Table S1. Summary of criteria concentrations for PM$_{10}$, PM$_{2.5}$, fine soil, and elemental carbon (EC) as a function of month for eight EPA IMPROVE sites in Arizona.

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Month</th>
<th>PM$_{10}$ (µg·m$^{-3}$)</th>
<th>PM$_{2.5}$ (µg·m$^{-3}$)</th>
<th>Fine Soil (µg·m$^{-3}$)</th>
<th>EC (µg·m$^{-3}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>January</td>
<td>18.47</td>
<td>4.39</td>
<td>1.96</td>
<td>0.19</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>19.77</td>
<td>4.24</td>
<td>2.03</td>
<td>0.16</td>
</tr>
<tr>
<td>Chiricahua</td>
<td>March</td>
<td>32.71</td>
<td>7.95</td>
<td>5.29</td>
<td>0.15</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>31.60</td>
<td>7.91</td>
<td>4.37</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>32.05</td>
<td>9.61</td>
<td>4.86</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>39.44</td>
<td>11.84</td>
<td>5.57</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>29.12</td>
<td>10.23</td>
<td>4.23</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>20.25</td>
<td>7.62</td>
<td>2.44</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>15.20</td>
<td>6.31</td>
<td>1.46</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>23.75</td>
<td>9.17</td>
<td>3.96</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>26.04</td>
<td>6.43</td>
<td>2.56</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>32.78</td>
<td>7.83</td>
<td>4.63</td>
<td>0.18</td>
</tr>
<tr>
<td>Grand Canyon</td>
<td>January</td>
<td>5.64</td>
<td>2.53</td>
<td>0.71</td>
<td>0.13</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>5.71</td>
<td>2.36</td>
<td>0.75</td>
<td>0.10</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>11.64</td>
<td>5.12</td>
<td>2.52</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>17.34</td>
<td>8.72</td>
<td>3.34</td>
<td>1.34</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>16.86</td>
<td>7.72</td>
<td>3.37</td>
<td>0.21</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>17.89</td>
<td>8.71</td>
<td>2.20</td>
<td>2.84</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>17.74</td>
<td>10.68</td>
<td>3.52</td>
<td>0.70</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>13.99</td>
<td>8.76</td>
<td>1.84</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>15.94</td>
<td>10.43</td>
<td>1.81</td>
<td>0.98</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>13.55</td>
<td>7.28</td>
<td>1.17</td>
<td>1.29</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>8.91</td>
<td>4.94</td>
<td>0.79</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>4.92</td>
<td>2.63</td>
<td>0.43</td>
<td>0.17</td>
</tr>
<tr>
<td>Organ Pipe</td>
<td>January</td>
<td>26.22</td>
<td>6.34</td>
<td>3.09</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>22.69</td>
<td>5.87</td>
<td>2.86</td>
<td>0.22</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>28.77</td>
<td>8.99</td>
<td>4.74</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>30.33</td>
<td>10.78</td>
<td>6.20</td>
<td>0.17</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>40.40</td>
<td>12.58</td>
<td>6.64</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>37.19</td>
<td>10.23</td>
<td>4.20</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>38.58</td>
<td>11.32</td>
<td>4.48</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>37.29</td>
<td>10.44</td>
<td>5.28</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>32.47</td>
<td>8.15</td>
<td>3.70</td>
<td>0.51</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>23.08</td>
<td>6.36</td>
<td>2.64</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>26.04</td>
<td>6.56</td>
<td>2.86</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>21.84</td>
<td>5.67</td>
<td>2.36</td>
<td>0.33</td>
</tr>
<tr>
<td>Site Name</td>
<td>Month</td>
<td>PM$_{10}$ (µg·m$^{-3}$)</td>
<td>PM$_{2.5}$ (µg·m$^{-3}$)</td>
<td>Fine Soil (µg·m$^{-3}$)</td>
<td>EC (µg·m$^{-3}$)</td>
</tr>
<tr>
<td>-------------</td>
<td>-------</td>
<td>------------------------</td>
<td>-------------------------</td>
<td>------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Phoenix</td>
<td>Jan</td>
<td>59.57</td>
<td>24.74</td>
<td>6.12</td>
<td>3.87</td>
</tr>
<tr>
<td></td>
<td>Feb</td>
<td>59.04</td>
<td>18.56</td>
<td>6.29</td>
<td>2.26</td>
</tr>
<tr>
<td></td>
<td>Mar</td>
<td>47.40</td>
<td>13.32</td>
<td>6.00</td>
<td>1.48</td>
</tr>
<tr>
<td></td>
<td>Apr</td>
<td>56.82</td>
<td>13.53</td>
<td>7.25</td>
<td>1.01</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>67.22</td>
<td>17.38</td>
<td>9.43</td>
<td>0.95</td>
</tr>
<tr>
<td></td>
<td>Jun</td>
<td>60.17</td>
<td>16.66</td>
<td>8.86</td>
<td>0.94</td>
</tr>
<tr>
<td></td>
<td>Jul</td>
<td>81.64</td>
<td>18.65</td>
<td>9.85</td>
<td>0.74</td>
</tr>
<tr>
<td></td>
<td>Aug</td>
<td>57.08</td>
<td>13.66</td>
<td>6.69</td>
<td>0.87</td>
</tr>
<tr>
<td></td>
<td>Sep</td>
<td>53.53</td>
<td>13.51</td>
<td>6.12</td>
<td>1.26</td>
</tr>
<tr>
<td></td>
<td>Oct</td>
<td>55.57</td>
<td>17.77</td>
<td>6.97</td>
<td>1.92</td>
</tr>
<tr>
<td></td>
<td>Nov</td>
<td>62.07</td>
<td>21.63</td>
<td>6.96</td>
<td>2.99</td>
</tr>
<tr>
<td></td>
<td>Dec</td>
<td>64.66</td>
<td>32.13</td>
<td>6.06</td>
<td>4.73</td>
</tr>
<tr>
<td>Queen Valley</td>
<td>January</td>
<td>23.06</td>
<td>7.48</td>
<td>3.49</td>
<td>0.38</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>26.53</td>
<td>6.16</td>
<td>2.59</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>32.12</td>
<td>8.56</td>
<td>4.69</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>37.07</td>
<td>10.18</td>
<td>5.71</td>
<td>0.26</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>47.24</td>
<td>12.45</td>
<td>6.74</td>
<td>0.27</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>34.07</td>
<td>10.56</td>
<td>4.78</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>54.76</td>
<td>13.09</td>
<td>5.90</td>
<td>0.34</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>36.00</td>
<td>11.14</td>
<td>5.33</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>33.68</td>
<td>8.73</td>
<td>3.74</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>39.73</td>
<td>10.72</td>
<td>4.54</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>27.04</td>
<td>8.21</td>
<td>3.01</td>
<td>0.44</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>23.58</td>
<td>8.24</td>
<td>2.11</td>
<td>0.49</td>
</tr>
<tr>
<td>Saguaro NM</td>
<td>January</td>
<td>24.93</td>
<td>7.26</td>
<td>3.64</td>
<td>0.47</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>19.54</td>
<td>6.45</td>
<td>3.46</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>24.92</td>
<td>8.38</td>
<td>5.15</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>29.28</td>
<td>10.50</td>
<td>5.96</td>
<td>0.23</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>39.01</td>
<td>13.81</td>
<td>7.50</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>31.94</td>
<td>12.44</td>
<td>5.53</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>51.03</td>
<td>16.00</td>
<td>8.55</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>23.45</td>
<td>8.86</td>
<td>3.71</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>19.07</td>
<td>7.84</td>
<td>3.11</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>32.24</td>
<td>12.92</td>
<td>7.13</td>
<td>0.38</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>26.68</td>
<td>9.91</td>
<td>5.30</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>21.25</td>
<td>7.67</td>
<td>3.53</td>
<td>0.53</td>
</tr>
<tr>
<td>Saguaro West</td>
<td>January</td>
<td>31.63</td>
<td>10.95</td>
<td>6.09</td>
<td>0.61</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>27.65</td>
<td>8.89</td>
<td>5.56</td>
<td>0.42</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>32.46</td>
<td>13.13</td>
<td>8.41</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>35.98</td>
<td>11.02</td>
<td>6.63</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>49.29</td>
<td>14.77</td>
<td>8.80</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>37.53</td>
<td>15.61</td>
<td>7.78</td>
<td>0.30</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>61.47</td>
<td>20.38</td>
<td>10.59</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>33.18</td>
<td>10.99</td>
<td>5.36</td>
<td>0.31</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>33.08</td>
<td>9.11</td>
<td>4.13</td>
<td>0.32</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>38.16</td>
<td>11.75</td>
<td>6.89</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>40.07</td>
<td>12.49</td>
<td>7.52</td>
<td>0.50</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>28.99</td>
<td>9.47</td>
<td>5.29</td>
<td>0.63</td>
</tr>
</tbody>
</table>
Table S1. Cont.

