Intercomparison of Mobility Particle Size Spectrometers

Project No.:	*MPSS-2020-4-1*
Principal Investigator:	Dr. Harald Flentje
Home Institution:	Deutscher Wetterdienst Meteorologisches Observatorium Hohenpeißenberg
Participant:	Björn Briel
Candidate:	MPSS DWD
Made by:	TROPOS
Counter (SN):	TSI CPC 3772
Location of the quality assurance:	TROPOS Leipzig, lab 118
Comparison period:	October 26, 2020 – October 30, 2020
Last Intercomparison (with Project No.):	-

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PSL Scan: Latex 203 nm +/- 4 nm

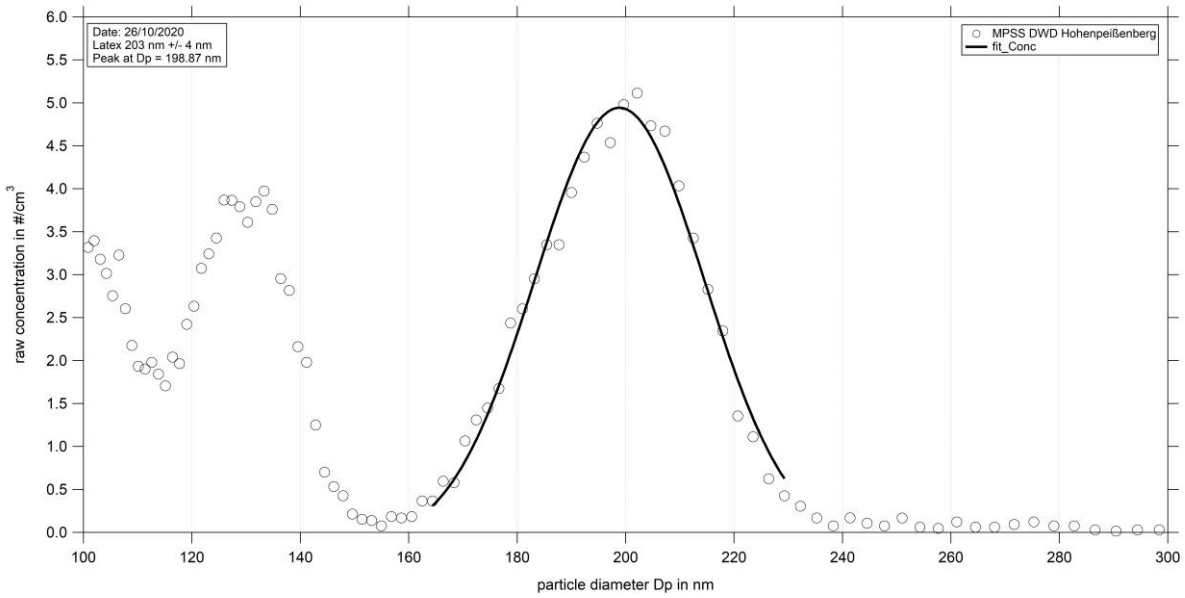

Figure 01: Measurement of latex 203 nm – MPSS DWD: Particle size distribution of latex 203 nm on October 26th, 2020. The peak shows at 201.84nm.

Intercomparison between TROPOS Reference Instrument No. 1 and MPSS DWD Hohenpeißenberg (pre-status)

