This paper describes the measurement of size-resolved particle number concentrations using a TDMPS and APS over two year in Augsburg, Germany. The authors conclude that the particle size distributions in the urban area measured are "shaped by a combination of relatively few effects," dominated, for example, by the vertical stability of the atmosphere. While there is nothing necessarily ground-breaking about the study or its conclusions, the work is clearly within the scope of ACP and was done both comprehensively and for a relatively long period of time. As a result, these observations are certainly useful for publication and use by the community. The manuscript represents a high level of detailed analysis that is well though out, and the level of writing is generally clear. I have a set of relatively minor comments that may help clarify aspects of the discussion that will aid in its readability.

Abstract, Line 1, 16: The text of the abstract seems to imply that the thermodenuder was utilized for the entire size range, while it was really only used for a portion, correct?. This is slightly misleading to those scanning through.

Page 9174, Line 18-20: The introduction to the volatility analysis is brief. This is somewhat acceptable, but using Schmid et al. 2002 as the only reference point for volatility analysis in general is a bit strange. The technique of discriminating aerosols by their volatility had been in use for many years before 2002, for example.

Page 9175, Line 24-25: "…allow conclusions on the non-volatile sub-fraction in the sub-μm, which is broadly associated with soot." I do not disagree with the comment that the non-volatile aerosol sub-fraction in this size range may be dominated by soot in many sampling locations, certainly in an urban area, but I feel it needs to be admitted for completeness of thought here that there are other possibilities. Mineral dust (which is discussed briefly later) is a non-volatile aerosol material that can be an important fraction in many locations, and biological aerosols can also contribute a significant amount of material even at sub-micron sizes. I suggest adding a sentence here with this admission, or changing the wording so as to imply less firmly that soot is the only contributor.

Page 9177, Line 1-3: "The temperature of 300^{o}C was selected with the aim of evaporating the overwhelming fraction of inorganic ions (particularly ammonium sulfate and nitrate, although not sodium chloride) as well as organic carbon from the particulate phase." Could reference be given for this (for both the inorganic and organic ions)? Or is this inarguably true, for example?

Page 9177, Line 11-17: Particles less than 6-nm are shown to nucleate in the thermodenuder after heating. This is fascinating. Has this been shown before? If so can a reference be provided for comparison. If not, a suggestion along these lines is appropriate. Can you give an estimate for how much of an error this effect would introduce to the total number & volume/mass of the post-thermodenuder ratio?

Page 9178, Line 20-22: Are these diffusional losses published or discussed anywhere? If so, can a citation be given here. How large are these losses? Are the graphs reported in

the paper shown after correcting for these losses (if so clearly state)? What about other loss mechanisms such as thermophoresis?

Page 9178, Line 24: Do you have any idea what the estimated uncertainty on this chosen value of 1.7 g/cm3 for density would be? How confident are you in this number?

Page 9180, Line 8: The 20-l buffer volume used – wouldn't this contribute to significant additional particle losses to the walls of the volume?

Page 9181, Line 22: "tend to lie" is ambiguous and vague

Page 9183, Line 11: "The remarkable correlation …" I agree that this is an interesting correlation. The use of the word 'correlation' seems to imply that some R^2 value should be given. I immediately looked for it out of interest.

Page 9185, Line 25-26: Do you really mean that "thermal conditioning kept the total particle number constant"? I'm assuming that you mean something more like: "while thermal conditioning was taking place the total particle number concentration was assumed to be constant" or something similar. As written the thermal conditioning is seemingly performing an action on the ambient particle concentration.

Page 9187, Line 24-25: This conclusion about the maximum of non-volatile material being observed in autumn is very interesting. Can the authors, even if presumed, state a reason or guess as to why these trends exist? Of if they are implied within the manuscript, can they be reinforced in this section?

Page 9189, Line 17: Type - "It is worth to note …" Should be either: "It is worthy to note" or "It is worth noting" etc.

Page 9189, Line 20: What do you mean by 'equivalent' here? Portion, fraction …?

Page 9190, Line 22: "particulate volume" should be "particulate volume concentration" This also should be corrected in Figure 11.

Page 9193, Line 13: Again, is this number of 69% after correction due to diffusion losses within the thermodenuder? It needs to be clearly stated here either yes or no.