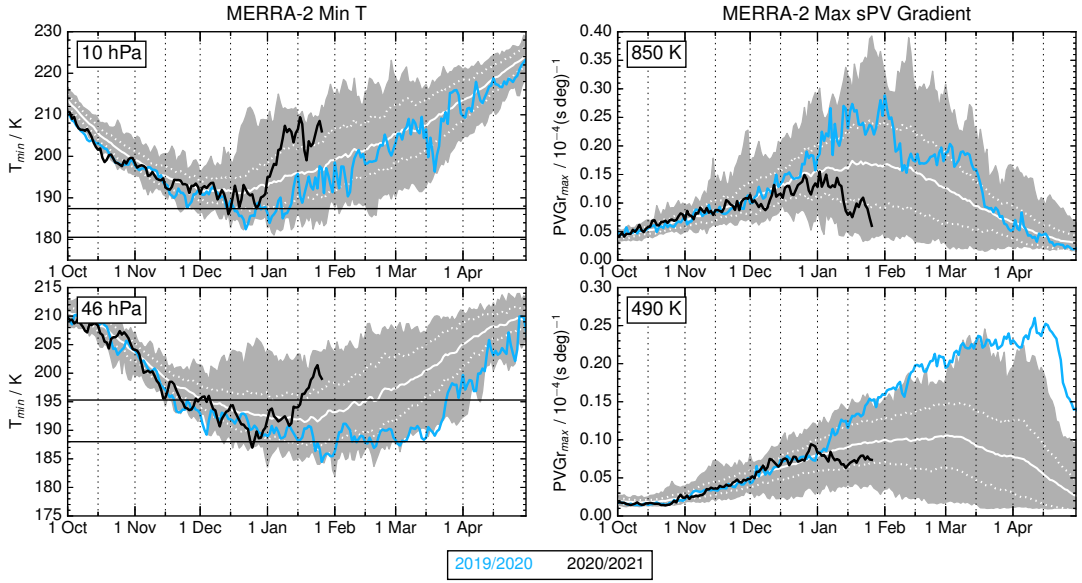
Bi-weekly UTLS through USLM Meteorology and MLS Trace Gas Transport Update

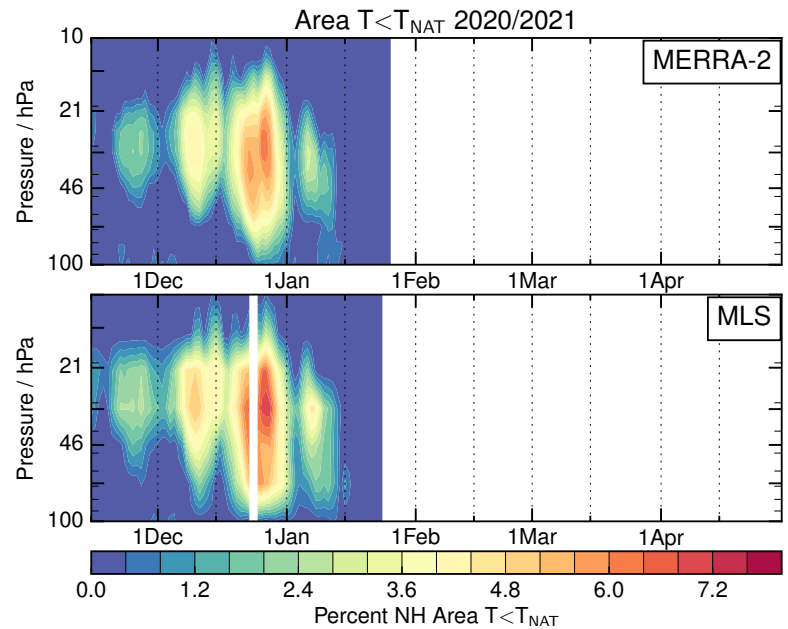
The MLS Science Team
Scripts by Gloria Manney (NWRA/NMT) & Zachary Lawrence(NOAA/CIRES and NWRA Postdoc)

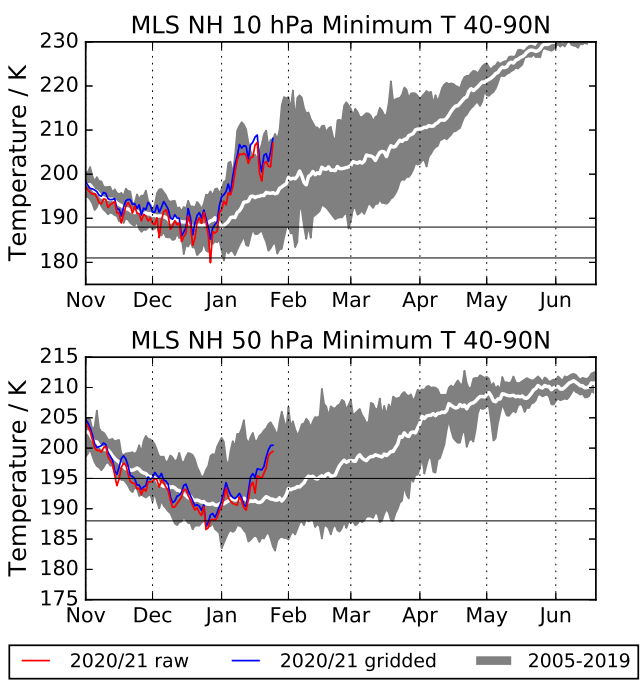
Jet Propulsion Laboratory, California Institute of Technology

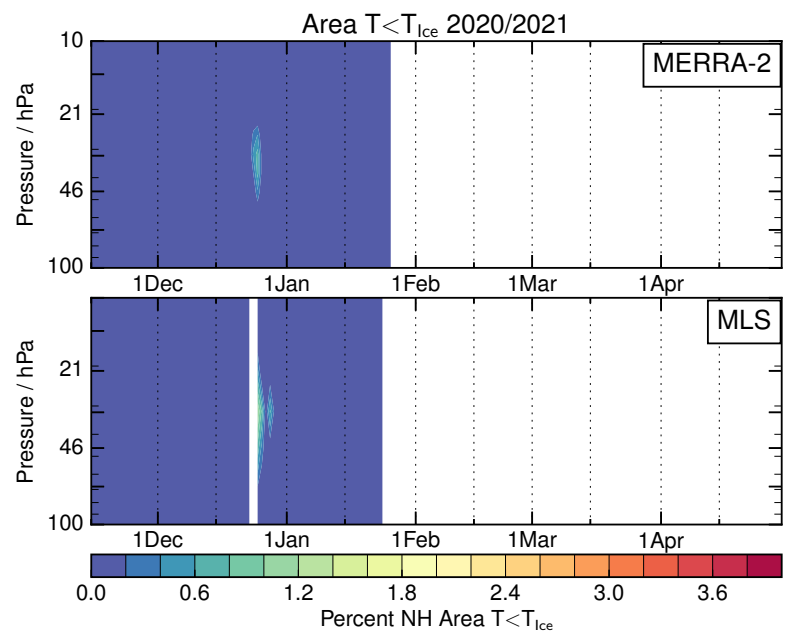
©2021 California Institute of Technology.
Government sponsorship acknowledged.