26.10.2020 06:00 PM – 27.10.2020 06:00 AM

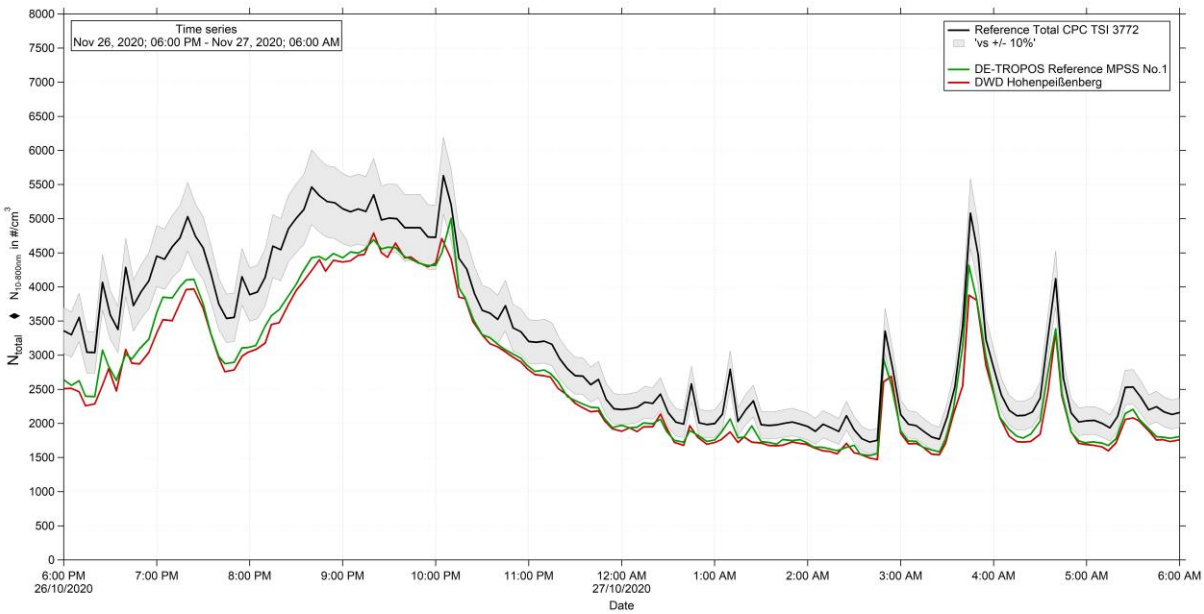

Figure 02: Time series (October 26, 2020 6 PM – October 27, 2020 6 AM) of the integrated particle number concentration ($N_{10\text{-}800nm}$) of the MPSS and total number concentration (N_{total}) of the Reference TSI-CPC Model 3772. Multiple charge correction, internal diffusion losses, CPC flow corrections. The candidate is running with a Kr.85 source.

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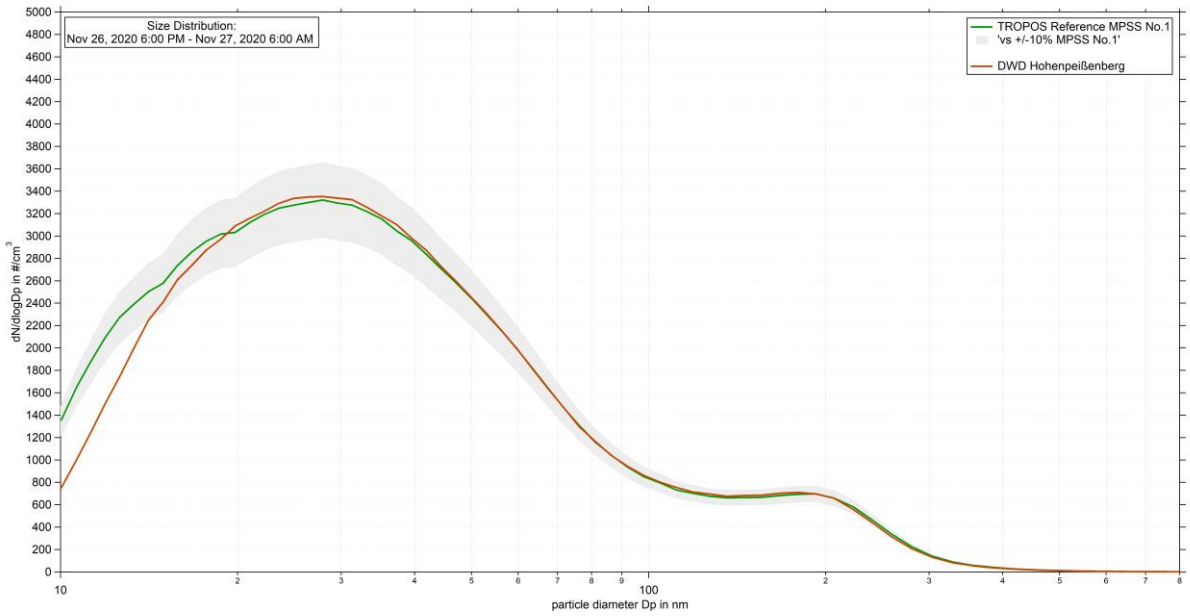

Figure 03: Particle size distribution for TROPOS Reference MPSS No.1 and MPSS Hohenpeißenberg, flow corrections, multiple charge correction and diffusion loss corrections are included.

