

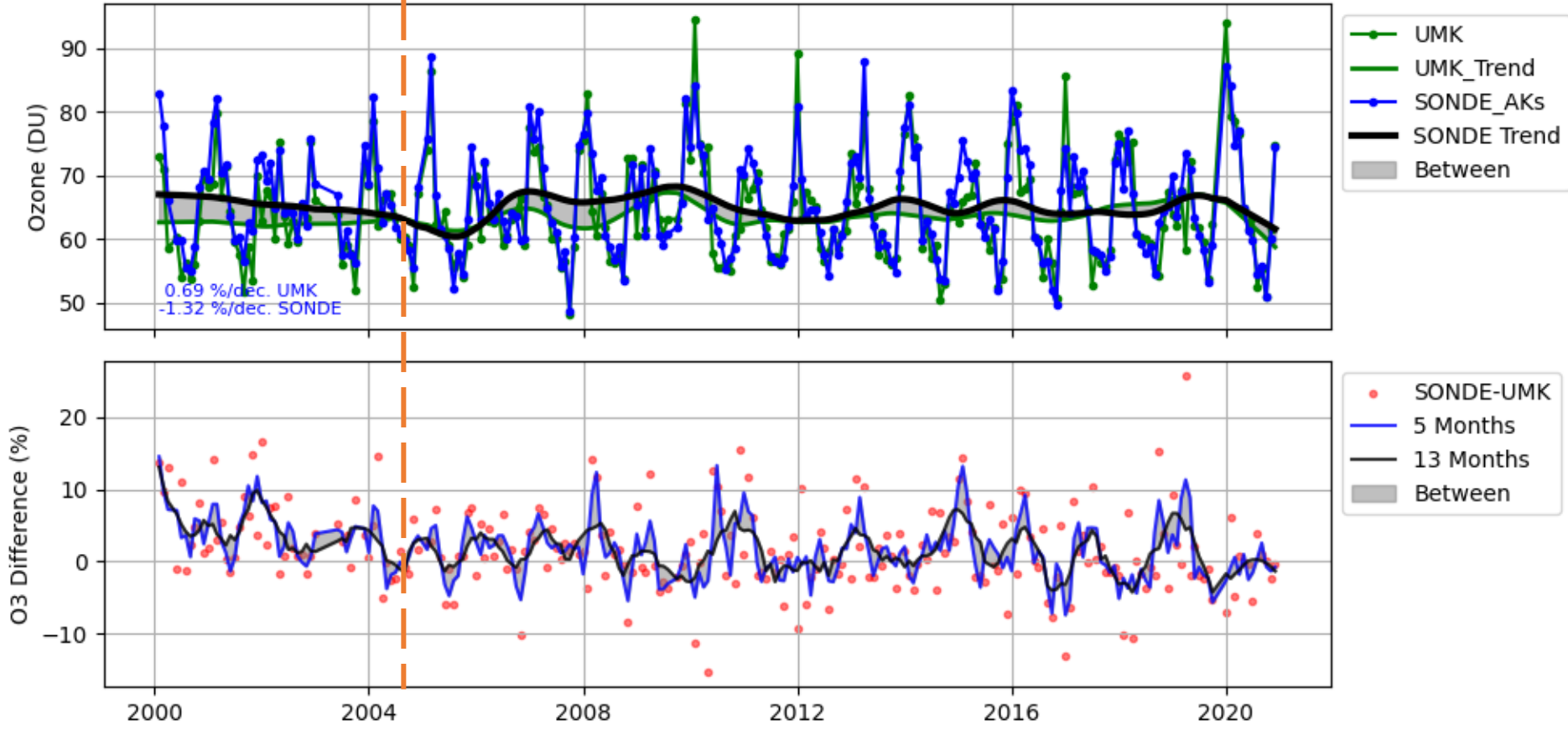
Comparisons of Umkehr and Ozonesonde at Boulder, MLO and Lauder

