



Quantifying wood combustion emissions with on-line methods

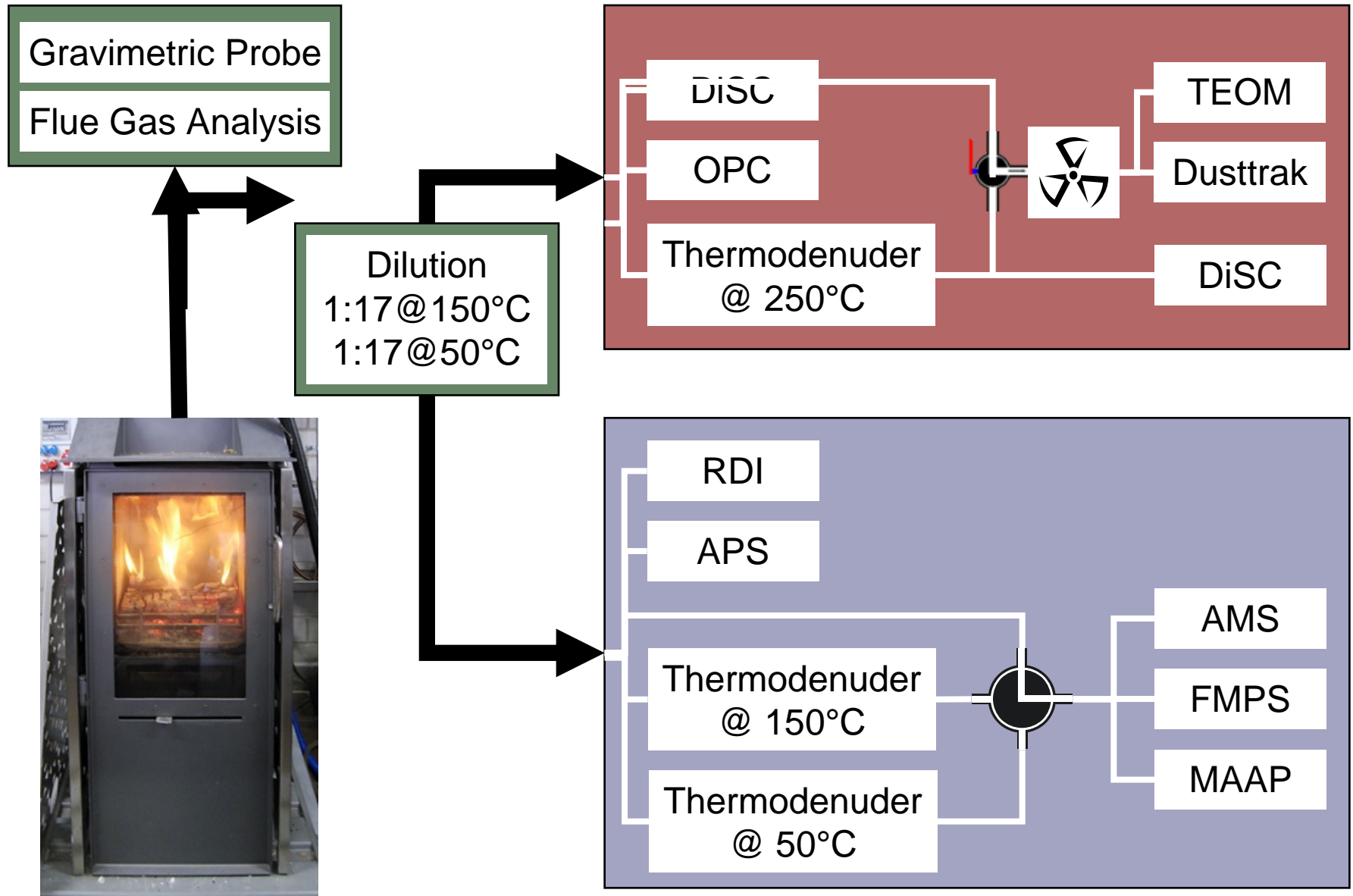
Alejandro Keller

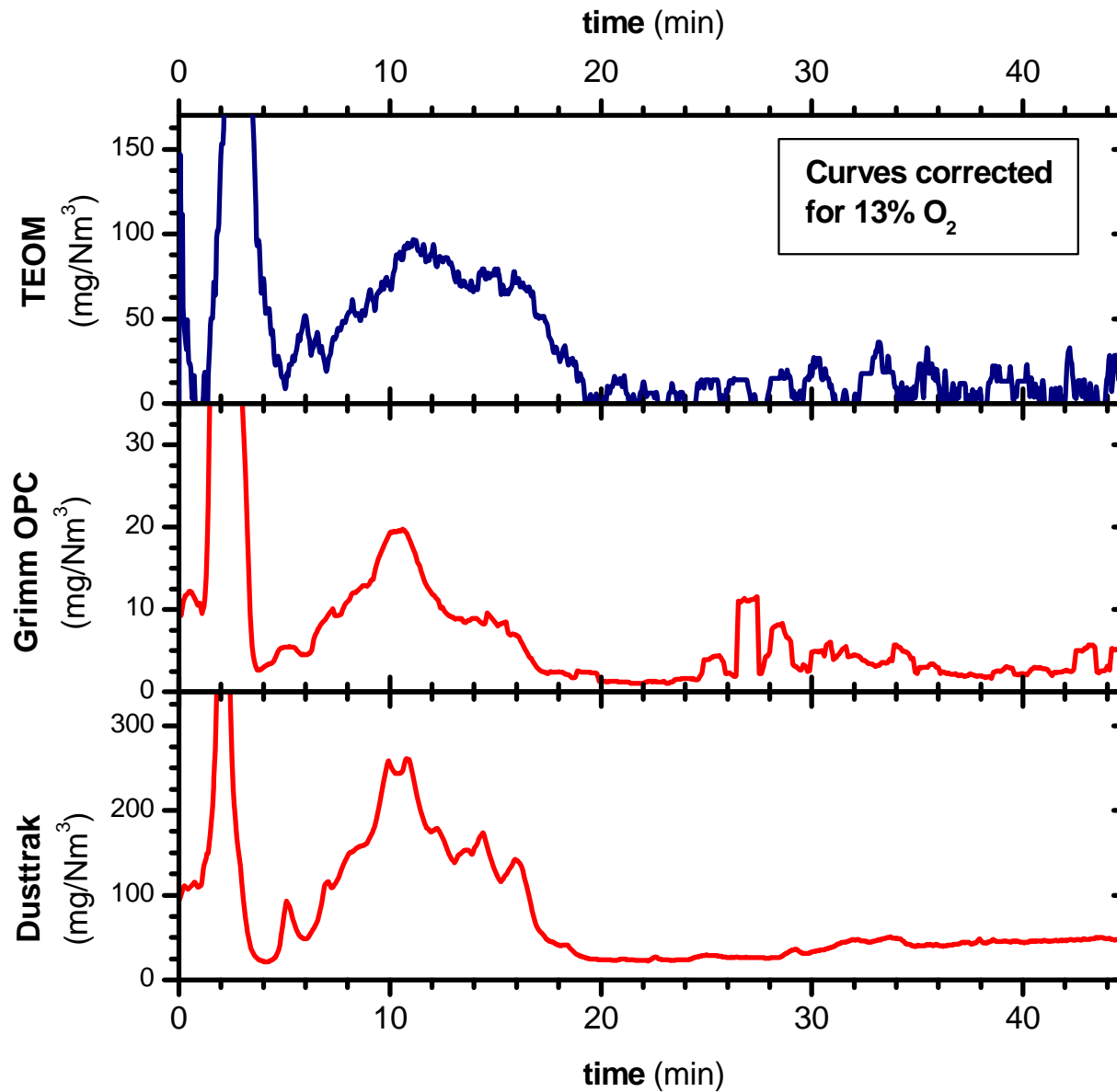
- Characterization of small biomass combustion devices (wood stoves, log wood boilers, etc.).
- Gravimetric Analysis is the standard.
- No time resolution and no differentiation between combustion phases.