Intercomparison between TROPOS Reference Instrument No. 1 and MPSS DWD Hohenpeißenberg (final-status)

28.10.2020 06:00 PM – 29.10.2020 06:00 AM

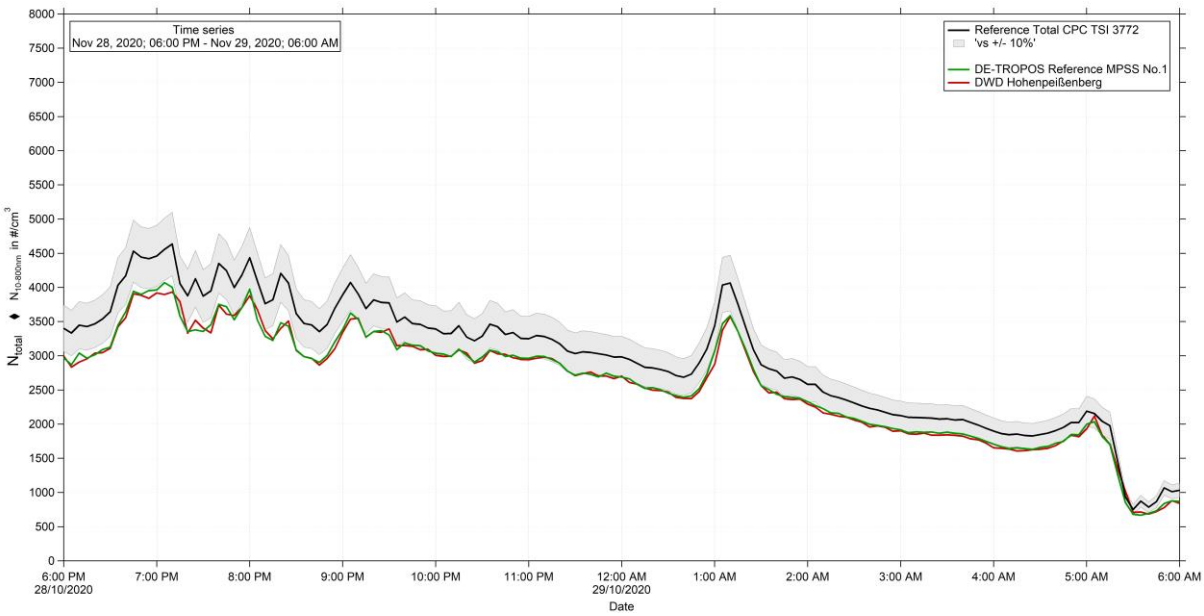

Figure 04: Time series (October 28, 2020 6 PM – October 29, 2020 6 AM) of the integrated particle number concentration ($N_{10\text{-}800nm}$) of the MPSS and total number concentration (N_{total}) of the Reference TSI-CPC Model 3772. Multiple charge correction, internal diffusion losses, CPC flow corrections. The candidate is running with a Kr.85 source.

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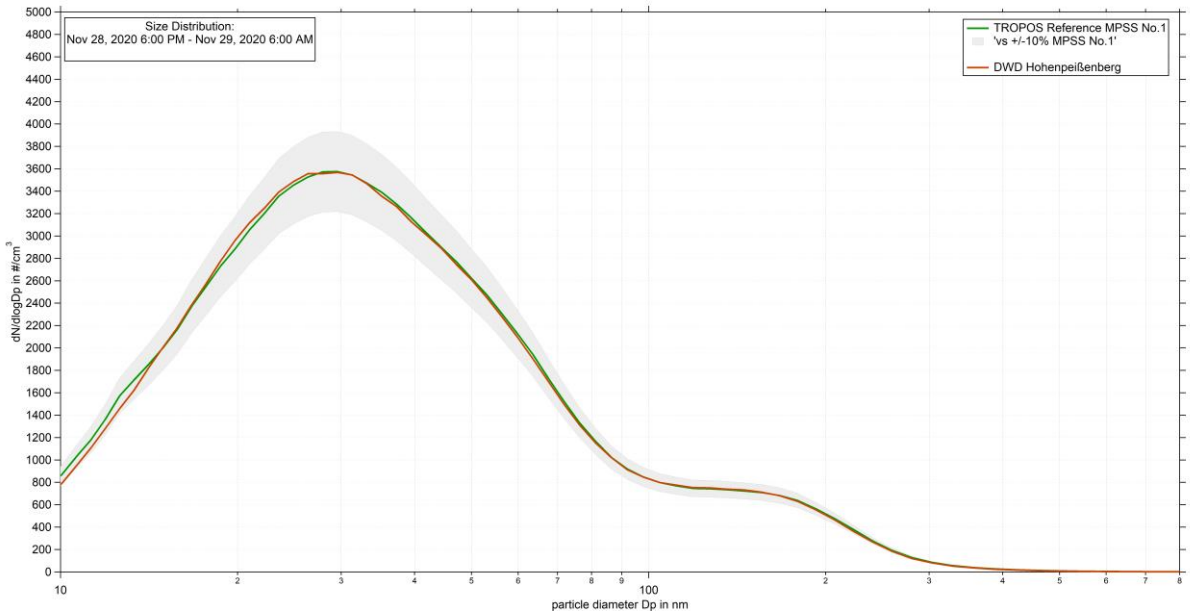