November 26, 2021

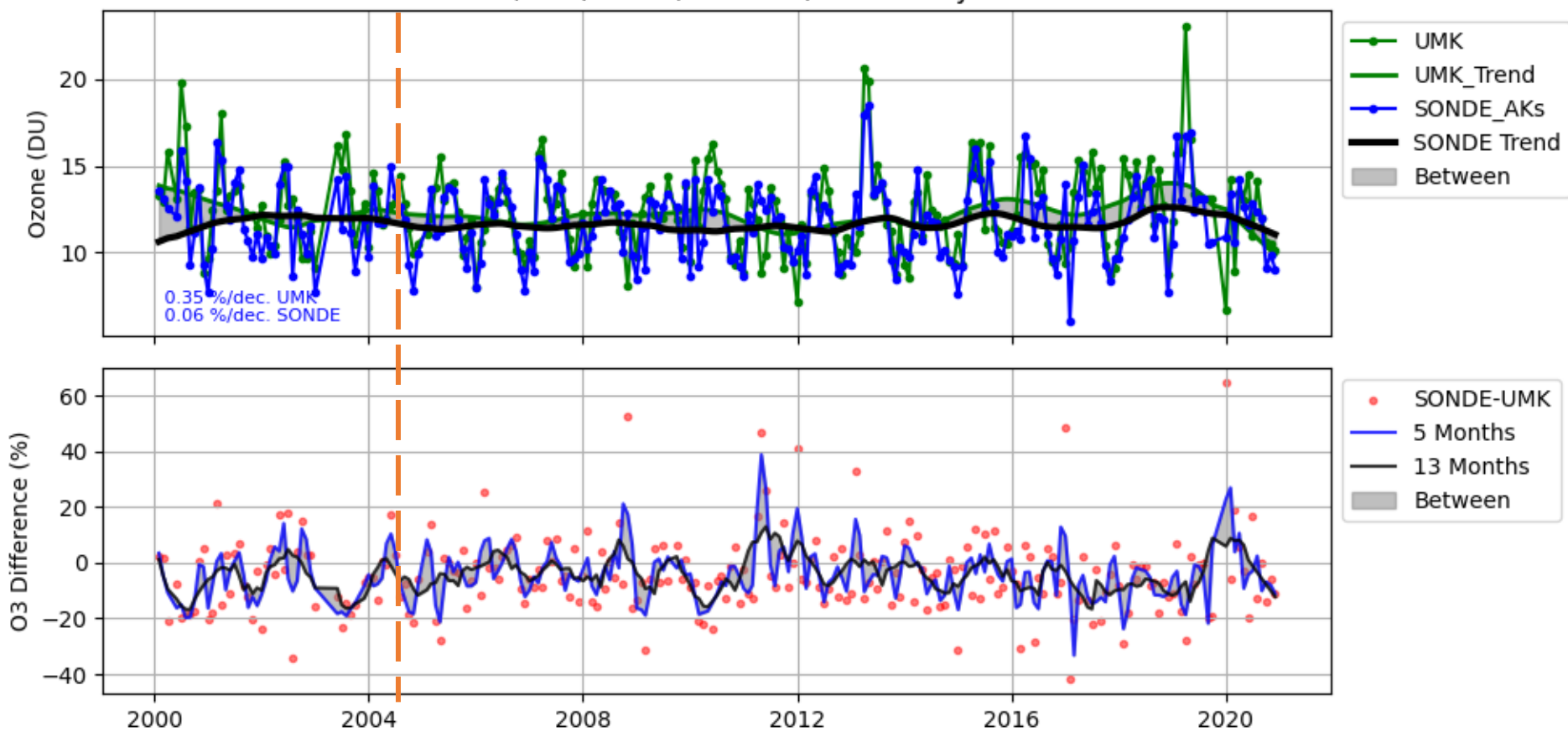
Datasets

- Umkehr
 - Optimized version.
- Ozonsonde
 - Matched Umkehr date with ozonsonde date.
 - Monthly averaged time series.
 - Ozonsonde is smoothed with Umkehr AKs.
 - A drop off in MLO ozonsonde record in 2014.
 - Lauder ozonsonde data from NDACC.