Polar Winter Stratosphere – Arctic Temperatures and Vortex

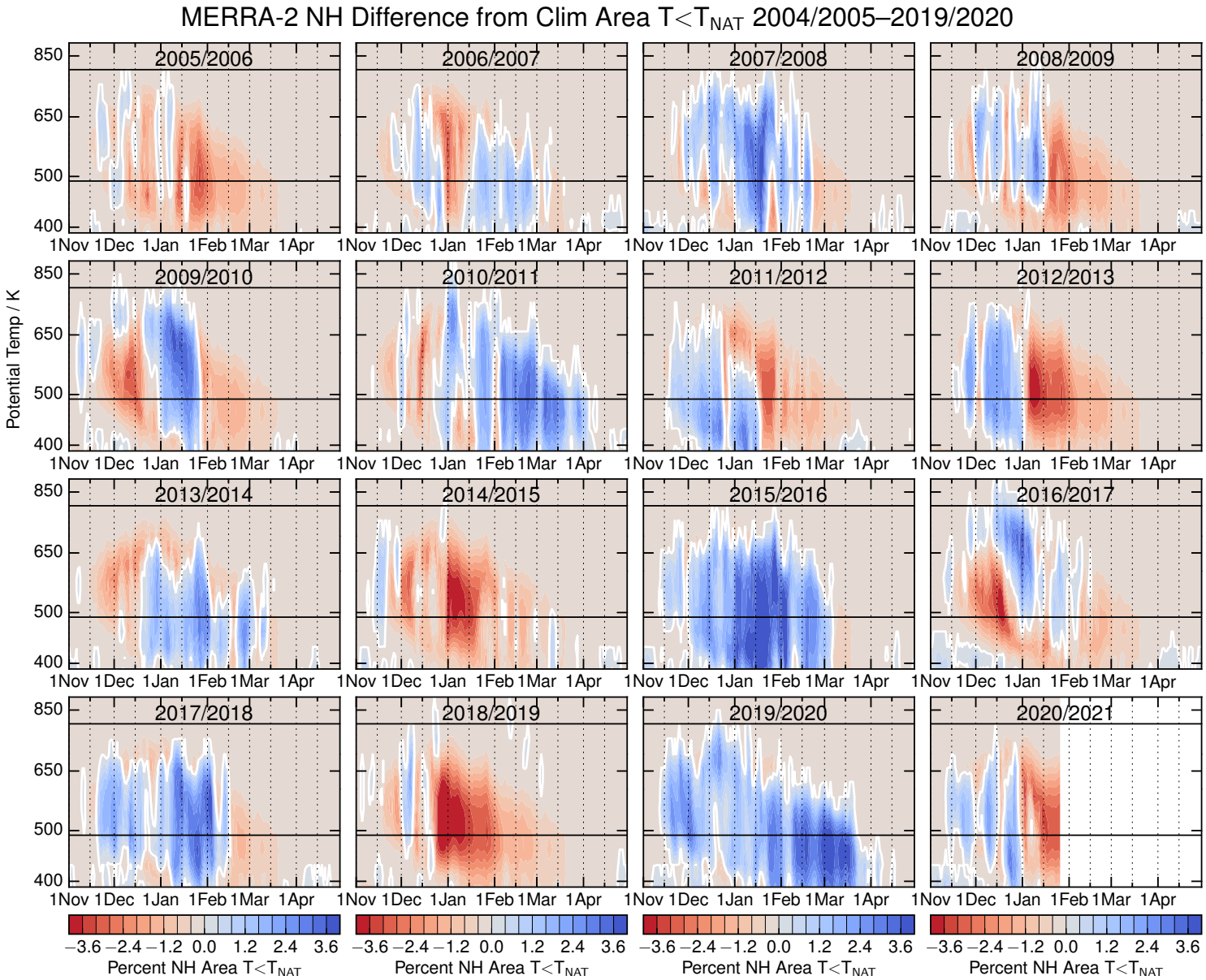




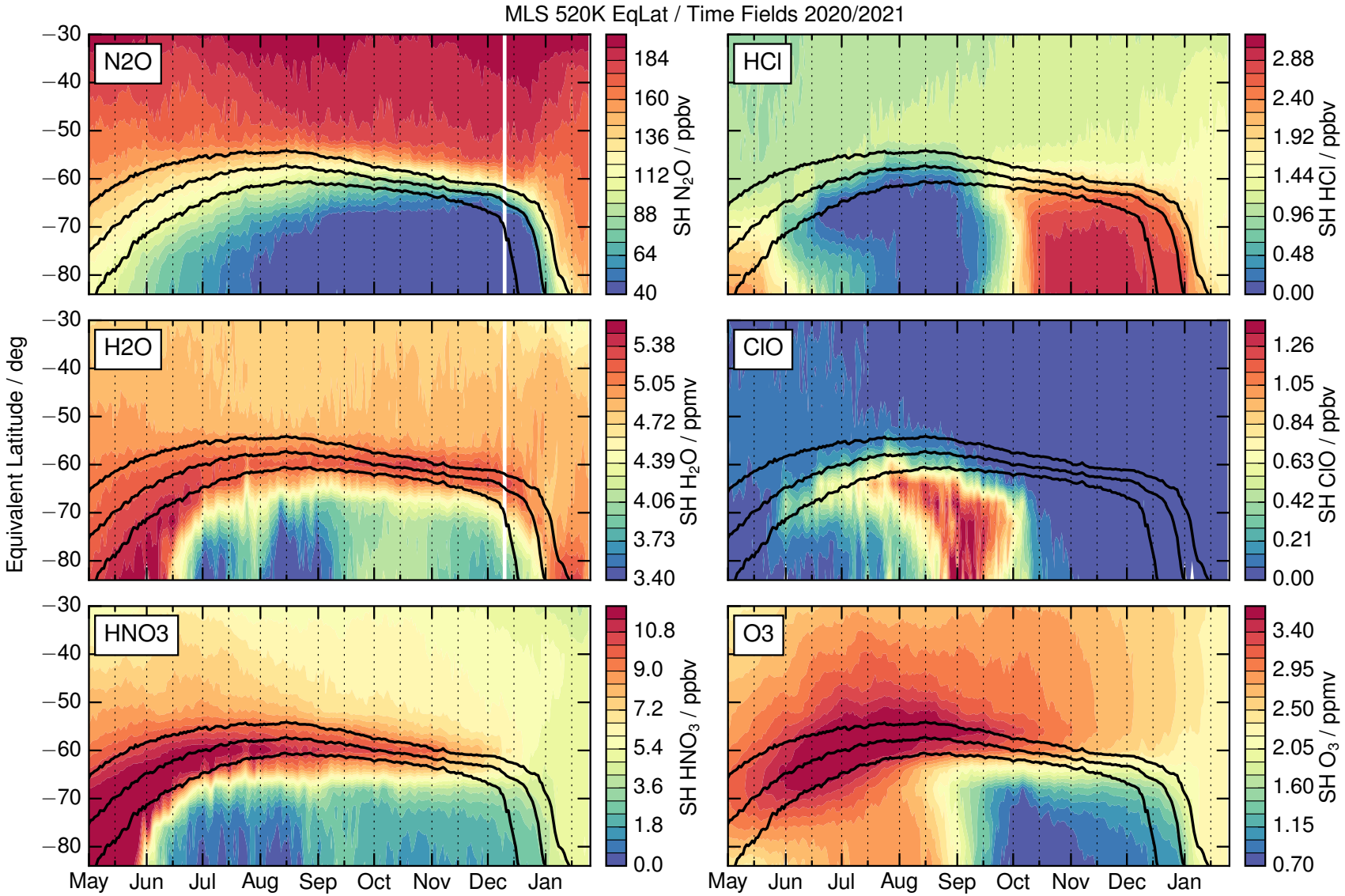




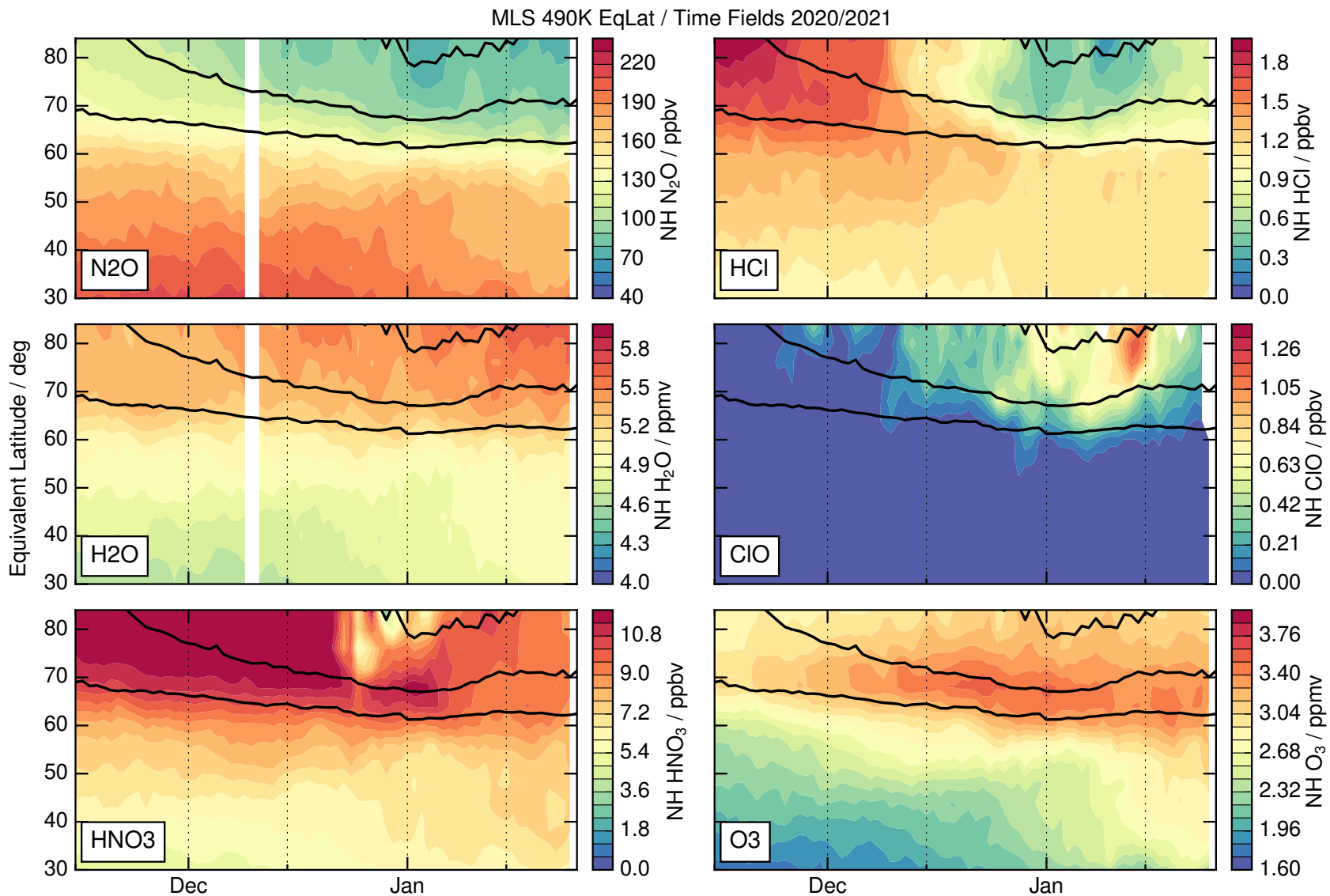
Polar Winter Stratosphere – Arctic NAT T Area Anomalies



