Long-term Particulate Matter Modeling for Health Effects Studies in California – Part II: Concentrations and Sources of Ultrafine Organic Aerosols

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2 **Supplemental Mateirals**

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4   Figure S1: Predicted 9 year average $PM_{2.5}$ Total OA concentration and SOA/TOA ratio in
5   California

6   Figure S2: $PM_{2.5}$ SOA concentrations formed from different precursors.

7   Figure S3: Monthly source contributions to $PM_{2.5}$ SOA at 6 urban sites.

8   Figure S4: Predicted source contributions to 9 year average $PM_{2.5}$ POA concentrations.

9   Figure S5: Emission of different sources of long alkanes and aromatics in the "other
10   anthropogenic" source category.

11   Figure S6: Predicted source contributions to 9 year average $PM_{2.5}$ SOA concentrations.

12   Figure S7-S11: Influence of accounting for vapor wall losses on SOA results for SOA derived
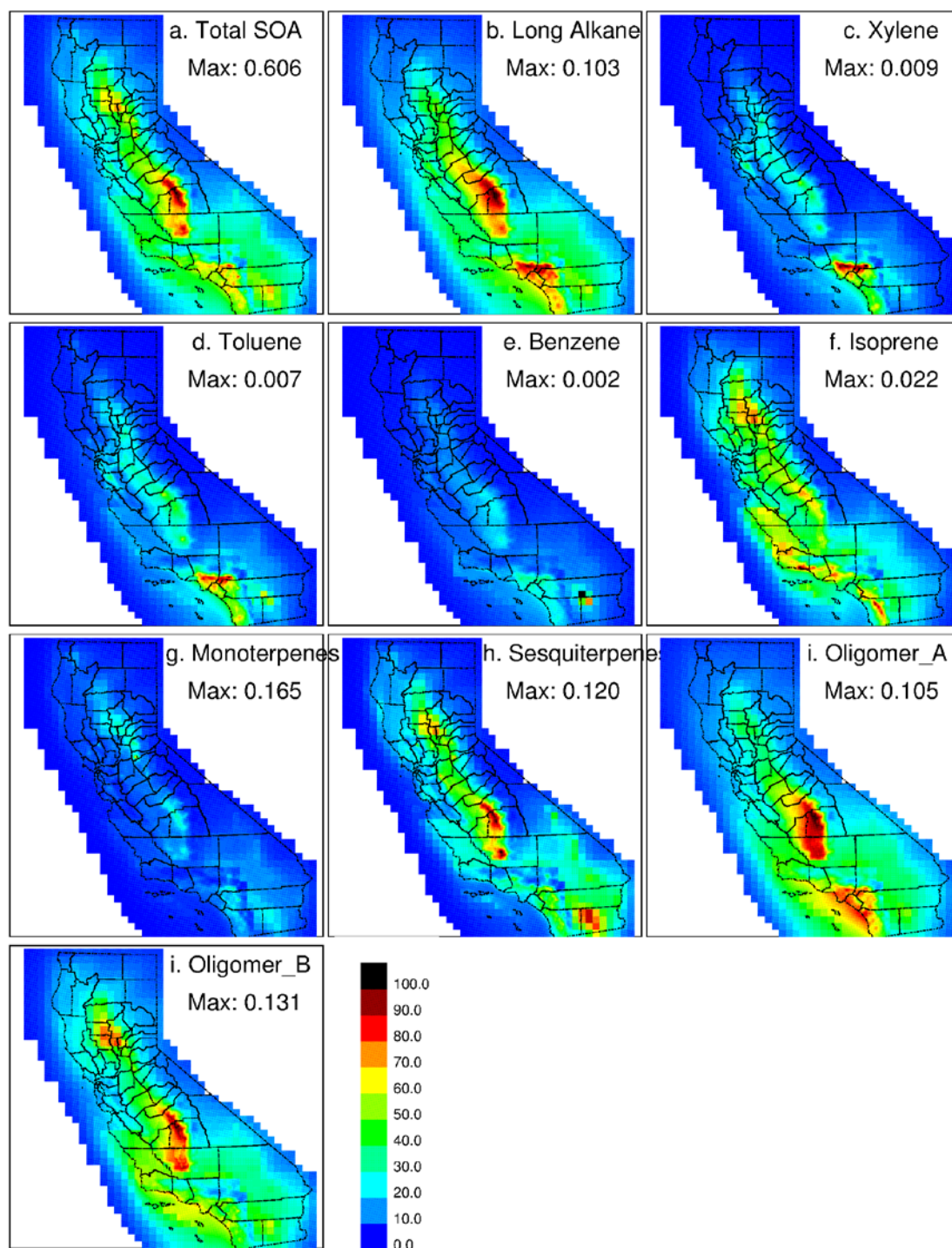13   from long alkanes (S1), aromatics (S2), isoprene (S3), sesquiterpenes (S4), and monoterpenes
14   (S5).

