

## ***Interactive comment on “Soluble trace metals in aerosols over the tropical south east Pacific offshore of Peru” by A. R. Baker et al.***

**A. R. Baker et al.**

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Reviewer's Comments: Overall, this is a very nice paper, which should be published with only minor revisions. The region sampled here is VERY poorly sampled, and yet is very important because of the smelters. We have long suspected higher values of these metals in this area, and yet didn't have good measurements. Thus this is an important study, and perhaps the authors could emphasize this a bit more (I'm not sure I have ever said that in a review previously!).

Response: We thank the reviewer for their kind comments about the importance of our manuscript. While we agree that this region is very poorly sampled for aerosol trace metals, we are conscious that our study is still somewhat limited in terms of the

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number of samples collected and their temporal and spatial coverage. However we propose to add the following text to the Abstract in order to address the reviewer's comment: "...and we calculated dry deposition fluxes of soluble Cu approximately an order of magnitude higher than a recent model-based estimate of total Cu deposition to the region. The model did not take account of emissions from the large smelting facilities in the south of Peru and northern Chile and our results may indicate that these facilities constitute an important source of trace metals to the region."

Reviewer's Comments: There was one section I didn't quite understand: "This shows that NO concentrations were approximately 2-fold higher in the on-shore samples (TM02, TM04 and TM06) north of 13° S than in the off-shore samples at those latitudes or in any of the samples south of 13° S." Do you mean samples with onshore back trajectories, versus offshor back trajectories? I didn't find this easy to understand, so maybe rewrite.

Response: We agree that the text highlighted by the reviewer was potentially ambiguous and have added text to the start of Section 3 (Results and Discussion) to state exactly what we mean by 'off-shore' and 'near-shore' (rather than 'on-shore') samples: "The M91 cruise track (Fig. 1) consisted of a series of transects perpendicular to the coast. This resulted in samples TM01, TM03 and TM05 being collected far from shore and samples TM02, TM04 and TM06 being collected close to the coast. We refer to these different sample types as "off-shore" and "near-shore" respectively." Thereafter we use the terms off-shore and near-shore as appropriate.

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