Geoscientific
Model Development

Supplement of

Novel estimation of aerosol processes with particle size distribution measurements: a case study with the TOMAS algorithm v1.0.0

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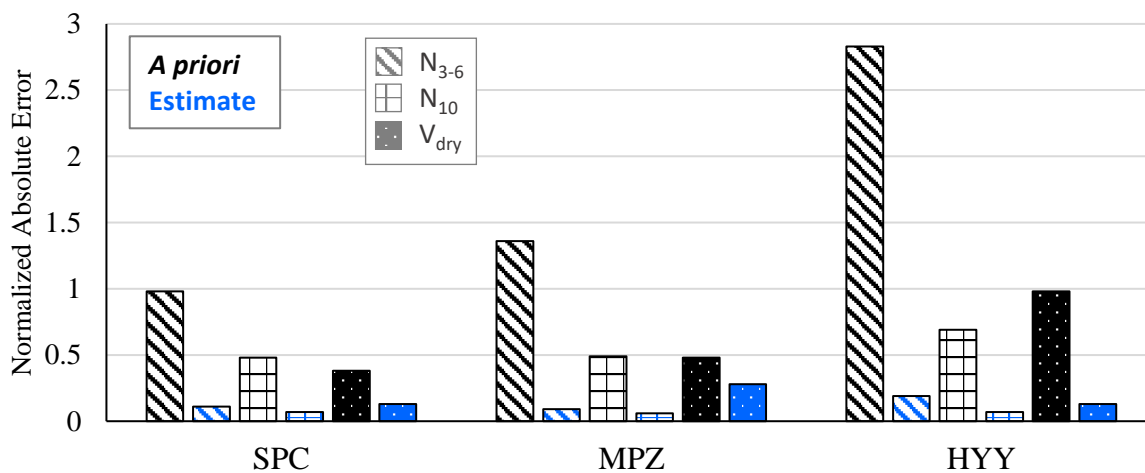*Correspondence to:* Dana L. McGuffin (dana.lynn.mcguffin@gmail.com)

Figure S1. Normalized absolute error at each measurement site with the *a priori* and estimated process rates in black and blue, respectively, for each of the inventory variables.
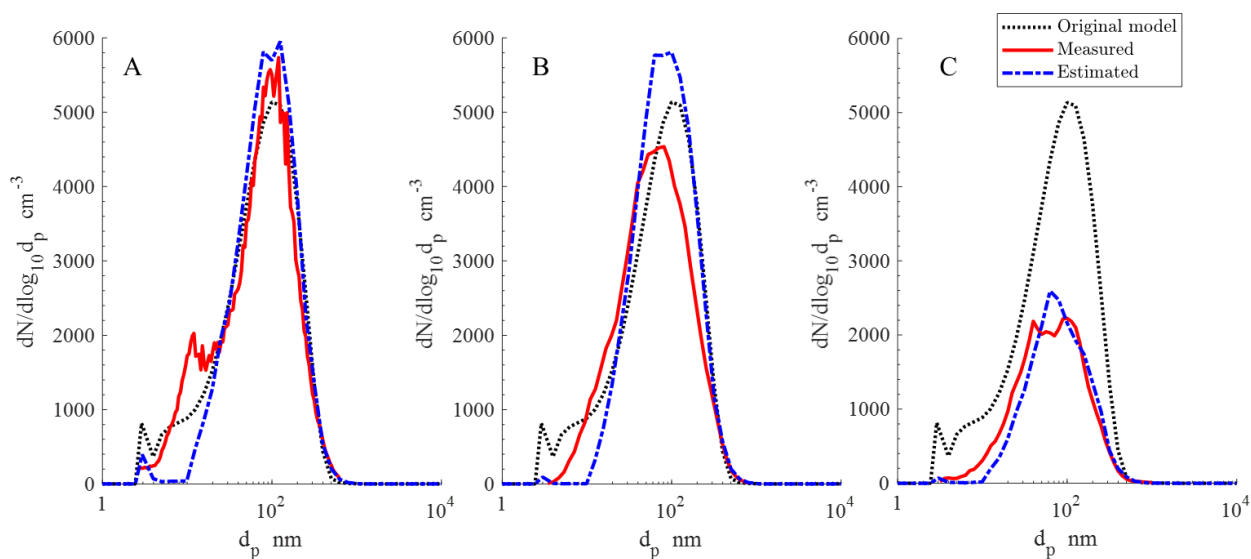