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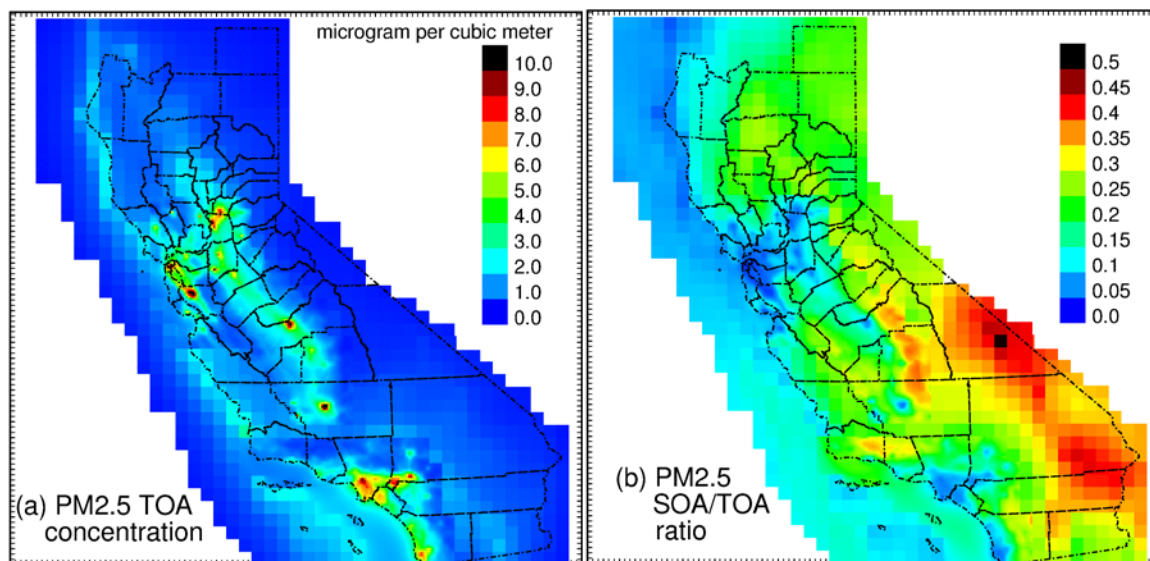
17   Figure S1. Predicted 9-year average (a) $PM_{2.5}$ Total OA (TOA) concentrations and (b) $PM_{2.5}$
18   SOA/TOA ratios in California.

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Figure S2. (a) 9-year average SOA concentrations; and SOA formed from (b)AALK, (c) AXYL, (d) ATOL, (e) ABNZ, (f) AISO, (g) ATRP, (h) ASQT, (i) AOLGA, and (j) AOLGB in PM$_{2.5}$. The color scales (shown in the last panel in unit of %) indicate the ratio of the concentrations to the max concentration values. The maximum concentration values are shown in the panels under the names of the species, with a unit of $\mu g/m^3$.