Figure 05: Particle size distribution for TROPOS Reference MPSS No.1 and MPSS Hohenpeißenberg, flow corrections, multiple charge correction and diffusion loss corrections are included.

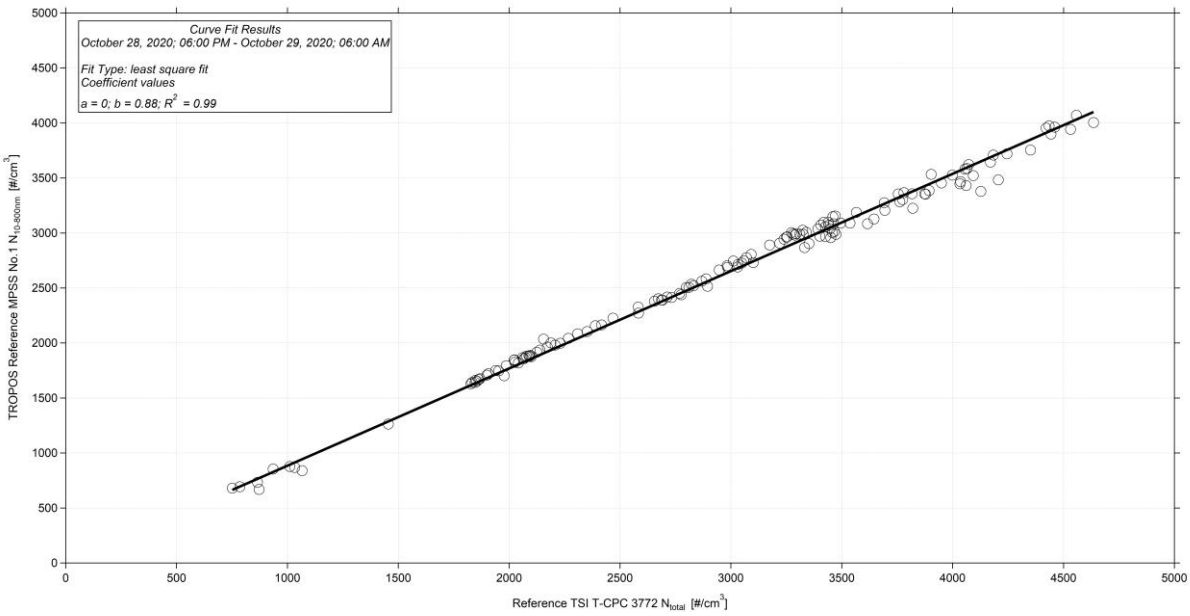

Figure 06: Linear regression between DE-TROPOS Reference T-CPC Model 3772 and DE-TROPOS Reference MPSS No.1.