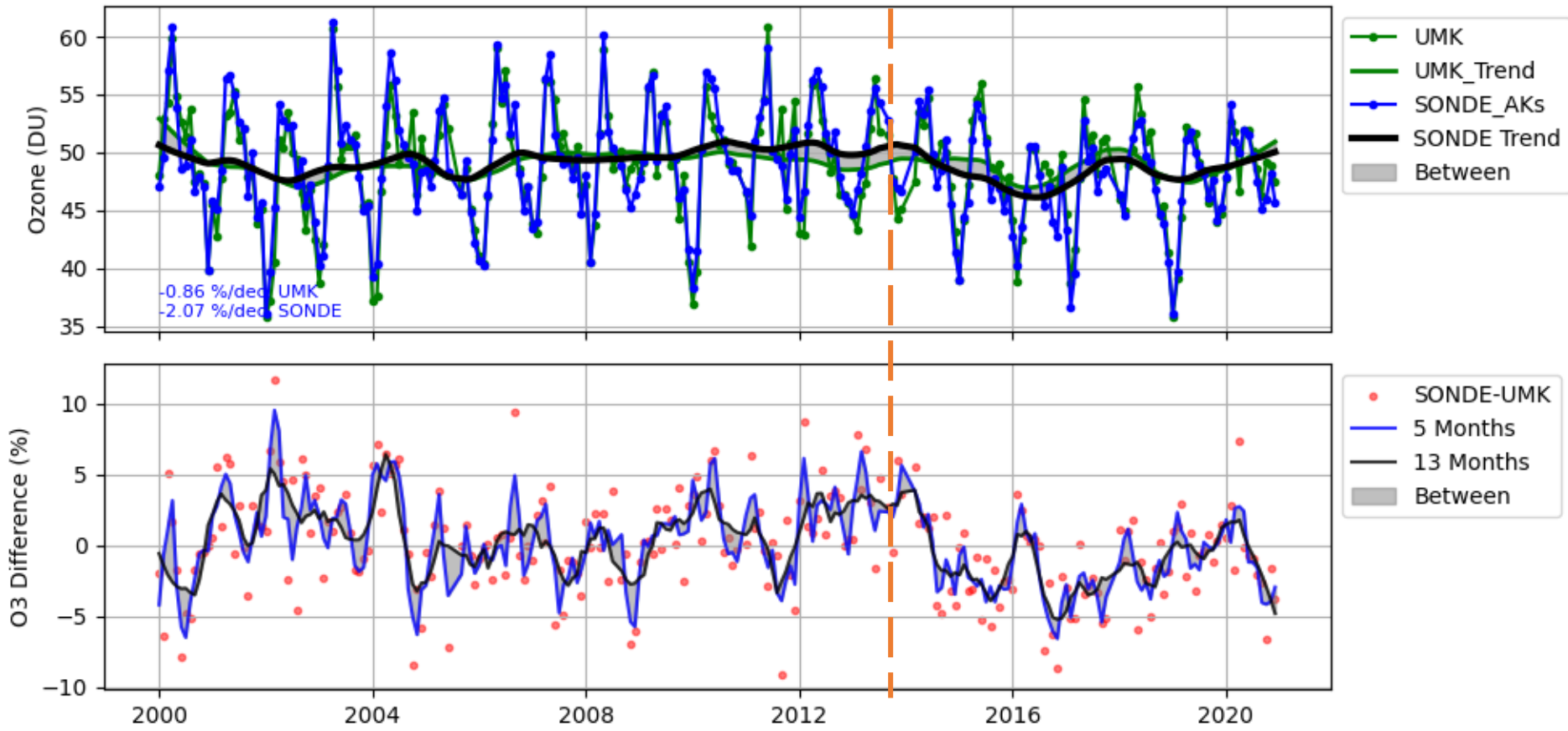
Boulder,CO. (40.0 N, 105.3 W) Layer 4



Boulder,CO. (40.0 