



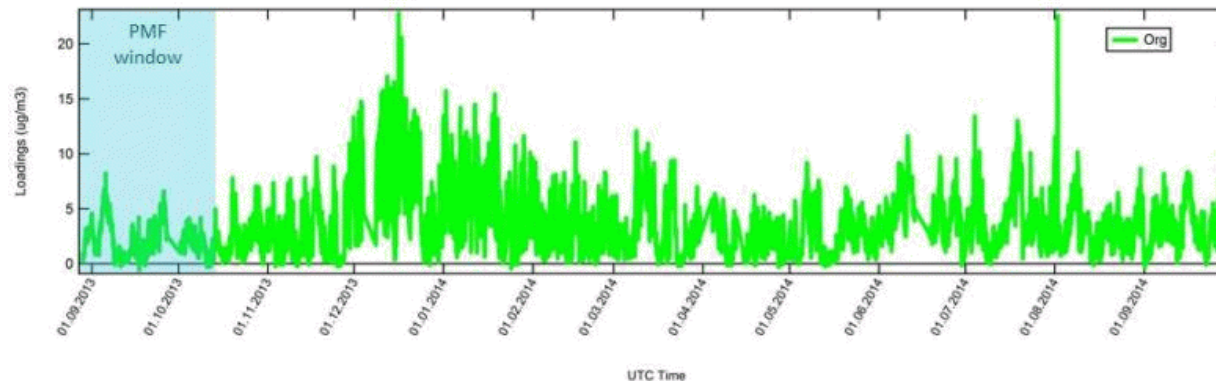
Jay Slowik, Paul Scherrer Institute (PSI), Switzerland

# ROLLING AND REAL-TIME SOURCE APPORTIONMENT



## Rolling algorithm

- Rolling PMF algorithm accounts for seasonal and/or meteorological variations in OA sources
- PMF algorithm is run repeatedly on a short subset of data for a defined period
  - Assumption of known sources/factors
  - Assumption of constant source emission profiles during the subset of data (PMF window)
  - After each shift the PMF runs are reinitialized (seed,  $a$ -value,  $f_{\text{peak}}$ , bootstrap, etc.)
- PMF window is subsequently shifted by defined period
- Finally all PMF runs are criteria-sorted and validated by the user



(Parworth et al. (2015),  
Canonaco et al. in prep.)

## Real-time SA algorithm

- Sources/factors involved in the rolling PMF are automatically and dynamically assessed by the algorithm
  - *A priori* information on the sources of the station can be used to initialize the algorithm
  - In addition, factors enabling/disabling is based on automated statistical pretests and specific knowledge of the sources during the PMF runs
- Rolling strategy is applied as discussed on the previous slide
- The algorithm validates the SA
  - First validation of the SA based on automated statistical tests during the RT-SA
  - Final validation based on remote inspection of trained personnel
- The source emissions and profiles can be accessed remotely and inspected in real-time by the personnel

*Canonaco et al. in prep.*