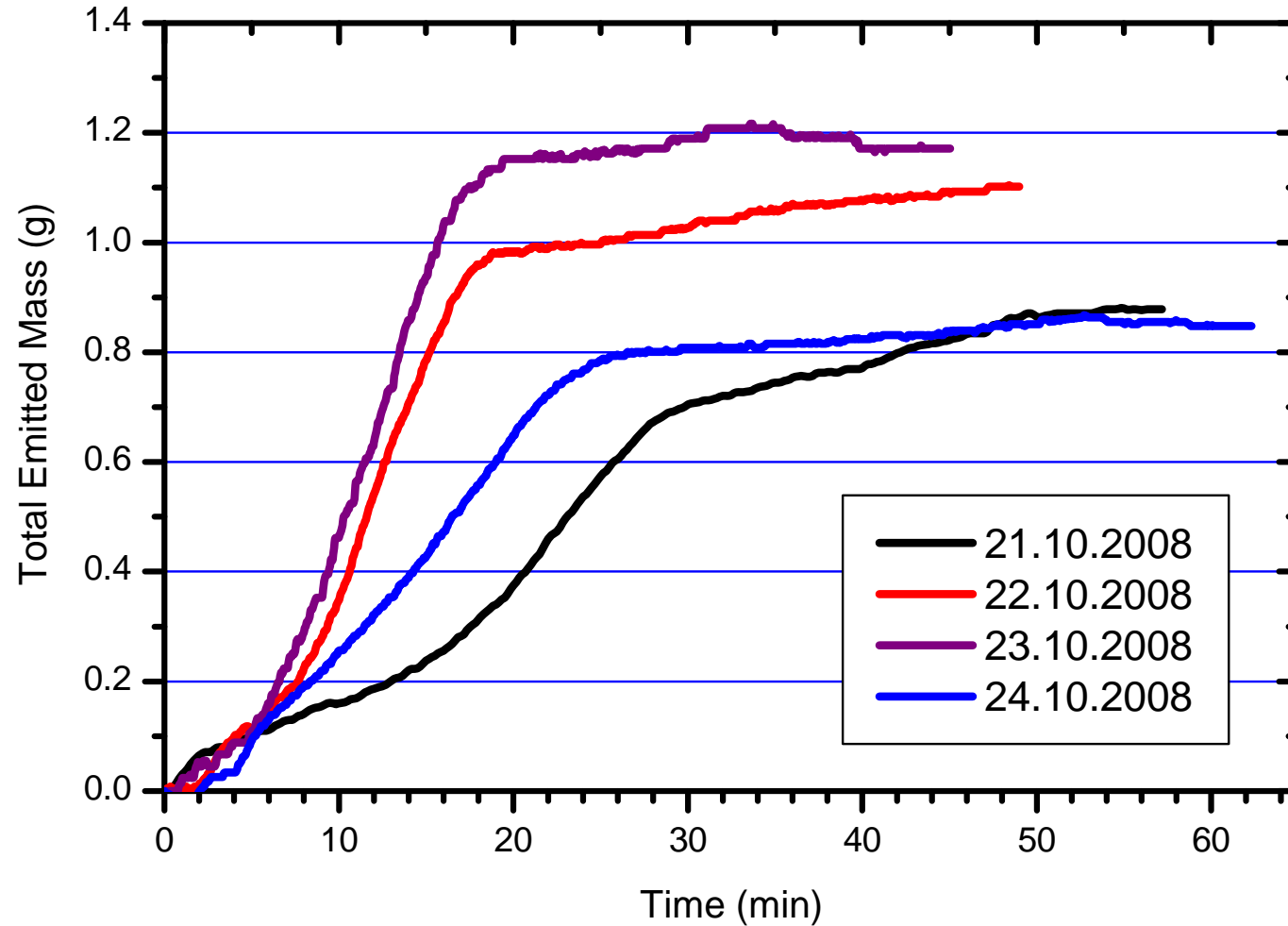


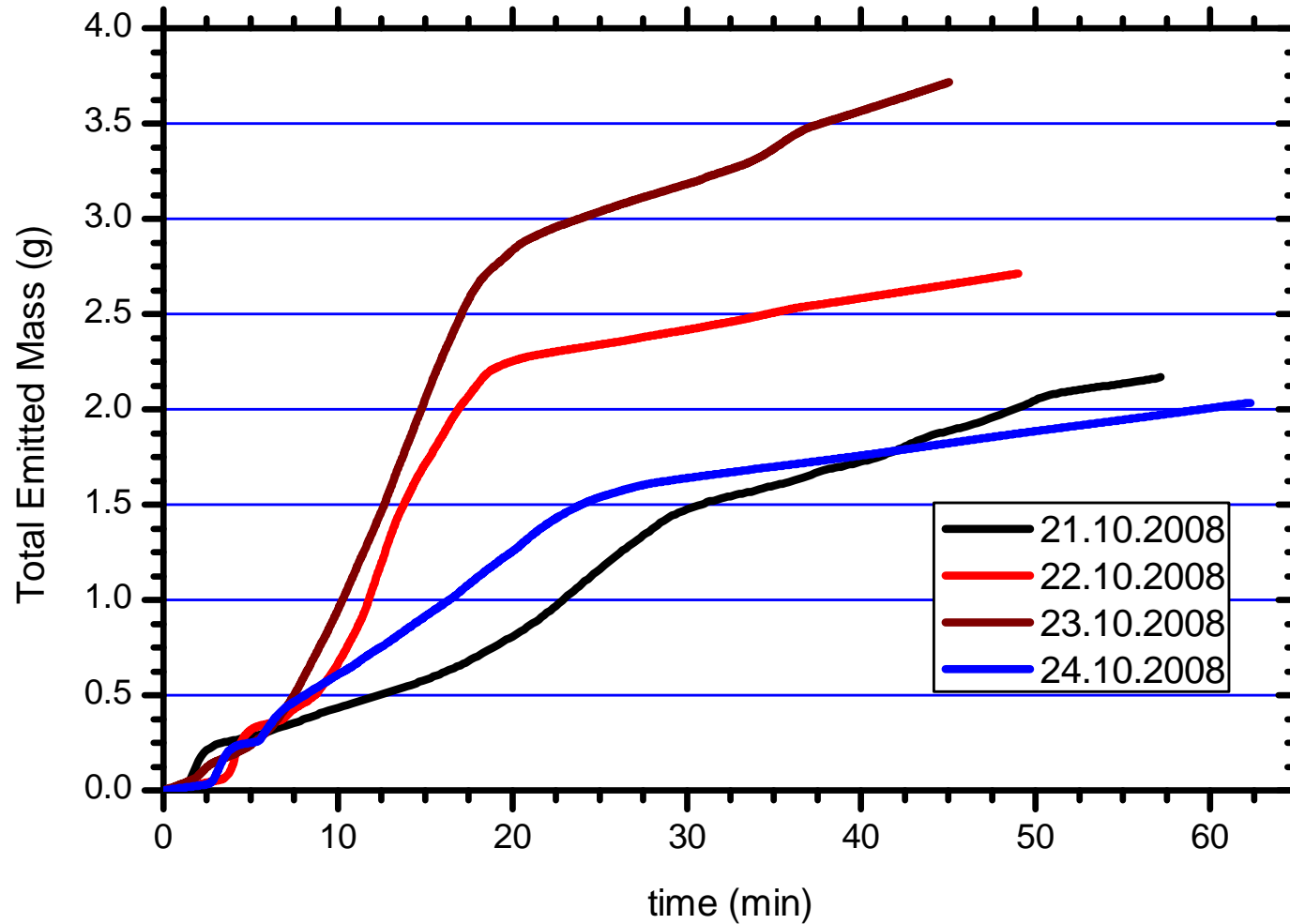
The aim of this