

Figure S1. Example of the Fire Index calculation for July 14, 2006 at CASTNet site 2 CAN (marked as black cross). Left panels show the daily mean resident time 3 4 calculated by FLEXPART for each backward day, middle panels show the daily wildfire areas burned for that day, and right panels show the mapped Fire Index 5 (product of the left and middle panel), with the sum FI for that day shown inset. Fire 6 7 Index (1) is then defined as the resident time of July 10 multiplying wildfire areas burned on the same day, resulting in the value of 0.13. Total Fire Index is the sum of 8 9 Fire Index (1) to (5): 226.89.



Figure S2. Correlation coefficients between the Total Fire Index (TFI) and measured
OC aerosol concentrations at 13 collocated CASTNet and IMPROVE sites in the
Intermountain West for the summers 1989-2010. The right panel shows the correlation
differences with respect to those using 5-day wildfire areas burned within 10 °×10 °
regions rather than TFI.



Figure S3. Comparison of the measured versus MLR predicted MDA8 ozone

concentrations in the summers 1989-2010 for the ensemble of 13 Intermountain West

23 CASTNet sites. The 1:1 line (dashed line) and the coefficient of determination (R^2) are

shown in the inset.



Figure S4. Evaluation of the MLR model low biases (MLR residuals) when measured
MDA8 ozone exceeds 70 ppbv as indicated in Figure S3. Scatter-plots of Total Fire
Index (TFI) versus measured MDA8 ozone (top panel), MLR wildfire ozone
enhancements (middle panel), and MLR residuals (bottom panel) are shown. The
correlation coefficients are also shown inset. The poor correlation between TFI and
MLR residuals indicates that the low biases may not result from model underestimates
of wildfire influences.

| Variable | Predictors used in MLR model ^a | Data source | | |
|--|--|---|--|--|
| $\overline{FI}_s, \overline{FI}_l$ | Fire Index for short/long period | FLEXPART 5-day backward | | |
| SqrFI _s SqrFI _l | Square root of Fire Index | trajectories and 0.5 °×0.5 ° wildfire area burned | | |
| Tsurf | Daytime mean ^b surface temperature | CASTNet surface monitoring sites in | | |
| WSPsurf | Daytime mean wind speed | the US Intermountain West | | |
| RH | Daytime mean relative humidity | (<u>http://www.epa.gov/castnet</u>), for 13 | | |
| SRAD | Daytime mean solar radiation | CASTNet sites only | | |
| Tmax | Daily maximum temperature | NOAA, National Climatic Data Center: Climate Data Online | | |
| AWND | Daily average daily wind speed | (<u>http://www.ncdc.noaa.gov/cdo-web/</u>), for Salt Lake City urban site only | | |
| PBLH | Gridded daily maximum planetary boundary height | NCEP Climate Forecast System Reanalysis (<u>http://rda.ucar.edu/datasets/ds093.0/</u>) | | |
| PRCP | Gridded daily precipitation | Climate Prediction Center of the National Weather Service (ftp://ftp.cpc.ncep.noaa.gov/precip/CPC _UNI_PRCP/GAUGE_CONUS/V1.0/) | | |
| U | Gridded daily mean 850, 700, 500 hPa zonal wind | | | |
| V | Gridded daily mean 850, 700, 500 hPa meridional wind | | | |
| WSP | Gridded daily mean 850, 700, 500 hPa horizontal wind | | | |
| Ome | Gridded daily mean 850, 700, 500 hPa vertical velocity | NCEP/NCAR Reanalysis dataset (<u>http://www.esrl.noaa.gov/psd/data/tim</u> eseries/daily/) | | |
| SH | Gridded daily mean 850, 700, 500 hPa specific humidity | | | |
| HGT | Gridded daily mean 850, 700, 500 hPa geopotential heights | | | |
| Т | Gridded daily mean 850, 700, 500 hPa temperature | | | |
| dT | Gridded daily mean temperature at 1000mb minus that at 850 hPa | | | |
| ^a Units are | C (Tsurf, T, dT, Tmax), m s ⁻¹ (WSPsurf, WS | P, U, V, AWND), % (RH), W m ⁻² (SRAD). | | |
| m (PBLH), | geopotential height (HGT), kg • kg ⁻¹ (SH), (|).1 mm (PRCP), and pa s^{-1} (Ome). | | |
| ^b Doutimo n | man represent average for 10.00 17.00 legal | time | | |

| 35 | Table S1. | Variables used in the MLR models. | |
|----|-----------|-----------------------------------|--|
|----|-----------|-----------------------------------|--|

41 **Table S2**. Correlation coefficients (r) between OC aerosol concentration measurements

42 and Total Fire Index integrated over different backward days and different footprint

43 layers (i.e., model output layer where fire emissions are lifted) at 13 Intermountain

| Site - | | 5-0 | lay | | 2-day | 3-day | 4-day | Record |
|--------|----------------------|-------------|-------------|-------------|--------|-------------|-------------|--------|
| | 5000m | 2000m | 1500m | 100m | 2000m | 2000m | 2000m | number |
| GLR | 0.44 ^{** a} | 0.41** | 0.40^{**} | 0.40^{**} | 0.40** | 0.41** | 0.41** | 529 |
| YEL | 0.44^{**} | 0.41^{**} | 0.41** | 0.43** | 0.37** | 0.40^{**} | 0.41** | 372 |
| PND | 0.41^{**} | 0.39** | 0.38** | 0.38** | 0.36** | 0.37** | 0.38** | 564 |
| CNT | 0.24^{*} | 0.19 | 0.20 | 0.20^{*} | 0.11 | 0.17 | 0.18 | 91 |
| ROM | 0.32** | 0.32** | 0.30** | 0.30** | 0.27** | 0.30** | 0.31** | 558 |
| GTH | 0.39** | 0.36** | 0.34** | 0.33** | 0.29** | 0.34** | 0.35** | 316 |
| MEV | 0.36** | 0.38** | 0.35** | 0.36** | 0.35** | 0.38** | 0.37** | 331 |
| GRB | 0.33** | 0.32** | 0.27^{**} | 0.26^{**} | 0.30** | 0.31** | 0.32** | 512 |
| CAN | 0.38** | 0.37** | 0.34** | 0.36** | 0.33** | 0.35** | 0.37** | 564 |
| GRC | 0.25^{**} | 0.24^{**} | 0.23** | 0.23** | 0.23** | 0.28^{**} | 0.23** | 337 |
| PET | 0.32** | 0.32** | 0.31** | 0.32** | 0.32** | 0.32** | 0.32** | 489 |
| CHA | 0.30** | 0.29** | 0.27^{**} | 0.27^{**} | 0.30** | 0.29** | 0.29** | 492 |
| BBE | 0.19** | 0.28^{**} | 0.15** | 0.12^{*} | 0.21** | 0.20^{**} | 0.26^{**} | 284 |
| Mean | 0.34** | 0.33** | 0.30** | 0.31** | 0.29** | 0.32** | 0.32** | |

