

Intercomparison of Mobility Particle Size Spectrometers

Project No.: MPSS-2019-3-8

Principal Investigator: Kay Weinhold

Home Institution: TROPOS

Participant:

Candidate: TROPOS Reference Instrument No.4
Made by: **TROPOS Homemade**
Counter (SN): 3772142501

Location of the quality assurance: TROPOS Leipzig, lab 118

Comparison period: July 04, 2019 – July 05, 2019

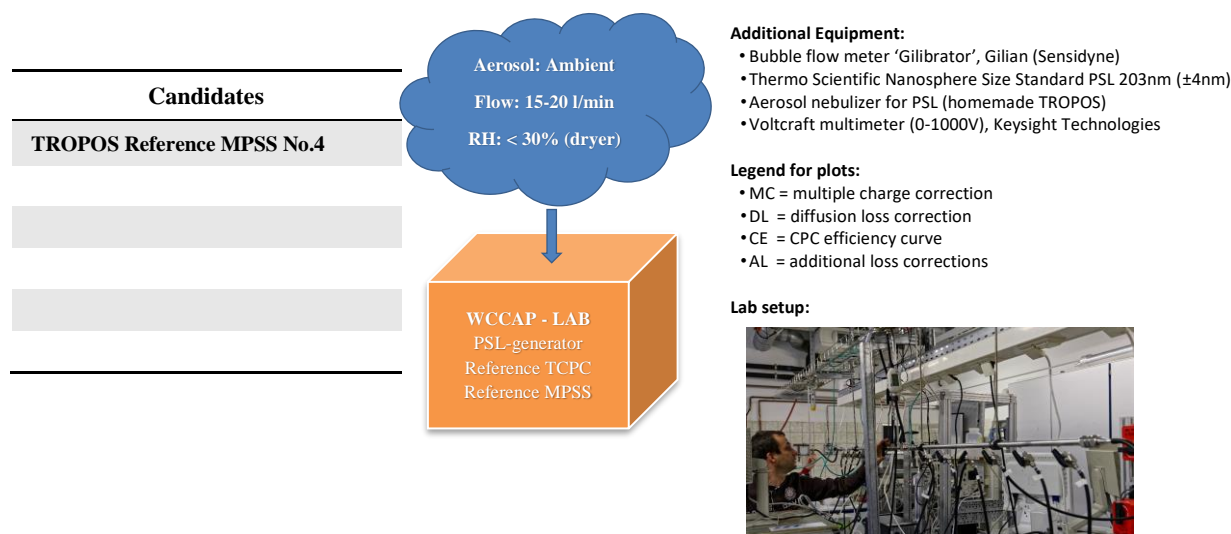
Last Intercomparison (with Project No.):

Summary of Intercomparison:

Status:

The final run took place from July 04, 2019 8 PM – July 05, 2019 6 AM. Running the candidate using the original source Kr.85 and the TROPOS Reference CPC No.4 the performance showed the same concentration as the TROPOS Reference Instrument No.1. The candidate passed the standards of ACTRIS and GAW under the conditions, using the TROPOS Reference CPC No.1.

Laboratory Setup and Legend



Times Series, Size Distribution and Correlations.

