

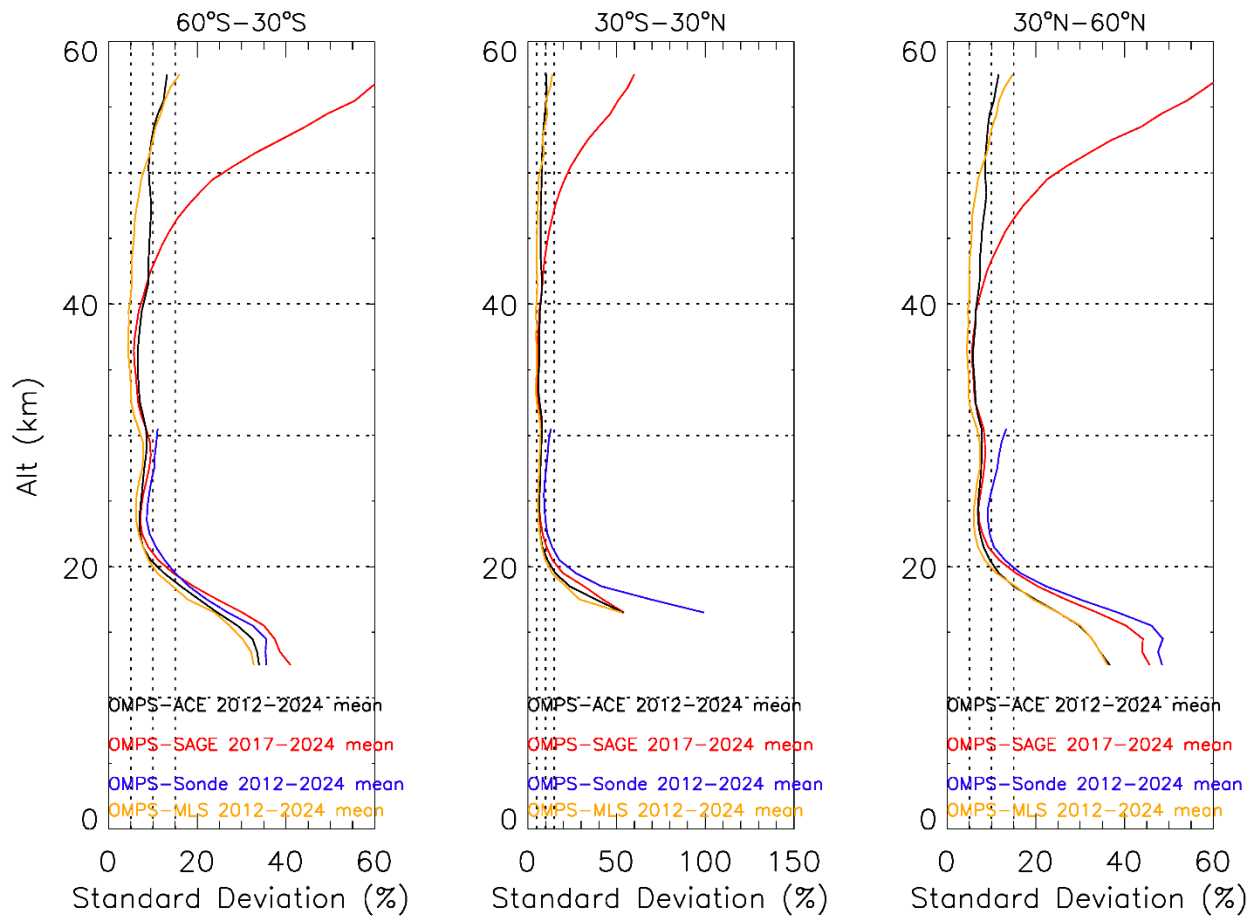
## Supplemental Materials

| Site Name             | Data Availability | PI Name                | PI Affiliation                                                   |
|-----------------------|-------------------|------------------------|------------------------------------------------------------------|
| Barajas               | AVDC;WOUDC        | Moreta, Juan           | Instituto Nacional Meteorologia                                  |
| Boulder, CO           | AVDC;CMDL         | Johnson, Bryan J.      | NOAA Earth System Research Laboratory                            |
| Broadmeadows          | AVDC;WOUDC        | Tully, Matt            | Australian Bureau of Meteorology                                 |
| Churchill             | EVDC;AVDC;WOUDC   | Tarasick, David        | Meteorological Service of Canada                                 |
| Goose Bay             | EVDC;AVDC;WOUDC   | Tarasick, David        | Meteorological Service of Canada                                 |
| Haute Provence        | AVDC;NDACC        | Godin-Beekmann, Sophie | Laboratoire Atmospheres, Milieux, Observations Spatiales du CNRS |
| Hilo, HI              | AVDC;CMDL         | Johnson, Bryan J.      | NOAA Earth System Research Laboratory                            |
| Hohenpeissenberg      | AVDC;WOUDC        | Claude, Hans           | Deutscher Wetterdienst                                           |
| Hong Kong             | AVDC;WOUDC        | Lee, T. C.             | Hong Kong Observatory                                            |
| Huntsville, AL        | AVDC;CMDL         | Johnson, Bryan J.      | NOAA Earth System Research Laboratory                            |