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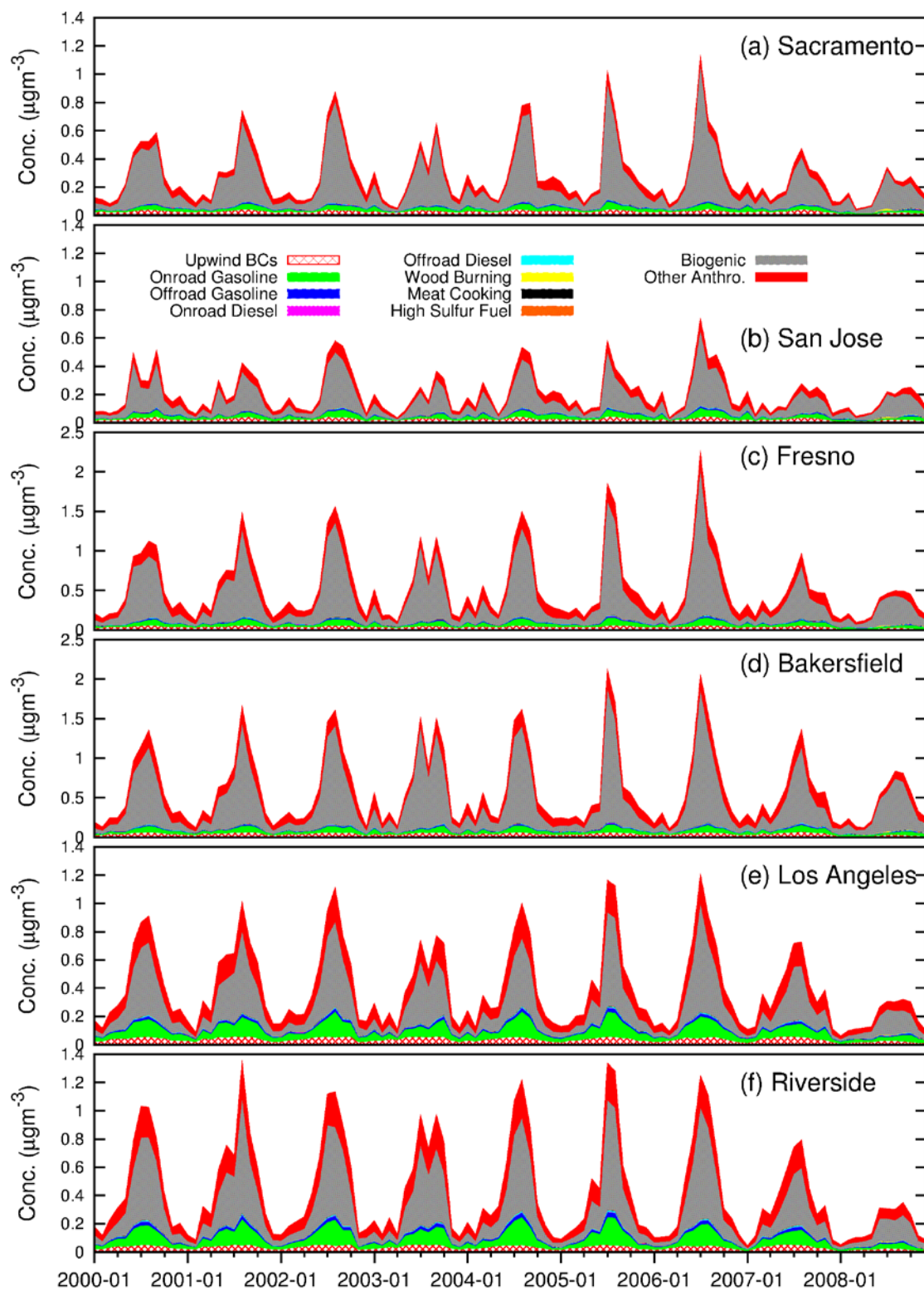
28   Figure S3. Monthly source contributions to PM$_{2.5}$ SOA at 6 urban sites. Predicted SOA
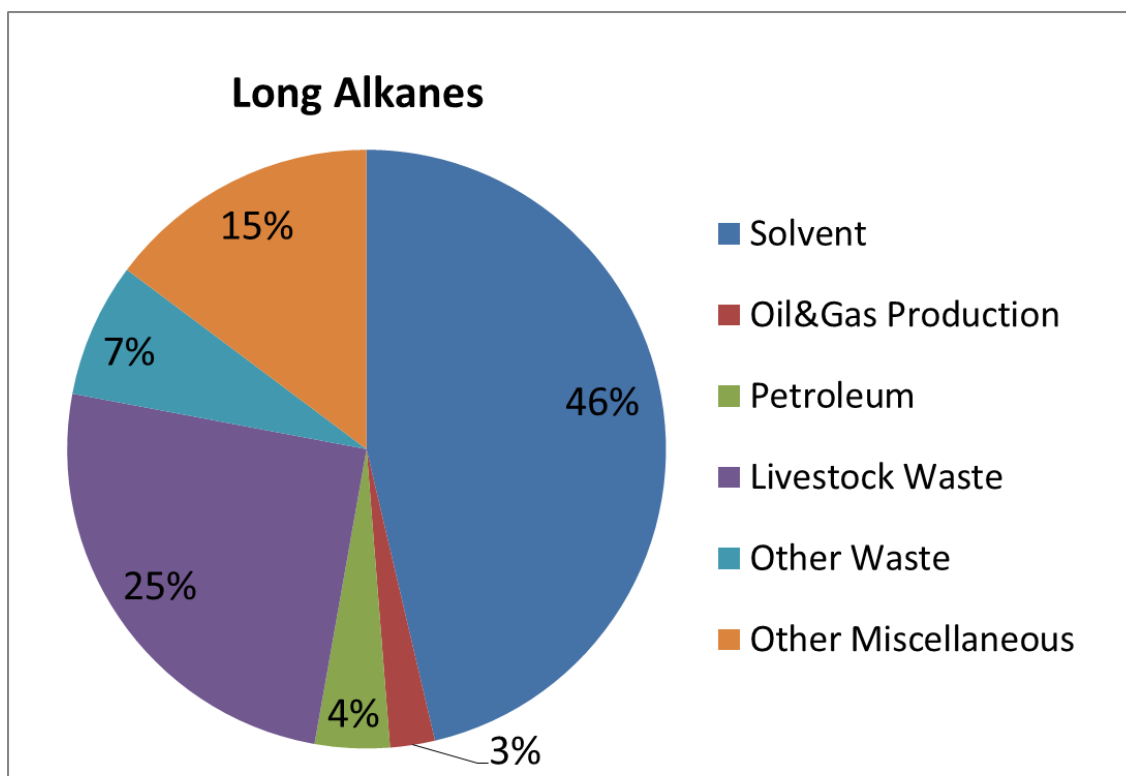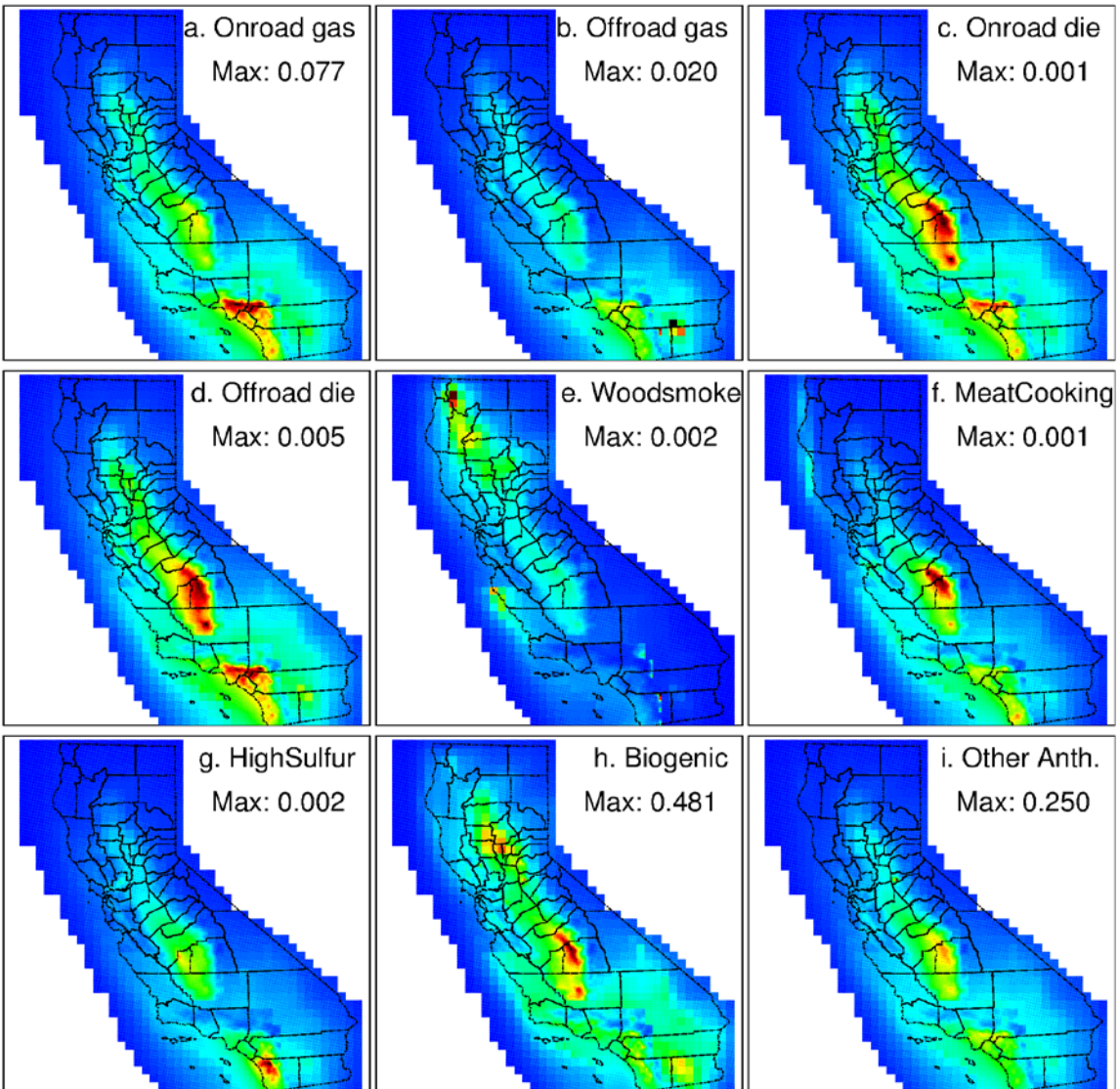29   