N, 105.3 W) Layer 1

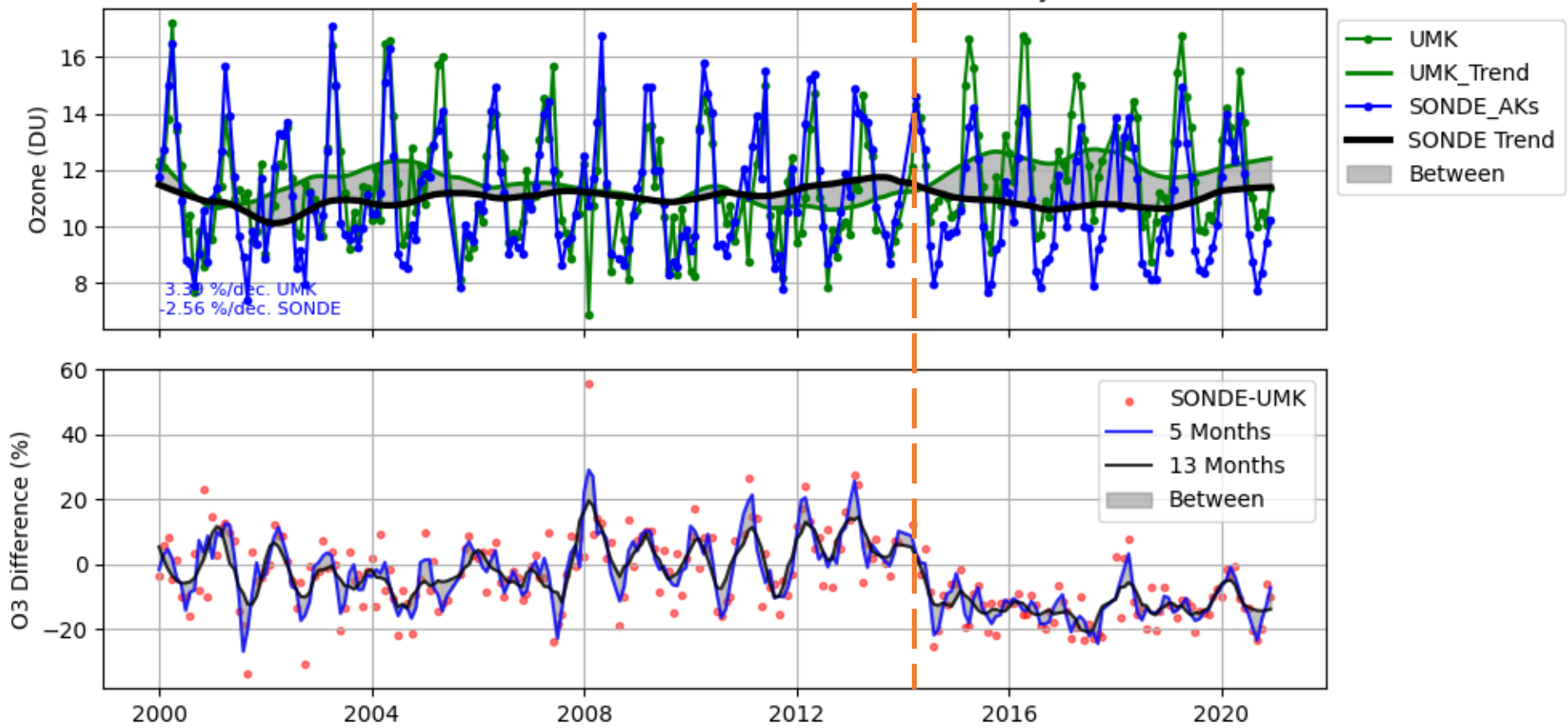


Mauna Loa (MLO) Hawaii (19.5 N, 155.6 W) Layer 4