| Irene                 | EVDC;AVDC;SHADOZ  | Coetzee, Gerrie J.R.   | South African Weather Service                                    |
| Izana                 | AVDC;NDACC        | Redondas, Alberto      | Agencia Estatal de Meteorologia                                  |
| La Reunion, St. Denis | EVDC;AVDC;SHADOZ  | Posny, Francoise       | Laboratoire de l'Atmosphere et des Cyclones                      |
| Lauder                | AVDC;NDACC        | Zeng, Guang            | National Institute of Water and Atmospheric Research             |
| Legionowo             | AVDC;WOUDC        | Kois, Bogumil          | Institute of Meteorology and Water Management                    |
| Lindenberg            | AVDC;WOUDC        | Voemel, Holger         | Deutscher Wetterdienst                                           |
| Macquarie Island      | AVDC;WOUDC        | Tully, Matt            | Australian Bureau of Meteorology                                 |
| Nairobi               | EVDC;AVDC;SHADOZ  | Felix, Christian       | Swiss Meteorological Institute                                   |
| Natal                 | EVDC;AVDC;SHADOZ  | Thompson, Anne M.      | NASA Goddard Space Flight Center                                 |
| Pago Pago             | AVDC;CMDL         | Johnson, Bryan J.      | NOAA Earth System Research Laboratory                            |
| Paramaribo            | AVDC;WOUDC        | Scheele, Rinus         | Royal Netherlands Meteorological Institute                       |
| Payerne               | AVDC;WOUDC        | Stubi, Rene            | Swiss Meteorological Institute                                   |