44 West CASTNet sites in summers 1989-2010.

45 ^a Double asterisk (**) denotes the correlations that are strongly significant (p <0.01),

46 and single asterisk (^{*}) denotes the correlations that are significant (p <0.05).

| GLR (976 m) 0.59 (1809) 1 0 34.5 0.59(228) 0.57(29) RH(-0.39), HGT850(-0.07), SH850(-861.61), dT(-1.86) 178.1 (976 m) 2 44.96 36.6 0.57(79) RH(-0.30), Dmc700(-1902.37), ISGT00(0.09), WSPsurf(1.56), US00(-0.159), SH700(-104.27), -707 -7100.7 3 27144.1 41.1 0.50(723) RH(-0.22), TS00(-0.9), SRAD(0.01), SqrF1(0.007), US50(0.83), Dmc700(-18.34), U500(-0.232), SH500(-125.37), -700(0.72) 3608 YEL 0.35 1 0 45.5 0.40(91) WSP500(0.22), RH(-0.19), WSPsurf(-2.034), HGT850(-0.03), Dmc500(-1.06), WSP8050(-0.35), Strut(-1.27), SRAD(0.01), HGT500(-0.03), OME500(11.66), WSP8050(-0.35), Strut(-0.27), SRAD(0.01), SqrF1(0.031), Strut(-1.27), SRAD(0.01), SqrF1(0.031), Strut(-0.05), SRAD(0.01), SqrF1(0.031), Strut(-0.05), SRAD(0.03), WSP800(-0.23), WSP8050(-0.23), Strut(-0.03), SqrF1(0.02), FL(-1.98E-5), HGT850(-0.03), Omc700(-13.34), T27.33 PND 0.28 1 0 54.0 0.35(53) SH700(-239), 23), ST00(-239), 23), T500(-239), 23), T500(-239), 23), T500(-239), SqrF1(0.02), FL(-1.98E-5), HGT850(-0.23), Omc700(-13, SqrF1(0.02), FL(-1.98E-5), HGT850(-0.23), Omc700(-13, SqrF1(0.02), FL(-1.98E-5), HGT850(-0.23), Omc700(-13, SqrF1(0.02), FL(-1.98E-5), HGT850(-0.23), SqrF1(0.02), FL(-1.98E-5), HGT850(-0.23), SqrF1(0.02), FL(-1.98E-5), HGT850(-0.23), SqrF1(0.02), FL(-1.98E-5), HGT850(-0.03), SqrF1(0.02), FL(-1.98E-5), HGT850(-0.03), Omc700(-13, SqrF1(0.02), FL(-1.98E-5), HGT850(-0.03), Sqg | Sites (Altitude) | Total R ² (N) | Group ^b Num. | TFI mean | Ozone mean | $\mathbf{R}^{2}(\mathbf{N})$ | Variables (coefficient) ^c | С |
|--|---------------------|-----------------------------|----------------------------|-------------|---------------|------------------------------|--|--------|
| (976 m) (1809) 2 44.96 36.6 0.57(79) RH(-0.30), Ome700(-1902), HGTS50(-0.1), SRAD(0.09), WSPsurf(1.56), U500(-0.159), SH700(-1040.27), e170.7 V7000(17), SQFIL(0.37), TS00(0.37), TS00(0.9), SQFIL(0.37), MSD(0.9), SQFIL(0.37), MSD(0.9), SQFIL(0.37), MSD(0.9), SQFIL(0.37), MSD(0.9), SQFIL(0.37), MSD(0.9), SQFIL(0.37), SQFIL(0.37), SQFIL(0.37), SQFIL(0.37), SQFIL(0.31), SQFIL(0.32), SQFID(0.32), SQFID(0.23), | GLR | 0.59 | 1 | 0 | 34.5 | 0.59(228) | RH(-0.39), HGT850(-0.07), SH850(-861.61), dT(-1.86) | 178.1 |
| 3 27144.1 41.1 0.50(72) RH(-0.22, T500(-0.69), SRAD(0.01), SqrFL(0.007), U850(0.83),Ome700(-18.34), U500(-0.232), SH500(-1253.7), a6.08 YEL 0.35 1 0 45.5 0.40(91) WSF500(0.722), RH(-0.19), WSPsur(-2.034), HGT850(-0.05) 124.05 (2400m) (1611) 2 256.8 47.3 0.34(76) RH(-0.29, V700(0.35), Surf(-1.21), T700(1.27), SRAD(0.01), HGT500(-0.03), OME500(11.06), WSP850(-0.35), 221.91 3 35700.0 51.2 0.22(754) RH(-0.07), V700(0.35), SRAD(0.01), SqrFL(0.005), SqrFL(0.013), SH700(-331.7), dT(2.25), FL(-0.006) 30.46 (1888) 2 242.1 53.8 0.24(895) V700(0.35), RH(-0.08), Tsur(0.09), HGT850(-0.05), SqrFL(0.02), FL(-1.98E-5), HGT850(-0.03), Ome700(13.86), 92.21 700(0.17) 700(0.17) 700(0.17) 700(0.17), V500(0.27), SqrFL(0.02), FU(-1.98E-5), HGT850(-0.03), Ome700(13.86), 92.21 7100(0.17) 700(0.17) 700(0.15) 7100(0.17) 700(0.427), Str00(6.059.94) 7100(-0.43), SqrFL(0.02), FL(-1.98E-5), HGT850(-0.03), Ome700(13.86), 92.21 7100(0.17) 7100(0.17) 7100(0.17) 7100(0.17) 7100(0.17) 7100(0.17) 7100(0.17) 7100(0.17) 7100(0.17) 7100(1.11) 7100(1.11) 7100(1.11) | (976 m) | (1809) | 2 | 44.96 | 36.6 | 0.57(799) | RH(-0.30), Ome700(-19.02), HGT850(-0.31), SRAD(0.009), WSPsurf(1.56), U500(-0.159), SH700(-1040.27), V700(0.197), SqrFI(0.377), HGT700(0.37), T850(-0.9) | -170.7 |
