

Co-Editor Decision: Publish subject to minor revisions (review by editor) (22 Nov 2018) by Tuukka Petäjä

Comments to the Author:

Editor comments for Singh et al.

Dear Authors,

You have answered the main concerns of the referees well.

I have one main concern and additional editorial comments as follows:

According to the text it clear that you performed the observations in May 2016. Please verify that your data in Figures are from 2016 and not from 2017 as indicated in few places in the text. Further, please add the year to all the dates throughout the text for clarity.

Authors' Response: We would like to thank the editor for providing useful feedback and identifying errors in the manuscript. Apologizes for so many grammatical errors!

FYI: The changes (in response to your comment) made in the manuscript are in **GREEN**.

Yes, the campaign was conducted in May 2016 and all the data presented in the manuscript are from 2016. We have identified all the typos in the manuscript (figures, main text) where we have incorrectly mentioned 2017, instead of 2016. Now, the manuscript should not have those typos.

Editorial comments:

Line 88: the highest

Done

Line 93: the highest

Done

Line 101: AOD not defined

Done, see line 101

Line 137: model 1.108

Added model, see 137

Line 138: CPC not defined.

Now defined, see line 138

Line 141: DC not defined (not needed?)

Not critical and it's obvious (we think). But we have included the full form now. See line 142

Line 143: define higher.

We removed higher. The data was collected at 1 s (sampling frequency) during the campaign. See line 143

Line 146: LCD not defined (not needed?)

Not critical or needed, but we have included it now. See line 147

Line 155: Is this the length of the sampling tube?

Yes. Now we have indicated that it is the length of sampling tube (in bracket). See line 157

Line 157: How was the sample flow produced for the different instruments? With one general pump or separate pumps for all the instruments?

No separate or independent pump was used. The sample flow is due to the internal pump of each aerosol instrument. We have added a line to highlight this distinction. See line 158-160

Line 175: A typical flight commenced from the Pokhara Regional Airport (818 m a.s.l.) and we flew 5-10 km ...

Corrected, see line 178

Line 179: Year should be 2016?

Yes, corrected, see line 183 (also changed in the figure caption later)

Line 184: was .. received

Corrected, see line 188

Line 187: steps of quality control and quality assurance

Corrected, see line 191-92

Line 201: On a local / regional scale, the winds...

Added, see line 205

Line 246: increased

Corrected, line 250

Line 247: the increase of ... What do you mean total AOD? Sum of fine and coarse?

Yes, total AOD is the sum of fine and coarse AOD. This is now indicated by the bracketed comment. See line 251-52)

Line 249: ... were also present.

Corrected, line 253

Line 250: Reference is needed for the BC-like classification based on Ångström exponents.

The BC-like comment is from Giles et al. 2012. Its indicated now. See line 254

Line 251: was observed

Corrected, see line 256

Line 254: May 2016?

Yes it is May 2016, NOT 2017. Corrected, see line 259

Line 256: The visibility

Corrected, see line 261

Line 258: The aerosol optical ...

Corrected, see line 263

Line 262: decreased below 1

Corrected, see line 267

Line 263: The flight day

Corrected, see line 268

Line 281: total particle number concentration

Added, see line 286

Line 293: How can you separate primary and secondary emissions?

Apologies, yes the term primary is used without any supporting evidence. We have modified the sentence. The intention was to indicate that the gradient observed below 2000 masl could be associated or related to emission from the valley. see line 298

Line 294: influenced

Corrected, see line 299

Line 296: continued

Corrected, see line 301

Line 297: remove "profiles". ... and a strong decrease with altitude was observed.

Removed the profiles, and corrected the sentence, see line 302

Line 298: total particle number concentration

Corrected, see line 303

Line 300: How can you separate primary and secondary emissions?

Again, apologies for including the term “primary” without sufficient evidence. We have removed the term “primary”. See line 305-306

Line 318: reformulate the last sentence for clarity.

The sentence is edited. See line 323-325

Line 329: decreased then

Corrected, see line 334

Line 336: ∴ thus explaining the observed decrease in the measured aerosol parameters.

Corrected, see line 340

Line 340: please clarify the sentence about calculation of slope.

The sentence is edited and the power equation describing the relation between absorption coefficient and AAE is also included. See line 343-349

Line 345: the absorption coefficient

Corrected, see line 351

Line 348: differed

Corrected, see line 354

Line 349: showed

Corrected, see line 355

Line 353: the biomass

Corrected, see line 359

Line 354: the AAE values

Corrected, see line 361

Line 381: please add the proper scientific reference to HYSPLIT.

The following reference was added. See line 389

Draxler, R. R., and G. D. Hess, 1998: An overview of the HYSPLIT_4 modeling system for trajectories, dispersion, and deposition. *Aust. Meteor. Mag.*, 47, 295–308

Line 392: influenced

Corrected, see line 401

Line 409: transport of air pollution in...

Corrected, see line 418

Line 410: PBL is not defined.

Now defined, see line 419-20

Line 417: were

Corrected, see line 426

Line 421: occurred. Why is “trough” in quotation marks?

Quotation mark removed now, see line 430

Line 428: shorter and longer wavelengths.

Corrected, see line 437

Line 431: bypassed

Corrected, see line 440

Line 432: contained

Corrected, see line 441

Line 446: The results presented in this paper should be considered as a pilot study mapping out the aerosol concentrations and their interactions with meteorological processes in the Pokhara Valley due to the limited flight time.

Thanks for the kind input. See the change in line 455-457

Line 448: aerosol parameters

Corrected, see line 457

Line 449: The observed total number concentration

Corrected, see line 458

Line 451: The increase of boundary layer height contributed to the differences ...

Corrected, see line 460

Line 456: fell in the range

Corrected, see line 465

Line 467: in the surrounding

Added, see line 476

Table 1:

1. Aerosol particle number size distribution
2. Total particle number concentration

Thanks for the suggestion. See the change in Table 1, from line 648

Figure 3: Please explain AOD_F and AOD_C. Check the year.

Thanks. See the changes from line 666-669

Figure 4: aerosol parameters, total particle number concentration

Corrected, see the changes from line 688-695

Figure 6: MODIS in capital letters.

Corrected, see the changes from line 708