We thank the reviewer for the constructive and helpful comments. Implementing the suggestions to the manuscript has improved it considerably. Answers to the specific questions are embedded below.

General comments
The aim of this paper is on my opinion interesting for the scientific community, as stated in the very well written section "Introduction". Unfortunately the other sections didn't meet the expectations. It is stated in the Introduction that a comparison of the physical and optical properties retrieved in different years in each site will be presented, but in the paper there is no discussion about yearly differences.

We have now added figure 3 illustrating the correlation between average rainfall during the rainy season and the different aerosol properties. Different years are also marked, and differences are discussed in the text. In addition, the size distribution chapter has been appended with discussion and the yearly differences.

Concerning the description of sites of measurements, instruments, and some results, the author often refers to the companion paper Hyvarinen et al, 2010 "Effect of the summer monsoon on aerosols at two measurement stations in Northern India – Part 1: PM and BC concentrations" submitted to the same Journal, and actually under review. I believe that even if this paper is strictly related to the other one, it must be conceived as a self-consistent paper, providing all the information necessary to the reader. The lack of these information makes the reading and understanding of the paper not easy at all.

In order to make the paper more independent of the part 1, we have added these information to the paper. This includes e.g. station descriptions, measurement descriptions, data handling and rainfall characteristics.

The description of aerosol size distribution (section 3.1) in the two locations and their intercomparison, shows a confused structure. Please check my detailed comments in the next section.

We agree. This was partly due to the low data coverage for the DMPS at Gual Pahari. We have now unified the size distribution section to include both average distributions and modal concentrations. The fact that the Gual Pahari instrument suffered from data gaps is stressed, so that the reader can proceed the data with caution. Looking at the size distribution data into more detail actually revealed to us new aspect that we hadn't taken into account before. These included the aerosol size dependent scavenging by falling droplets and cloud activation scavenging at the mountain station.

Section concerning scattering and absorption estimation is very fair.
Firstly, instruments used for estimating absorption and scattering coefficients are not presented in the appropriate section (2.2) and it is not clear which instrument is used for measuring scattering coefficient in Gual Pahari.

This description is now moved the section 2.2. Instruments at both stations are presented in the chapter.

Secondly, Figure 5, 6 and Table I are not very clear and not sufficiently described. For example no comment is done for the yearly difference in the time patterns behaviour of Figures 5 and 6, and

there is no scientific discussion on the behaviour of scattering coefficient, respect to the absorption coefficient.

In our opinion, most of the relevant discussion regarding the yearly differences is now made in chapter 3.1 General features. It is now written:" The aerosol concentrations and the subsequent optical coefficients in the pre-monsoon season were highest in 2008 and 2009 (Table 1), with an exception to absorption coefficient from black carbon which was highest in 2007. Lowest pre-monsoon concentrations occurred in 2006. The average aerosol concentrations and optical coefficients during monsoon were decreased by about 40-75 % compared to the pre-monsoon average concentrations at both stations (Fig 3), having a linear relationship with the total rainfall of the yearly monsoon season. The most effective decrease of the aerosol concentrations were observed during 2008 in Mukteshwar. During 2008 the rain amounts were the highest of the study period. The relative decrease seems nearly independent of the measurement location, and can be estimated from the rain accumulation alone by an accuracy of ± 10 %."
The relationship between scattering and absorption coefficients is described in the new chapter 3.4 Single scattering albedo.

The range of variability of SSA for Mukteshwar site is too large (0.75-0.90) for characterizing absorbing properties: it is needed analysing narrower intervals of SSA values and give a comment on the hypothetical reason of such oscillations. It would be also important correlating results from the seasonal behaviour of number particle concentrations and the behaviour of SSA .

Agreed. We have added figure 9 Histogram of SSA values in Mukteshwar during pre-monsoon, monsoon and post-monsoon. A new chapter 3.4 Single scattering albedo was written. The SSA was also compared against number particle concentrations (supplement figure), and it is now written:" We also compared the *SSA* against the total particle count N_{tot} from Mukteshwar. As a general finding, the *SSA* values converged towards 0.9 as N_{tot} increased."

High values of AOD during monsoon, are explained with the presence of dust. Is dust recognisable using Lidar measurements depolarization?

We actually looked into this, but the result is not unambiguous. There was some evidence of an elevated dust layer, but this was far from clear. We interpret this as mixed aerosol, and the response from the additional dust is hidden. The aerosol might thus be internally mixed. To conclude, we do not observe pure mineral dust in the depolarization channel.

