

Introduction

Under the framework of Research Project named: “An Interdisciplinary Study toward Clean Air, Public Health and Sustainable Agriculture: The Case of Crop Residue Burning in North India” (hereafter “Aakash”) promoted by Research Institute for Humanity and Nature, air pollutant observation campaign was held over northwestern India including Delhi NCR, from September to November 2022. ([Singh et al, 2023](#)) This dataset consists of daily mean concentration of PM_{2.5}, daily mean temperature & relative humidity obtained during the campaign.

Data Processing**1 Time correction**

Observation time is referenced to the Real Time Clock of the Raspberry Pi. If the RTC time is not accurate, the observation time is corrected by using the GPS time, if available. Neither RTC of Raspberry Pi nor GPS time is available, the sensor data is not used.

2 Screening of PM2.5 sensor data

If the measurement is suspended for more than 4 minutes (mainly due to power shortage), data from the first 5 minutes after resumption is not used.

3 Daily average

3.1 Observation value is recorded in the interval indicated in the data file. After the time correction and screening the data, daily average is calculated.

3.2 "Date" indicates the end-of-day in IST. Data of 2022/09/01 0:00 indicates average over 2022/08/31 0:00:01 - 2022/09/01 0:00:00

3.3 Daily average is calculated if more than 50% of data is valid.

3.4 The number “-99999” indicates that the data is missing.

Caution

PM2.5 mass concentrations are potentially overestimated due to hygroscopic growth when RH in the box were >70%.

(Nakayama et al. 2018, <https://doi.org/10.1080/02786826.2017.1375078>).

Data Citation:

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Data format of Daily averaged data :

Date	Date	interval	temperature	temperature	temperature	humidity	humidity	Humidity	pm2.5	pm2.5	pm2.5
	UTC	sec	mean	Std	N	mean	std	N	mean	std	N

date:	Local time (IST)
date UTC:	UTC time
interval sec:	observation time intervals (seconds)
temperature mean:	mean value of temperature(°C)
temperature std:	standard deviation of temperature
temperature N:	number of data used for average
humidity mean:	mean value of humidity(%)
humidity std:	standard deviation of humidity
humidity N:	number of data used for average
pm2.5 mean:	mean value of PM2.5($\mu\text{g}/\text{m}^3$)
pm2.5 std:	standard deviation of PM2.5
pm2.5 N:	number of data used for average

■ Filename convention:

“CUPIG_Site01_PM26.csv”

Mission name, always “CUPIG”

Site No., “Site”nn ; n indicates 2 character grid number.

Instruments No., “PM”mm ; mm indicates instruments number.

* The file “CUPIG_Locations.pdf” is a list of site locations with instrument numbers.

CUPI-G Datasets are available at <https://aakash-rihn.org/en/data-set>

About Aakash project: <https://aakash-rihn.org/en/>

RIHN homepage: <https://www.chikyu.ac.jp/en>