Review on "New In Situ Aerosol Hyperspectral Optical Measurements over 300- 700 nm, Part 2: Extinction, Total Absorption, Water- and Methanol- soluble Absorption observed during the KORUS-OC cruise" by Jordan et al.

General Comments:

The manuscript provides and discusses the retrievals of aerosol absorption and SSA over a wide wavelength range of 300-700 nm obtained from in situ sampling methods employed during the May-June 2016 Korea United States - Ocean Color (KORUS-OC) cruise conducted in concert with the broader air quality campaign (KORUS-AQ). Various filter-based measurement techniques are applied to obtain total aerosol absorption and soluble-absorption coefficients. Authors further used the extinction retrievals from the Part-I of this study and combined it with the absorption retrievals calculated here to obtain the SSA values. The measurements/retrievals were further put in context of the expected aerosol composition for the different meteorological regimes observed over the period of the campaign. The findings of this study are valuable to the aerosol community because absorption retrievals in the near-UV range are sparse in general and recent studies have highlighted the importance of quantifying the aerosol absorption in the near-UV to visible wavelengths, wherein presence of brown carbon/organic carbon show a steep spectral dependency. However, this study particularly lacks in detail explaining of the absorption features in this important near-UV wavelength range, either due to the noise in the measurement spectra itself or due to the way correction factors for higher wavelength range are extrapolated for these smaller wavelengths. This issue can be addressed by providing clarification statements wherever required, added speculations for observed features in near-UV range and better quantifying the errors associated with the total absorption retrievals in the near-UV wavelength range. I recommend the publication of this manuscript after following suggestions/comments are incorporated.

Specific/major comments:

Section 2.1: It is okay to reference Peterson et al. 2019 here for the classification of meteorological regimes that are used in the subsequent analysis, however, a brief description of what each regime means within this section would be more reader-friendly (instead of waiting for this clarification in section 3.2. later). For example, 'Blocking' term/regime is not self-explanatory. This hinders the understanding of Fig. 1 as well (for a reader) that is associated with the text in this section.

1. Line 146: "These data were retained for the assessment of the correction factor for the spectral absorption measurement discussed in Sect. 2.3". Can the authors discuss the rationale behind this choice? What implications or bias do they anticipate of including the contaminated measurements in their subsequent assessment of correction factor?

2. Section 2.3: How accurate or reliable is the use of the correction factor, β, based on σ_{abs}/Abs at three specific wavelengths (467, 528, and 652) of TAP in calculating the σ_{abs} outside of this wavelength range, specially at UV and near-UV wavelength ranges that are much smaller than 467 nm? Also, suggest moving Figure S3 to being part of the main text, and adding the final $\beta_{K\text{-}OC}$ that was obtained after scaling.

3. Based on the above point 4, what impact will the uncertainty in estimation of β for near-UV wavelengths, combined with the noisy absorbance measurements in the same wavelength range, have on the overall quality of retrievals for σ_{abs} using this filter-retrieval method? As understood by the aerosol community and the authors also point out elsewhere in the manuscript, retrievals in this wavelength-range are particularly important for the estimation of absorption by brown carbon/organic carbon aerosol particles. The manuscript needs more elaborate discussions on this aspect.

4. Line 213-14: This sentence on error propagation is hard to understand from the way it is currently formulated. From equation 1, apart from the uncertainty in absorbance, there is also an uncertainty associated with scaling of β and may be further in the extrapolation of β for smaller wavelengths (if at all accounted for).

5. Section 3.1: I wonder if this section should be discussed in the light of discussions that follow regarding the differences in aerosol composition and size between the different meteorological regimes for better understanding of the differences between the absorption spectra obtained from the filters using different methods. For example, it is hard for the readers to move forward with the reading while questions about, why $\sigma_{MeOH\text{-}abs}$ is above detection, while little of the $\sigma_{DI\text{-}abs}$ is above detection for the Transport/Haze example lingers on. It would be nice to either include the speculated reasons for these differences within this section and explain the reasons for these speculations further in the following sections or rather discuss all of the absorption spectra differences in the light of what we know about the composition and size distribution of aerosol particles in each meteorological regime. Some of the differences in Figure2, mentioned in section 3.1 are not even addressed later on.

6. Section 3.4: Figure 10 and this section is possibly one of the most useful sections for aerosol community as measurements/retrievals of SSA (ω) across a wide range of wavelengths (300-700 nm) can provide a significant constraint on aerosol modeling efforts. Suggest highlighting this part in the abstract for larger appeal. Also, spectral variation in SSA in near-UV range for multiple instances/examples in Figure 10 is interesting. How much of this variation is attributed to the uncertainty in retrieval methods for this particular wavelength range and how much of this is a real feature? This should be discussed in greater detail, rather than leaving this part just as an observation and proposing some curve-fitting exercise.

Minor/Editorial comments:

Line 109: Is ‘package’ the best suitable word to describe a suite of instruments? ‘Instrument suite’ or something similar sounds more appropriate.

Line 27: It is not specified previous to this sentence what DI stands for.

Line 46: “.....aerosol size distributions than cannot be obtained from single Ångström exponents alone.

Line 51: than Ångström exponents (AE)-> compared to the AE approach

Line 54: This sentence is confusing. Suggested change: The data reported in this study were from in situ aerosol measurements in a package deployed aboard the ...-> The data reported in this study are in situ aerosol measurements from a suite of instruments deployed aboard the....

Line111: ..... influenced the observed spectral characteristics observed aboard the R/V Onnuri. -> influenced the observed spectral characteristics obtained from the instruments aboard the R/V Onnuri.

Line 121: Insert a Figure 1 reference right here.

Line 122: ....50% size cut of 1.3 µm diameter. -> 50% cut-off size of 1.3 µm diameter.

Line 139: “The high-resolution data set was ‘filtered’ to remove interceptions of the R/V Onnuri's own ship stack emissions (Jordan et al., 2020b)”. I think the use of term ‘filtered’ here can be confusing. Suggest using ‘screened’ or another synonym.

Line 164: OC -> Ocean Color (first time occurrence of OC as a noun)

Line 346: Is there a way to identify the downwind and upwind side of the peninsula in Figure 1 (e.g. plotting MERRA-2 (or any other reanalysis) wind vectors over the map). It is hard to understand which part of the plot is being refereed as downwind or upwind in Figure 3 and Figure 4 as well.