<table>
<thead>
<tr>
<th>Site Name</th>
<th>Month</th>
<th>PM10 (µg·m$^{-3}$)</th>
<th>PM2.5 (µg·m$^{-3}$)</th>
<th>Fine Soil (µg·m$^{-3}$)</th>
<th>EC (µg·m$^{-3}$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tonto</td>
<td>January</td>
<td>14.96</td>
<td>4.93</td>
<td>2.03</td>
<td>0.33</td>
</tr>
<tr>
<td></td>
<td>February</td>
<td>19.35</td>
<td>5.40</td>
<td>2.15</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>March</td>
<td>26.51</td>
<td>7.99</td>
<td>4.30</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>April</td>
<td>28.80</td>
<td>9.62</td>
<td>5.23</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>May</td>
<td>39.64</td>
<td>12.79</td>
<td>6.46</td>
<td>0.28</td>
</tr>
<tr>
<td></td>
<td>June</td>
<td>29.15</td>
<td>11.84</td>
<td>4.37</td>
<td>0.53</td>
</tr>
<tr>
<td></td>
<td>July</td>
<td>46.81</td>
<td>10.97</td>
<td>5.47</td>
<td>0.35</td>
</tr>
<tr>
<td></td>
<td>August</td>
<td>21.91</td>
<td>8.14</td>
<td>2.43</td>
<td>0.24</td>
</tr>
<tr>
<td></td>
<td>September</td>
<td>23.86</td>
<td>8.78</td>
<td>3.63</td>
<td>0.29</td>
</tr>
<tr>
<td></td>
<td>October</td>
<td>33.76</td>
<td>9.16</td>
<td>3.68</td>
<td>0.46</td>
</tr>
<tr>
<td></td>
<td>November</td>
<td>19.25</td>
<td>7.93</td>
<td>1.94</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>December</td>
<td>14.75</td>
<td>5.70</td>
<td>1.92</td>
<td>0.37</td>
</tr>
</tbody>
</table>

Figure S1. Cont.
Figure S1. Case examples demonstrating how NAAPS was used as a tool to identify which extreme fine soil events qualified as Asian dust events. The examples below are for extreme fine soil events occurring on 15 May 2003, 12 April 2007, and 5 June 2008, which qualified as extreme events at four, six, and five sites, respectively.

© 2015 by the authors; licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons by Attribution (CC-BY) license (http://creativecommons.org/licenses/by/4.0/).