| VEL (2400m) 0.3 (161) 1 0 45.5 0.40(01) WSP500(0722), RH(-0.19), WSPsur(2.034), HGTS50(-0.05) 124.05 (2400m) 2 256.8 47.3 0.347(66) RH(-0.29), V700(0.38), Tsur(-1.21), T700(1.27), SRAD(0.01), HGT500(-0.03), OME500(1.16), WSP850(-0.35), 221.91 210 33700.0 51.2 0.22(754) RH(-0.07), V700(0.235), SRAD(0.01), SqrFI(0.03), SqrFI(0.31), SH700(-833.17), dT(2.25), FI(-0.06) 30.46 (2388m) (1888) 2 242.1 53.8 0.24(895) V700(0.25), SRH(-0.08), TSU(0.02), SqrFI(0.02), SRAD(0.03), WSPsur(0.10), SH700(-1433.4), 127.33 7000(0.17) 3 29574.8 56.7 0.24(907) RH(-0.17), V500(0.27), SqrFI(0.24), U700(-0.43), SqrFI(0.02), FI(-1.98E-5), HGT850(-0.03), Ome700(13.86), 92.21 7500(-0.27), SH500(659.94) 7500(-0.27), SH500(659.94) 7500(-0.27), SH500(-63435.6), T500(-0.75) 31.4 (3178m) (127) 2 153.5 56.2 0.14(913) RH(-0.10), SH500(-0.33), SqrFI(0.32), U700(-0.458), WSP850(0.27) 31.4 (3178m) (1347) 2 10.5.5 56.2 0.14(913) RH(-0.10), SH500(-638), SqrFI(0.33), FI(-6.32), U700(-0.458), WSP850(0.27) 64.37 (2743m) <t< td=""><td></td><td></td><td>3</td><td>27144.1</td><td>41.1</td><td>0.50(782)</td><td>RH(-0.22), T500(-0.69), SRAD(0.01), SqrFI_s(0.007), U850(0.83),Ome700(-18.34), U500(-0.232), SH500(-1253.7), T700(0.72)</td><td>36.08</td></t<> | | | 3 | 27144.1 | 41.1 | 0.50(782) | RH(-0.22), T500(-0.69), SRAD(0.01), SqrFI _s (0.007), U850(0.83),Ome700(-18.34), U500(-0.232), SH500(-1253.7), T700(0.72) | 36.08 |
| (2400m) (1611) 2 256.8 47.3 0.34(760) RH(-0.29), VT00(1.27), SRAD(0.01), HGT500(-0.03), OME500(11.06), WSP50(-0.35), 221.91 W 3 35700.0 51.2 0.22(754) RH(-0.07), VT00(0.53), SRAD(0.01), SqrFI(0.03), SHAD(0.01), SH700(-833.17), dT(2.25), FI(-0.006) 30.46 PND 0.28 1 0 53.1 0.34(86) T700(2.0), SH700(-239), 23), TS00(-1.63) 32.84 (2388m) (1888) 2 242.1 53.8 0.24(895) V7000(.035), RH(-0.03), SqrFI(0.02), SIT20(-0.28), WSPsurf(0.10), SH700(-1433.4), 127.33 (1878) 2 29574.8 56.7 0.24(907) RH(-0.17), V500(0.27), SqrFI(0.02), SqrFI(0.02), FI(-1.98E-5), HGT850(-0.03), Ome700(1.36), 92.21 (1878) 1 0 54.0 0.35(53) SH850(2329.38, SH500(-343.56), T500(-0.75) 31.4 (3178m) (192) 1 0 52.5 0.14(91) RH(-0.12), T500(0.68), U700(-0.30), SqrFI (0.22), U700(-0.458), WSP50(0.27) 98.8 (2743m) 1 0 52.5 0.25(36) RH(-0.10), WSPsurf(3.18), U700(-0.38), SqrFI (0.23), SqrFI | YEL | 0.35 | 1 | 0 | 45.5 | 0.40(91) | WSP500(0.722), RH(-0.19), WSPsurf(-2.034), HGT850(-0.05) | 124.05 |
| 3 3570.0 51.2 0.22(754) RH(-0.07), V700(0.53), SRAD(0.01), SqrFL(0.30), SqrFL(0.31), SH700(-333, I7), dT(2.25), FL(-0.006) 30.46 PND 0.28 1 0 53.1 0.34(86) T700(2.0), SH700(-259,23), T500(-1.63) SRAD(0.03), WSP700(-0.28), WSPsurf(0.10), SH700(-1433.4), 127.33 (2388m) (1888) 2 242.1 53.8 0.24(895) V700(0.35), RH-0.08), Tsurf(0.09), HGT850(-0.05), SRAD(0.03), WSP700(-0.28), WSPsurf(0.10), SH700(-1433.4), 127.33 127.33 (1900) 3 29574.8 56.7 0.24(907) RH(-0.17), V500(0.27), SqrFL(0.24), U700(-0.43), SqrFL(0.02), FL(-1.98E-5), HGT850(-0.03), Ome700(13.86), r700(-0.75) 31.4 (3178m) 1 0 54.0 0.35(53) SH850(2393.8), SH500(-313.56), T500(-0.75) 68.89 ROM 0.36 1 0 55.2 0.25(56) RH(-0.10), WSPurf(3.18), U700(-0.30), SqrFL(0.3), FL(-5.02E-5) 68.89 ROM 0.36 1 0 52.5 0.23(78) RH(-0.10), WSPurf(3.18), U700(-0.30), SqrFL(0.3), FL(-5.02E-5) 68.89 ROM 0.36 1 0 50.7 0.32(78) RH(-0.10), U700(-0.50), SqrFL(0.33) | (2400m) | (1611) | 2 | 256.8 | 47.3 | 0.34(766) | RH(-0.29), V700(0.38), Tsurf(-1.21), T700(1.27), SRAD(0.01), HGT500(-0.03), OME500(11.06), WSP850(-0.35), U500(0.26), WSPsurf(-0.69) | 221.91 |
| PND (2388m) 0.28 (1888) 1 0 53.1 0.34(86) T700(2.0), SH700(-239,23), T500(-1.63) 32.84 (2388m) 2 242.1 53.8 0.24(895) V700(0.37), Strf(0.09), HGT850(-0.05), SRAD(0.03), WSP70(-0.28), WSPsurf(0.10), SH700(-1433.4), T700(0.17) 127.33 3 29574.8 56.7 0.24(907) RH(-0.17), V500(0.27), SqrFI(0.24), U700(-0.43), SqrFI(0.02), FI(-1.98E-5), HGT850(-0.03), Ome700(13.86), T500(-0.27), SqrFI(0.24), U700(-0.43), SqrFI(0.225), U700(-0.458), WSP800(-0.03), Ome700(13.86), T500(-0.27), SqrFI(0.32), SqrFI(0.25), U700(-0.458), WSP850(0.27) 98.8 CNT (3178m) 0.19 (125) 1 0 54.0 0.35(53) SH80(233.8), SH500(-3435.6), T500(-0.03), SqrFI(0.25), U700(-0.458), WSP850(0.27) 98.8 ROM (2743m) 0.36 1 0 52.5 0.25(36) RH(-0.10), SH500(-1514.43), HGT850(-0.023), SqrFI(0.25), U700(-0.458), WSP850(0.27) 98.8 ROM (2743m) 0.36 1 0 52.5 0.25(36) RH(-0.10), T500(-0.31), SqrFI(0.02), FI(5.02E-5) 68.89 ROM (2926m) 0.36 1 0 52.5 0.25(36) RH(-0.10), T500(-1.11), SqrFI(0.21), SRAD(0.01), FI(3.3E-5), Ome500(-14.89), PRCP(-0.03) 37.84 <tr< td=""><td></td><td></td><td>3</td><td>35700.0</td><td>51.2</td><td>0.22(754)</td><td>RH(-0.07), V700(0.53), SRAD(0.01), SqrFI₅(0.005), SqrFI₆(0.31), SH700(-833.17), dT(2.25), FI₆(-0.006)</td><td>30.46</td></tr<> | | | 3 | 35700.0 | 51.2 | 0.22(754) | RH(-0.07), V700(0.53), SRAD(0.01), SqrFI ₅ (0.005), SqrFI ₆ (0.31), SH700(-833.17), dT(2.25), FI ₆ (-0.006) | 30.46 |