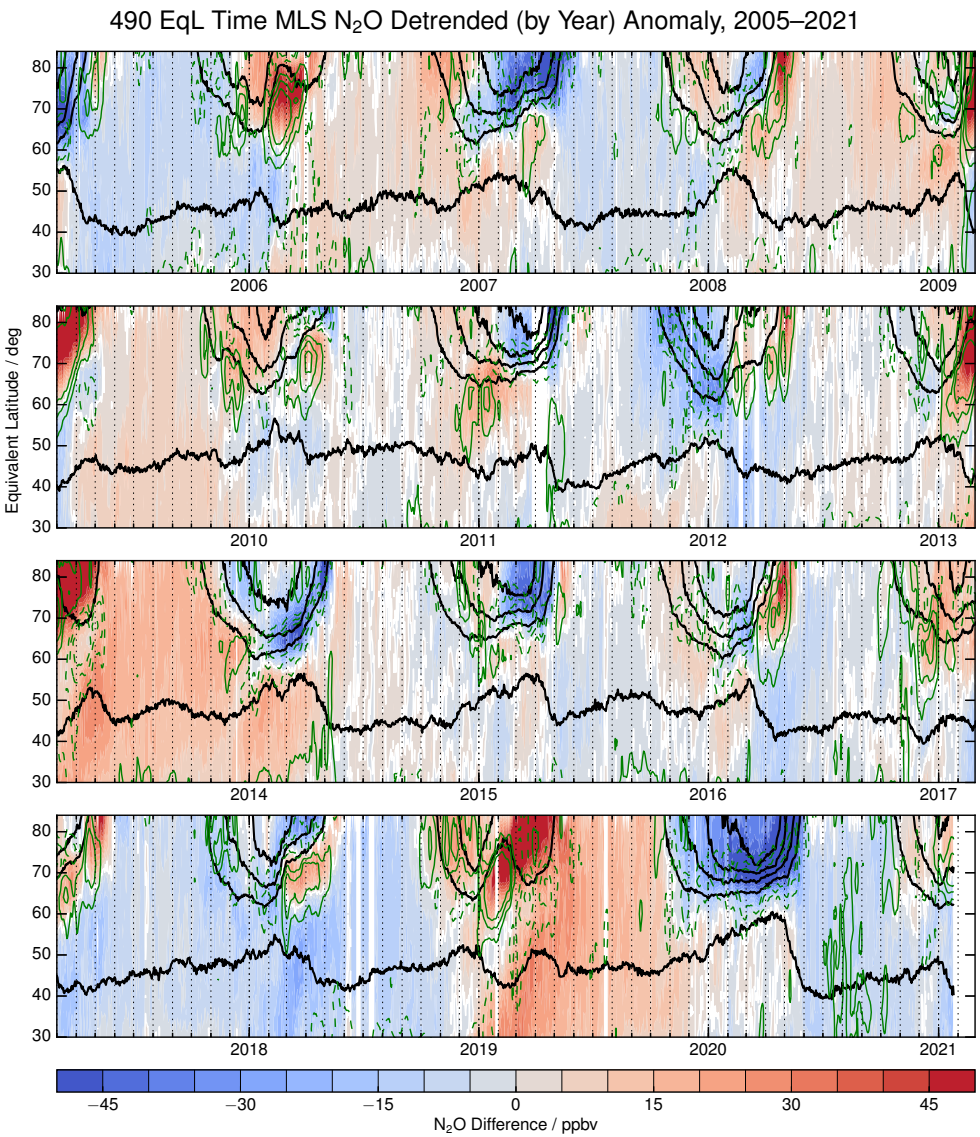
SH Polar Winter Stratosphere – Antarctic Polar Processing

