Figure S1. Global correlation coefficients and p values from significance tests of ZHD, ZWD, and Tm derived from European Centre for Medium-Range Weather Forecasts (ECMWF) ERA-Interim data from 1979 to 2017.
Figure S2. Global linear trends and corresponding uncertainties at the 95% confidence level of lapse rates of ZHD, ZWD, and $T_m$ derived from European Centre for Medium-Range Weather Forecasts (ECMWF) ERA-Interim data from 1979 to 2017. The positive linear trend means the values of lapse rates of tropospheric delay or $T_m$ show an increasing trend, and the negative trend means they show a decreasing trend.
Figure S3. Global correlation coefficients and p values from significance tests of lapse rates of ZHD, ZWD, and Tm derived from European Centre for Medium-Range Weather Forecasts (ECMWF) ERA-Interim data from 1979 to 2017.
Figure S4. Global linear trends, mean values, annual amplitudes, and semi-annual amplitudes of ZHD.

Figure S5. Global linear trends, mean values, annual amplitudes, and semi-annual amplitudes of ZHD lapse rate.
Figure S6. Global linear trends, mean values, annual amplitudes, and semi-annual amplitudes of ZWD.

Figure S7. Global linear trends, mean values, annual amplitudes, and semi-annual amplitudes of ZWD lapse rate.
Figure S8. Global linear trends, mean values, annual amplitudes, and semi-annual amplitudes of $T_m$.

Figure S9. Global linear trends, mean values, annual amplitudes, and semi-annual amplitudes of $T_m$ lapse rate.
Figure S10. Improvements of fitting results compared with the model without considering linear trends.