

Feedback comment on amt-2022-175

Referee #2

General comments:

The authors present an airborne measurement platform for aerosol measurements, the cubic aerosol measurement platform (CAMP). It has to be pointed out that the authors present solely the payload with mobile instrumentation inside and not the whole tethered balloon system (TBS), which I was expecting from the title. Within the manuscript authors put a great emphasis on laboratory tests of all mobile instruments. The manuscript reads well and contains a lot of valuable information, however since this journal is of technical matter, I would ask authors to provide more details in some parts.

→ The title was slightly changed to make clear that only a TBS payload is subject of the paper

Specific comments:

Could you describe in more detail the cube itself? Construction material and weight, insulation material choice, the inlet orientation, why vertical? Inlet cutoff, total flow, length, diameter and material, and similarly for the dryer.

→ More technical details were added to section 2.1 and a detailed technical sketch was added to the supplementary

→ More information about the inlet and dryer including a loss calculation were added in a new section 2.5

The intercomparison measurements between CAMP and Melpitz are missing some detailed descriptions, it is not clear to me how it was done. Was the CAMP just sitting next to the station inlet, or was it attached to TBS and the CAMP was airborne at certain height? For airborne measurements the influence of the TBS itself might generate a bias, small turbulences, orientation of the inlet, iso-kinetic, iso-axial sampling and etc. might play a role, please discuss it. If the first case, then the ground-based sampling next to station inlet is a good start for intercomparison, but not a good reference for further measurements, e.g. comparison to a tower does a better job.

→ The comparison was done for CAMP being airborne on a constant height below 10 m on the balloon tether

→ More details on the comparison and a new figure with the results were added to section 3.3

Figures 12 and 13, what is the height of Melpitz station inlet at which you make the comparison to it.

→ At 4m above ground, info added to figure description