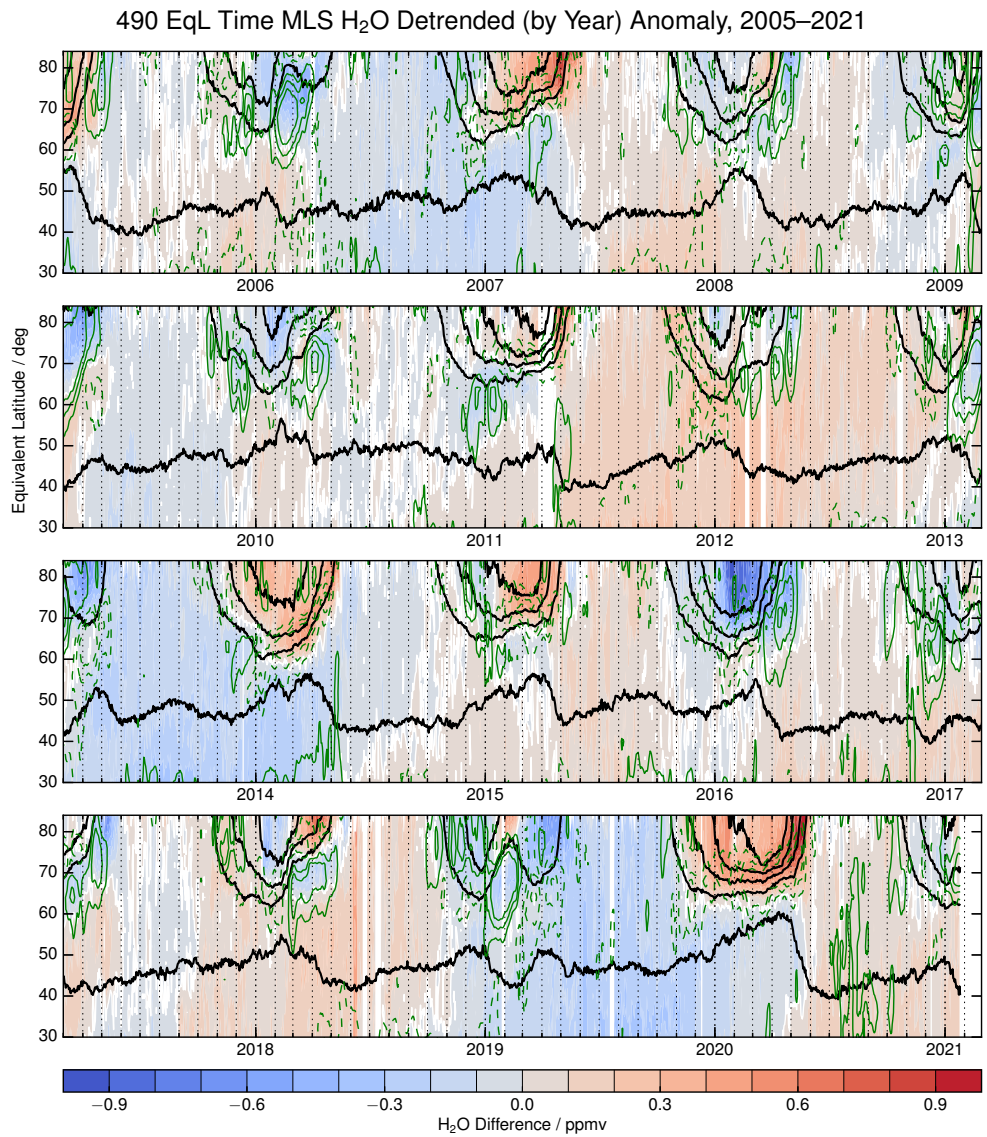


NH Polar Winter Stratosphere – Arctic Polar Processing

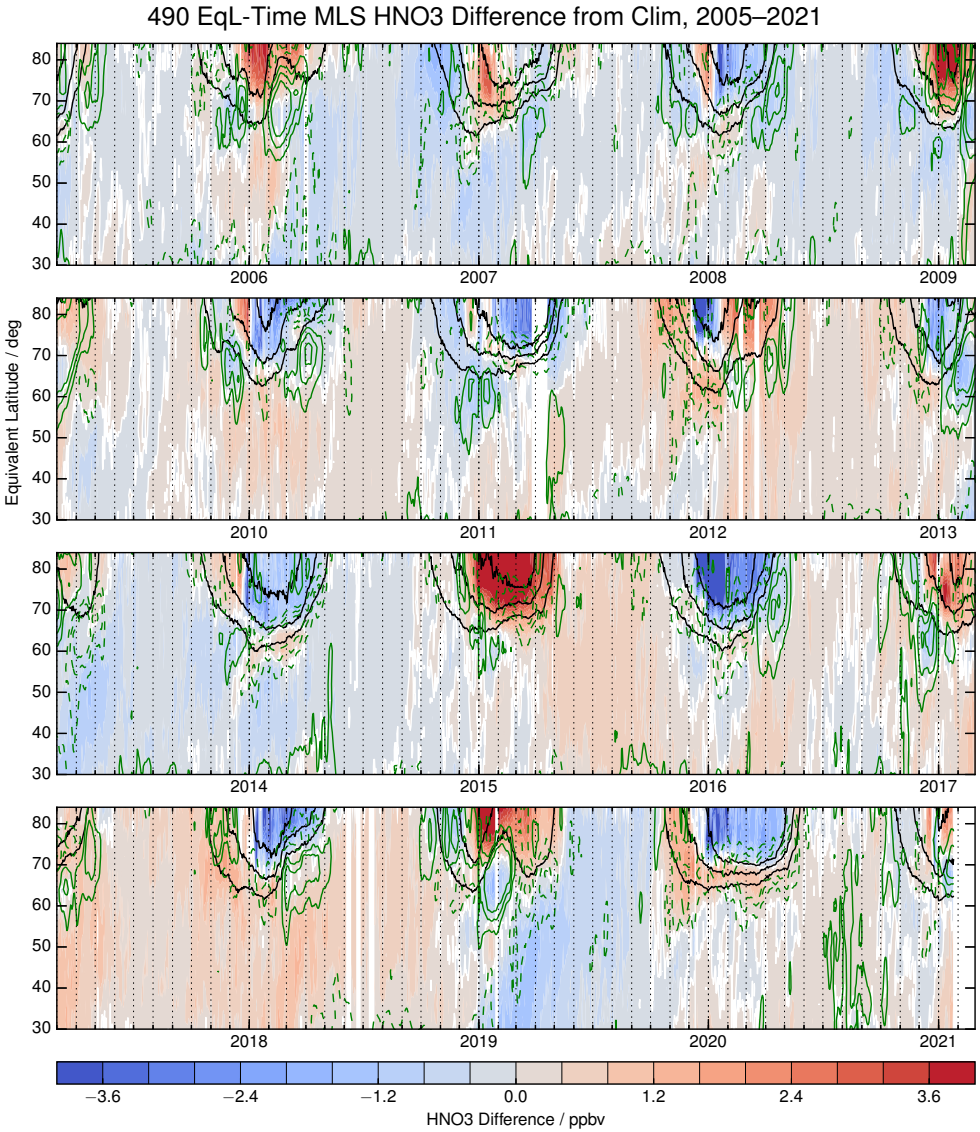


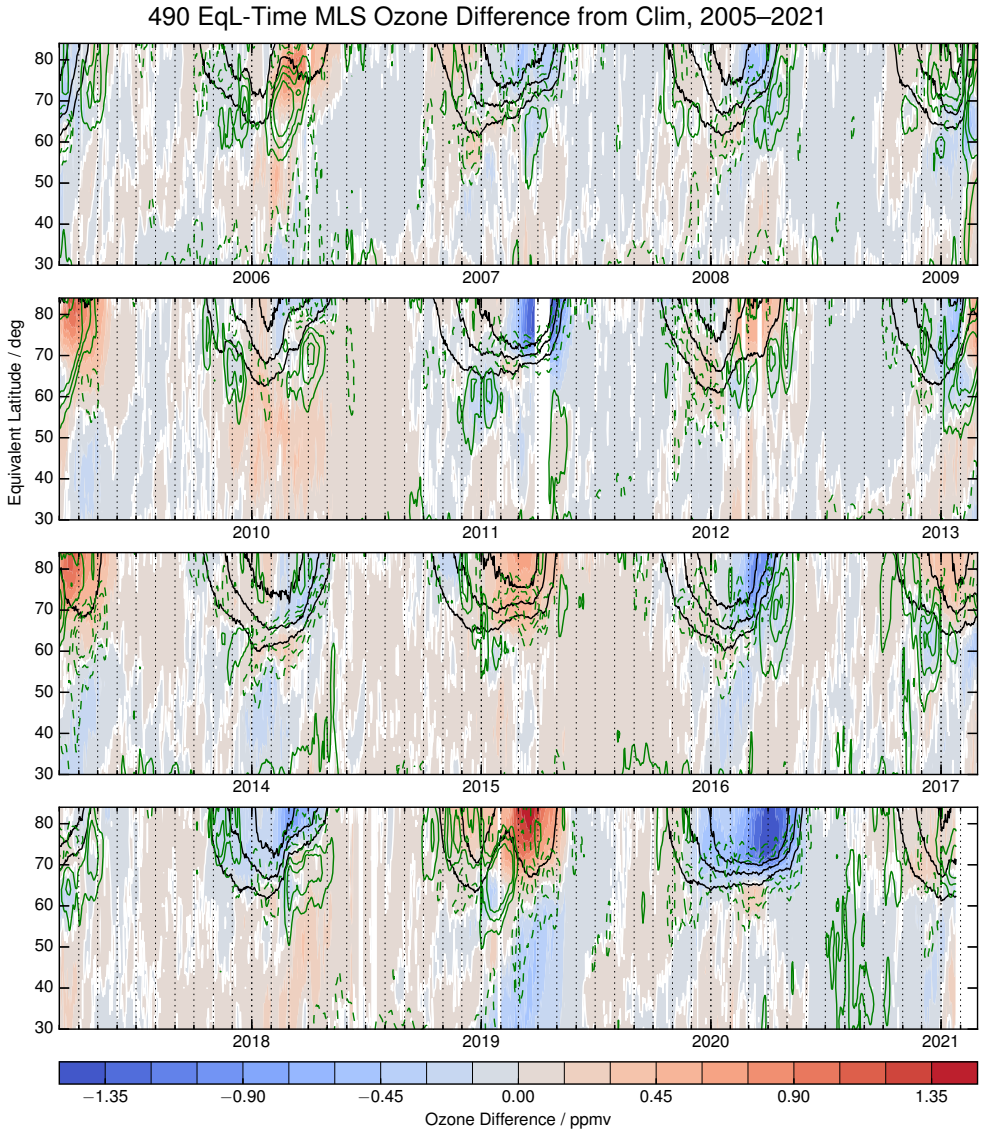
NH Polar Stratosphere – LS 490K v4.2 EqL/Time N_2O & H_2O Anomalies