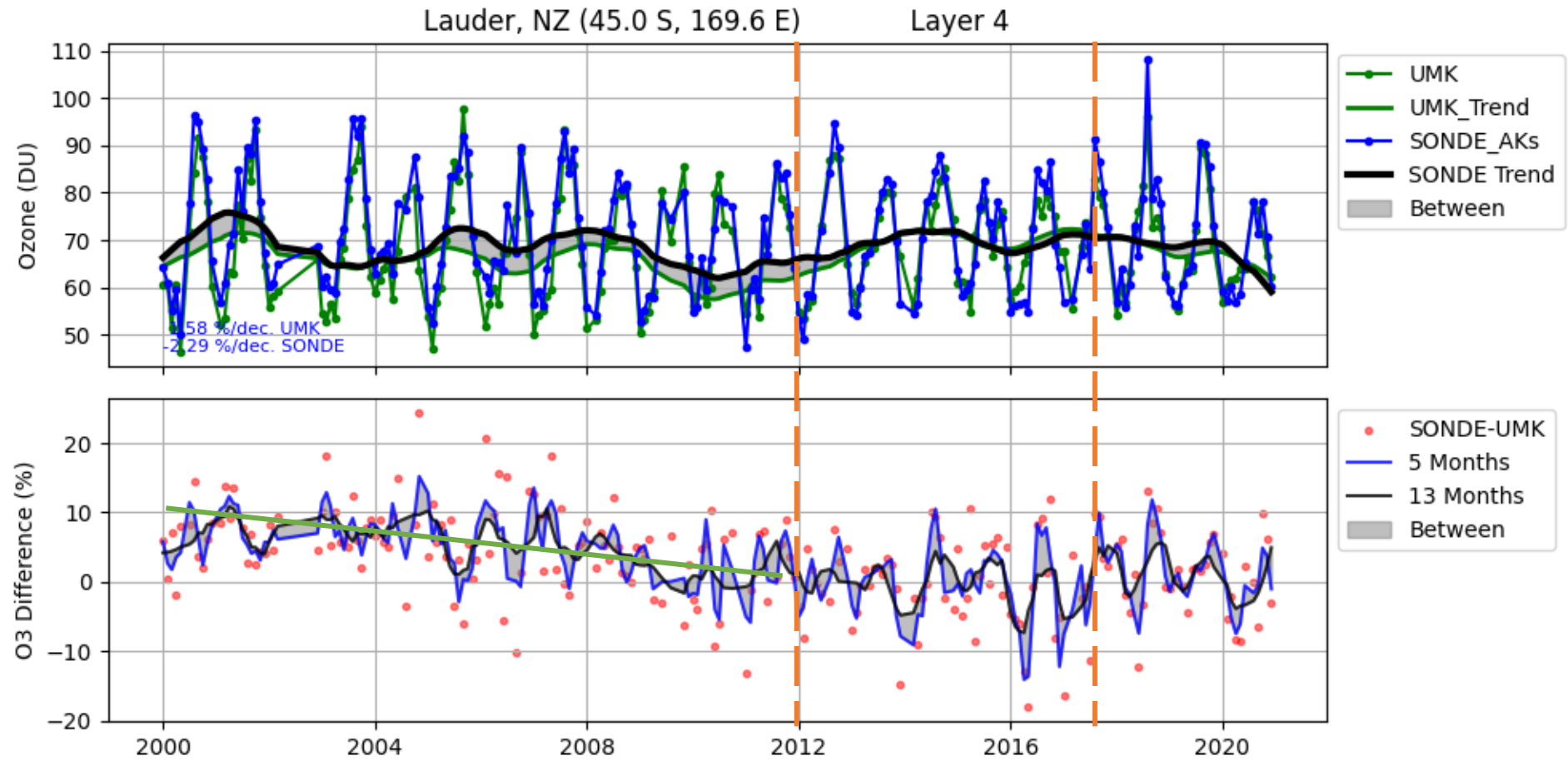


Mauna Loa (MLO) Hawaii (19.5 N, 155.6 W)