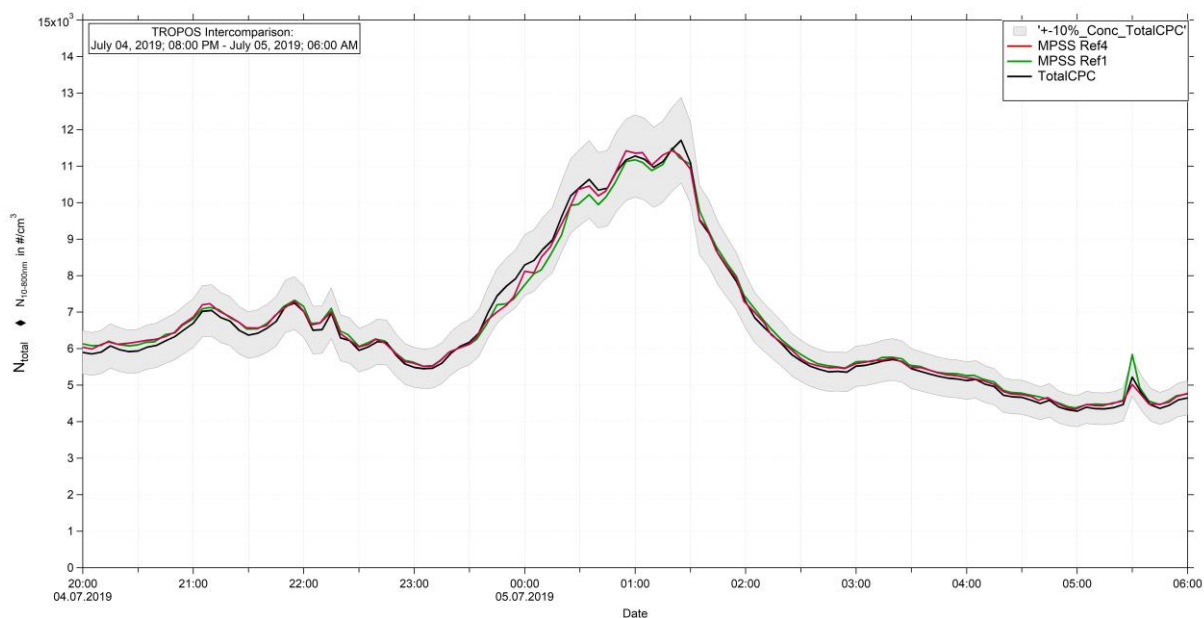


Figure 01: Time series (July 04, 2019 8 PM – July 05, 2019 6 AM) of the integrated particle number concentration ($N_{10-800nm}$) of the MPSS and total number concentration (N_{total}) of the Reference TSI-CPC Model 3010. Multiple charge correction, internal diffusion losses and CPC flow corrections are included. The candidate is running with the Kr.85 source.

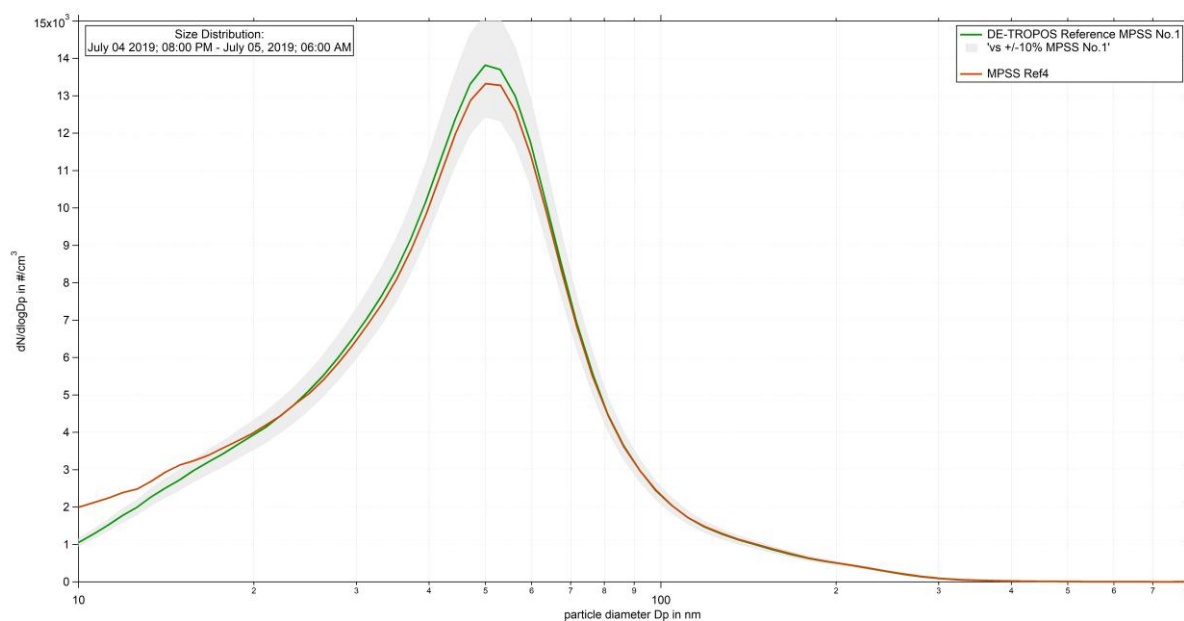


Figure 02: Comparison of mean particle number size distribution of TROPOS Reference MPSS No.1 against TROPOS-MPSS Ref4 from July 04, 2019 8 PM – July 05, 2019 6 AM. Multiple charge correction, internal diffusion losses and CPC efficiency are included.

