

## ***Interactive comment on “Background aerosol over the Himalayas and Tibetan Plateau: observed characteristics of aerosol mass loading” by Bin Liu et al.***

**Anonymous Referee #2**

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**General Comments** This paper details seasonal aerosol mass loadings, within the context of the distinctive meteorological conditions, at four field stations representing three different land types on the HTP. The data, including PM<sub>2.5</sub>, size distribution, and AOD from both field and satellite measurements, are presented very clearly in a well thought-out manner and provide a valuable description of background aerosol loadings in central Asia. While there is little in the way of new scientific methods or analysis techniques, there is a relative dearth of information in the literature about this region.

**Specific comments** 1. Does the presence of a large body of water at the NamCo station affect aerosol levels at all? 2. Why are there so few data for the Ngari station compared to the others? Does the lack of data for a complete annual cycle bias the

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results from this station? 3. Where is the discussion of the aerosol composition? You list an IC, OC analyser, and MS among the instrumentation, yet there is little mention of specific composition measurements. This would be very useful, especially using the diurnal variability mineral dust fraction to supplement the discussion of dynamic aerosol generation at the Ngari station (paragraph starting line 272). Will there be a companion paper discussing the composition measurements? 4. ~2 years is not a statistically significant amount of time for discussing seasonal variability in aerosol loadings. How did the meteorological conditions in the region during the 2011-2013 period compare to previous and subsequent years? Were the temperature, rainfall, and wind patterns typical?

**Technical comments** 1. Line 176: Please clarify that diameter is indicated 2. Line 192: either “the” or “any”, not both 3. Line 217: spelling “therefore” 4. Line 222: space before bracket 5. Line 329: An “ambiguous relation” is vague and unhelpful terminology; from the plot, there appears to be no correlation between fine mode AOD and surface PM<sub>2.5</sub>. 6. Fig S4: Is there a purpose to showing that there is no correlation between PM<sub>2.5</sub> and fine mode AOD? The legend should show the symbols in black (or any neutral colour) so there is no confusion that colour indicates seasonality. 7. Fig S2: Please indicate which subplot corresponds to each season (i.e. (a) MAM (b) JJA...etc.) 8. Please be consistent with italicizing abbreviations and Latin-derived phrases.

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