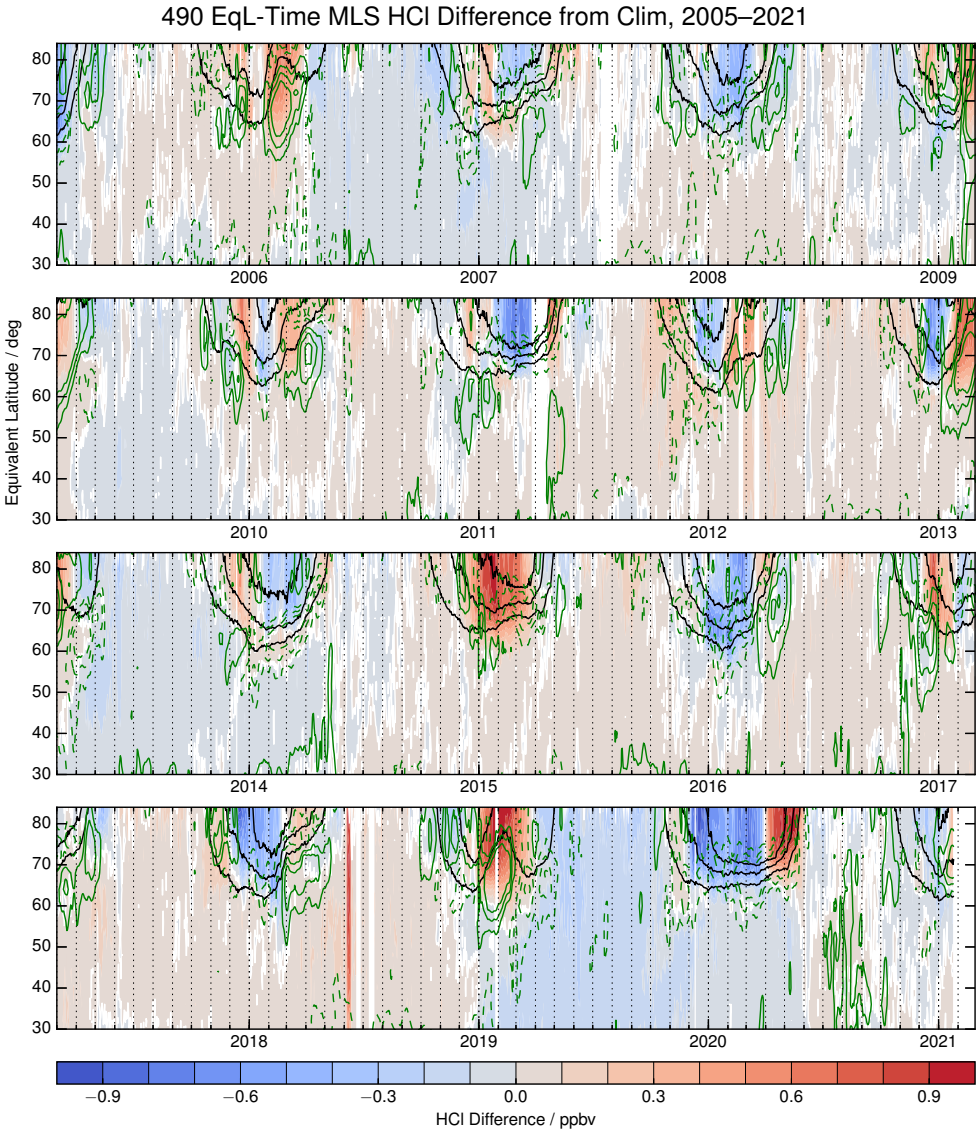


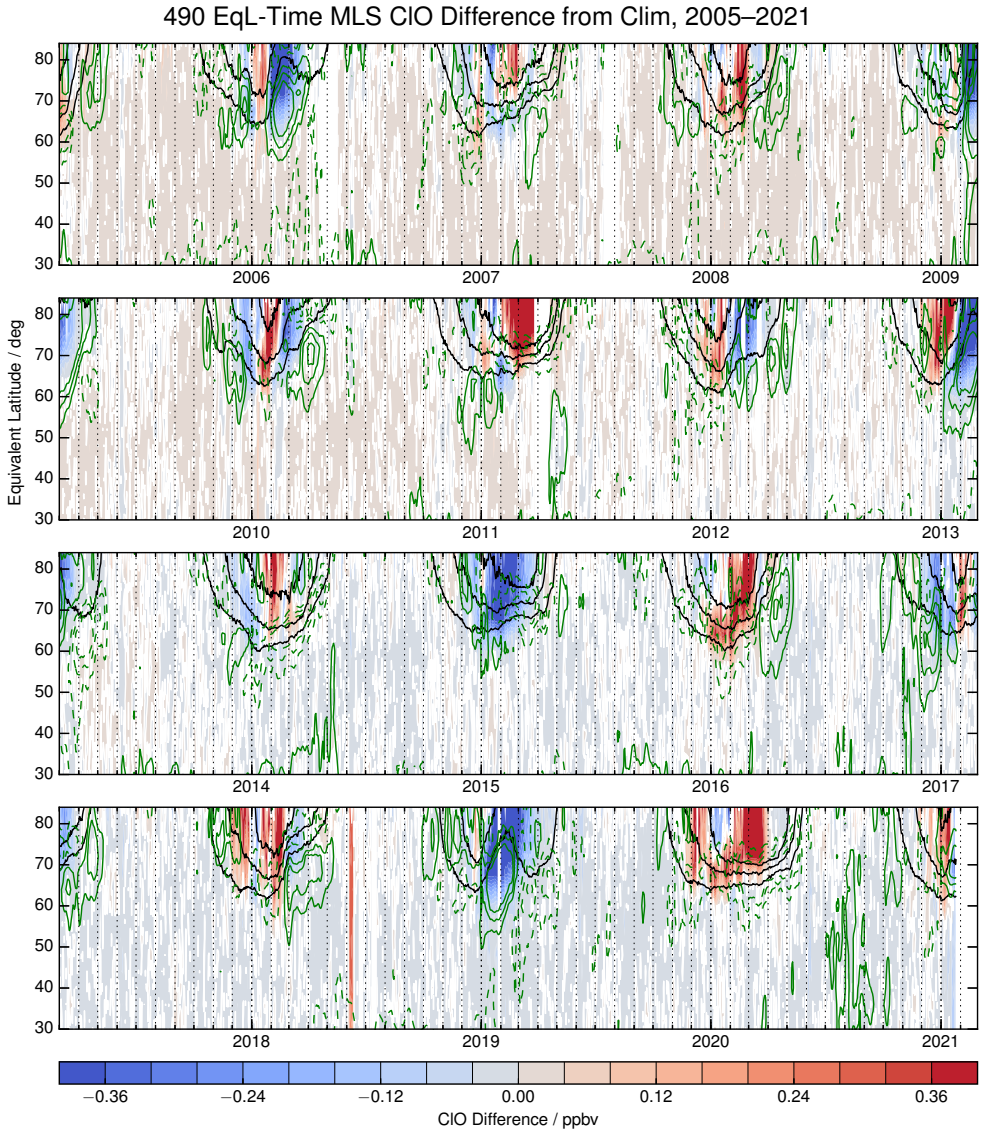
NH Polar Stratosphere – LS 490K v4.2 EqL/Time HNO_3 & O_3 Anomalies





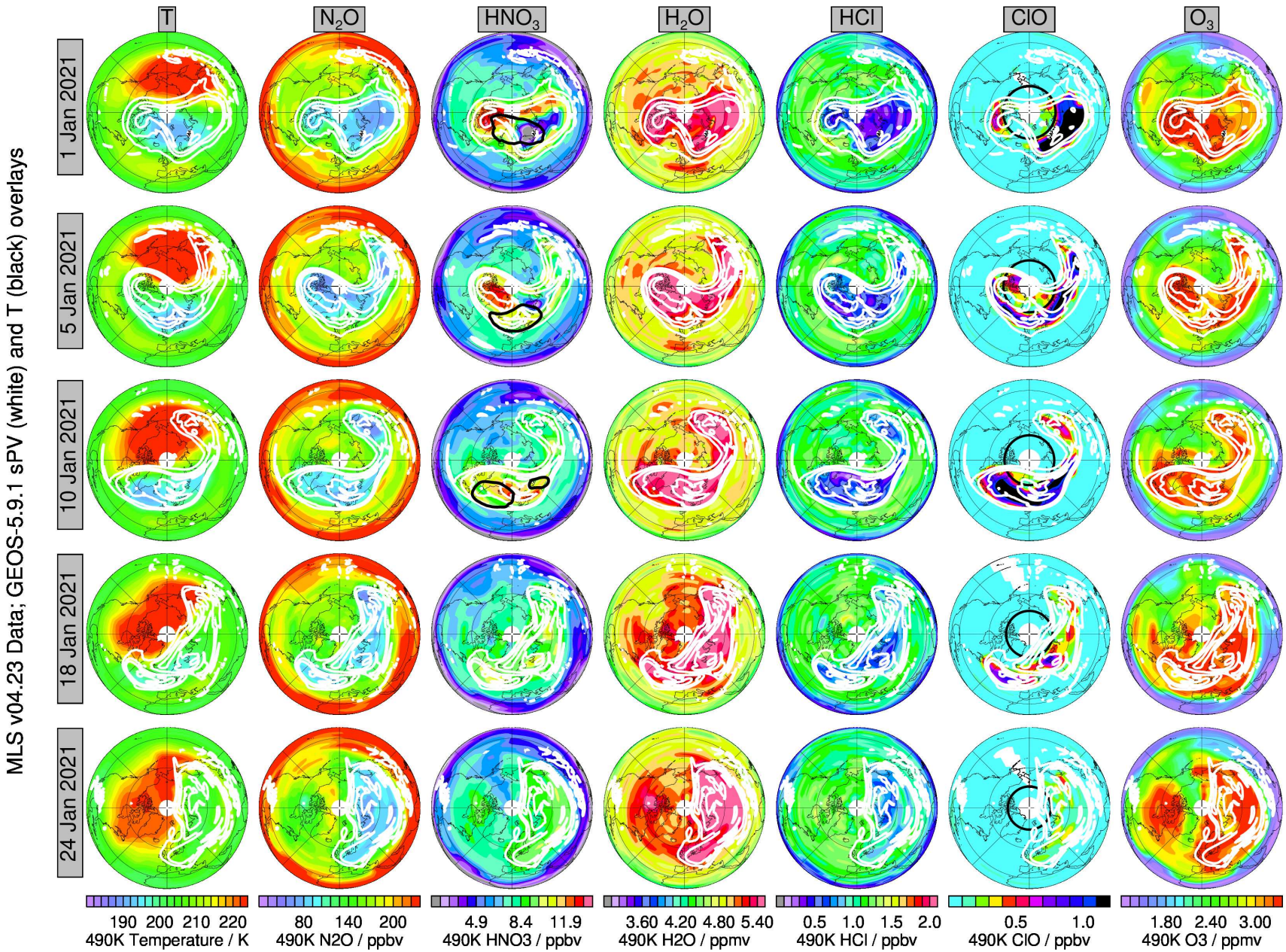
NH Polar Stratosphere – LS 490K v4.2 EqL/Time HCl & ClO Anomalies