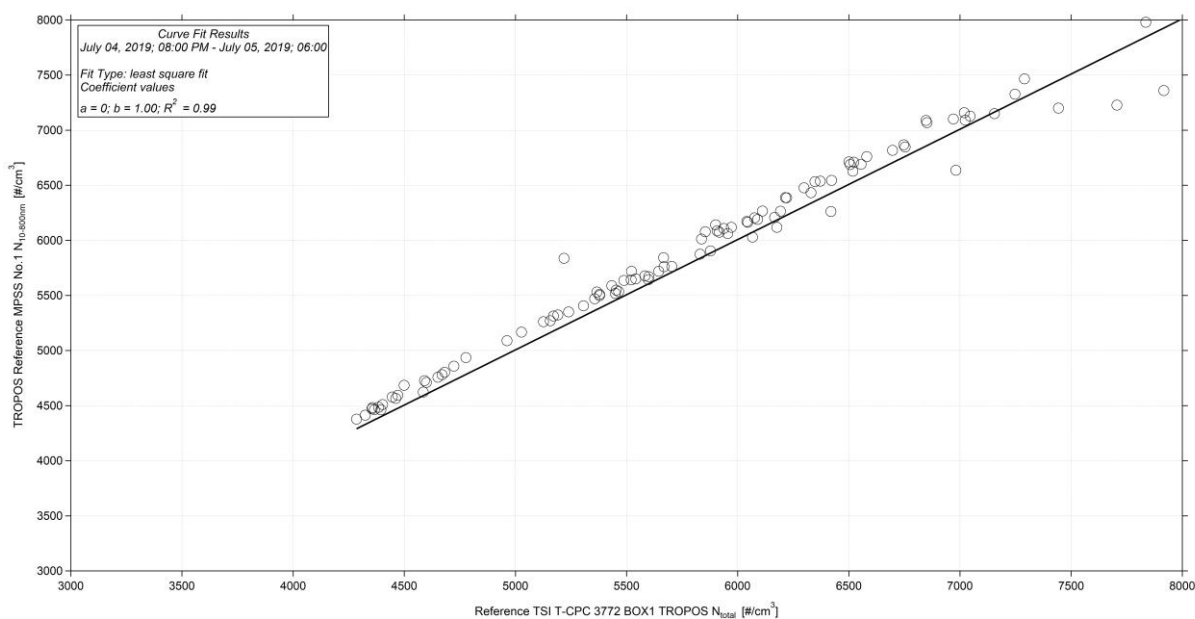


Figure 03: Linear regression between the number concentrations of the TROPOS Reference TSI T-CPC Model 3772 and TROPOS Reference MPSS No.1. Multiple charge correction, internal diffusion losses and CPC efficiency are included.