presentation is to take a closer look at the burn cycle, in particular during type approval tests.

Experimental Setup

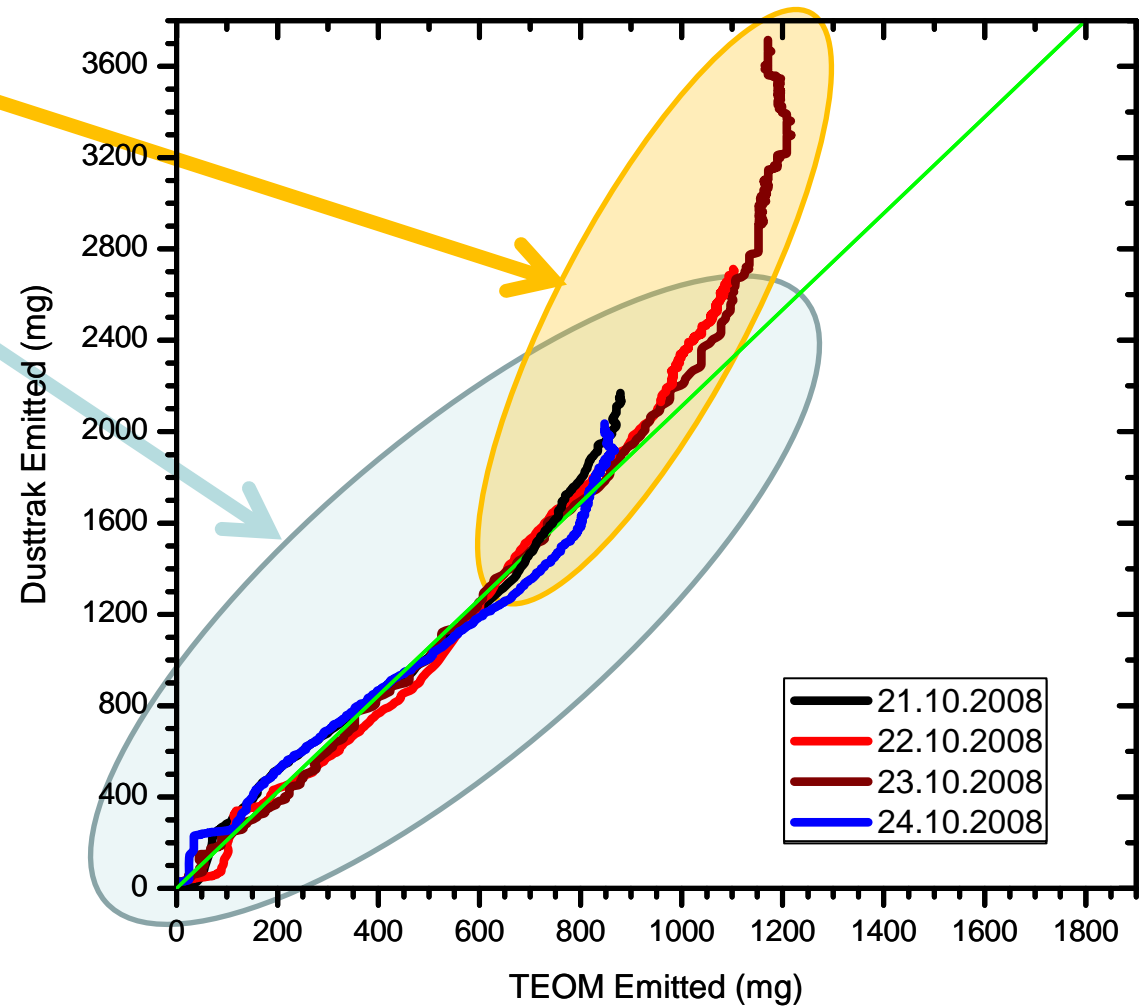
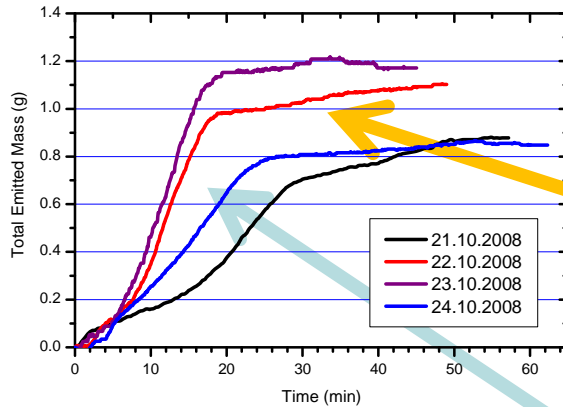