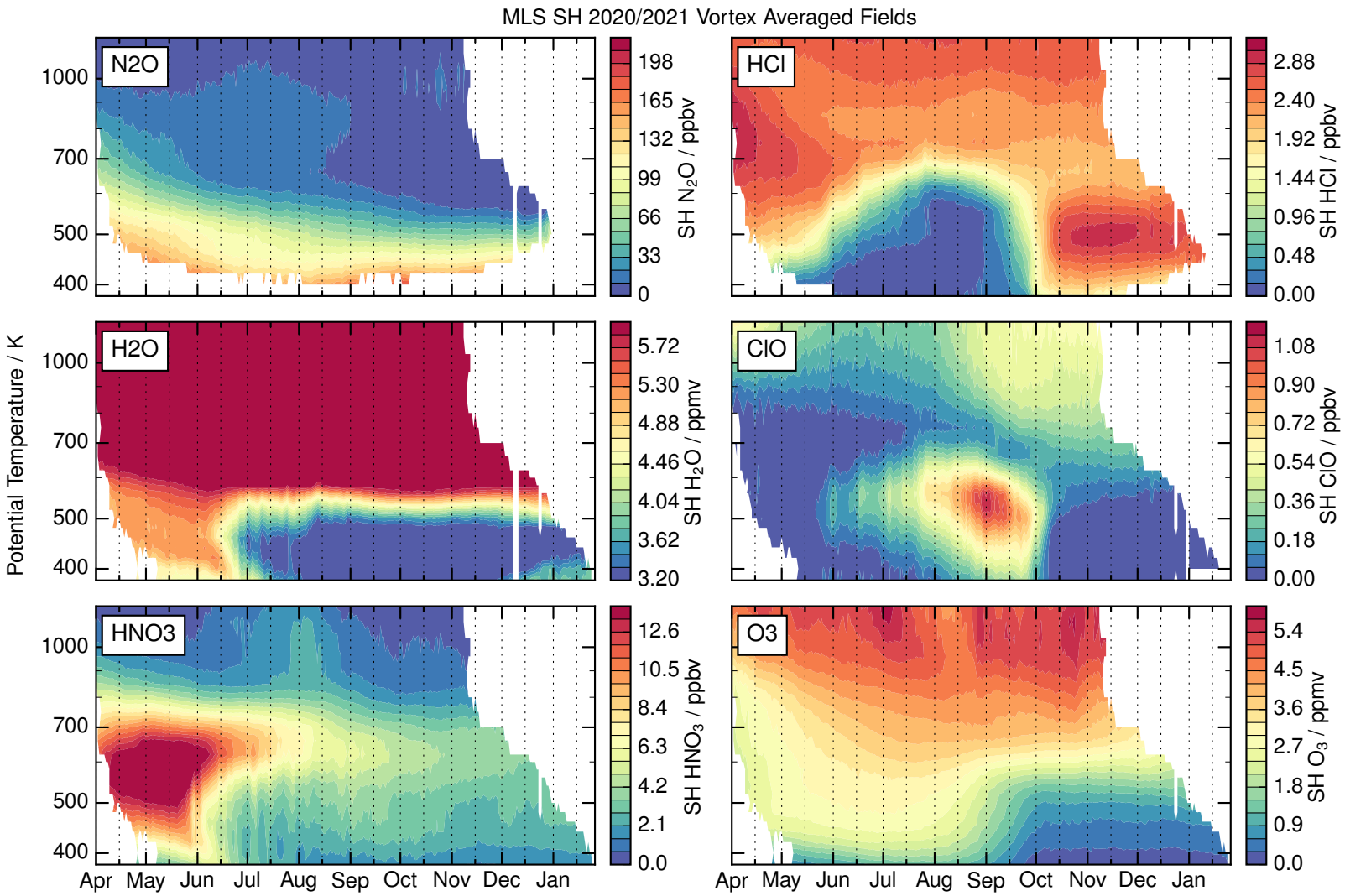


Figures by Nicole Sheerin, NMT/JPL

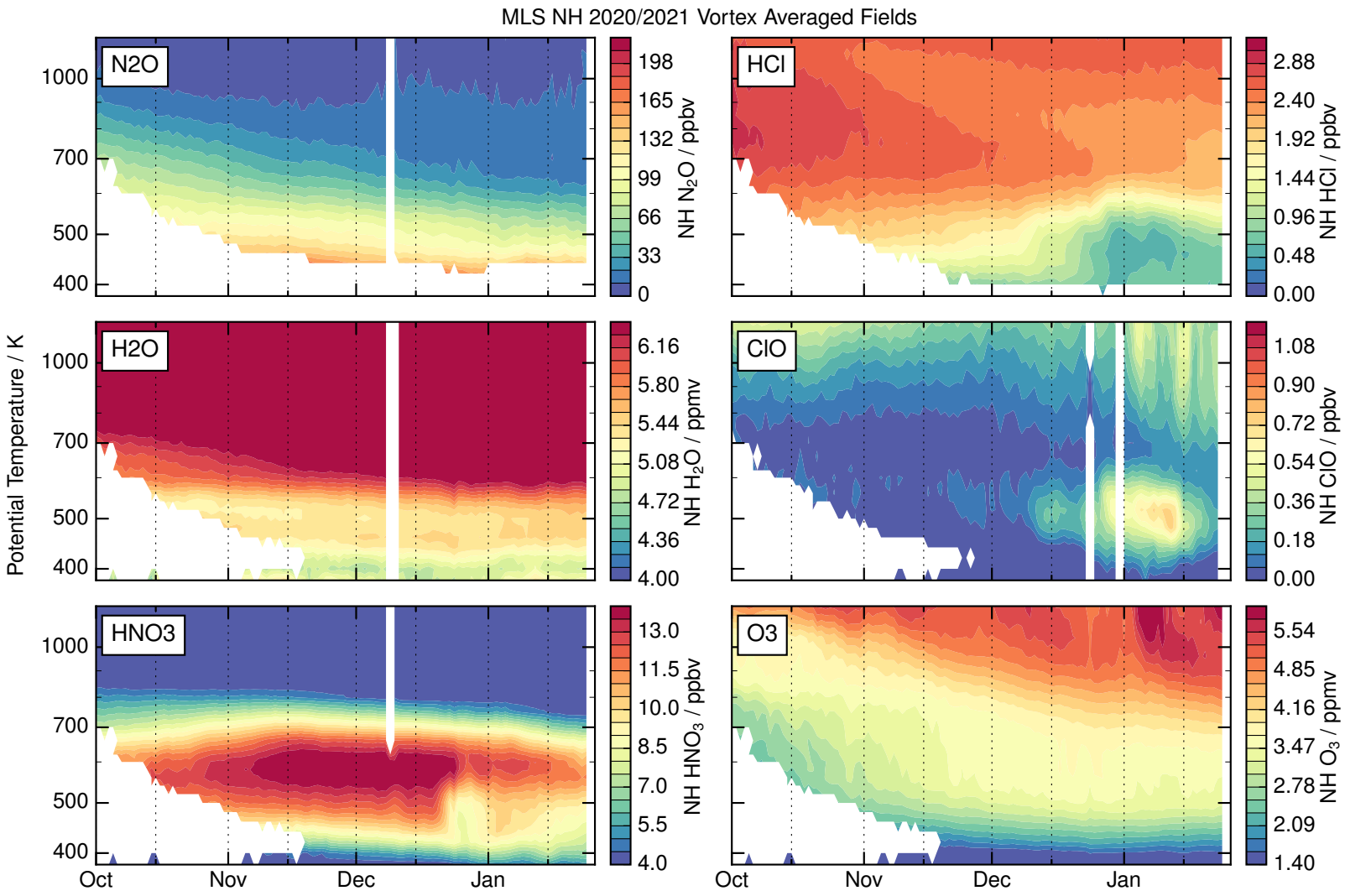
NH Polar Lower Stratosphere – 490K Maps (v4.2)



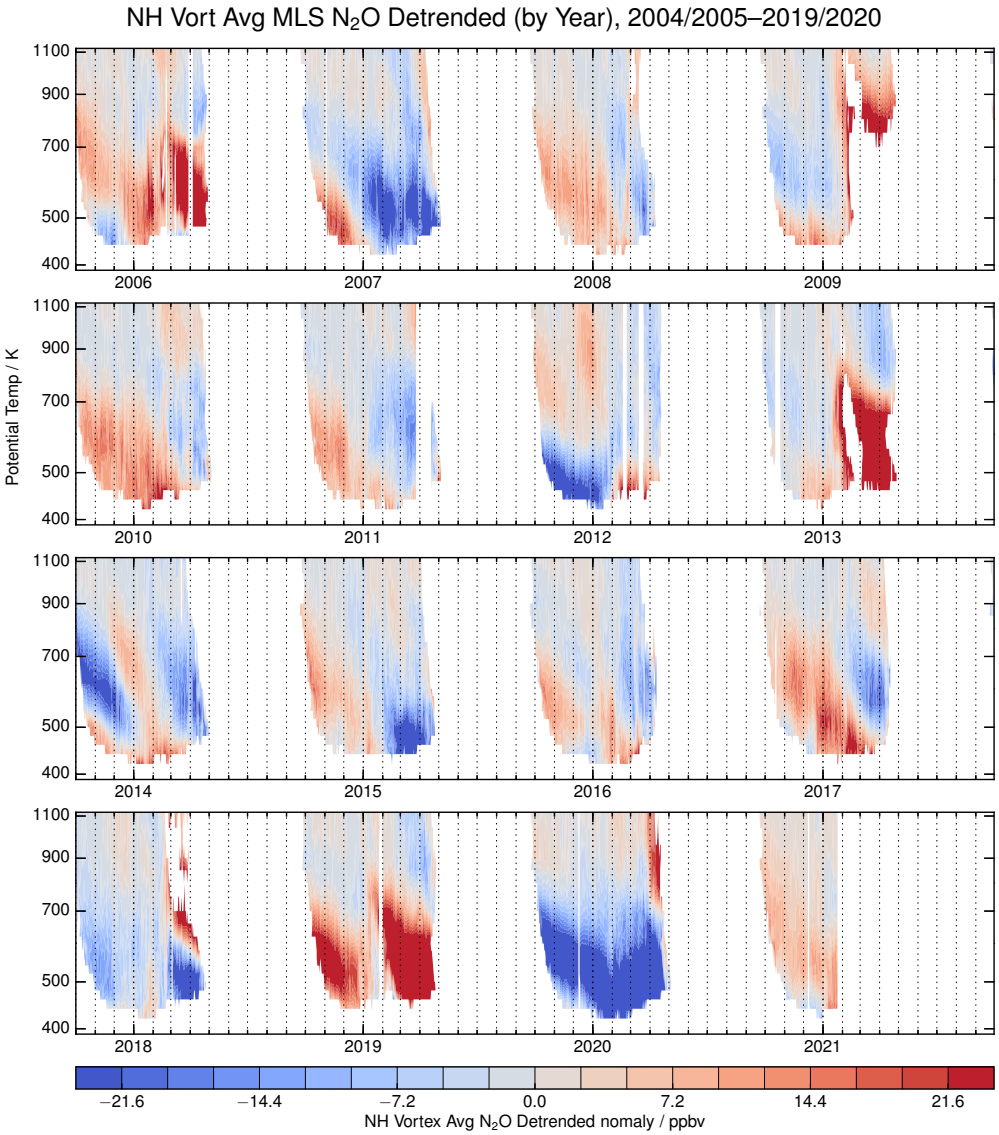
SH Polar Stratosphere – LS Vortex Average v4.2 Summary