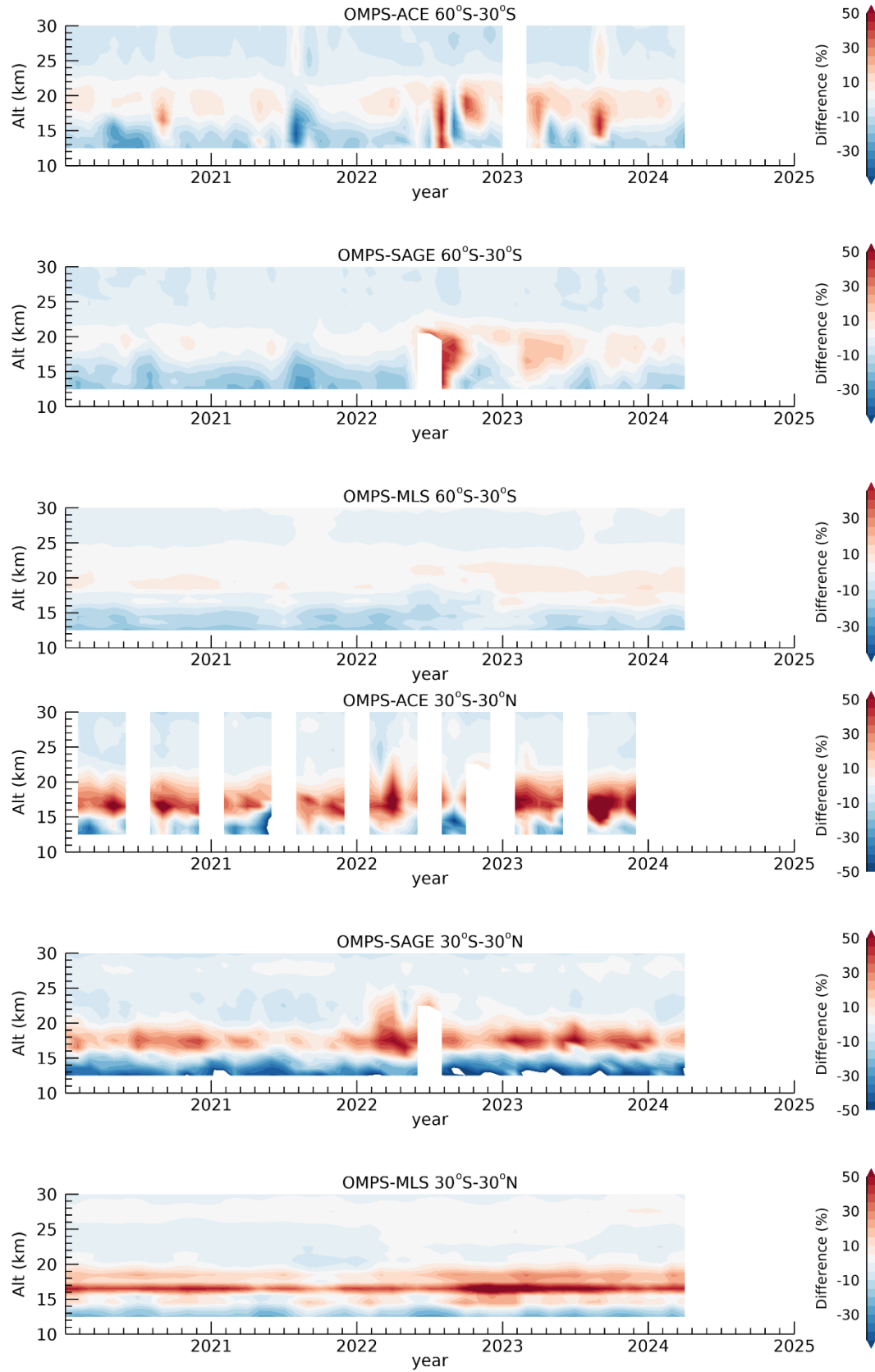
|                    |                  |                                         |                                              |
|--------------------|------------------|-----------------------------------------|----------------------------------------------|
| Praha              | AVDC;WOUDC       | Skrivankova, Pavla                      | Czech HydroMeteorological Institute - Prague |
| San Pedro          | EVDC;AVDC;SHADOZ | Voemel, Holger                          | National Center for Atmospheric Research     |
| Sepang             | EVDC;AVDC;SHADOZ | Mohamad, Maznorizan                     | Malaysian Meteorological Department          |
| Stony Plain        | EVDC;AVDC;WOUDC  | Tarasick, David                         | Meteorological Service of Canada             |
| Suva               | AVDC;CMDL        | Johnson, Bryan J.                       | NOAA Earth System Research Laboratory        |
| Trinidad, Head, CA | AVDC;CMDL        | Johnson, Bryan J.                       | NOAA Earth System Research Laboratory        |
| Tsukuba            | AVDC;WOUDC       | Head, JMA Ozone Layer Monitoring Office | Japan Meteorological Agency                  |
| Ushuaia            | AVDC;WOUDC       | Sanchez, Ricardo                        | National Meteorological Service of Argentina |
| Yarmouth           | EVDC;AVDC;WOUDC  | Tarasick, David                         | Meteorological Service of Canada             |

