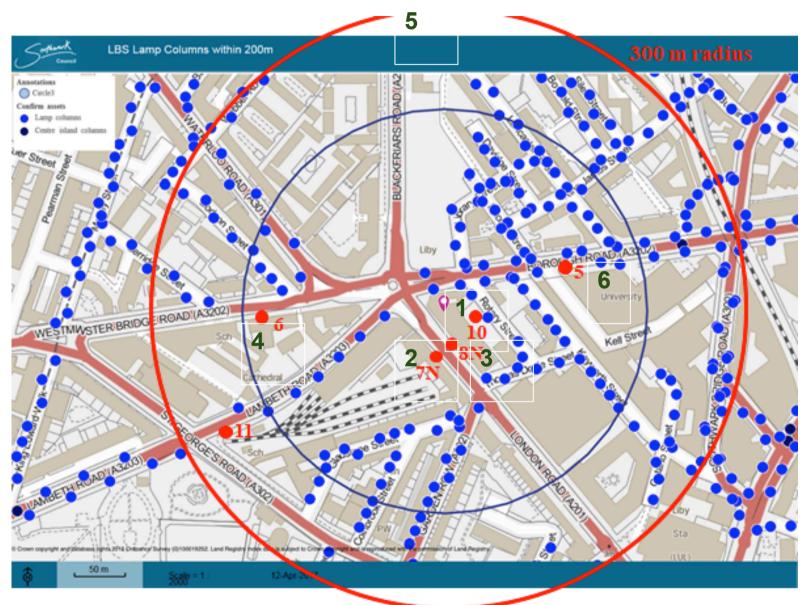# Airlabs

Clean Air for Cities

March 2018

MAGIC
PM Monitoring Network at LSBU

Matthew Johnson
Reza Ansari
Philip Cunningham

Airlabs

Sensor location

Sensor installation

Installation date: 18th of September
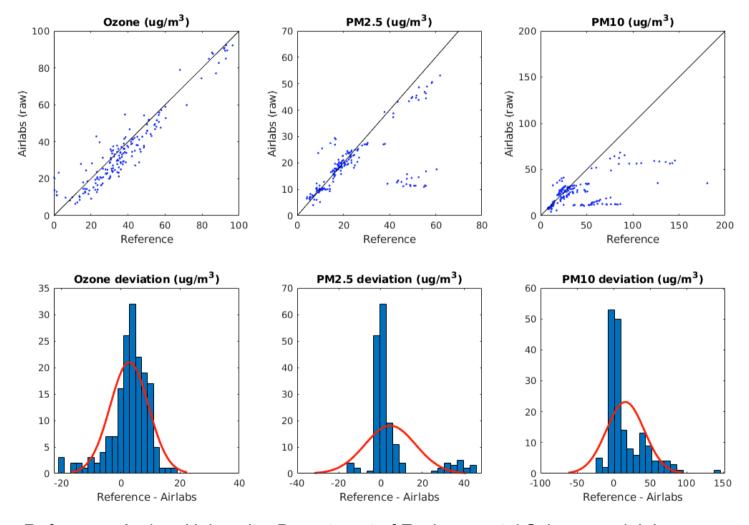Battery charging data: 29th of September (Day 272)

Sensors recorded: Temperature, RH, P, PM1, PM2.5, PM10 (ug/m^3)
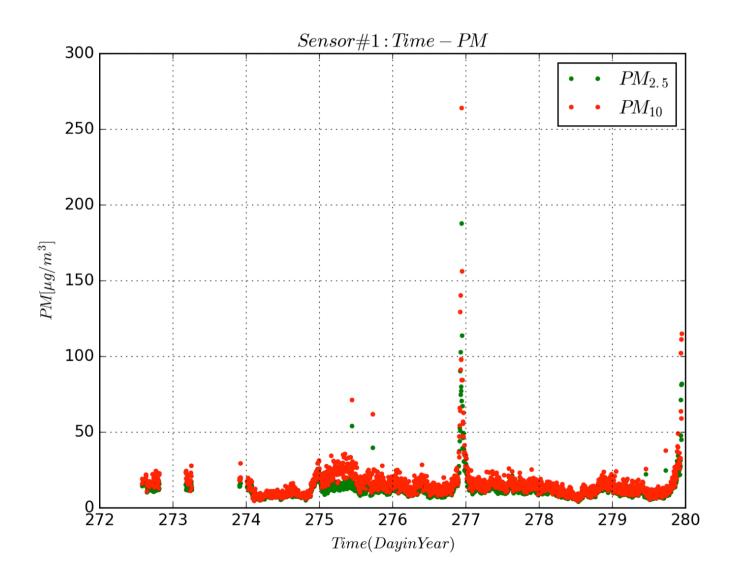
Sensor validation

Reference: Aarhus University, Department of Environmental Science and Johan Schmidt, Airlabs. Reference data part of official Danish AQ monitoring campaign.

