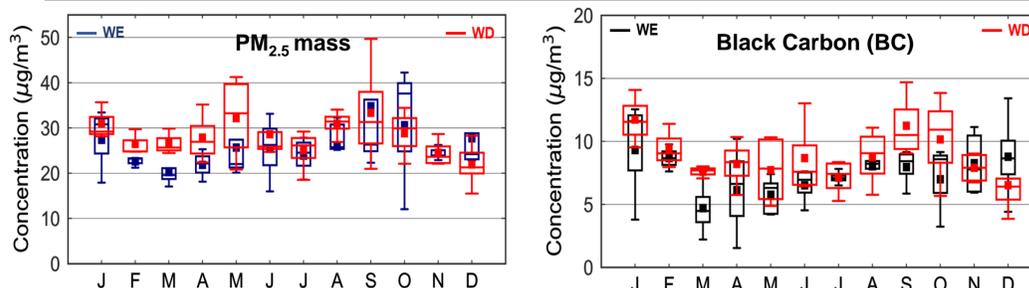


**Left Figure:** Monthly chemical profile of PM<sub>2.5</sub> at MO UB



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

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



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