| (1388) 2 242.1 53.8 0.24(895) V700(0.35), RH(-0.08), Tsurf(0.09), HGT850(-0.05), SRAD(0.03), WSP700(-0.28), WSPsurf(0.10), SH700(-1433.4), T700(0.17) 127.33 (2388m) 3 29574.8 56.7 0.24(907) RH(-0.17), V500(0.27), SqrFI(0.24), U700(-0.43), SqrFI(.0.22), FL(-1.98E-5), HGT850(-0.03), Ome700(13.86), T500(-0.27), SH500(59.94) 92.21 (1975) 2 153.5 56.2 0.14(913) RH(-0.10), SH500(-0.23), SqrFI(.0.25), U700(-0.458), WSP850(0.27) 98.8 (1976) 2 153.5 56.2 0.14(913) RH(-0.10), SH500(-1514.43), HGT850(-0.023), SqrFI(.0.25), U700(-0.458), WSP850(0.27) 98.8 (2743m) 0.36 1 0 52.5 0.25(36) RH(-0.12), T500(0.68), U700(-0.30), SqrFI(.0.32), FL(-5.02E-5) 68.89 (2743m) (1347) 2 107.6 54.6 0.34(581) RH(-0.10), WSPsurf(3.18), U700(-0.88), Tsurf(0.11), SH500(-1967.9), T850(0.43), SRAD(0.005), SqrFI(.0.03), A7.35 SqrFI(.0.04) 47.35 (2926m) (1906) 2 0 50.7 0.32(78) RH(-0.17), T500(-1.11), Ome850(-39.32) 48.03 (1307 2 108.1 51.9 0.30 | PND | 0.28 | 1 | 0 | 53.1 | 0.34(86) | T700(2.0), SH700(-2399.23), T500(-1.63) | 32.84 |
| 3 29574.8 56.7 0.24(907) RH(-0.17), V500(0.27), SqrFI ₁ (0.24), U700(-0.43), SqrFI ₁ (0.22), FI ₁ (-1.98E-5), HGT850(-0.03), Ome700(13.86), T500(-0.27), SH500(569.94) 92.21 CNT (3178m) 1 0 54.0 0.35(5) SH850(229.38), SH500(-3435.6), T500(-0.75) 31.4 (3178m) 2 153.5 56.2 0.14(913) RH(-0.10), SH500(-1514.43), HGT850(-0.023), SqrFI ₄ (0.225), U700(-0.458), WSP850(0.27) 98.8 ROM (2743m) 0.36 1 0 52.5 0.25(36) RH(-0.20) 64.37 (2743m) 1 0 52.5 0.25(36) RH(-0.10), WSPsurf(3.18), U700(-0.88), Tsurf(0.11), SH500(-1967.9), T850(0.43), SRAD(0.005), SqrFI ₄ (0.03), sqrFI ₄ (0.04) 64.37 (2743m) 3 7976.7 59.0 0.38(730) RH(-0.10), WSPsurf(3.18), U700(-0.96), WSPsurf(0.11), SH500(-1967.9), T850(0.43), SRAD(0.005), SqrFI ₄ (0.03), sqrFI ₄ (0.04) 73.38 (2926m) 1 0 50.7 0.32(78) RH(-0.17), T500(-1.11), Ome850(-39.32) 48.03 (2926m) 1 0 50.7 0.32(78) RH(-0.20), HGT500(-0.04), WSPsurf(1.53), U500(-0.21), SqrFI(0.030), SH850(216.48), V850(-0.25) 273.78 </td <td>(2388m)</td> <td>(1888)</td> <td>2</td> <td>242.1</td> <td>53.8</td> <td>0.24(895)</td> <td>V700(0.35), RH(-0.08), Tsurf(0.09), HGT850(-0.05), SRAD(0.03), WSP700(-0.28), WSPsurf(0.10), SH700(-1433.4), T700(0.17)</td> <td>127.33</td> | (2388m) | (1888) | 2 | 242.1 | 53.8 | 0.24(895) | V700(0.35), RH(-0.08), Tsurf(0.09), HGT850(-0.05), SRAD(0.03), WSP700(-0.28), WSPsurf(0.10), SH700(-1433.4), T700(0.17) | 127.33 |
| CNT (3178m) 0.19 (1925) 1 0 54.0 0.35(53) SH850(2293.8), SH500(-3435.6), T500(-0.75) 31.4 (3178m) (1925) 2 153.5 56.2 0.14(913) RH(-0.10), SH500(-1514.43), HGT850(-0.023), SqrFI _t (0.225), U700(-0.458), WSP850(0.27) 98.8 3 10517.1 58.9 0.18(959) RH(-0.10), SH500(-1514.43), HGT850(-0.023), SqrFI _t (0.30), FI _t (-5.02E-5) 68.89 ROM 0.36 1 0 52.5 0.25(36) RH(-0.20) 64.37 (2743m) (1347) 2 107.6 54.6 0.34(S10) RH(-0.10), WSPsurf(2.91), T500(1.21), SRAD(0.01), FIs(3.3E-5), Ome500(-14.89), PRCP(-0.03) 37.84 GTH 0.29 1 0 50.7 0.32(78) RH(-0.20), HGT500(-0.04), WSPsurf(2.91), T500(1.21), SRAD(0.01), FIs(3.3E-5), Ome500(-14.89), PRCP(-0.03) 37.84 (2926m) (1906) 2 108.1 51.9 0.30(79) RH(-0.17), T500(-1.11), Ome850(-39.32) 273.78 (2926m) (1301) 2 9.0.44 54.4 0.22(915) RH(-0.17), SqrFI ₁ (0.32), T500(-0.67), V850(-0.21), SqrFI ₁ (0.30), SH850(216.48), V850(-0.25) | | | 3 | 29574.8 | 56.7 | 0.24(907) | RH(-0.17), V500(0.27), SqrFI ₍ (0.24), U700(-0.43), SqrFI _s (0.02), FI _s (-1.98E-5), HGT850(-0.03), Ome700(13.86), T500(-0.27), SH500(569.94) | 92.21 |