AL-PM-A3 sensor

The AL-PM-A3 is a laser scattering PM sensor that provides information on particle concentration in 6 size distributions between 0.3 μm and >10 μm. The sensor is calibrated by Airlabs.
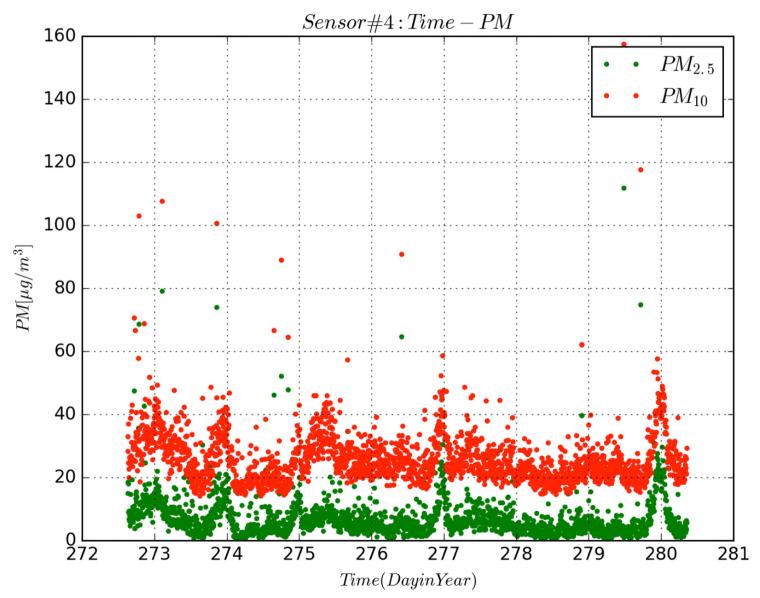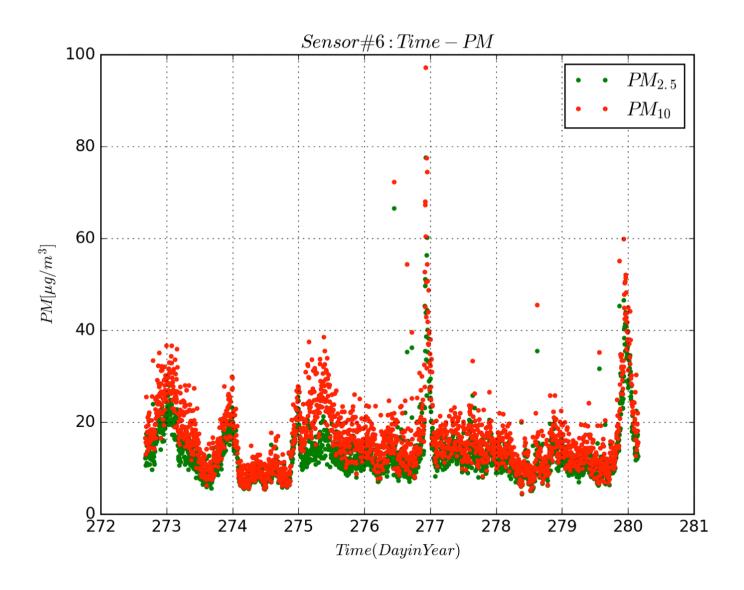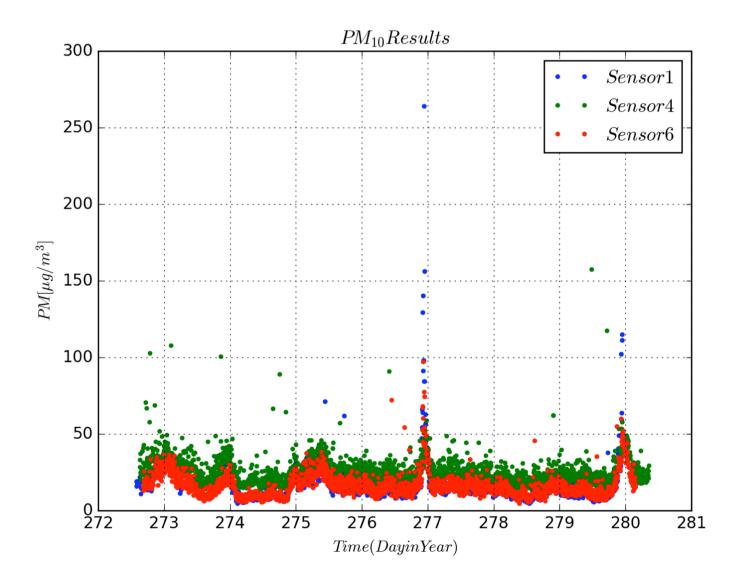
Results: Sensor 1, PM Data

