

Workshop on Positive Matrix Factorization

22-24 August 2019

Session	Title	Time	Speaker / Coordinator
Day 1: August 22, 2019			
1	Registration	9:00 – 9:15	MP
2	A. Introduction to SA- physical basis, why SA makes sense	9:30 – 11:00	CV, RSR
	B. Species for SA, Species we are measuring/analytical instruments and why (including PM _{2.5}) <i>a. Getting fine particulate matter (<2.5µm) concentration.</i> <i>b. List of species and instruments generating its values.</i>		RSR
3	Data generation and uncertainty propagation for different instruments <i>a. Preparation of dataset and data integrity check.</i> <i>b. Importance of uncertainty in PMF analysis.</i> <i>c. Empirical formula for uncertainty propagation (may be a hands on determining uncertainty for one of the instruments).</i>	11:30 – 13:00	RSR
4	LUNCH at Padma Vihar Guest House	13:00 – 14:30	PK
5	Lecture on basics of receptor models and source apportionment models <i>Introduction of what is receptor models and why are they used?</i> <i>a. A short review of different receptor models that are used (other than PMF).</i> <i>b. Introduction of Positive Matrix Factorization and features.</i> <i>c. Mathematical basics of PMF.</i>	14:30 – 16:00	RSR, MB
6	Hands-on session 1: On the use of PMF manual as discussed in PMF Manual V1. Discussions on the following points will be done <i>a. Data pre-processing for use in EPA-PMF V5.0 including handling of missing data and below detection limit data.</i> <i>b. Tagging the species as bad, weak and strong based on the signal-to-noise ratio.</i> <i>c. Understanding the different preprocessing tools in EPA-PMF v5.0 software.</i> <i>d. Get base run results.</i>	16:30 – 18:30	NL, PM, AB, PN

Session No.	Title	Time	Speaker / Coordinator
Day 2: August 23, 2019			
7	Base run result interpretation <i>a. Unrotated results interpretation.</i> <i>b. Rotation of factors: DISP method, basic mathematical understanding and running it based on certain parameters.</i> <i>c. Adding constraints to improve PMF output.</i>	9:00 – 10:30	MB, NL, PM
8	Error estimation of PMF output <i>a. Bootstrap method, basic mathematical understanding and running it based on certain parameters.</i> <i>b. BS-DISP method with basic mathematical understanding and running it based on certain parameters.</i>	11:00 – 12:30	MB, NL, PM
9	LUNCH at Padma Vihar Guest House	13:00 – 14:30	PK
10	Hands-on Session 2 <i>Use of openair library in R which discuss different methods like CBPF, PSCF and other plotting tools with hands on tutorials.</i>	14:30 – 18:00	NL, PM
Day 3: August 24, 2019			
11	Informative Session <i>Role of molecular marker, trace elements and other identifier species in factor identification.</i>	9:00 – 10:00	HP
12	Interactive Session <i>Presentation by students.</i>	10:30 – 13:00	NL, PM
13	LUNCH at Padma Vihar Guest House	13:00 – 14:30	PK

Abbreviations:

RSR: Ramya Sunder Raman

HP: Harish Phuleria

MB: Mani Bhushan

CV: Chandra Venkataraman

NL: Nirav Lakinwala

PM: Pooja Manwani

AB: Ankur Bharadwaj

PN: Priyabrata Nandi

MP: Manu Phuleria

PK: Priyanka Khot