concentrations from different sources are indicated by the colored areas.
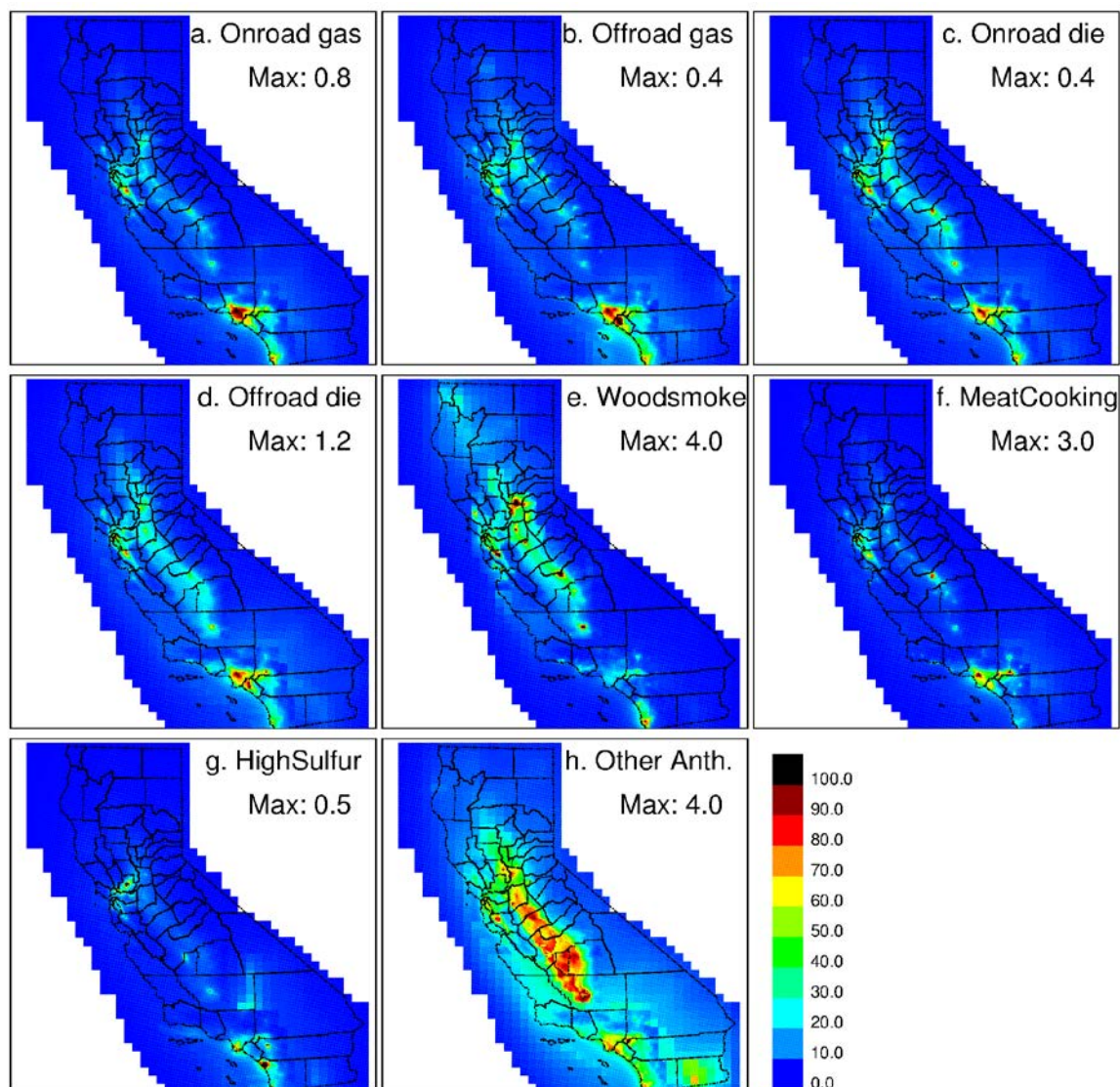
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Figure S4. Predicted source contributions to 9 year average PM$_{2.5}$ POA concentrations. The