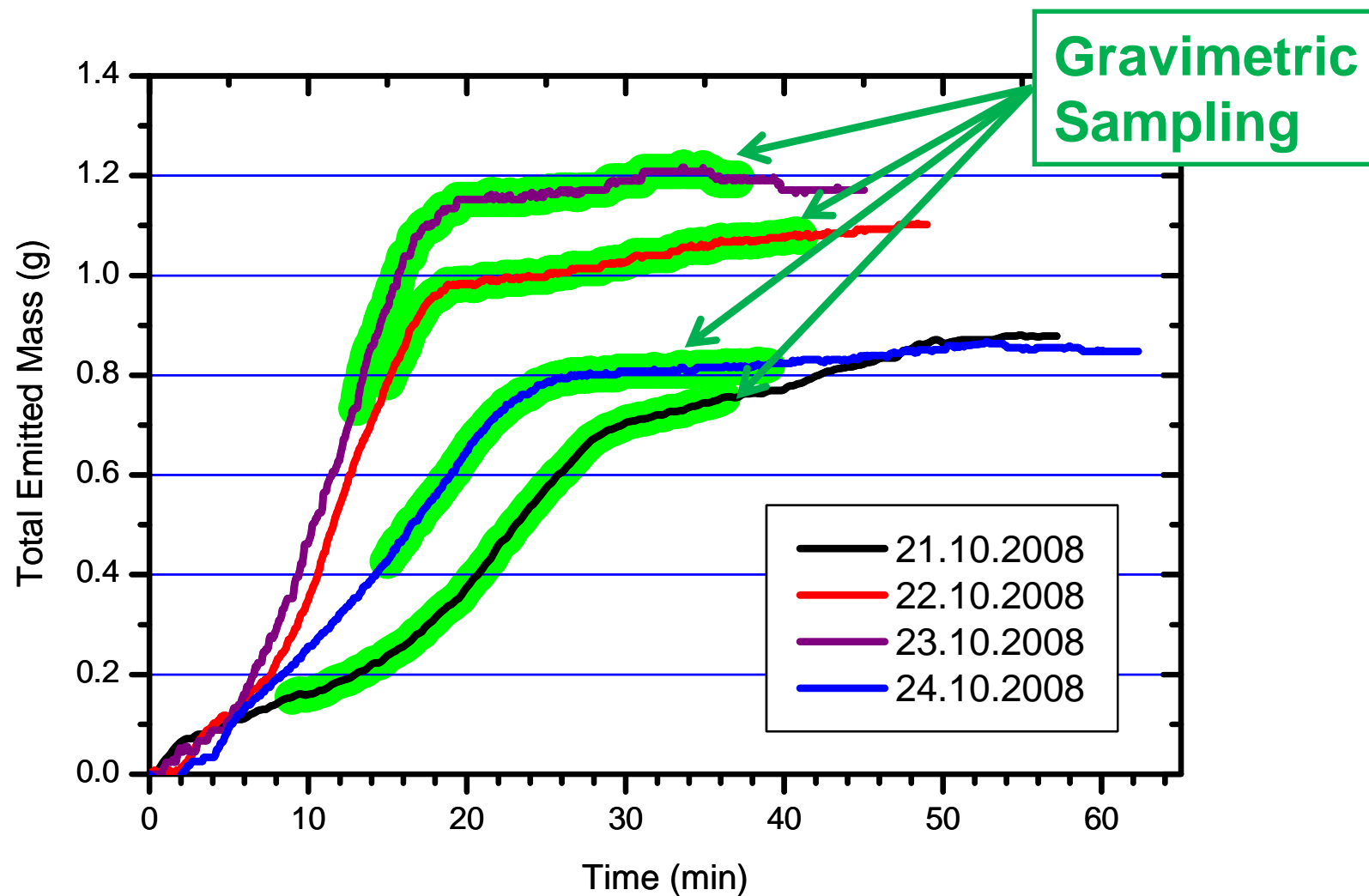




Two Combustion Phases



***HOW DO THESE DIFFERENT
COMBUSTION PHASES
AFFECT THE GRAVIMETRIC
ANALYSIS?***