| (3178m) (1925) 2 153.5 56.2 0.14(913) RH(-0.10), SH500(-1514.43), HGT850(-0.023), SqrFI ₄ (0.225), U700(-0.458), WSP850(0.27) 98.8 ROM 0.36 1 0 52.5 0.25(36) RH(-0.12), T500(0.68), U700(-0.30), SqrFI ₄ (0.3), FI ₄ (-5.02E-5) 668.89 ROM 0.36 1 0 52.5 0.25(36) RH(-0.10), WSPsurf(3.18), U700(-0.38), Tsurf(0.11), SH500(-1967.9), T850(0.43), SRAD(0.005), SqrFI ₄ (0.03), 47.35 (2743m) (1347) 2 107.6 54.6 0.34(581) RH(-0.10), WSPsurf(3.18), U700(-0.88), Tsurf(0.11), SH500(-1967.9), T850(0.43), SRAD(0.005), SqrFI ₄ (0.03), 47.35 GTH 0.29 1 0 50.7 0.32(78) RH(-0.10), WSPsurf(2.91), T500(1.21), SRAD(0.01), FIs(3.3E-5), Ome500(-14.89), PRCP(-0.03) 37.84 (1906) 2 108.1 51.9 0.30(913) RH(-0.20), HGT500(-0.04), WSPsurf(2.33), U500(-0.21), SqrFI(0.30), SH850(216.48), V850(-0.25) 273.78 (2926m) (1906) 2 108.1 54.4 0.22(915) RH(-0.15), SqrFI(0.32), T500(-0.67), V850(-0.45), FII(-0.01), Ome500(-115), IVS00(-0.19), HGT850(-0.03), 72.45 72.45 (2926m) (1321) 2 </td <td>CNT</td> <td>0.19</td> <td>1</td> <td>0</td> <td>54.0</td> <td>0.35(53)</td> <td>SH850(2293.8), SH500(-3435.6), T500(-0.75)</td> <td>31.4</td> | CNT | 0.19 | 1 | 0 | 54.0 | 0.35(53) | SH850(2293.8), SH500(-3435.6), T500(-0.75) | 31.4 |
| ROM (2743m) 0.36 (1347) 1 0 52.5 0.25(36) RH(-0.12), T500(0.68), U700(-0.30), SqrFI,(0.3), FI ₄ (-5.02E-5) 68.89 (2743m) (1347) 2 107.6 54.6 0.34(581) RH(-0.20) 64.37 (2743m) (1347) 2 107.6 54.6 0.34(581) RH(-0.10), WSPsurf(2.91), T500(1.21), SRAD(0.01), FIs(3.3E-5), Ome500(-14.89), PRCP(-0.03) 37.84 GTH 0.29 1 0 50.7 0.32(78) RH(-0.10), USPsurf(2.91), T500(1.21), SRAD(0.01), FIs(3.3E-5), Ome500(-14.89), PRCP(-0.03) 37.84 GTH 0.29 1 0 50.7 0.32(78) RH(-0.17), T500(-1.11), Ome850(-39.32) 48.03 (2926m) (1906) 2 108.1 51.9 0.30(913) RH(-0.20), HGT500(-0.04), WSPsurf(1.53), U500(-0.21), SqrFII(0.30), SH850(216.48), V850(-0.25) 273.78 (2926m) (1906) 2 108.1 51.9 0.30(913) RH(-0.20), HGT500(-0.04), WSPsurf(1.53), U500(-0.45), FII(-0.01), Ome500(-11.51), WSP500(-0.19), HGT850(-0.03), 72.45 WSPsurf(0.72), dT(1.67) WSPsurf(0.72), dT(1.67) 63.73 (2165m) (1321) 2 | (3178m) | (1925) | 2 | 153.5 | 56.2 | 0.14(913) | RH(-0.10), SH500(-1514.43), HGT850(-0.023), SqrFI ₄ (0.225), U700(-0.458), WSP850(0.27) | 98.8 |
| ROM (2743m) 0.36 (1347) 1 0 52.5 0.25(36) RH(-0.20) 64.37 (2743m) (1347) 2 107.6 54.6 0.34(581) RH(-0.10). WSPsurf(3.18), U700(-0.88), Tsurf(0.11), SH500(-1967.9), T850(0.43), SRAD(0.005), SqrFI _t (0.03), SqrFI _t (0.04) 47.35 GTH (2926m) 0.29 (1906) 1 0 50.7 0.32(78) RH(-0.17), T500(-1.11), Ome850(-39.32) 48.03 Zer 10.8.1 51.9 0.30(913) RH(-0.20), HGT500(-0.04), WSPsurf(1.53), U500(-0.21), SqrFII(0.30), SH850(216.48), V850(-0.25) 273.78 3 8100.3 54.4 0.22(915) RH(-0.15), SqrFI_(0.32), T500(-0.67), V850(-0.45), FII(-0.01), Ome500(-11.51), WSP500(-0.19), HGT850(-0.03), 72.45 72.45 MEV (2165m) 0.3 1 0 52.3 0.43(60) RH(-0.26) 63.73 (2165m) 1 0 52.3 0.43(60) RH(-0.25) SqrFI_(0.01), RH(-0.06), U850(-0.60), SRAD(0.01) 48.49 GRB 0.40 1 0 54.3 0.38(50) WSPsurf(2.39), Ome850(-116.10), SH500(-3840.94) 48.00 (2060m) (1360) | | | 3 | 10517.1 | 58.9 | 0.18(959) | RH(-0.12), T500(0.68), U700(-0.30), SqrFI _s (0.3), FI _s (-5.02E-5) | 68.89 |
| (2743m) (1347) 2 107.6 54.6 0.34(581) RH(-0.10), WSPsurf(3.18), U700(-0.88), Tsurf(0.11), SH500(-1967.9), T850(0.43), SRAD(0.005), SqrFI(0.03), SRAD(0.01), FIs(3.3E-5), Ome500(-14.89), PRCP(-0.03) 37.84 GTH 0.29 1 0 50.7 0.32(78) RH(-0.17), T500(-1.11), Ome850(-39.32) 48.03 (2926m) (1906) 2 108.1 51.9 0.30(913) RH(-0.20), HGT500(-0.04), WSPsurf(1.53), U500(-0.21), SqrFI(0.30), SH850(216.48), V850(-0.25) 273.78 (3 8100.3 54.4 0.22(915) RH(-0.15), SqrFI(0.32), T500(-0.67), V850(-0.45), FII(-0.01), Ome500(-11.51), WSP500(-0.19), HGT850(-0.03), VSPsurf(0.72), dT(1.67) 72.45 MEV 0.23 1 0 52.3 0.43(60) RH(-0.26) 63.73 (2165m) (1321) 2 90.44 54.6 0.16(555) RH(-0.15), U700(-0.51), T700(-1.49), WSPsurf(-0.91), dT(3.15), V700(0.35), Tsurf(0.38), 28.41 28.41 (2165m) 1 0 54.3 0.38(50) WSPsurf(2.39), Ome850(-116.10), SH500(-0.60), US50(-0.60), SRAD(0.01) 48.49 GRB </td <td>ROM</td> <td>0.36</td> <td>1</td> <td>0</td> <td>52.5</td> <td>0.25(36)</td> <td>RH(-0.20)</td> <td>64.37</td> | ROM | 0.36 | 1 | 0 | 52.5 | 0.25(36) | RH(-0.20) | 64.37 |
