Supplement of

Origin of oxidized mercury in the summertime free troposphere over the southeastern US

V. Shah et al.

Correspondence to: V. Shah (vshah@uw.edu)

The copyright of individual parts of the supplement might differ from the CC-BY 3.0 licence.
Table S1. Summary of Hg(II) observations for each NOMADSS flight.

<table>
<thead>
<tr>
<th>Flight number</th>
<th>Hg(II) filter</th>
<th>Hg(II) DL (pg m$^{-3}$)</th>
<th>Number of Hg(II) observations$^a$</th>
<th>Hg(II)$^b$ (pg m$^{-3}$)</th>
<th>Hg(II)/THg$^c$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RF-01</td>
<td>Quartz wool</td>
<td>228</td>
<td>41 (0)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>RF-02</td>
<td>Quartz wool</td>
<td>147</td>
<td>0 (0)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>RF-03</td>
<td>Quartz wool</td>
<td>148</td>
<td>32 (11)</td>
<td>194 ± 31</td>
<td>12 ± 2</td>
</tr>
<tr>
<td>RF-04</td>
<td>Quartz wool</td>
<td>160</td>
<td>24 (10)</td>
<td>221 ± 39</td>
<td>15 ± 2</td>
</tr>
<tr>
<td>RF-05</td>
<td>Quartz wool</td>
<td>134</td>
<td>72 (2)</td>
<td>163 ± 13</td>
<td>10 ± 1</td>
</tr>
<tr>
<td>RF-06</td>
<td>Quartz wool</td>
<td>114</td>
<td>87 (41)</td>
<td>262 ± 41</td>
<td>20 ± 4</td>
</tr>
<tr>
<td>RF-07</td>
<td>Quartz wool</td>
<td>58</td>
<td>48 (29)</td>
<td>145 ± 43</td>
<td>10 ± 3</td>
</tr>
<tr>
<td>RF-08</td>
<td>Quartz wool</td>
<td>116</td>
<td>91 (26)</td>
<td>178 ± 69</td>
<td>11 ± 4</td>
</tr>
<tr>
<td>RF-09</td>
<td>Quartz wool</td>
<td>94</td>
<td>118 (108)</td>
<td>269 ± 85</td>
<td>18 ± 6</td>
</tr>
<tr>
<td>RF-10</td>
<td>Quartz wool</td>
<td>134</td>
<td>92 (15)</td>
<td>219 ± 54</td>
<td>15 ± 4</td>
</tr>
<tr>
<td>RF-11</td>
<td>Quartz wool</td>
<td>70</td>
<td>81 (25)</td>
<td>147 ± 63</td>
<td>10 ± 5</td>
</tr>
<tr>
<td>RF-12</td>
<td>Quartz wool</td>
<td>140</td>
<td>102 (19)</td>
<td>208 ± 72</td>
<td>15 ± 6</td>
</tr>
<tr>
<td>RF-13</td>
<td>Quartz wool</td>
<td>83</td>
<td>60 (13)</td>
<td>132 ± 24</td>
<td>9 ± 2</td>
</tr>
<tr>
<td>RF-14</td>
<td>Quartz wool</td>
<td>138</td>
<td>80 (15)</td>
<td>232 ± 44</td>
<td>17 ± 4</td>
</tr>
<tr>
<td>RF-15</td>
<td>Cation exchange membrane</td>
<td>107</td>
<td>77 (0)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>RF-16</td>
<td>Cation exchange membrane</td>
<td>91</td>
<td>119 (71)</td>
<td>330 ± 191</td>
<td>23 ± 14</td>
</tr>
<tr>
<td>RF-17</td>
<td>Cation exchange membrane</td>
<td>68</td>
<td>127 (38)</td>
<td>143 ± 38</td>
<td>10 ± 3</td>
</tr>
<tr>
<td>RF-18</td>
<td>Cation exchange membrane</td>
<td>72</td>
<td>126 (69)</td>
<td>125 ± 36</td>
<td>9 ± 2</td>
</tr>
<tr>
<td>RF-19</td>
<td>Cation exchange membrane</td>
<td>116</td>
<td>126 (35)</td>
<td>154 ± 33</td>
<td>11 ± 2</td>
</tr>
</tbody>
</table>

$^a$ In parenthesis: number of ADL Hg(II) observations.

$^b$ Mean and standard deviations for ADL Hg(II) observations.

$^c$ For observations where Hg(II) was ADL.
Figure S1. Comparison between observed and modeled total gaseous Hg at the surface: a) inter-hemispheric gradient and b) seasonal cycle at midlatitudes. The observational data is from [Holmes et al. (2010)] and references therein. The observations in panel a include annual means for 39 land-based sites during 2000-2008 and measurements from four ship cruises. The model results in panel a are the annual and zonal means for the three simulations (BASE, 3xBr, FastK) for the year 2013. The observations in panel b are monthly means for 15 land-based sites in North America and Europe. The model results in panel b are the monthly means at the site locations for the three simulations for the year 2013.
Figure S2. Same as Figure 5, except for the "high RH/low CO" and "high RH/high CO" categories.
References