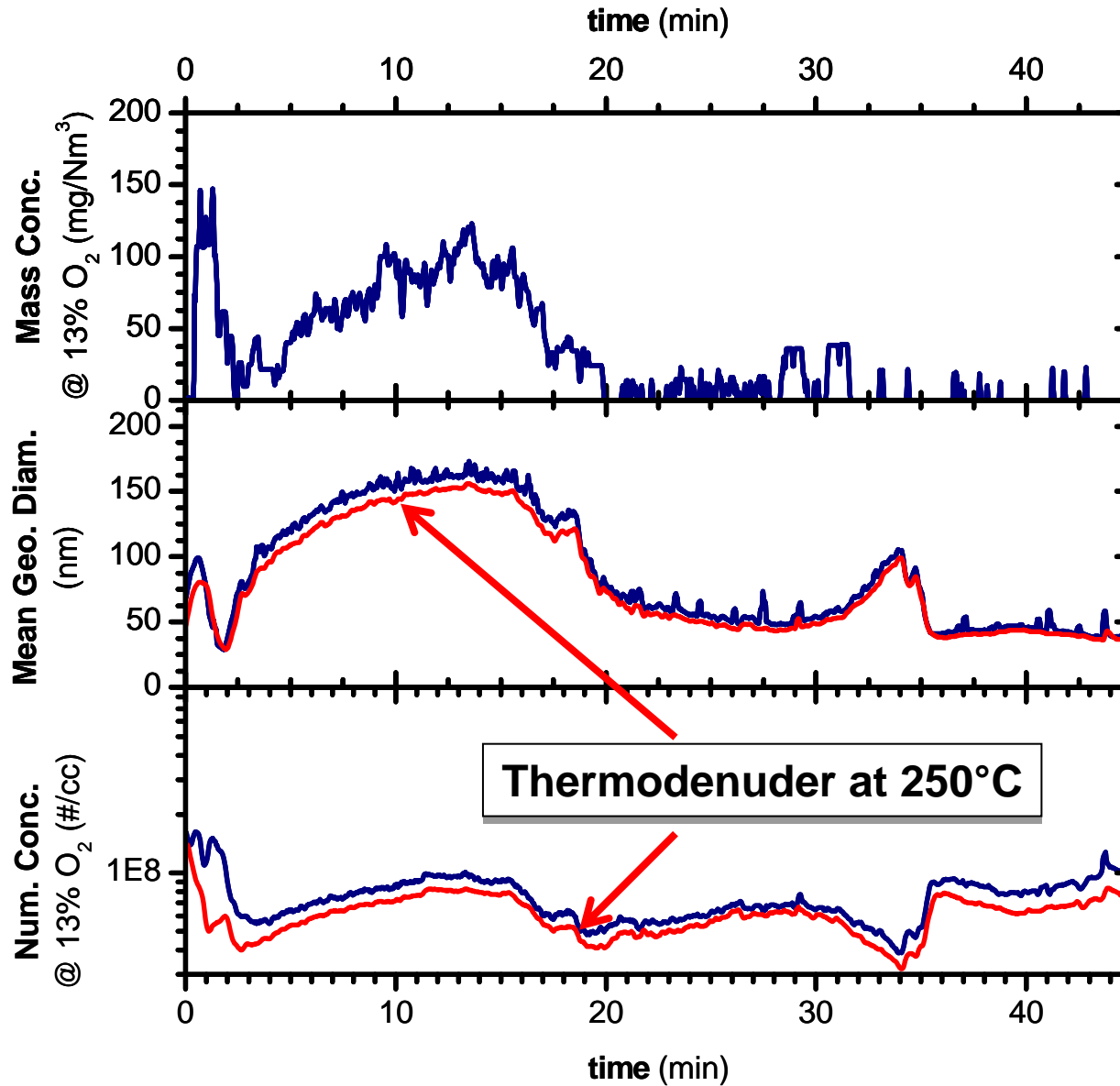


QUESTION

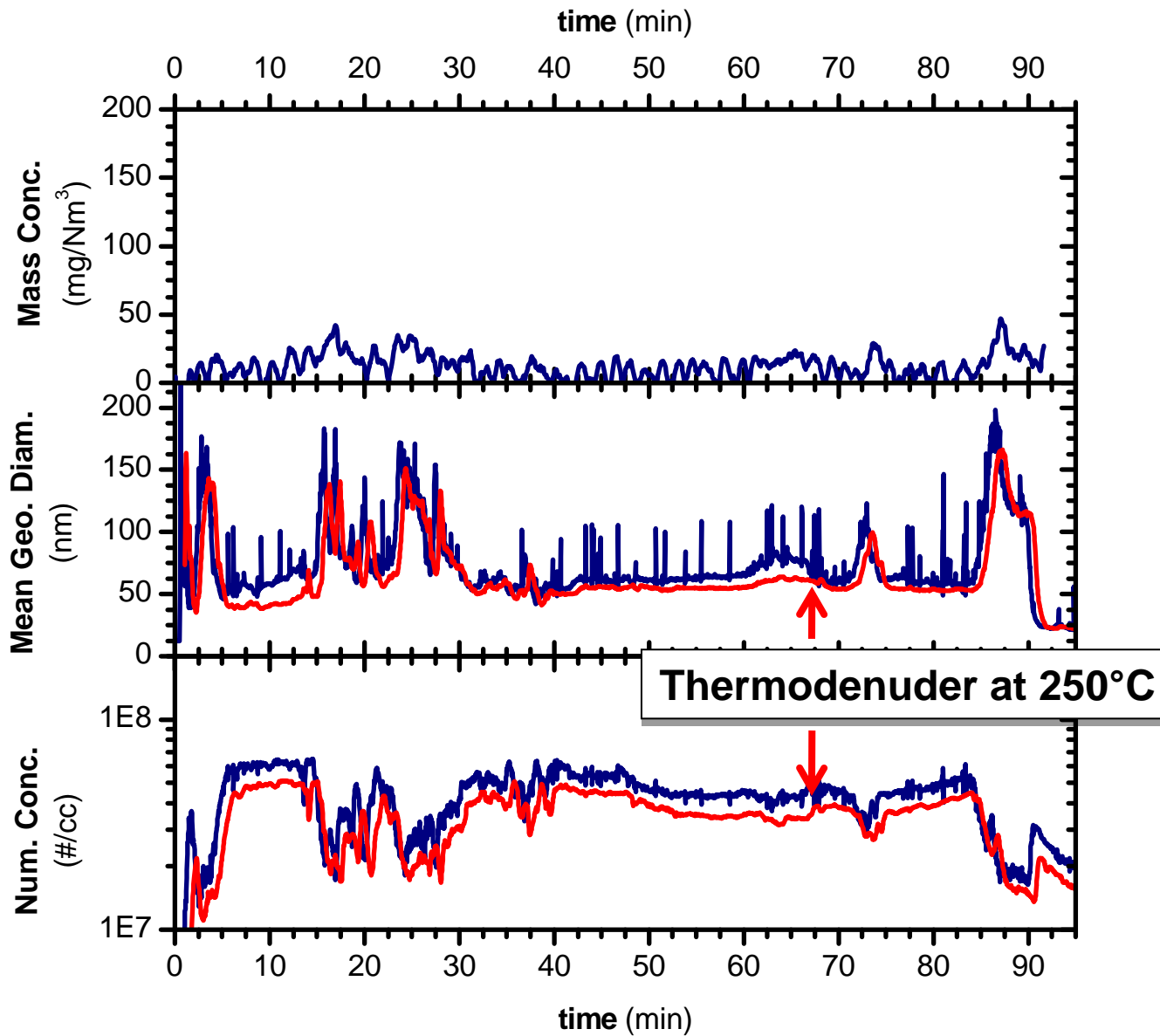
Should we establish more strict boundaries for the gravimetric sampling?