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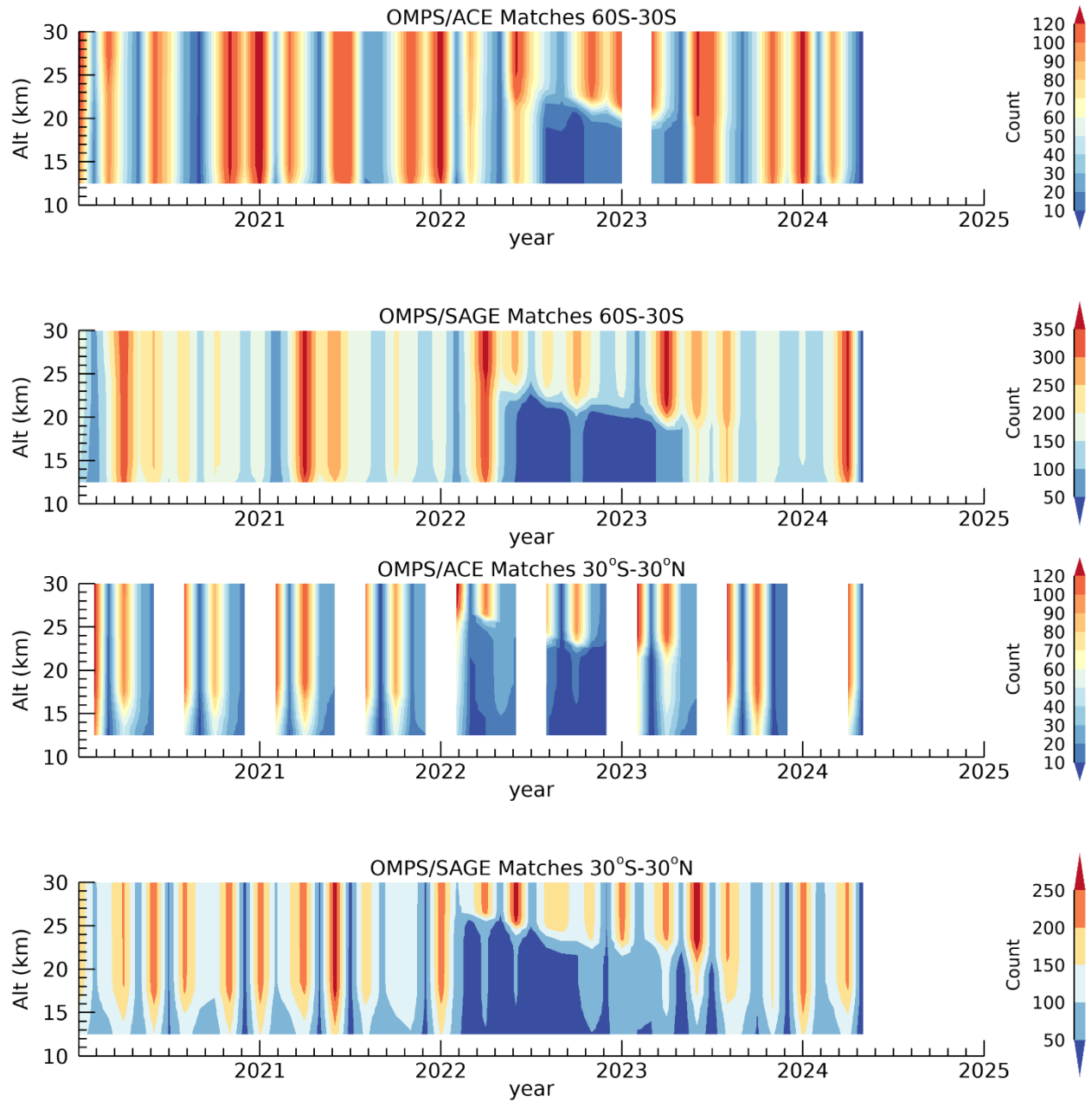
**Table S1: Details of the ozonesondes used in this study.**



**Figure S1: Standard deviations of mean profile differences between OMPS LP and correlative observations.**



**Figure S2: Deseasonalised timeseries of the differences between OMPS LP and colocated correlative satellite observations, for the tropics and southern mid-latitudes.**



**Figure S3: Time series of the number of OMPS LP observations at each altitude for the time period January 2020 to April 2024.**