| 3 7976.7 59.0 0.38(730) RH(-0.16), U700(-0.96), WSPsurf(2.91), T500(1.21), SRAD(0.01), FIs(3.3E-5), Ome500(-14.89), PRCP(-0.03) 37.84 GTH 0.29 1 0 50.7 0.32(78) RH(-0.17), T500(-1.11), Ome850(-39.32) 48.03 (2926m) (1906) 2 108.1 51.9 0.30(913) RH(-0.20), HGT500(-0.04), WSPsurf(1.53), U500(-0.21), SqrFII(0.30), SH850(216.48), V850(-0.25) 273.78 3 8100.3 54.4 0.22(915) RH(-0.15), SqrFI(0.32), T500(-0.67), V850(-0.45), FII(-0.01), Ome500(-11.51), WSP500(-0.19), HGT850(-0.03), 72.45 MEV 0.23 1 0 52.3 0.43(60) RH(-0.26) 63.73 (1321) 2 90.44 54.6 0.16(555) RH(-0.15), U700(-0.51), T700(-1.49), WSPsurf(-0.91), dT(3.15), V700(0.35), Tsurf(0.38), 28.41 3 13658.64 57.6 0.19(706) Tsurf(0.23), SqrFI_(0.20), SqrFI_(0.01), RH(-0.06), U850(-0.60), SRAD(0.01) 48.49 GRB 0.40 1 0 54.3 0.38(50) WSPsurf(2.39), Ome850(41.89), WSP500(-0.41), SRAD(0.01), Tsurf(1.01), SH700(-1013.96), SqrFI_(0.88), HGT500(-0.05) 3 16182.4 | (2743m) | (1347) | 2 | 107.6 | 54.6 | 0.34(581) | RH(-0.10), WSPsurf(3.18), U700(-0.88), Tsurf(0.11), SH500(-1967.9), T850(0.43), SRAD(0.005), SqrFI ₍ (0.03), SqrFI ₃ (0.04) | 47.35 |
| GTH (2926m) 0.29 (1906) 1 0 50.7 0.32(78) RH(-0.17), T500(-1.11), Ome850(-39.32) 48.03 (2926m) (1906) 2 108.1 51.9 0.30(913) RH(-0.20), HGT500(-0.04), WSPsurf(1.53), U500(-0.21), SqrFII(0.30), SH850(216.48), V850(-0.25) 273.78 3 8100.3 54.4 0.22(915) RH(-0.15), SqrFI _d (0.32), T500(-0.67), V850(-0.45), FII(-0.01), Ome500(-11.51), WSP500(-0.19), HGT850(-0.03), 72.45 MEV 0.23 1 0 52.3 0.43(60) RH(-0.26) 63.73 (2165m) (1321) 2 90.44 54.6 0.16(555) RH(-0.15), U700(-0.51), T700(-1.49), WSPsurf(-0.91), dT(3.15), V700(0.35), Tsurf(0.38), 28.41 3 13658.64 57.6 0.19(706) Tsurf(0.23), SqrFI _d (0.01), RH(-0.06), U850(-0.60), SRAD(0.01) 48.49 GRB 0.40 1 0 54.3 0.38(50) WSPsurf(2.39), Ome850(-116.10), SH500(-3840.94) 48.00 (2060m) (1360) 2 77.4 55.4 0.40(649) Ome700(-60.71), Ome850(44.89), WSP500(-0.41), SRAD(0.01), Tsurf(1.01), SH700(-1013.96), SqrFI _d (0.88), HGT500(-0.05) 340.53 | | | 3 | 7976.7 | 59.0 | 0.38(730) | RH(-0.16), U700(-0.96), WSPsurf(2.91), T500(1.21), SRAD(0.01), FIs(3.3E-5), Ome500(-14.89), PRCP(-0.03) | 37.84 |
| (2926m) (1906) 2 108.1 51.9 0.30(913) RH(-0.20), HGT500(-0.04), WSPsurf(1.53), U500(-0.21), SqrFII(0.30), SH850(216.48), V850(-0.25) 273.78 3 8100.3 54.4 0.22(915) RH(-0.15), SqrFII(0.32), T500(-0.67), V850(-0.45), FII(-0.01), Ome500(-11.51), WSP500(-0.19), HGT850(-0.03), 72.45 MEV 0.23 1 0 52.3 0.43(60) RH(-0.26) 63.73 (2165m) 2 90.44 54.6 0.16(555) RH(-0.15), U700(-0.51), T700(-1.49), WSPsurf(-0.91), dT(3.15), V700(0.35), Tsurf(0.38), 28.41 3 13658.64 57.6 0.19(706) Tsurf(0.23), SqrFI _x (0.01), RH(-0.06), U850(-0.60), SRAD(0.01) 48.49 GRB 0.40 1 0 54.3 0.38(50) WSPsurf(2.39), Ome850(-116.10), SH500(-3840.94) 48.00 (2060m) (1360) 2 77.4 55.4 0.40(649) Ome700(-60.71), Ome850(44.89), WSP500(-0.41), SRAD(0.01), Tsurf(1.01), SH700(-1013.96), SqrFI _x (-1.61E-5) 340.53 HGT500(-0.05) 3 16182.4 57.5 0.38(661) Tsurf(1.11), HGT700(-0.09), SqrFI _x (0.02), SqrFI _x (0.16), WSPsurf(0.98), U850(-0.67), WSP500(-0.18), FI _x (-1.61E-5) 315.28 | GTH | 0.29 | 1 | 0 | 50.7 | 0.32(78) | RH(-0.17), T500(-1.11), Ome850(-39.32) | 48.03 |
| 3 8100.3 54.4 0.22(915) RH(-0.15), SqrFI _l (0.32), T500(-0.67), V850(-0.45), FII(-0.01), Ome500(-11.51), WSP500(-0.19), HGT850(-0.03), WSPsurf(0.72), dT(1.67) 72.45 MEV (2165m) 0.23 (1321) 1 0 52.3 0.43(60) RH(-0.26) 63.73 3 13658.64 57.6 0.16(555) RH(-0.15), U700(-0.51), T700(-1.49), WSPsurf(-0.91), dT(3.15), V700(0.35), Tsurf(0.38), 28.41 3 13658.64 57.6 0.19(706) Tsurf(0.23), SqrFI _s (0.01), RH(-0.06), U850(-0.60), SRAD(0.01) 48.49 GRB (2060m) 0.40 (1360) 1 0 54.3 0.38(50) WSPsurf(2.39), Ome850(-116.10), SH500(-3840.94) 48.00 3 16182.4 57.5 0.38(661) Tsurf(1.11), HGT700(-0.09), SqrFI _s (0.02), SqrFI _s (0.16), WSPsurf(0.98), U850(-0.67), WSP500(-0.18), FI _s (-1.61E-5) 315.28 | (2926m) | (1906) | 2 | 108.1 | 51.9 | 0.30(913) | RH(-0.20), HGT500(-0.04), WSPsurf(1.53), U500(-0.21), SqrFII(0.30), SH850(216.48), V850(-0.25) | 273.78 |
