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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Impact of North America on the aerosol composition in the North Atlantic free troposphere" *by* M. Isabel García et al.

Anonymous Referee #3

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The author has shown North America is a major source of north Atlantic free tropospheric aerosol. These aerosol concentrations are enhanced by the propagation of mid-latitude cyclones. Furthermore, there is a seasonality associated with the free tropospheric aerosol composition due to the spatial distribution of aerosol sources in the North Atlantic, and latitudinal shift in the westerly jet from low latitudes in the winter to higher latitudes in the summer. Back trajectories and previous findings on aerosol spatial compositional differences in the United states are linked to explain differences in five years of measured aerosol chemical composition at the Izana Observatory (which is often exposed to free tropospheric air). Seasonal variations in measured free tropospheric aerosol composition correspond to the variation in the north Atlantic outflow Latitude. The manuscript findings are supported by the results and previous literature. I recommend publication after the following minor comments are addressed. Minor

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Discussion paper

Comments: Line 24 Pg 1- “The present study evidences”- reword Line 28 Pg 1 – remove the word “on” both times it is used in this line. Line 32 Pg 1- reword the last sentence of this page (which continues onto the next page). Line 1-5 Pg 2- separate the second sentence into two sentences. Line 21 Pg 3 – What is EN-14907? Line 3 Pg 4 – shown where? Line 27 Pg 12 – Can you provide references that show evidence of biogenic sources? Figure 10 caption – change “mayor” to “major”

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