Results: Sensor 4, PM Data
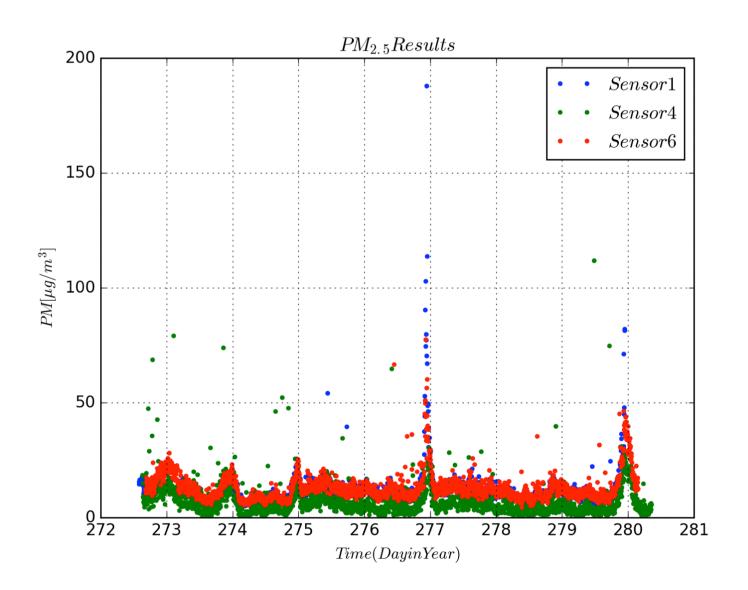

Sensor#4 : Time − PM

Results: Sensor 6, PM Data

Results: Comparing PM10 for the three sensors
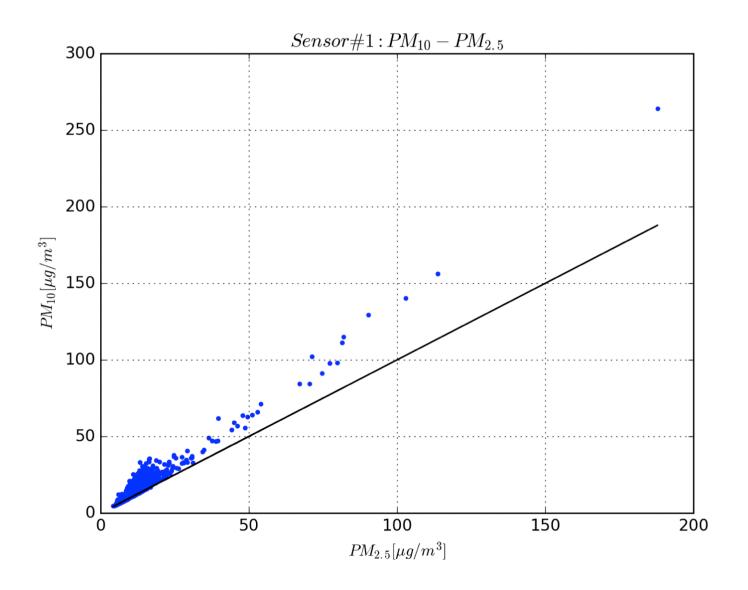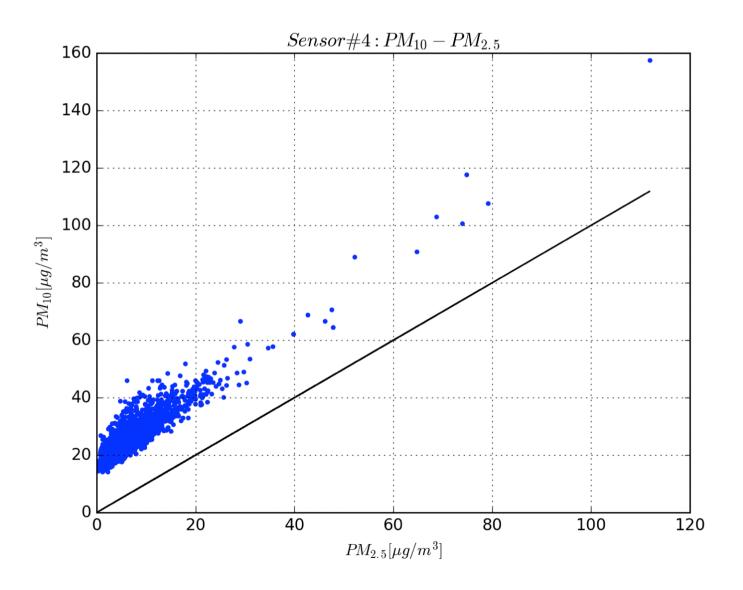
Results: Comparing PM2.5 for the three sensors
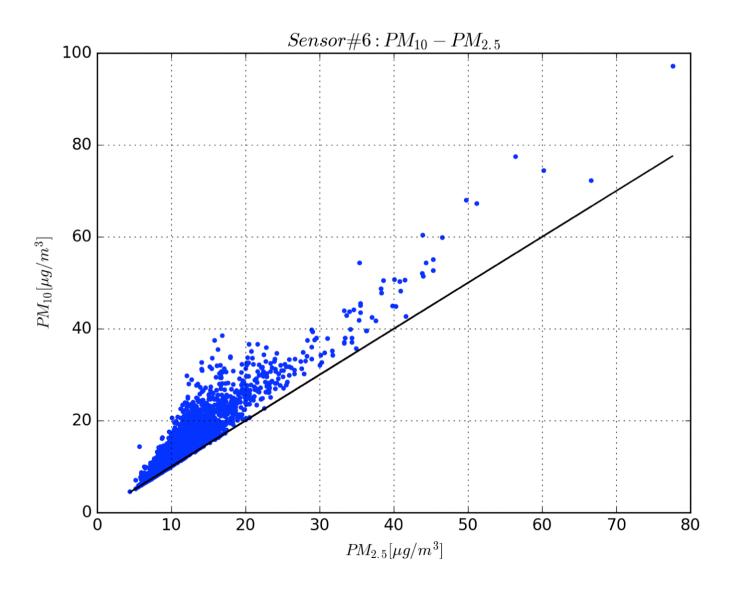
PM 10 vs. PM 2.5 correlation: Sensor 1