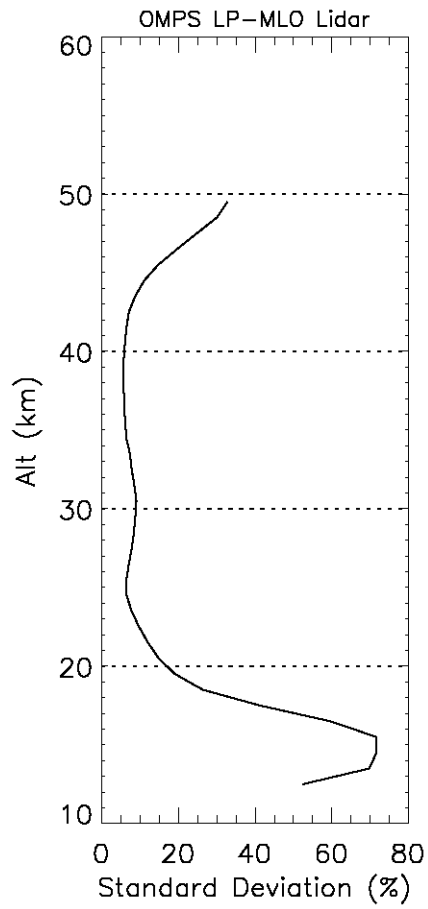
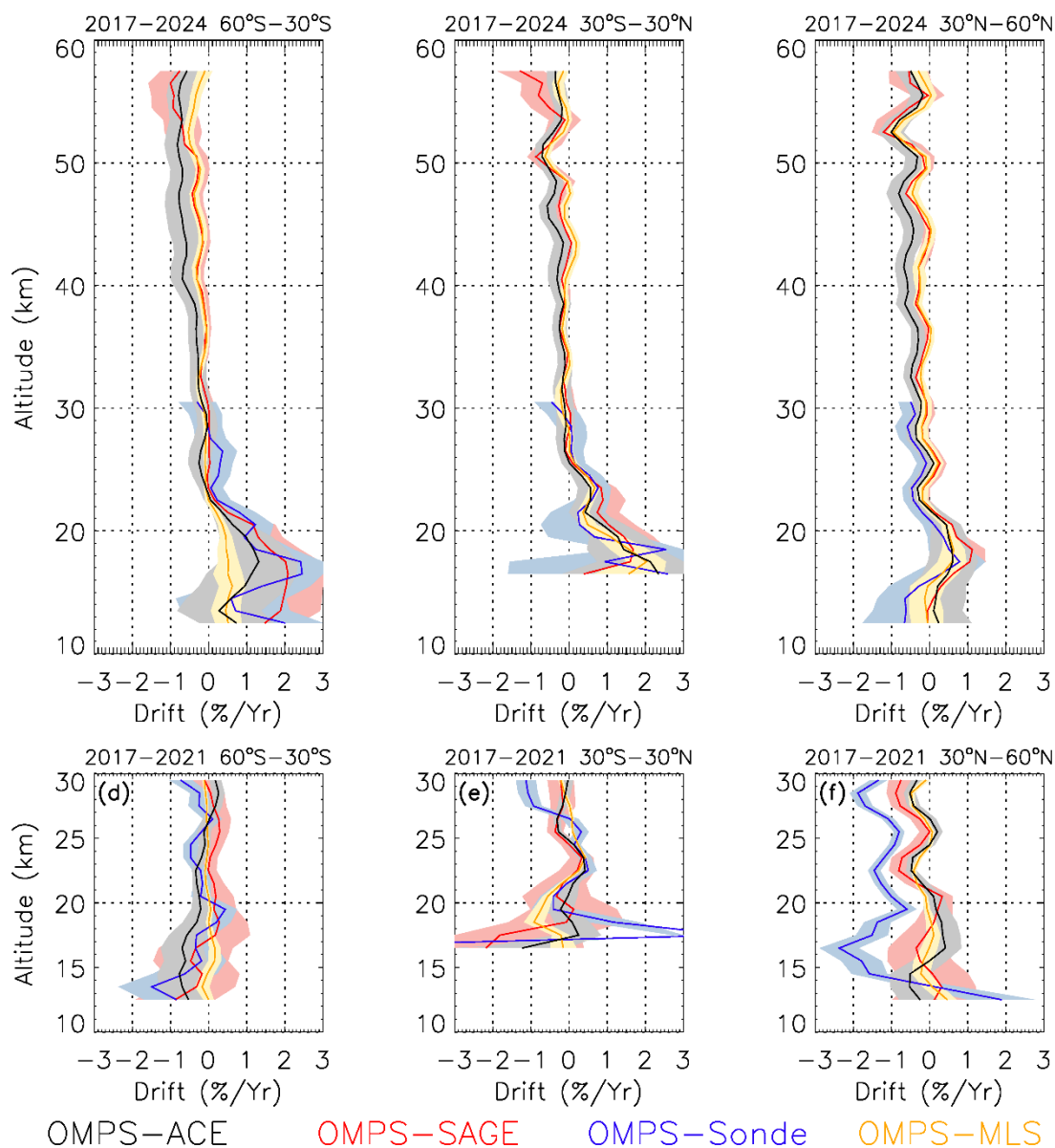