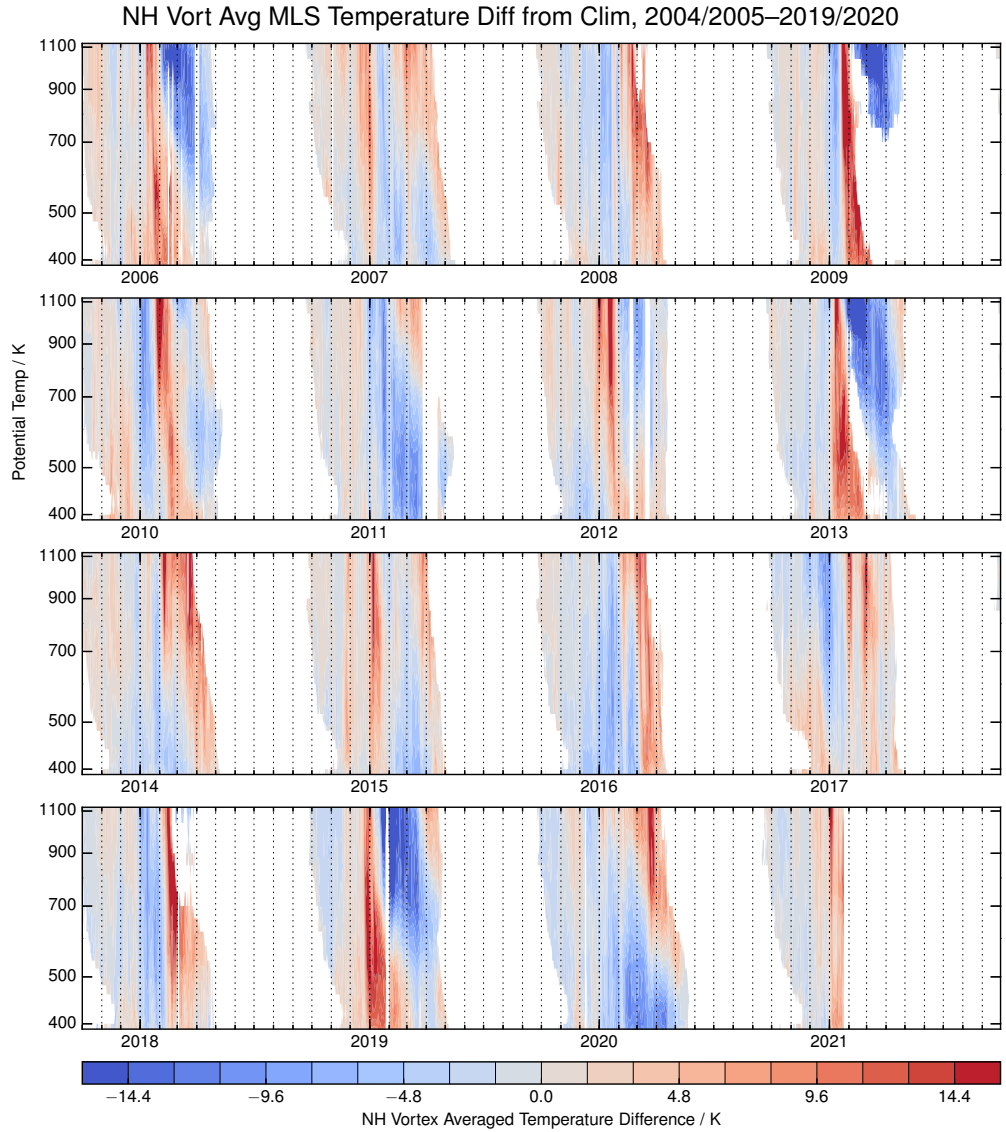


NH Polar Stratosphere – LS Vortex Average v4.2 Summary

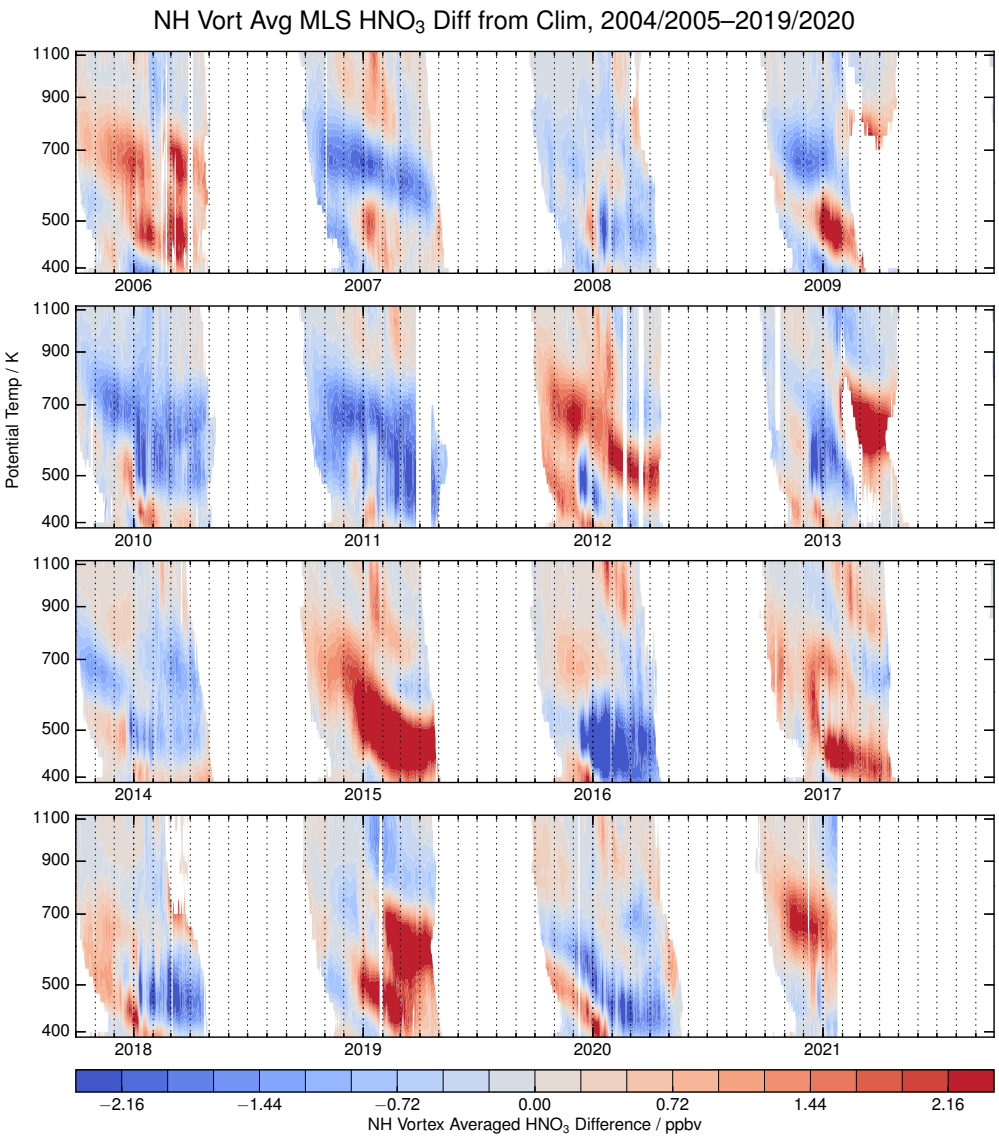


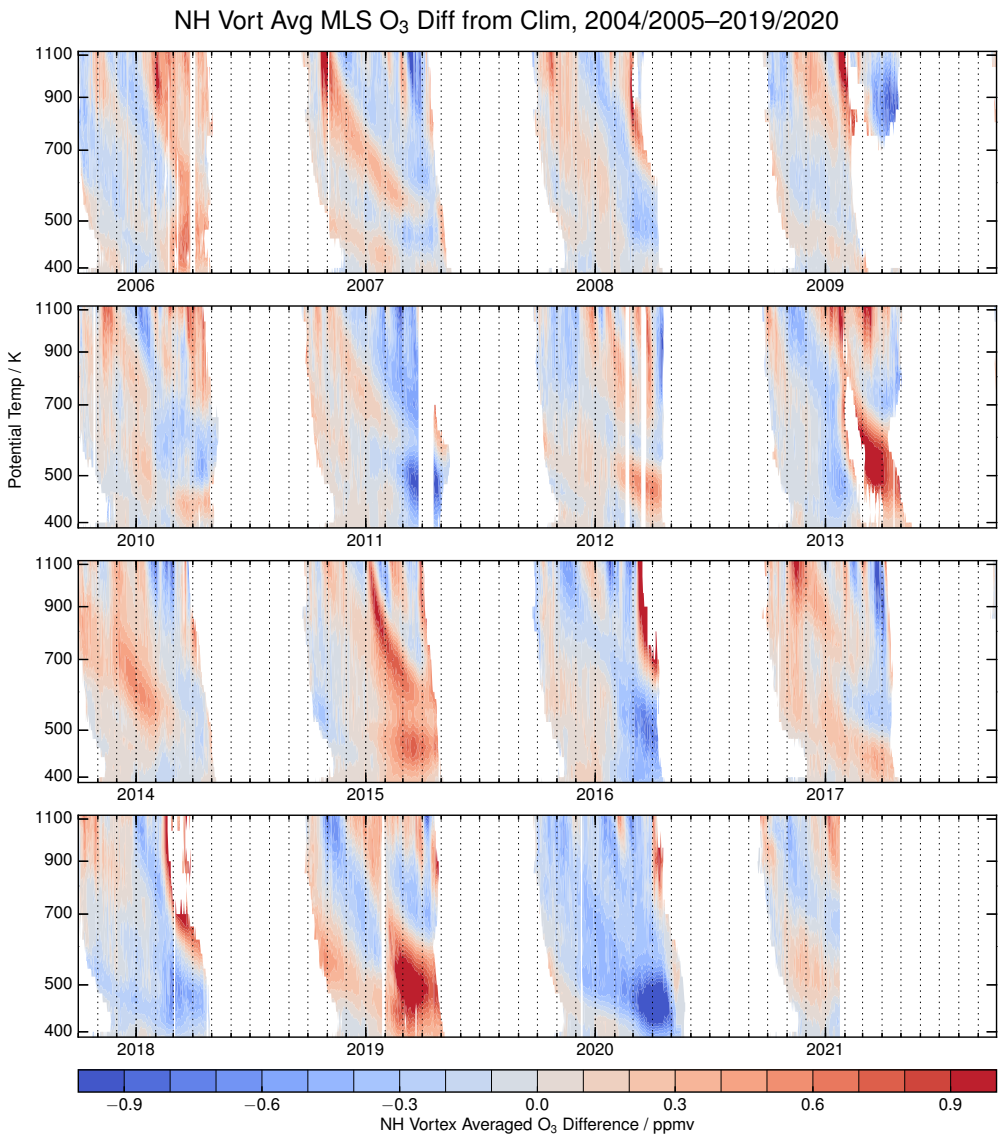
