

***Interactive comment on*** “The Trace Element  
Composition of Size Fractionated Suspended  
Particulate Matter Samples from the Qatari EEZ of  
the Arabian Gulf: The Role of Atmospheric Dust”  
**by Oguz Yigiterhan et al.**

**Anonymous Referee #1**

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“The Trace Element Composition of Size Fractionated Suspended Particulate Matter  
Samples from the Qatari EEZ of the Arabian Gulf: The Role of Atmospheric Dust”

by Yigiterhan et al.,

The paper presents new data set on high precision measurements of trace element  
concentrations in bulk particulate matter of two size fractions collected by net tow  
samples from the EEZ of Qatar, Arabian Gulf. The researcher differentiated between  
lithogenic and biogenic sources of the elements implying correction using dust com-

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position. Furthermore, relation between the excess metal concentrations with distance from the coast was used to ascertain the anthropogenic sources. The work carried out is impressive and will significantly improve the knowledge of biogeochemistry of trace elements in this region. Overall the manuscript is clear and easy to follow. However, I suggest minor revision which will further improve the scientific understanding of the study performed as well the quality of the manuscript. The field campaigns carried out during this research is separated by not only years but season. First campaign performed during October, 2012 where as in 2014 samples were collected in April. Referring to Table 2 and 3, we see prominent changes in elemental compositions (both total and excess) particularly in the areas which were revisited (Doha and Dukhan). Such seasonality is not reported or discussed.

Specific comments have been mentioned below: Line 3-5, Page 2 and Line 12-17 Page 7: As stated, researcher didn't manually characterized phytoplankton and zooplankton fractions in their two net-tow samples. It would be wise not to generalize  $50\mu\text{m}$  fraction as phytoplankton and  $200\mu\text{m}$  as zooplankton. Particularly a  $50\mu\text{m}$  net-tow would also capture micro zooplankton. In fact, in tables and figures the author took care about this by stating bulk plankton or small net tow.

Line 6-7, Page 2: The line is misleading. Sampling campaigns were distinctive with varying space and time. 11 sites were sampled during 2012 whereas in 2014 six stations were sampled.

Line 30, Page 2: Multiple key words implying same meaning can be removed. E.g., Particulate matter and marine particle, Elemental composition and Trace metal etc.

Line 26, Page 6: Shraawoo's Island

Page 6-7: Please provide depth range among the sampling locations.

Line 20, Page 13: It is mentioned that "Unfortunately, neither Ca nor P analyses were included in this data set.", however, authors presented Ca/Al data from net tow samples

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in Fig.6

Line 12, Page 14: dust instead of “duct”

Line 8, Page 15: HAc-HyHCl instead of “HAc:HyHCl”

Line 15, Page 19: Ca is mentioned as biogenic/anthropogenic element but not included in table 6.

Line 10, Page 20: Study occupied entirely in the EEZ of Qatar and doesn't represent entire Arabian Gulf.

Figure Captions:

Figure 1: Figure represents sampling locations during 2012 campaign only.

Figure 2: Near shore sampling were performed during 2014.

Figure 7: Refrain from stating phytoplankton

Missing references:

Turekian 1977

Knauer and Martin, 1981

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