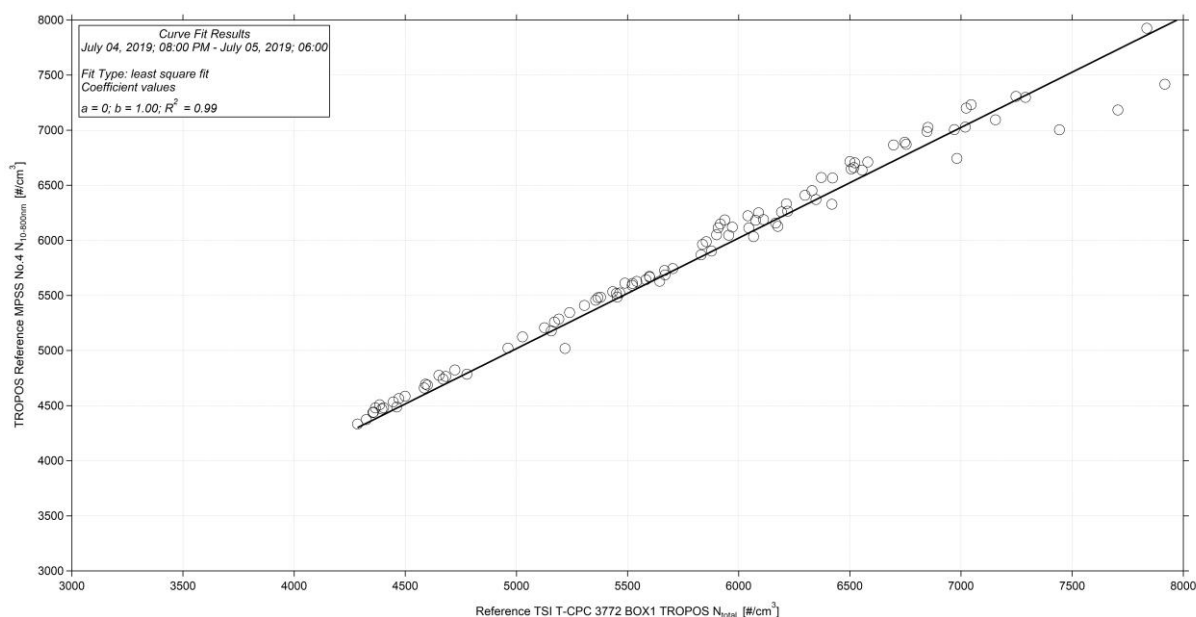


Figure 04: Linear regression between the number concentrations of the TROPOS Reference TSI T-CPC Model 3772 and TROPOS Reference MPSS No.4. Multiple charge correction, internal diffusion losses and CPC efficiency are included.

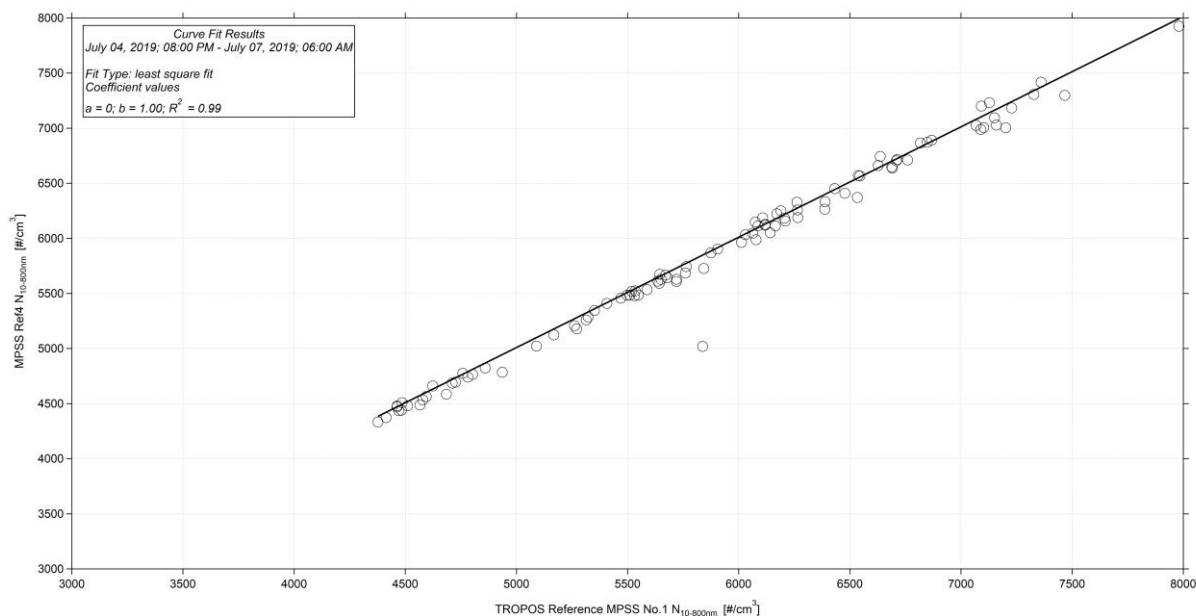


Figure 05: Linear regression between the number concentrations of the TROPOS Reference MPSS No.4 and TROPOS Reference MPSS No.1. Multiple charge correction, internal diffusion losses and CPC efficiency are included.