| MEV (2165m) 0.23 (1321) 1 0 52.3 0.43(60) RH(-0.26) 63.73 (2165m) 2 90.44 54.6 0.16(555) RH(-0.15), U700(-0.51), T700(-1.49), WSPsurf(-0.91), dT(3.15), V700(0.35), Tsurf(0.38), 28.41 3 13658.64 57.6 0.19(706) Tsurf(0.23), SqrFI _x (0.01), RH(-0.06), U850(-0.60), SRAD(0.01) 48.49 GRB 0.40 1 0 54.3 0.38(50) WSPsurf(2.39), Ome850(-116.10), SH500(-3840.94) 48.00 (2060m) (1360) 2 77.4 55.4 0.40(649) Ome700(-60.71), Ome850(44.89), WSP500(-0.41), SRAD(0.01), Tsurf(1.01), SH700(-1013.96), SqrFI _x (0.88), HGT500(-0.05) 340.53 3 16182.4 57.5 0.38(661) Tsurf(1.11), HGT700(-0.09), SqrFI _x (0.02), SqrFI _x (0.16), WSPsurf(0.98), U850(-0.67), WSP500(-0.18), FI _x (-1.61E-5) 315.28 | | | 3 | 8100.3 | 54.4 | 0.22(915) | RH(-0.15), SqrFI₍0.32) , T500(-0.67), V850(-0.45), FII(-0.01), Ome500(-11.51), WSP500(-0.19), HGT850(-0.03), WSPsurf(0.72), dT(1.67) | 72.45 |
| (1321) 2 90.44 54.6 0.16(555) RH(-0.15), U700(-0.51), T700(-1.49), WSPsurf(-0.91), dT(3.15), V700(0.35), Tsurf(0.38), 28.41 3 13658.64 57.6 0.19(706) Tsurf(0.23), SqrFI _x (0.01), RH(-0.06), U850(-0.60), SRAD(0.01) 48.49 GRB 0.40 1 0 54.3 0.38(50) WSPsurf(2.39), Ome850(-116.10), SH500(-3840.94) 48.00 (2060m) (1360) 2 77.4 55.4 0.40(649) Ome700(-60.71), Ome850(44.89), WSP500(-0.41), SRAD(0.01), Tsurf(1.01), SH700(-1013.96), SqrFI _x (0.88), HGT500(-0.05) 340.53 3 16182.4 57.5 0.38(661) Tsurf(1.11), HGT700(-0.09), SqrFI _x (0.02), SqrFI _x (0.16), WSPsurf(0.98), U850(-0.67), WSP500(-0.18), FI _x (-1.61E-5) 315.28 | MEV | 0.23 | 1 | 0 | 52.3 | 0.43(60) | RH(-0.26) | 63.73 |
| 3 13658.64 57.6 0.19(706) Tsurf(0.23), SqrFI _s (0.01), RH(-0.06), U850(-0.60), SRAD(0.01) 48.49 GRB 0.40 1 0 54.3 0.38(50) WSPsurf(2.39), Ome850(-116.10), SH500(-3840.94) 48.00 (2060m) (1360) 2 77.4 55.4 0.40(649) Ome700(-60.71), Ome850(44.89), WSP500(-0.41), SRAD(0.01), Tsurf(1.01), SH700(-1013.96), SqrFI _s (0.88), HGT500(-0.05) 340.53 3 16182.4 57.5 0.38(661) Tsurf(1.11), HGT700(-0.09), SqrFI _s (0.02), SqrFI _s (0.16), WSPsurf(0.98), U850(-0.67), WSP500(-0.18), FI _s (-1.61E-5) 315.28 | (2165m) | (1321) | 2 | 90.44 | 54.6 | 0.16(555) | RH(-0.15), U700(-0.51), T700(-1.49), WSPsurf(-0.91), dT(3.15), V700(0.35), Tsurf(0.38), | 28.41 |
| GRB 0.40 1 0 54.3 0.38(50) WSPsurf(2.39), Ome850(-116.10), SH500(-3840.94) 48.00 (2060m) (1360) 2 77.4 55.4 0.40(649) Ome700(-60.71), Ome850(44.89), WSP500(-0.41), SRAD(0.01), Tsurf(1.01), SH700(-1013.96), SqrFI _t (0.88), 340.53 340.53 3 16182.4 57.5 0.38(661) Tsurf(1.11), HGT700(-0.09), SqrFI _t (0.02), SqrFI _t (0.16), WSPsurf(0.98), U850(-0.67), WSP500(-0.18), FI _s (-1.61E-5) 315.28 | | | 3 | 13658.64 | 57.6 | 0.19(706) | Tsurf(0.23), SqrFI _s (0.20), SqrFI _s (0.01), RH(-0.06), U850(-0.60), SRAD(0.01) | 48.49 |
| (2060m) (1360) 2 77.4 55.4 0.40(649) Ome700(-60.71), Ome850(44.89), WSP500(-0.41), SRAD(0.01), Tsurf(1.01), SH700(-1013.96), SqrFI _t (0.88), 340.53 340.53 3 16182.4 57.5 0.38(661) Tsurf(1.11), HGT700(-0.09), SqrFI _t (0.02), SqrFI _t (0.16), WSPsurf(0.98), U850(-0.67), WSP500(-0.18), FI _s (-1.61E-5) 315.28 | GRB | 0.40 | 1 | 0 | 54.3 | 0.38(50) | WSPsurf(2.39), Ome850(-116.10), SH500(-3840.94) | 48.00 |
| 3 16182.4 57.5 0.38(661) Tsurf(1.11), HGT700(-0.09), SqrFI _s (0.02), SqrFI _s (0.16), WSPsurf(0.98), U850(-0.67), WSP500(-0.18), FI _s (-1.61E-5) 315.28 | (2060m) | (1360) | 2 | 77.4 | 55.4 | 0.40(649) | Ome700(-60.71), Ome850(44.89), WSP500(-0.41), SRAD(0.01), Tsurf(1.01), SH700(-1013.96), SqrFI ₁ (0.88), HGT500(-0.05) | 340.53 |
| | | | 3 | 16182.4 | 57.5 | 0.38(661) | Tsurf(1.11), HGT700(-0.09), SqrFI _s (0.02), SqrFI _f (0.16), WSPsurf(0.98), U850(-0.67), WSP500(-0.18), FI _s (-1.61E-5) | 315.28 |