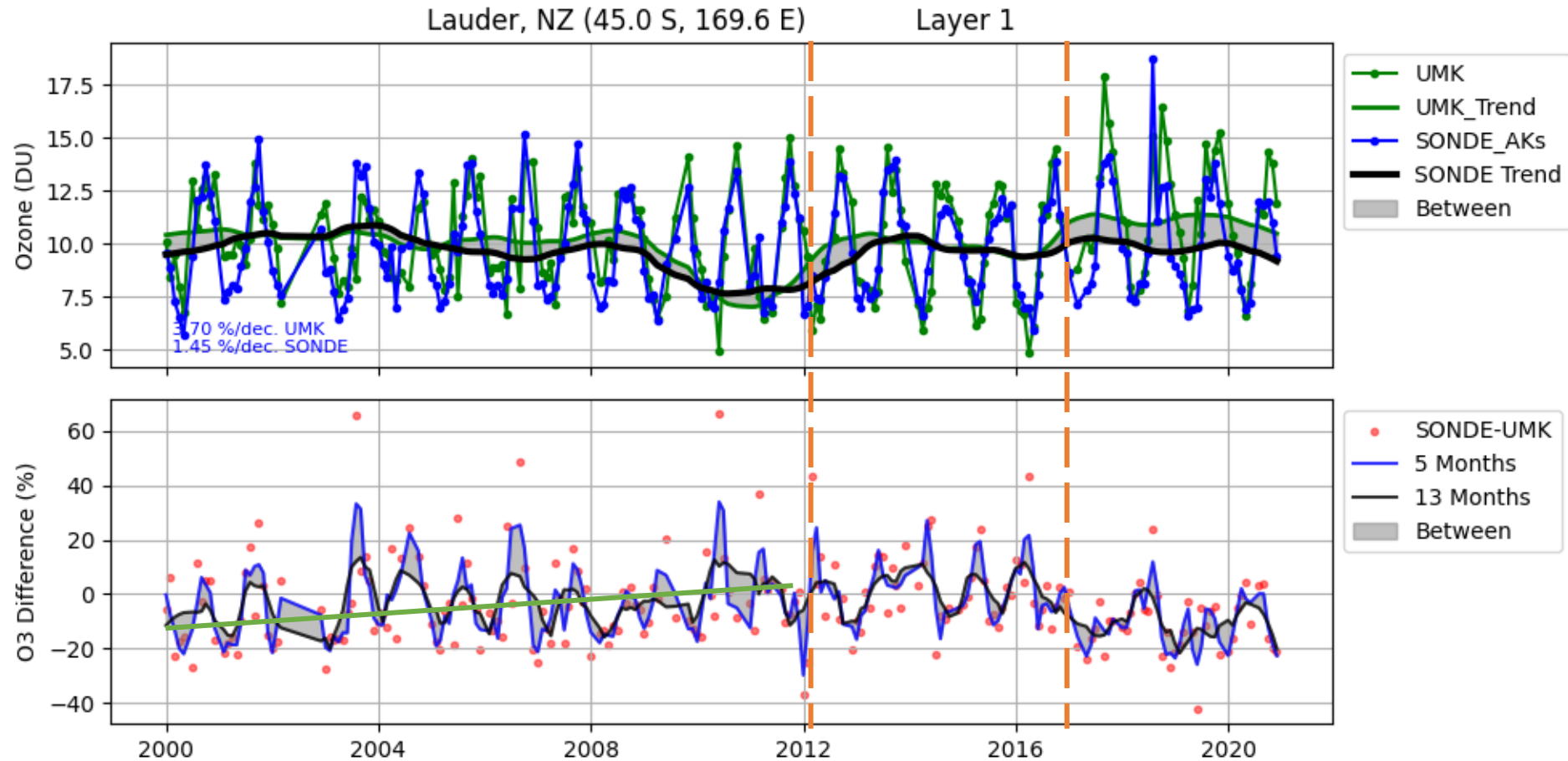
Layer 1



Homogenized ozonesonde Lauder



Homogenized ozonesonde Lauder

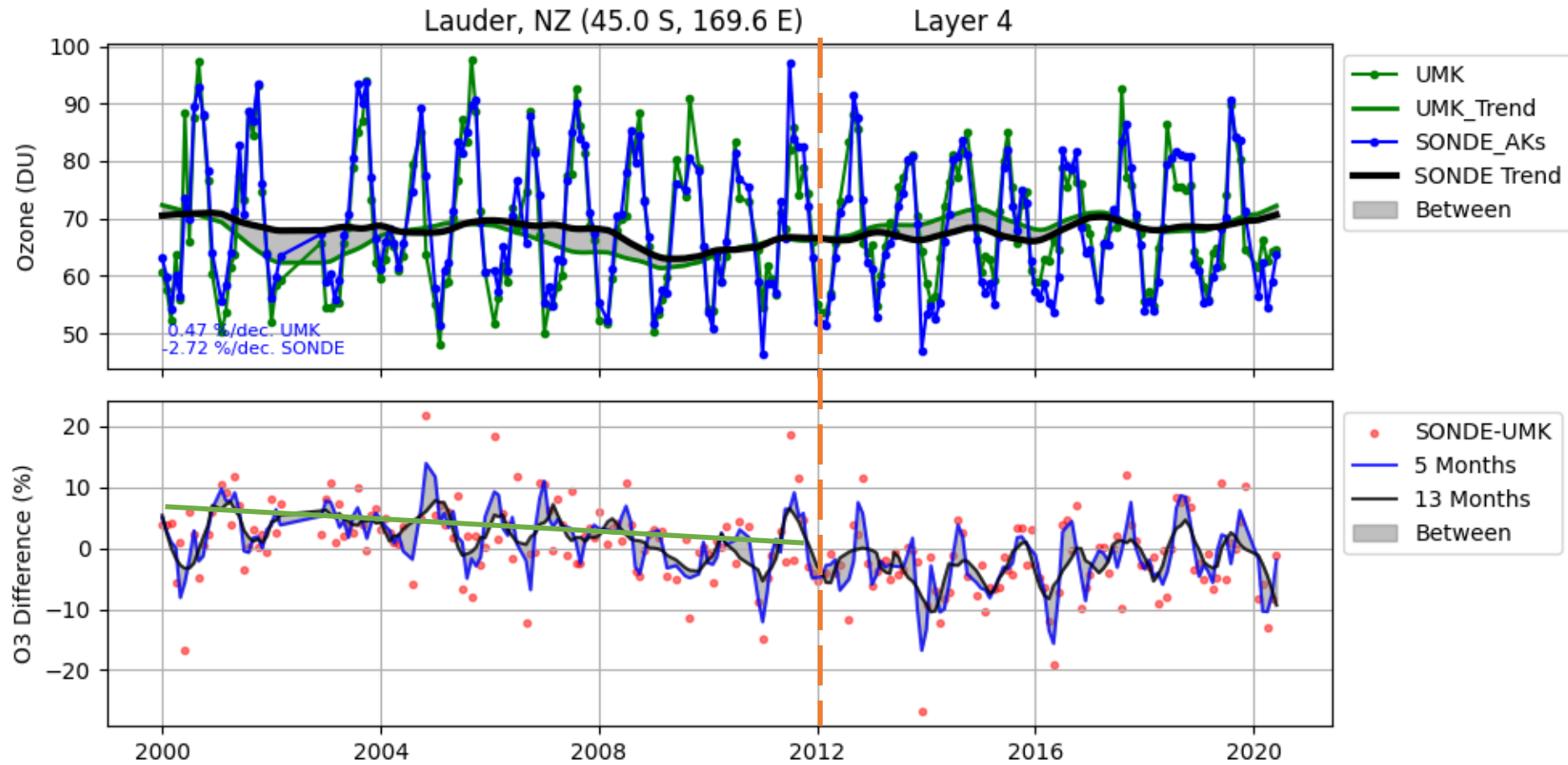


Conclusions

- AK-smoothed ozonesonde data compare well with Umkehr since 2000
- Seasonal cycle differ (up to 10% in layer 4 and up to 20 % in layer 1) even after applying AKs
- Linear trends differ (50 hPa and troposphere), but large uncertainties for simple linear trend fit
- MLO comparisons indicate drop off in ozonesondes in 2014 (both in stratosphere and troposphere)
- Lauder ozonesonde appears to drift relative to Umkehr between 2000-2012
- Umkehr at Lauder needs correction after 2017 (not large in stratosphere, but clearly seen in troposphere)

Extra slides

Non-Homogenized ozonesonde Lauder



Non- Homogenized ozonesonde Lauder