Figure S2. Median particle size distributions measured, originally predicted with *a priori* rates in TOMAS, and estimated with the inverse model are shown in the dotted red, solid black, and dashed blue profiles, respectively. Results are shown using measurements at (a) San Pietro Capofiume, (b) Melpitz, and (c) Hyytiälä.
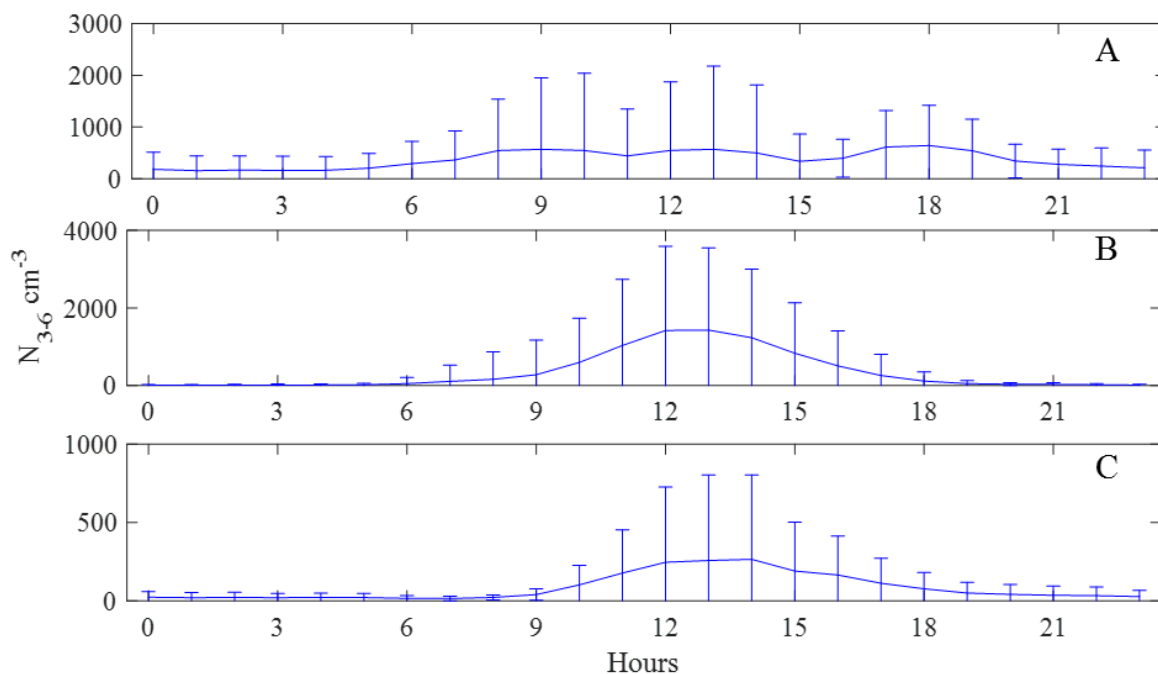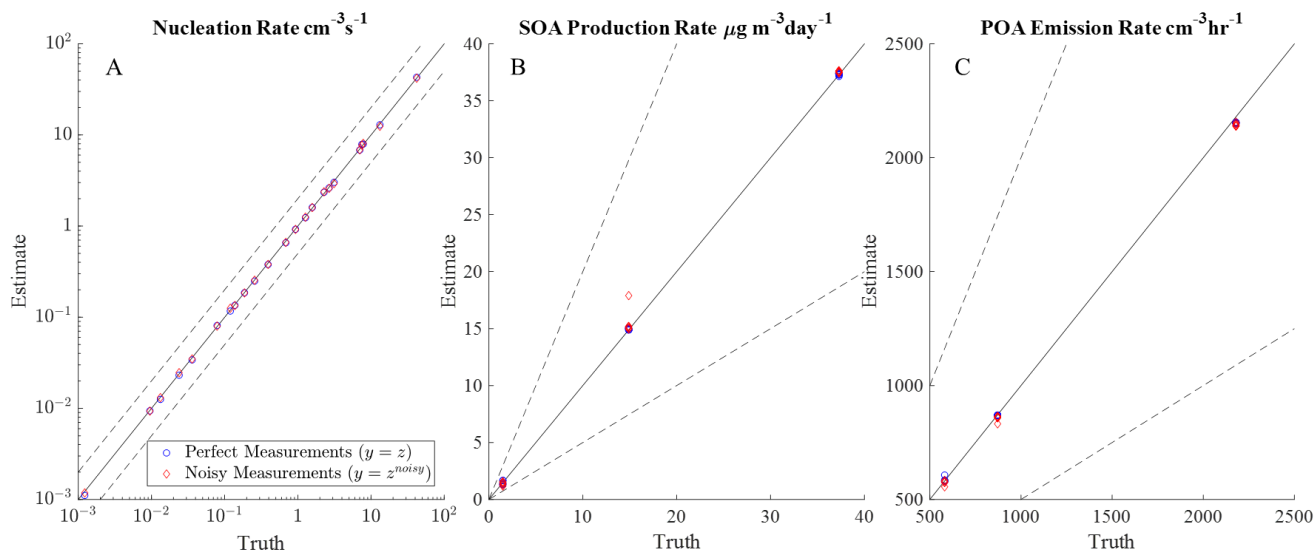
Figure S3. Average diurnal profiles of measured N_{3-6} during stagnant events at (a) San Pietro Capofiume, (b) Melpitz, (c) Hyytiälä.

Figure S4. Scatter plots of time-averaged estimated process rates in the cases with perfect and noisy measurements shown as blue circles and red diamonds, respectively.