Table S3. Coefficients of the multi-linear regression (MLR) models for summer MDA8 ozone at 13 Intermountain West CASTNet sites^a

Table S3. Continued

| Sites (Altitude) | Total R ² (N) | Group ^b Num. | TFI mean | Ozone mean | $\mathbf{R}^{2}(\mathbf{N})$ | Variables (coefficient) ^c | с |
|---------------------|-----------------------------|----------------------------|-------------|---------------|------------------------------|--|---------|
| CAN | 0.16 | 1 ^d | 0 | 55.2 | NAN | NAN | NAN |
| (1809m) | (1379) | 2 | 99.43 | 56.6 | 0.10(638) | SqrFI ₅ (0.14), SqrFI ₆ (0.28), V850(-0.45), Ome500(-19.72), T850(-0.75), Tsurf(0.55) | 59.21 |
| | | 3 | 12448 | 59.4 | 0.13(741) | SqrFI ₄ (0.34), RH(-0.10), FI ₄ (-0.01), Ome700(-16.03), V500(-0.18), WSPsurf(0.31) | 58.51 |
| GRC | 0.34 | 1 | 0 | 52.2 | 0.33(153) | SH700(-1564.2), WSP850(-1.23), HGT850(-0.18), HGT500(0.05), PRCP(0.05), SRAD(0.01), SH500(2233.7) | 50.60 |
| (1874m) | (1912) | 2 | 46.1 | 54.4 | 0.28(873) | RH(-0.10), HGT850(-0.05), SqrFI₁(0.46) , Ome850(36.02), V700(-0.41), WSP500(0.41), T850(0.79), SH700(-575.21), SRAD(-0.01) | 120.34 |
| | | 3 | 17075.1 | 58.1 | 0.31(886) | V700(-0.39), WSP500(0.34), SH850(-569.03), SqrFI (0.545), FI(-0.02), SRAD(0.01), Ome700(-24.27), Ome850(28.77), U700(0.64), WSPsurf(-0.86), T700(1.07), HGT500(-0.05) | 313.44 |
| РЕТ | 0.43 | 1 | 0 | 50.7 | 0.28(41) | RH(-0.19), HGT850(0.12) | -125.93 |
| (1723m) | (654) | 2 | 73.0 | 56.3 | 0.39(240) | SRAD(0.02), SH500(2963.8), dT(-3.40), RH(-0.33), V500(-0.50), WSP850(-1.21), T850(0.95), WSP500(0.26) | 92.40 |
| | | 3 | 38379.5 | 58.2 | 0.39(373) | V500(-0.50), dT(-2.60), SRAD(0.01), SH500(1412.40), HGT850(-0.06), RH(-0.28), Ome850(33.91), Ome500(-22.14), SH700(898.18), SqrFI(0.19) | 173.85 |
| СНА | 0.50 | 1 | 0 | 47.2 | 0.32(384) | RH(-0.21), WSP700(-1.60), WSP500(0.66), V850(-1.15), U850(-0.76) | 58.16 |
| (1570m) | (1754) | 2 | 40.0 | 53.6 | 0.41(677) | RH(-0.21), WSP700(-0.86), WSP500(0.37), SqrFI (0.64), dT(-1.23), PBLH(0.001), SH500(980.48), SRAD(0.01), HGT500(-0.024), V850(-0.35) | 210.4 |
| | | 3 | 14972.1 | 57.1 | 0.38(693) | WSP700(-0.65), SRAD(0.01), SqrFI(0.81), V500(-0.25), V850(-0.76), FI(-0.03), RH(-0.11), T700(-0.52) | 62.80 |
| BBE | 0.46 | 1 | 0 | 39.6 | 0.37(450) | V700(-1.31), RH(-0.12), V850(-0.61), WSPsurf(1.27), U500(0.20) | 42.87 |
| (1052m) | (1196) | 2 | 6.6 | 44.8 | 0.34(373) | V700(-0.51), WSP850(-0.57), WSP500(0.56), RH(-0.22), T700(-1.07), HGT500(-0.06), SRAD(0.002), FI ₍ (-0.06), SqrFI ₍ (-0.79) | 423.05 |
| | | 3 | 3423.7 | 48.0 | 0.35(373) | V700(-0.46), WSP850(-0.61), WSP500(0.55), RH(-0.22), T700(-1.08), HGT500(-0.06), SRAD(0.002), SqrFI _s (1.84), SqrFI _t (1.07), FI _t (-0.10), FI _s (-0.37) | 416.83 |

^a The multi-linear regression (MLR) models are applied to measured MDA8 ozone concentrations in the summers 1989-2010. The regressions follow Equation (3) described in the text.

^b Groups are separated by the TFI values at each site (group 1: TFI=0, group 2: the lower 50% TFI (with TFI=0 excluded), group 3: the upper 50% TFI).

^c Variables included in the MLR models in order of significance (e.g., For group 1 at GLR site, RH has the highest significance representing the first variable included in the MLR model). Fire impacts (FI_s, FI_l, SqrFI_s, SqrFI_l) are denoted in bold.

^dNo MLR model is derived for this case. The records from group 1 and group 2 are then combined.