definition of the color scales are the same as in Figure 5.
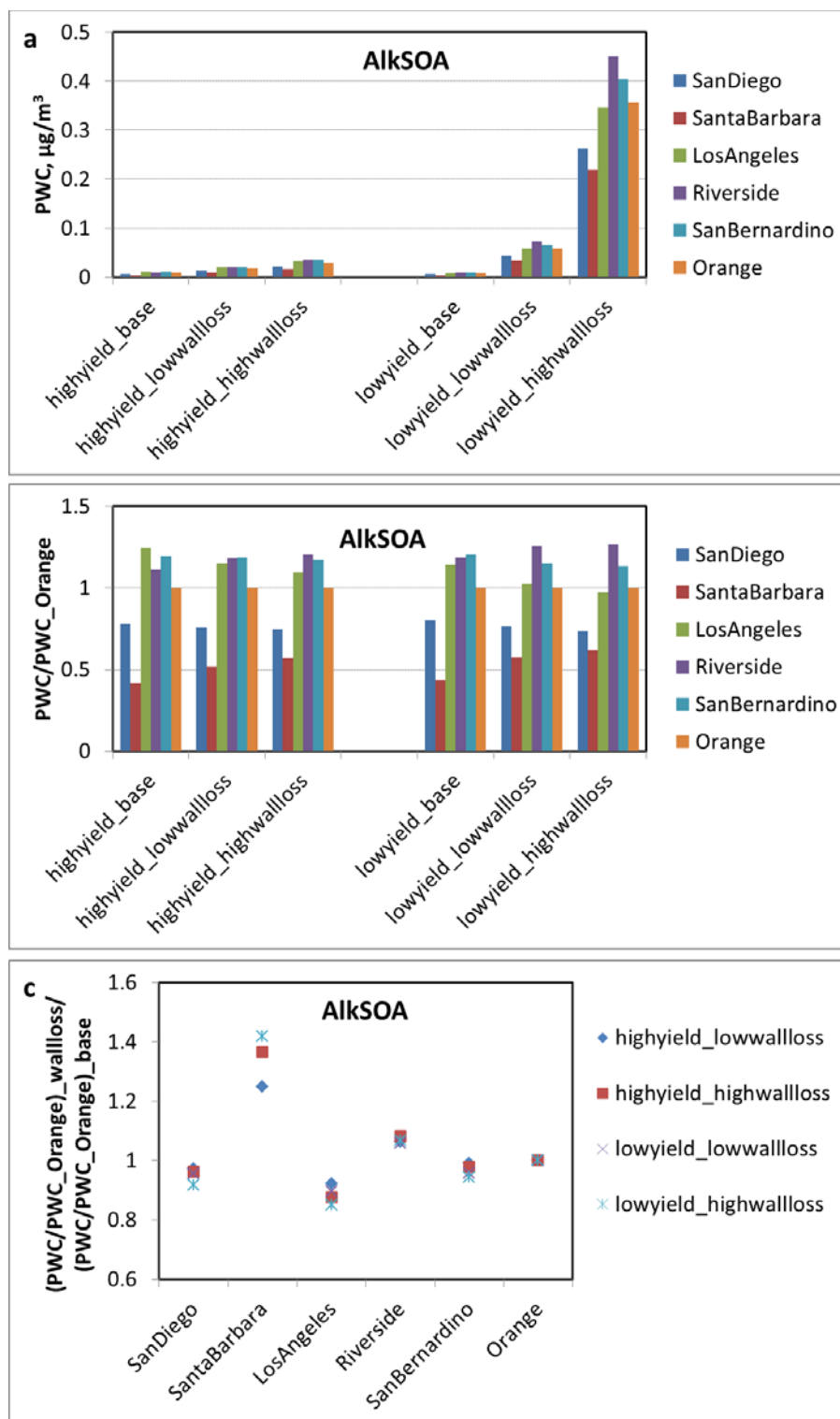
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Figure S5. Emission of different sources of long alkanes and aromatics in the "other anthropogenic" source category.