VOLATILES...

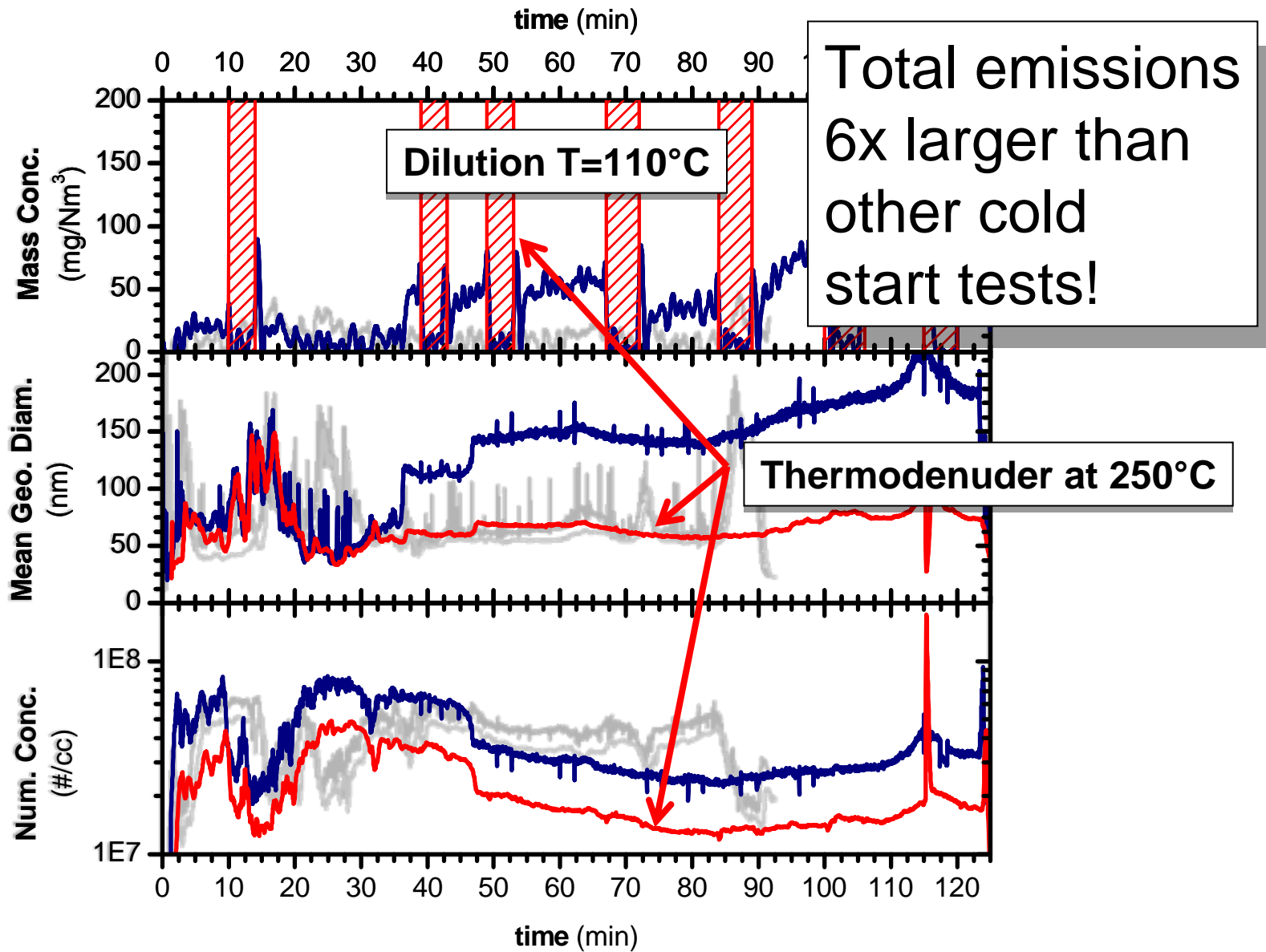
Warm Start Test



Cold Start Test



Cold Start Test



QUESTION

Are the volatiles important?

Should we modify the type approval test in order to capture them in the gravimetric analysis?

- There are at least two different combustion phases during a type approval test.
- The starting point for the gravimetric sampling plays a decisive role in the results of the test, but it is loosely specified by the norm.
- We fail to see volatiles using a dilution temperature of 150°C.
- Large amounts of volatiles appear at a lower dilution temperature (already at 110°C).

QUESTION

Are the results obtained by means of the current norm-test representative of real world emissions?

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