

Supplementary Materials

Here we provide three tables showing correlations between the annually averaged ozone as measured at various measurement sites at 150 hPa, 500 hPa and the surface between 1990 and 2009.

Table S2: Correlations between the annually averaged ozone for measurements sites at 500 hPa for 1990-2009. Also included is the Jungfraujoch surface site at 3580 m. Details on the various sites are given in Table S1. Correlations significant at the 90% level as evaluated with a 2-sides Student's T test are given in bold, those significant at the 95% level are additionally underlined

| | | | | | | | | | | | | | | | | | | | | | | |
|------------------|------------|------------|------------|------------|-------------|------------|------------|-------------|---------|------------|-------------|------------|------------|--------------|------------|------------|---------|-----------------|-----------|------------|---------|------------|
| | Alert | Edmonton | Resolute | Churchill | Goosebay | Eureka | Kagoshima | Tateno | Sapporo | MOZAIC-JP | Wallops | MOZAIC-US | Ny Alesund | Scoresbysund | Sodankyla | Madrid | Debilit | Hohenpeissenber | Legionowo | Lindenberg | Payerne | MOZAIC-EU |
| Edmonton | .67 | | | | | | | | | | | | | | | | | | | | | |
| Resolute | .64 | .66 | | | | | | | | | | | | | | | | | | | | |
| Churchill | .75 | .61 | .72 | | | | | | | | | | | | | | | | | | | |
| Goosebay | .53 | .58 | .42 | .49 | | | | | | | | | | | | | | | | | | |
| Eureka | .65 | .64 | .66 | .49 | .46 | | | | | | | | | | | | | | | | | |
| Kagoshima | -.29 | -.38 | -.03 | -.06 | -.44 | -.29 | | | | | | | | | | | | | | | | |
| Tateno | -.12 | .16 | .28 | .16 | .10 | .10 | .53 | | | | | | | | | | | | | | | |
| Sapporo | -.01 | -.09 | .23 | -.01 | -.26 | .25 | .62 | .41 | | | | | | | | | | | | | | |
| MOZAIC-JP | -.23 | .31 | .55 | .03 | .05 | .25 | .38 | .77 | .42 | | | | | | | | | | | | | |
| Wallops | -.05 | .22 | .16 | .32 | .33 | -.27 | .37 | .48 | .00 | .79 | | | | | | | | | | | | |
| MOZAIC-US | -.21 | .37 | .53 | .03 | .15 | .43 | .33 | .47 | .28 | .74 | .59 | | | | | | | | | | | |
| Ny Alesund | .50 | .64 | .83 | .68 | .36 | .52 | .13 | .41 | .10 | .36 | .26 | .50 | | | | | | | | | | |
| Scoresbysund | .58 | .56 | .72 | .34 | .31 | .81 | -.17 | .09 | .27 | .45 | -.13 | .66 | .68 | | | | | | | | | |
| Sodankyla | .65 | .61 | .30 | .37 | .45 | .54 | -.31 | -.06 | -.14 | .25 | .09 | .32 | .60 | .72 | | | | | | | | |
| Madrid | -.48 | -.11 | .27 | .02 | -.24 | .00 | .31 | -.13 | -.15 | .03 | .01 | .36 | .44 | .70 | .11 | | | | | | | |
| Debilit | .24 | -.15 | -.25 | -.10 | .22 | -.27 | -.07 | -.47 | -.38 | -.26 | .29 | -.17 | -.27 | -.21 | .13 | -.07 | | | | | | |
| Hohenpeissenburg | .27 | .07 | -.19 | -.03 | -.34 | .14 | -.23 | -.28 | .04 | -.41 | -.46 | -.43 | -.05 | .04 | .29 | -.19 | -.24 | | | | | |
| Legionowo | .45 | .19 | .66 | .35 | .02 | .33 | .18 | -.05 | .22 | .01 | -.03 | .16 | .56 | .52 | .45 | .55 | -.01 | .14 | | | | |
| Lindenberg | .61 | .36 | .36 | .63 | .13 | .13 | -.02 | -.12 | -.09 | -.38 | .00 | -.51 | .40 | .14 | .41 | -.02 | .22 | .47 | .40 | | | |
| Payerne | .58 | .32 | .33 | .63 | .08 | -.01 | .24 | .13 | .24 | -.09 | .34 | -.17 | .37 | -.03 | .26 | -.42 | .39 | .33 | .22 | .79 | | |
| MOZAIC-EU | -.04 | .42 | .37 | .01 | .42 | .43 | -.03 | .19 | .02 | .63 | .61 | .83 | .26 | .60 | .34 | .06 | .10 | -.46 | .00 | -.47 | -.27 | |
| Jungfraujoch | .66 | .73 | .67 | .61 | .54 | .78 | -.14 | .24 | -.11 | .43 | .27 | .60 | .68 | .85 | .48 | .16 | -.05 | -.15 | .35 | .33 | .26 | .68 |

Table S3: Correlations between the annually averaged ozone for selected surface measurement sites for 1990-2009. Details on the various sites are given in Table 1. Correlations significant at the 90% level as evaluated with a 2-sides Student's T test are given in bold, those significant at the 95% level are additionally underlined. Note that for the Macehead site the baseline ozone data is used.

| | Macehead | Egbert | Payerne | Rigi | Ryori | Sonnbligh |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Egbert | 0.39 | | | | | |
| Payerne | <u>0.53</u> | 0.36 | | | | |
| Rigi | <u>0.82</u> | 0.39 | <u>0.88</u> | | | |
| Ryori | <u>0.65</u> | 0.18 | <u>0.66</u> | <u>0.68</u> | | |
| Sonnbligh | <u>0.78</u> | 0.22 | <u>0.67</u> | <u>0.84</u> | 0.31 | |
| JungfrauJoch | <u>0.83</u> | <u>0.52</u> | <u>0.78</u> | <u>0.88</u> | <u>0.78</u> | <u>0.78</u> |