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Figure S6. Predicted source contributions to 9 year average PM$_{2.5}$ SOA concentrations. The definition of the color scales are the same as in Figure 5.

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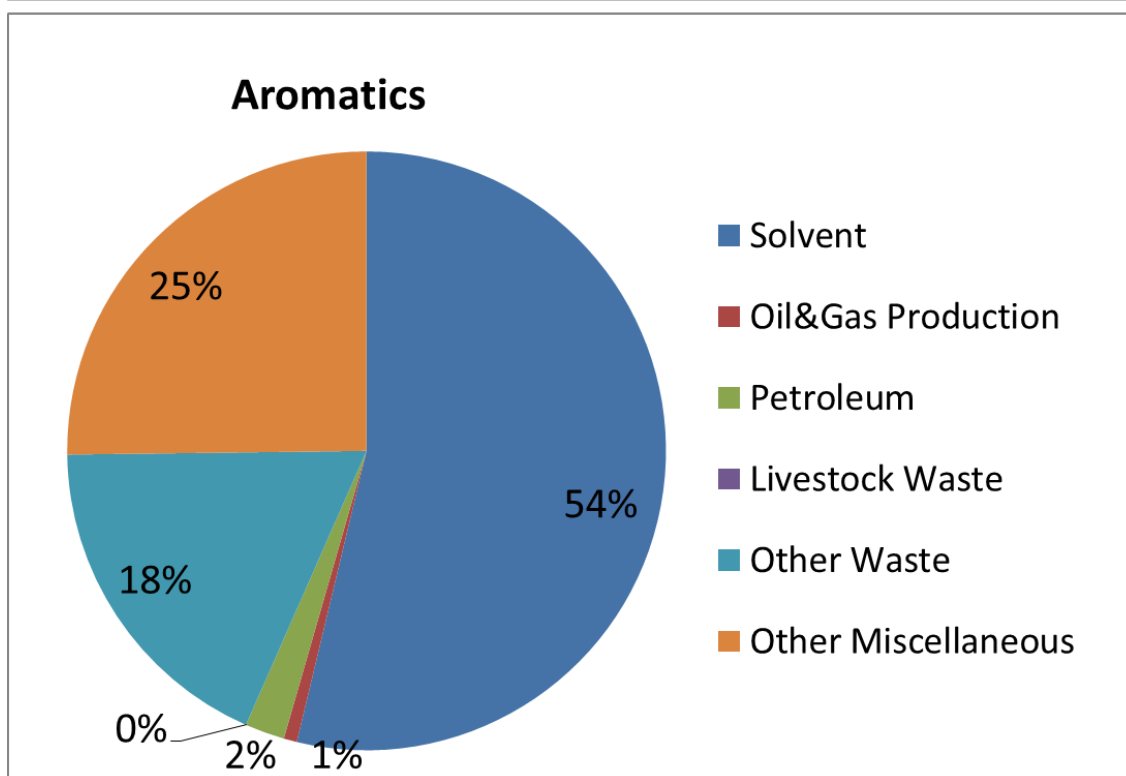
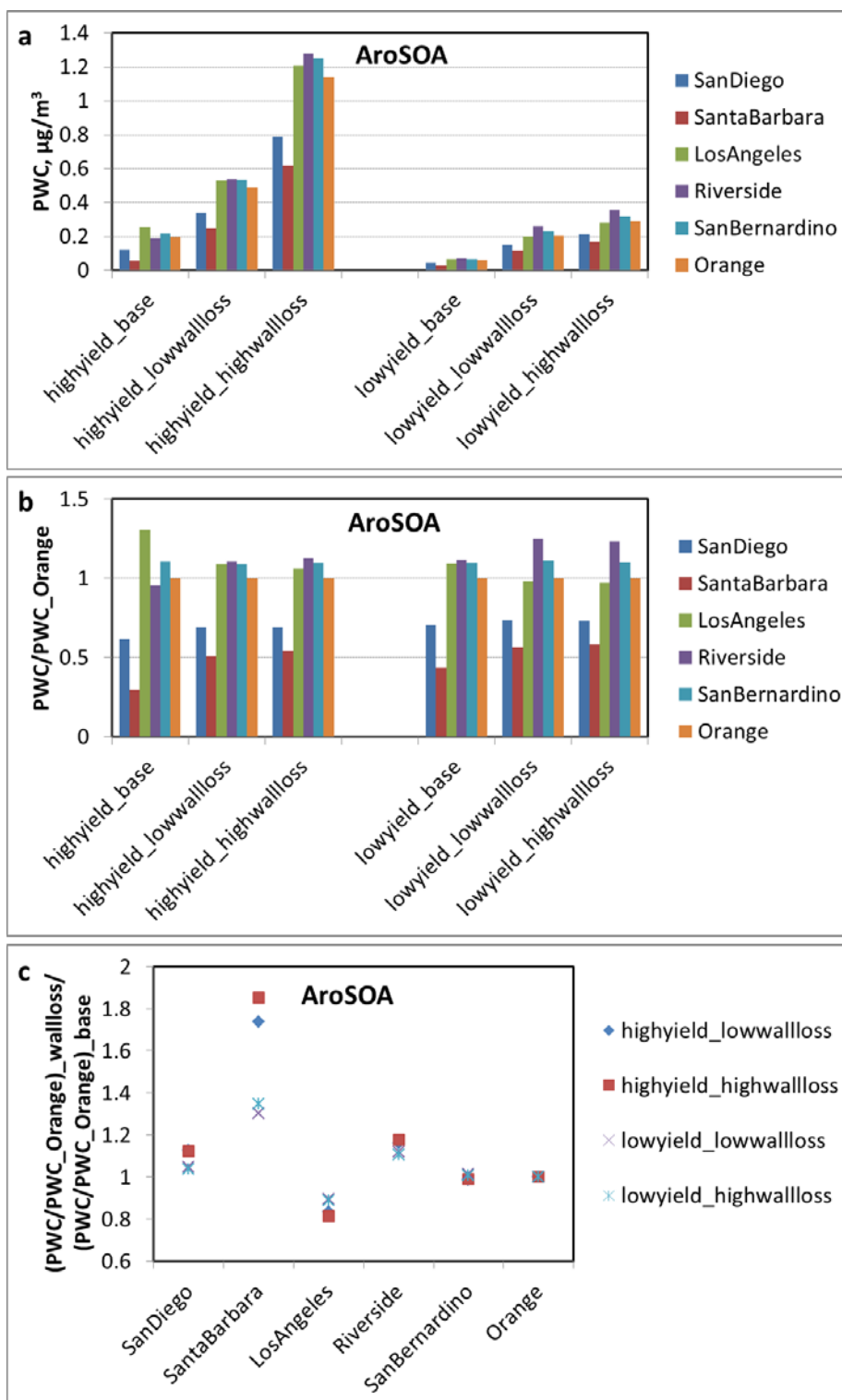Figure S7 Same as Figure 9, but only for SOA derived from long alkanes (AlkSOA).

