

The authors report a study that performed source apportionment of daily PM₁₀ chemical speciation data during 2015–2023 at an urban site (NICTRA) and a rural background site (AMX) in Cyprus in the Eastern Mediterranean and the Middle East region. First, the study found particulate matters levels remained higher than the European Union standard over 2015–2023 based on trend analysis. Second, the study conducted a source apportionment analysis using a positive matrix factorization (PMF) model and identified local and regional for both sites. Among PMF-resolved sources at the urban site, traffic-related emissions decreased, while biomass burning and road dust increased over 2015–2023. Overall, the data are substantial, the method is validated, and the findings are compelling and timely. However, some issues need to be addressed before considering publication in the journal *Atmospheric Chemistry and Physics*. My specific comments are as follows:

Major comments:

1. Insufficient methodological details for PMF. Please provide the rationale for selecting the seven-factor solution for the NICTRA site and six-factor solution for the AMX site as the optimal source factors (Line 262). Specifically, it would be beneficial to include information on the performance of the final PMF solution, including changes in Q value and uncertainty error estimation results such as bootstrapping (BS) and displacement (DISP), if the study used EPA PMF 5.0 software.
2. Missing statistical analysis. Please provide statistical analysis details for the calculation of de-seasonalized monthly average, and for performing non-parametric Mann–kendall test and Sen’s slope.
3. Line 152: Please justify the arriving height of 350 m above ground level as the input for running the FLEXPART model at the AMX site, given the AMX is located 532 m above sea level.
4. PMF source assignment issue. For the long-range air mass transport (LRT) source factor, give the high abundance of NH₄⁺ and SO₄²⁻, this factor should be the secondary sulfate instead.
5. Please consider generating a map showing the air masses back trajectory clusters.
6. Lines 117, 411, and 419: Please clarify the meaning of nss-Ca²⁺, nss-K⁺, and nss-SO₄²⁻. Please provide details on how these chemical compositions were determined and quantified.
7. The level of significance in non-parametric Mann-Kendall test. What *p* value does this study consider significant for the Mann-Kendall test? In the Table 1 caption, *p* value > 0.1 was considered as not significant. and *p* value < 0.05 was consider as significant, what about the *p* value range of 0.05–0.1?
8. The study does not provide sufficient discussion on the PMF-resolved PM sources. It would be beneficial to compare the results against existing literature or to evaluate the differences in PM source profiles if the authors consider the manuscript as a research article.

Minor comments:

1. Line 68: Please provide reference(s) for the European Union Air Quality Directive.

2. Line 100: Please spell out the chemical formulas for MSA and KOH upon their first occurrence.
3. Line 114: Please define the abbreviation OM.
4. Line 139: Please clarify the meaning of \bar{X}_j . Please double-check the definition of method detection limit, Was the method detection limit determined by three times of the standard deviation above the concentration of blank samples?
5. Line 151: Please specify that NCAR is in the United States.
6. Line 192: Please define the abbreviation dust-AOD.
7. Line 195: The word “concomitant” should be corrected as “consistent”.
8. Lines 129–130: Ranges need an en dash and no spaces between start and end (e.g., 2015–2023).
9. Lines 285–288: Please provide reference(s) for Cl^- depletion.
10. Figures S2 and S10. Please clarify the meaning of the dotted lines in the figure captions.