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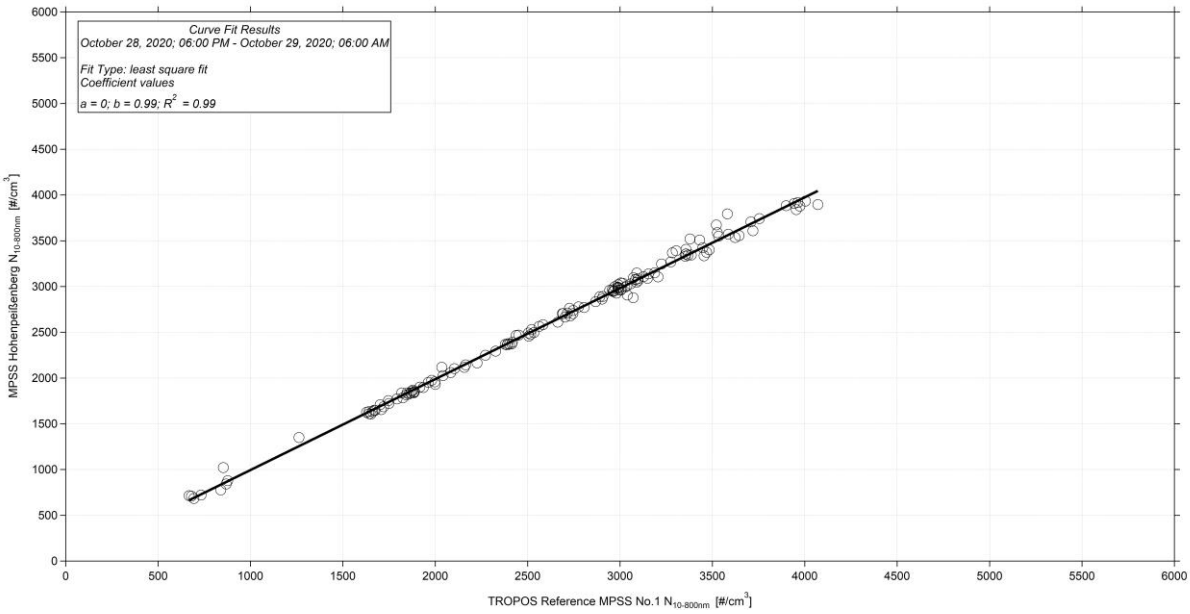

Figure 07: Linear regression between DE-TROPOS Reference MPSS No.1 and MPSS Hohenpeißenberg.

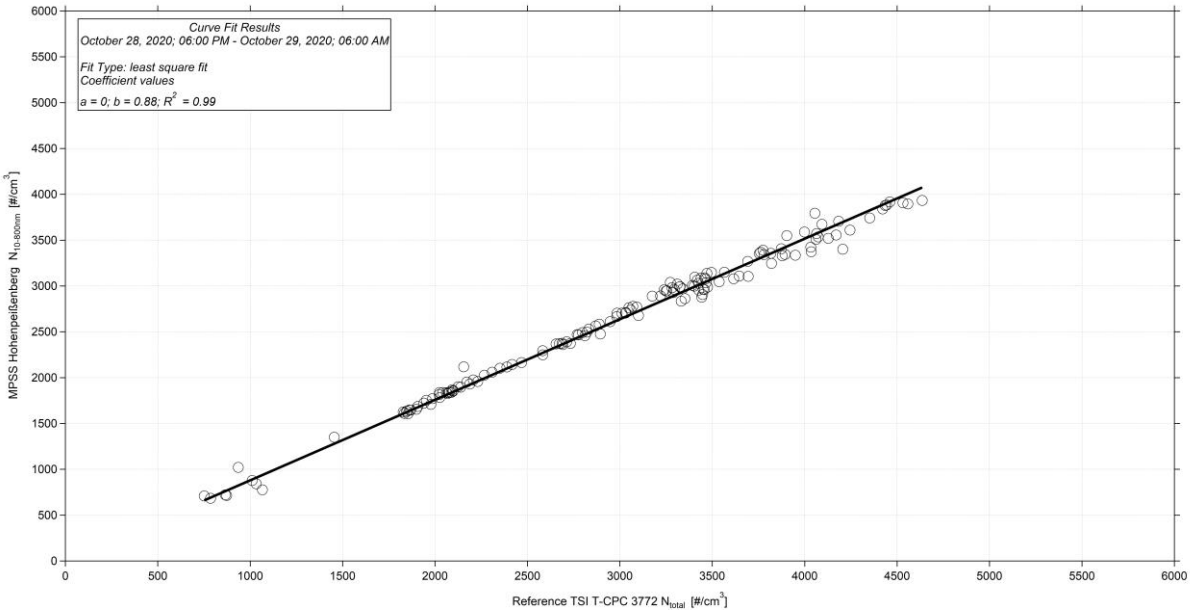

Figure 06: Linear regression between DE-TROPOS Reference T-CPC Model 3772 and MPSS Hohenpeißenberg.

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