Could the AOD high values be related also to the sea salt advection? To check this point I recommend using AERONET estimation of refractive index, whose values can give important information for discriminating the mean columnar aerosol components from dust to sea salt. Also the behaviour of AERONET SSA versus wavelength can help to understand the presence of dust in the atmosphere.

We added figure 12 illustrating the refractive index from the sunphotometer measurements for different season. We can conclude that no sea salt aerosol (having refractive index of 1.2) is observed. Instead, the observed refractive of 1.5 points towards dust aerosols. As noted in the previous comment, the refractive index further suggests that the dust is not pure, but rather mixed with the other aerosol in the area.

In the conclusions are stated some things not discussed in the text, as the linear relationship of the decrease of aerosol concentrations respect to the local rainfall, or the relation between SSA and the ratio BC/PM2.5. It is also stated that the dust during the monsoon period is from the Thar Desert, but no back-trajectory was shown neither discussed in the paper.

We have re-written the conclusions with this in mind.

Specific comments
Abstract:
line 33: "the size distribution at Mukteshwar is unimodal", please specify that the distribution refers to measurements taken at ground level.

OK.

Line 37 – 38: " an increased particle volume at around 3 – 4 um": is it radius or diameter?

Specified as diameter in the text.

2.1:
It is important insert a map of sites location, and describing a little the locations, in order to make the paper self consistent.

This is done.

2.2:
For the same reason above, please explain how data were processed: 1) seasonal division; 2) kind of average performed; 3) backtrajectories

Chapter 2.2 Data processing was added.

3:
Line 124-125: " rainfall was more....to the mountain location", I think it is important explaining this point as done in the companion paper.

This is done.

3.1
The scheme used to describe total analysis is, on my opinion, confusing.
I suggest: 1) a description of the seasonal behaviour of the 3 modes in the two sites; 2) a comparison of the behaviours in point 1; 3) a description (and a comparison) of the seasonal behaviour of the ratios among the 3 modes.

This is done. In addition we show the average size distributions from both locations.

Please add an analysis of yearly differences.

We have added this in chapter 3.1 General features.

Line 152: I'd like to see a Figure as Figure 3 but for Mukteshwar

This is done.

Line 158: " this behaviour was similar as in Mukteshwar" : about Mukteshwar it is only stated that Accumulation mode decreases in the rainy period, but nothing is stated about Aitken mode. Please specify this comment.

It is now written:" The nucleation mode decreased by an average of 77 %, the Aitken mode by 53 %, and the accumulation mode by 60 %. In addition to the concentration decrease, the seasonal average mode diameter decreased from the pre-monsoon value of ~101 nm to the monsoon average of ~81 nm. The average ratio of Aitken-mode particles (25 – 75 nm) to accumulation mode (75 – 800 nm) particles, N_{ait}/N_{acc} increased from the pre-monsoon time value of 0.58 to monsoon time value of 0.65. An increased ratio points towards fresher emissions or increased removal of the accumulation mode particles."

Line 166 : had for hand

Corrected.

Line 181- 183: relate this comment with the one made in line 168.

This chapter was revised, and the relation was made.

3.2

Line 197: why a comment on the variation of concentrations in a paragraph where we were talking about scattering and absorption coefficients? What the authors wanted to highlight?

This was a mis-phrase. We have now corrected the concentrations as coefficients.

Line 203-204 : please change this sentence, since it seems that the absorption by Nephelometer is obtained by the Aethalometer.

We have added chapter 2.1 Insturments to clarify this.

What is the instrument devoted to scattering coefficient estimation in
Gual Pahari?

It is now written in chapter 2.1:" The measurements which were conducted from the main inlet with a PM_{10} cut-off were: particle number size distribution over the diameter range 4 nm - 10 µm (twin-DMPS), black carbon concentration / absorption coefficient (MAAP at 637 nm) and aerosol scattering coefficient (Nephelometer at 520 nm)."

Please move the description of these instruments in section 2.2

This is done.

Line 215: it is need an combined analysis between SSA behaviour and the variation of the 3 modes number concentrations.

This is done. The most important relation occurred with simply the total particle count. It is now written:" We also compared the *SSA* against the total particle count N_{tot} from

Mukteshwar. As a general finding, the *SSA* values converged towards 0.9 as N_{tot} increased." *A figure is added as a supplement.*

Line 217: from Figure 7 there are no data in the pre/post-monsoon period, how the average mean and percentiles are calculated

It seems that the figures were poorly described – the box plots denoted to the pre- and post monsoon statistics, while the rainy season was shown as a time-line. The figures are now described in more detail in the figure captions. SSA information was actually available for both pre- and post-monsoon.