General comments:

This manuscript presents very profound analyses with regard to the aerosol properties in Nanjing, China, using two years of surface-level aerosol observations in combination of coincident meteorological measurements. In particular, the scattering and absorbing properties of aerosols are investigated by linking with RH and visibility, on both diurnal and seasonal scales. The results obtained here gain great insight into how aerosol varies with meteorology, and how scattering aerosol can be differentiated from absorbing aerosols in the highly polluted but populous region of YRD. In this revision, the authors have put more efforts and make thorough changes per the referee's comments, both grammatically and scientifically, which increases its readability. Therefore, I recommend this work be published in ACP after the following concerns have been adequately addressed.

Major points for consideration:

1. What is the difference between "Introduction: lines 63-102" and "description with regard to Table 3 (lines 345-367)", which seems a little redundant. Most of the cited literatures are the same, i recommend the authors delete or shorten the paragraph or rephrase it in the Introduction.

2. Line 475-476: "… three-wavelength integrating Nephelometer (Aurora 3000, Australia) in urban area of Nanjing from Mar 2014 to Feb 2016" contracts with previous statements "because the measurements of Aurora 3000 started from June 2014.", the authors can choose to modify the text to make them consistent with each other.

Minor points for consideration:

Abstract: "… the regions around." -> "the surrounding regions."

Abstract: Line 35: "It" refers to ? clarify it.

Line 42: More work can be cited here: "...or global climate changes (e.g., Forster et al., 2007, Rosenfeld et al., 2008; Li et al., 2011; Wang et al., 2014; Guo et al., 2016)."

References:

Rosenfeld, D., Lohmann, U., Raga, G.B., O'Dowd, C.D., Kulmala, M., Fuzzi, S., Reissell, A., Andreae, M.O.: Flood or drought: how do aerosols affect precipitation? Science 321, 5894, 1309-1313. 2008.

Qian, Y., Gong, D.Y., Fan, J.W., Leung, L.R., Bennartz, R., Chen, D.L., Wang, W.G.: Heavy pollution suppresses light rain in China: Observations and modeling. J. Geophys. Res. 114, D00K02, doi:10.1029/2008jd011575. 2009.

Li, Z., Li, C., Chen, H., et al.: East Asian Studies of Tropospheric Aerosols and their Impact on Regional Climate (EAST-AIRC): An overview. J. Geophys. Res. 116, D7, doi:10.1029/2010jd015257.2011.

Wang, Y., Wang, M., Zhang, R., et al., 2014. Assessing the effects of anthropogenic aerosols on Pacific storm track using a multiscale global climate model. Proceedings of the National Academy of Sciences 111, 19, 6894-6899.

Guo, J., M. Deng, S. S. Lee, F. Wang, Z. Li, P. Zhai, H. Liu, W. Lv, W. Yao, and X. Li: Delaying precipitation and lightning by air pollution over the Pearl River Delta. Part I: Observational analyses, J. Geophys. Res. Atmos., 121, 6472–6488, doi:10.1002/2015JD023257.2016.

Line 58: Grammar error: “The bias is mostly resulted from” -> “The bias mostly results from”

Line 60: before “The uncertainty could be substantially”, the authors may add one more sentence here as follows: “In addition, the diurnal variability of aerosol properties has been suggested to another major factors leading to such large biases (e.g., Xu et al., AE 2016).

Reference:

Xu H., J.P. Guo, X. Ceamanos, Roujean J.L., M. Min, D. Carrer: On the influence of the diurnal variations of aerosol content to estimate direct aerosol radiative forcing using MODIS data, Atmospheric Environment, 141, 186–196. doi: 10.1016/j.atmosenv.2016.06.067. 2016.

Line 64: "trace gases (Zhang et al., 2009)." -> "trace gases (e.g., Guo et al., 2009; Zhang et al., 2009; Che et al., 2015)."

Rerences:

Guo, J.P., X. Zhang, H. Che, S. Gong, X. An, C.X. Cao, J. Guang, H. Zhang, Y.Q. Wang, X.C. Zhang, P. Zhao, X.W. Li: Correlation between PM Concentrations and Aerosol Optical Depth in Eastern China, Atmospheric Environment, 43(37): 5876-5886. 2009.

Xin, J., Wang, Y., Pan, Y., et al.: The Campaign on Atmospheric Aerosol Research Network of China: CARE-China. Bulletin of the American Meteorological Society 96, 7, 1137-1155, doi:10.1175/BAMS-D-14-00039.1. 2014.

Che, H. Z., Zhang, X. Y., Xia, X., et al.: Ground-based aerosol climatology of China: aerosol optical depths from the China Aerosol Remote Sensing Network (CARSNET) 2002–2013, Atmos. Chem. Phys., 15, 7619–7652, 2015.

Line 81: center -> central

Line 100-102: “Our ultimate goals are to reduce uncertainties in estimating aerosol radiative forcing and climate effect and to improve forecast accuracy of visibility” SHOULD BE CHANGED because this paper does not contain anything on radiative forcing or climate effect.

Line 106: “Methodologies” -> “Data and methodologies”

Line 117: “To make a brief comparison..” the authors can add more words to clarify “..comparison with what?? ”

Line 126: what kind of “Meteorological data”, please give a detailed information here.

Line 192: “Eq. 8~10” -> “Eqs. 8~10”

Line 207: “Thus, ..., lower boundary height and less rainfall” -> “Thus,.... lower boundary height (Guo et al., 2016) and less rainfall..”

Reference:

Guo, J., Miao, Y., Zhang, Y., Liu, H., Li, Z., Zhang, W., He, J., Lou, M., Yan, Y., Bian, L., and Zhai, P.: The climatology of planetary boundary layer height in

China derived from radiosonde and reanalysis data, Atmos. Chem. Phys. Discuss., doi:10.5194/acp-2016-564, 2016.

Line 209: “RH.” -> “hygroscopic growth of aerosol caused by higher RH..”

Line 211: “RH” -> “relatively higher RH”

Line 221: “if the moisture absorption growing” you mean “hygroscopic growth”?

Line 224-227: Deleted “which might somewhat relate to a difference in RH in these two years”, and add “The observed RH difference in these two years at least partly accounts for the variation of aerosol absorption coefficient and scattering coefficient as well as their sizes (or sth describing the aerosol properties in previous text)” just following “…69.03 in SON).”

Line 230: “..at four wavelengths,” is not consistent with text in the first paragraph of Section 3 which states that only one wavelength (i.e., 550nm) will be discussed. So the authors should modify either the statements here or the former statements in section 3.

Line 260: Delete "are"

Line: 290: "of" is omitted before the statement " the total samplings..."

Line 372: " obviously" -> " obvious"

Lines 372-374: " It is obvious.." should be placed behind " The linear correlation coefficient varies from 0.93 to 0.97 for SC ... AAC in urban Nanjing

."Lines 377-378: Improper citation: Behind " in the same season in 2011..", add "which agrees well with Yu et al. (2016)"

Figure 8: Figure caption should better be revised to reflect the monthly variation for the observed aerosol properties.

Figure 9b: the legend for the linear fit for SEA should be dashed line