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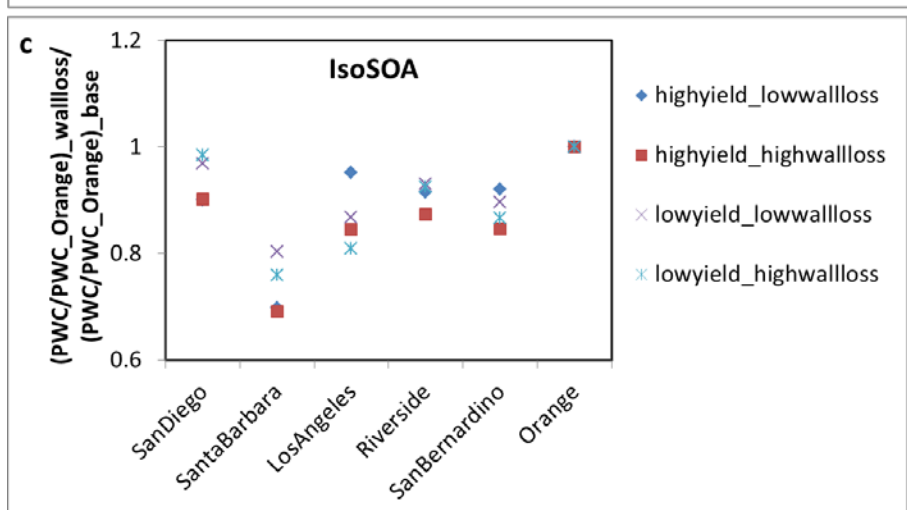Figure S8. Same as Figure 9, but only for SOA derived from aromatics (AroSOA).
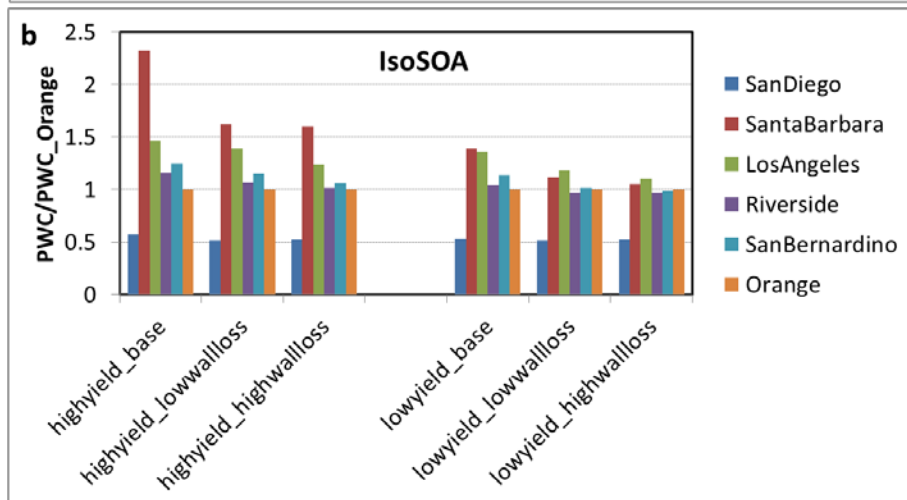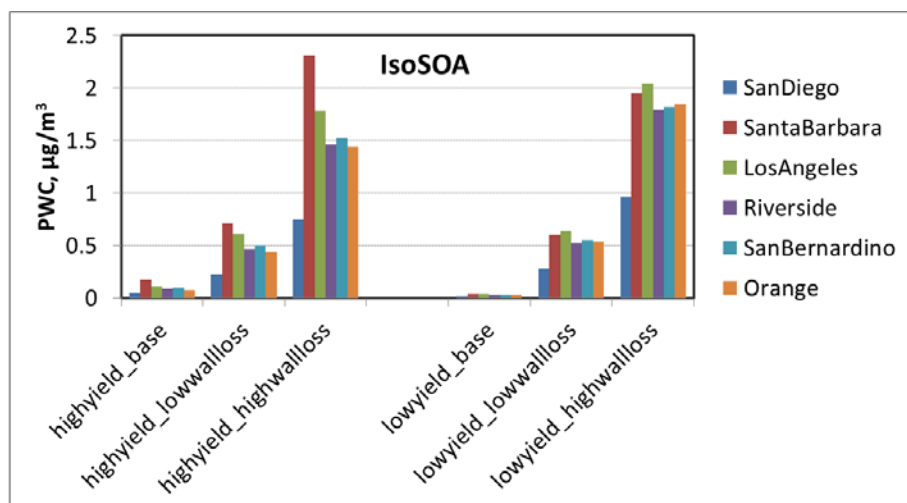
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Figure S9. Same as Figure 9, but only for SOA derived from isoprene (IsoSOA).