Figure S4: Standard deviation of mean profile differences between OMPS LP and MLO lidar.



**Figure S5: Relative drifts for OMPS LP version 2.6 ozone in % per year relative to correlative observations, calculated using deseasonalized data from January 2017 to April 2024 for panels (a-c) and January 2017 to December 2021 for panels (d-f), except for SAGE III/ISS for which data starts in June 2017. Shaded areas show 2 sigma for the linear fit, only data above the tropopause is shown.**

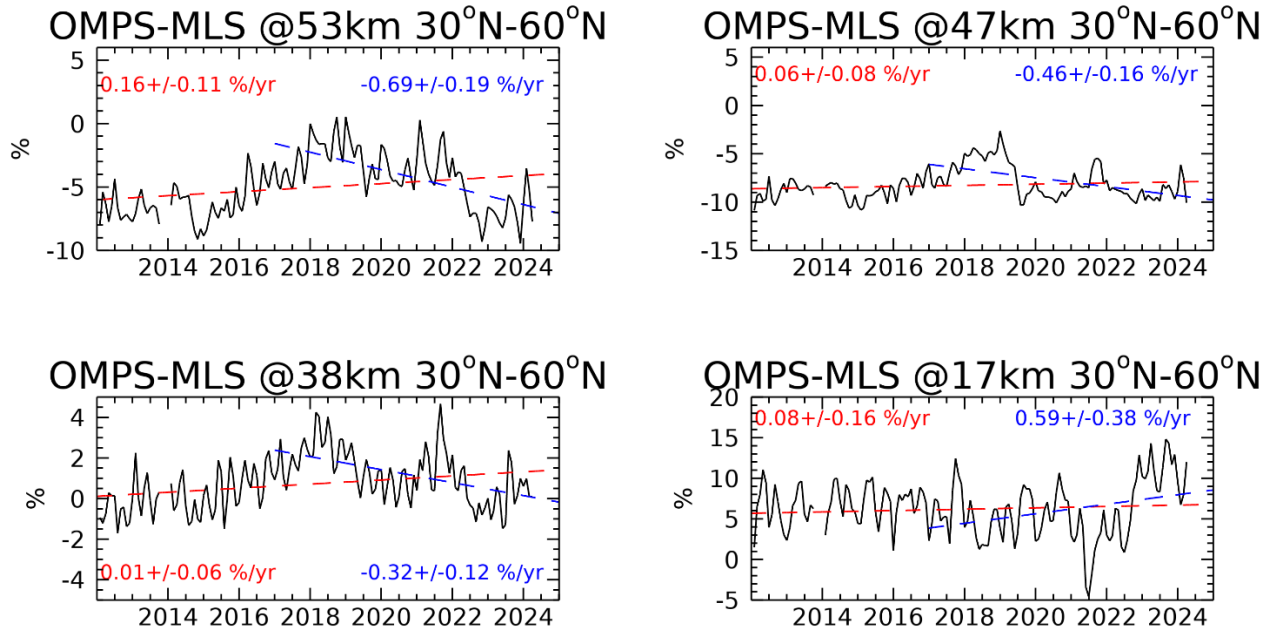


Figure S6: Time series of monthly mean differences between OMPS LP and MLS ozone in the 30N-60N latitude band at 4 altitudes for the time period 2012 to 2024. The red line shows the relative drift calculated for the period 2012-2024 and the blue line shows the drift calculated for the period 2017-2024. The inset text shows the drift values and 2 sigma errors on the linear fits for the two time periods.