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Interactive comment on “Analysis of a strong wildfire event over Valencia (Spain) during Summer 2012 – Part 1: Aerosol microphysics and optical properties” by J. L. Gómez-Amo et al.

Anonymous Referee #2

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General comments:

The authors presented a detailed account of wildfire event occurred in 2012 at Eastern Spain. Authors studied surface, vertical and columnar aerosol properties using ground based instruments and satellite derived data. High values of PM 2.5, AOD, AAE and scattering coefficients are observed during the event. PM 2.5 concentrations observed are higher than EU standards showing the intensity and extend of wildfire. Authors reported many observed and derived parameters in this study. But I have following reservations:

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1. The study conducted does not have specific instruments/methods which can confirm the burning events other than visual observation of plumes from the burning.
2. No filter sampling is reported during this study. Analysis of filters before and after the burning might have provided good characterization of chemical properties of aerosols.
3. This study is also silent on the absorption during the burning event. High scattering coefficient is associated with the plumes from burning event. But some part of this scattering may be also contributed from local sources such as sea sprays considering the proximity of sampling location to sea.
4. All parameters reported by the authors are well known in the case of a wildfire event. This study is lacking in depth analysis of the observed data.
5. The authors should study the inter relationship between the observed parameters.
6. Most of the plots show time series of observed data which is very simple to produce.
7. Authors need to bring in a section about the methods used in this study. Currently methods and results are mixed inside the literature.

Specific comments:

1. Page no: 22640, line no: 22, Why the unit of volume concentration is in $\mu\text{m}^3 \mu\text{m}^{-2}$
2. Specify the type of instrument/method used to measure PM mass for the study
3. Indicate the location of Cortes de Pallás and Andilla in Figure no: 2
4. What is the wind velocity and direction during the biomass burning events?
5. Page no: 22645, line no: 15, Explain the abbreviation “MSG/SEVIRI” mentioned
6. What is the ambient humidity during measurement? Did nephelometer data has any effect on humidity?
7. Figure 2 can be modified with a MODIS fire count map which can show the biomass

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burning locations

8. Page no: 22651, line no: 12, “The sudden variation in the AOD and AE was related with changes in the wind direction and speed that varied the smoke load reaching Burjassot”. Prove this statement with some wind direction and velocity at the sampling location.

9. What is the error associated with the measurement of mixing layer height from HYSPLIT? Give this error as error bars in Figure No: 4

Technical corrections:

1. Page no: 22641, line no: 10, Modify the sentence “These wildfires.emission source”

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 22639, 2013.

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