PM 10 vs. PM 2.5 correlation: Sensor 4

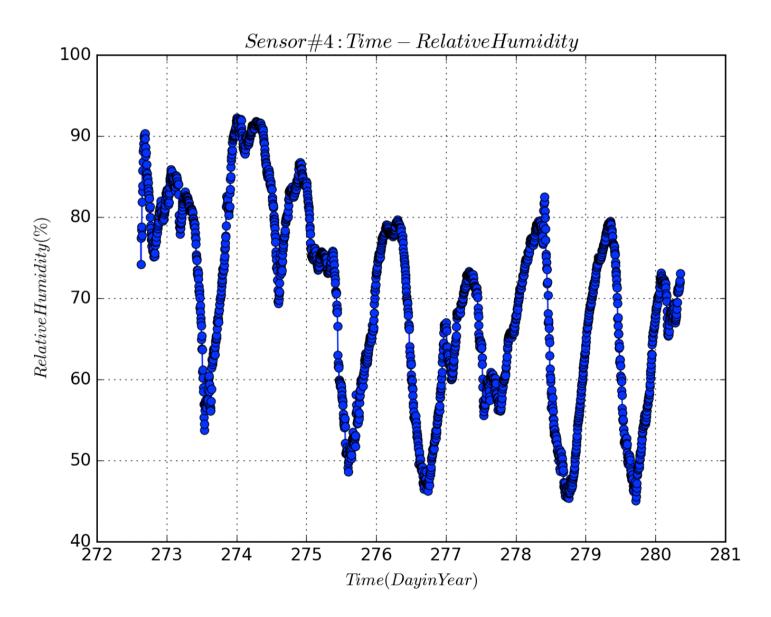# PM 10 vs. PM 2.5 correlation: Sensor 6

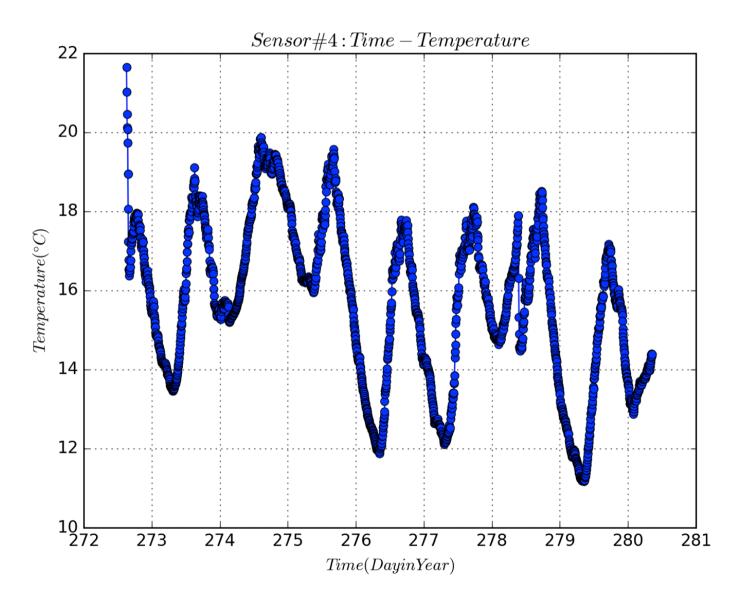$Sensor\#6 : PM_{10} - PM_{2.5}$

Results: Relative humidity

Results: Temperature

Sensor#4 : Time − Temperature
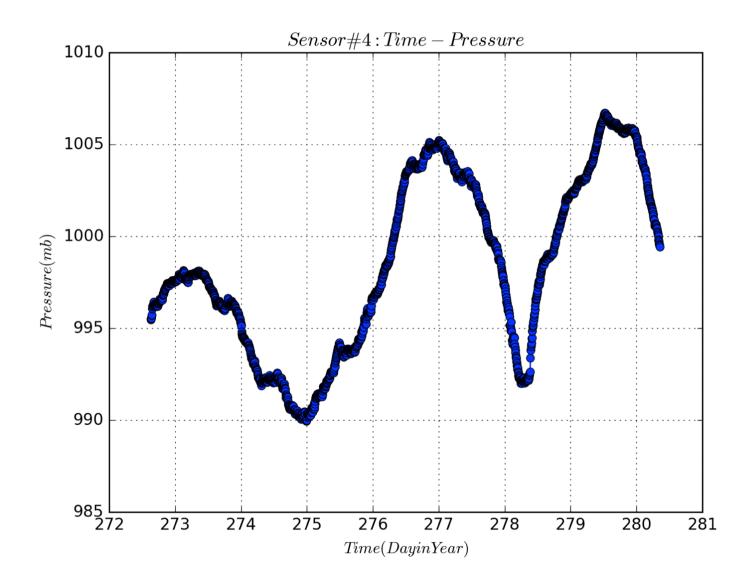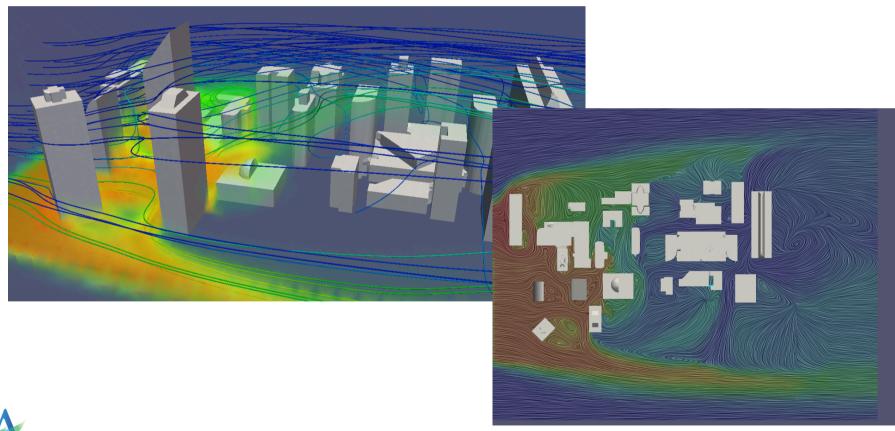
Results: Pressure

Conclusions:

-First field test of battery-driven network of sensors

-Power was not continuous and data records have gaps

-Time resolution of 5 minutes used to conserve power.

-Resolution of <10 s can be achieved

Future research directions:

-Modelling pollutant transport in urban environments

-OpenFOAM v5.0, simpleFoam, k-epsilon turbulence

We clean the air you breathe

Personal Space

Buildings

City Streets & Open Spaces

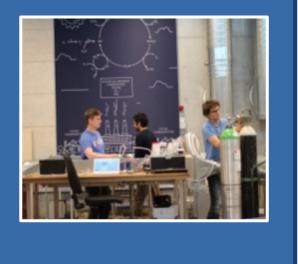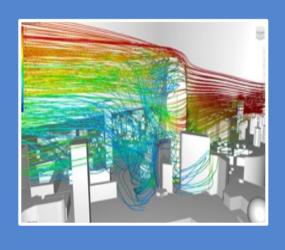# A Unique Science and Technology Company

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