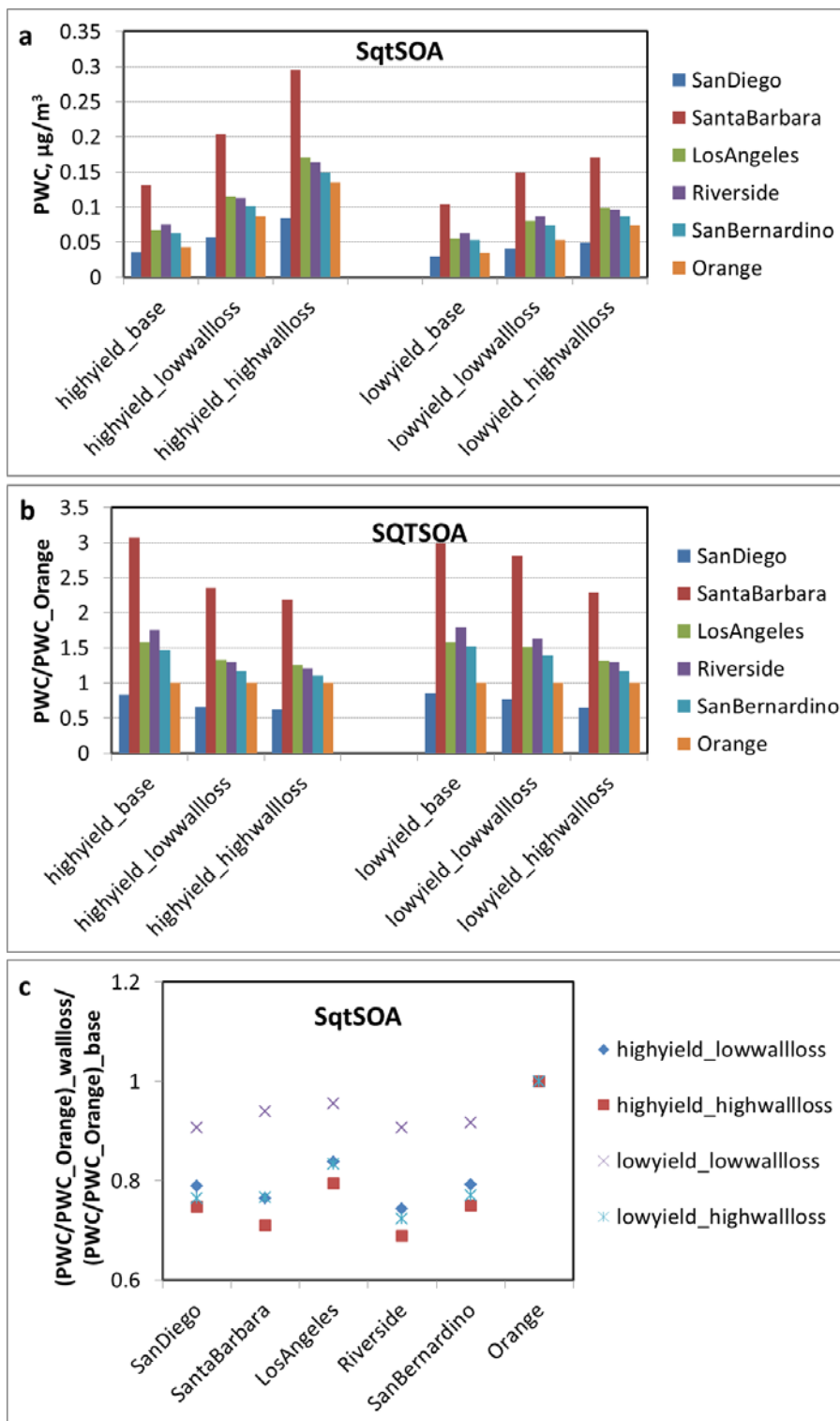
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Figure S10. Same as Figure 9, but only for SOA derived from sesquiterpenes (SqtSOA).
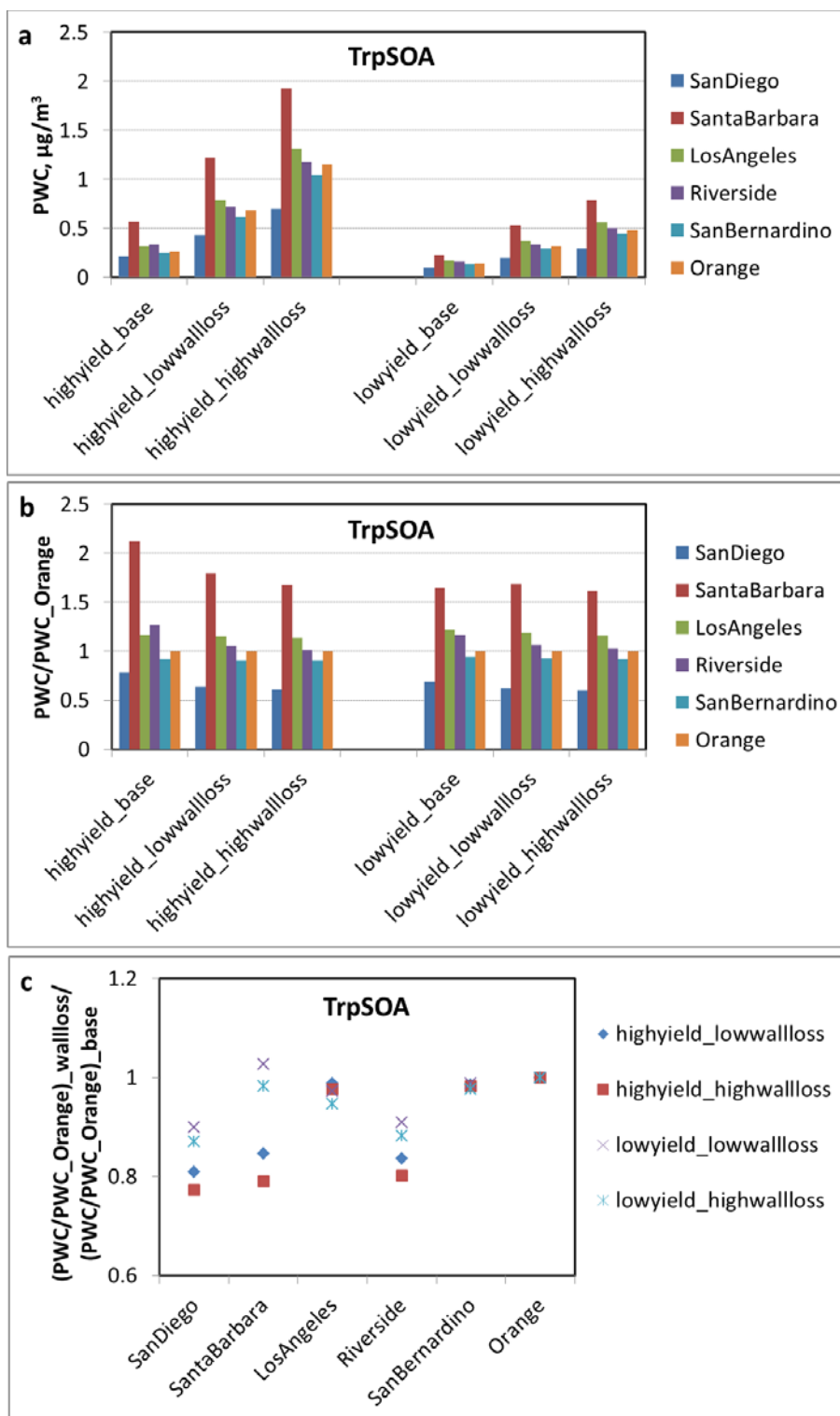
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Figure S11. Same as Figure 9, but only for SOA derived from monoterpenes (TrpSOA).

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