NH Polar Stratosphere – LS Vortex Avg v4.2 N_2O & T Anomalies



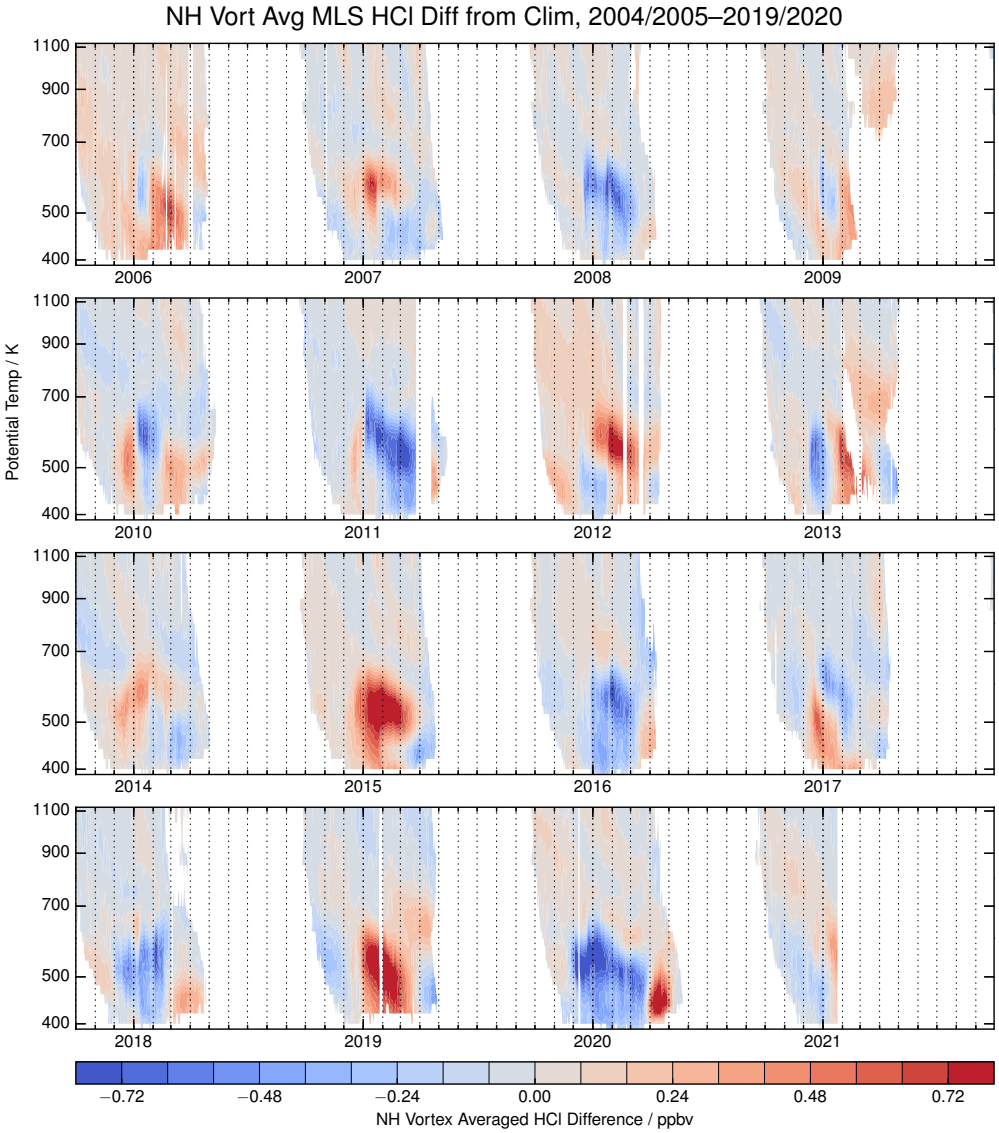


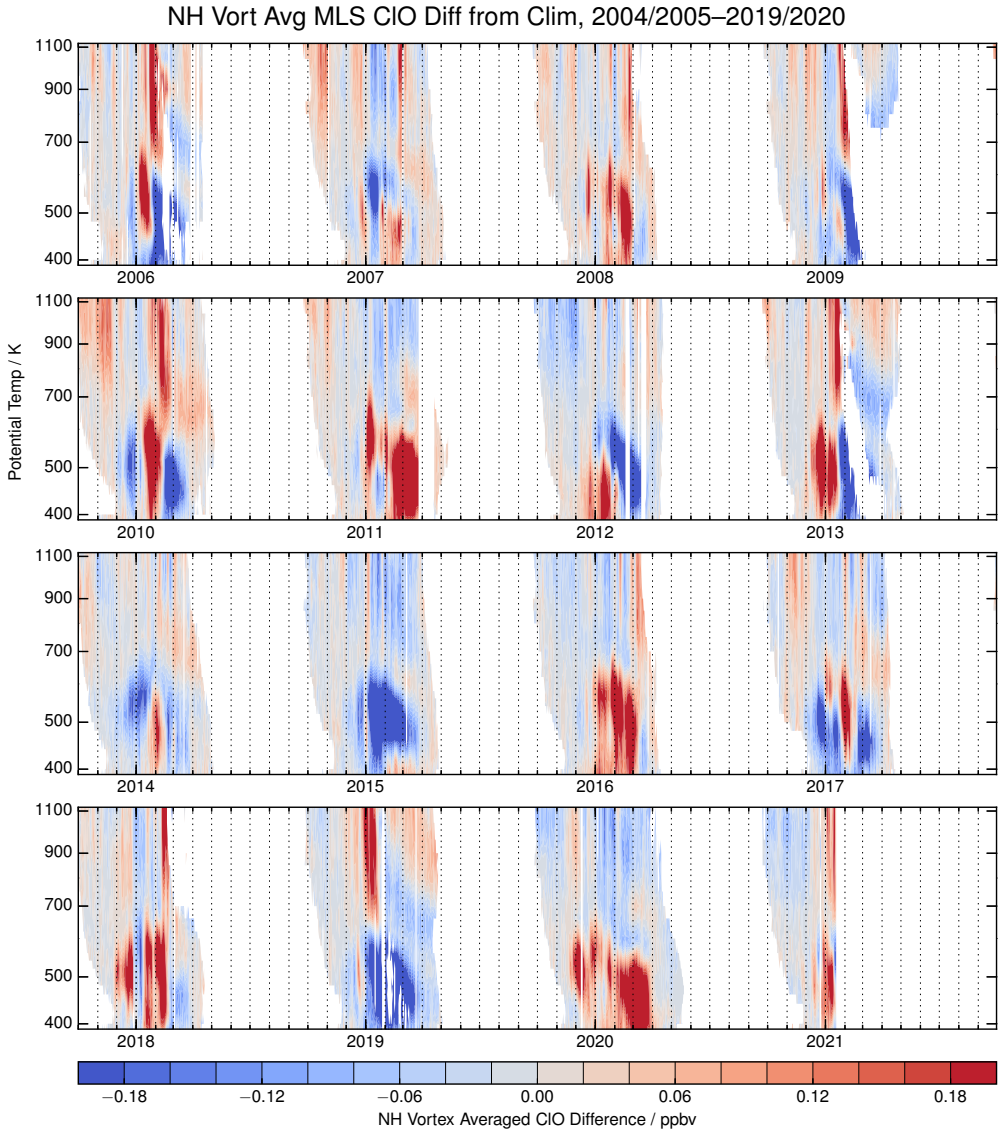
NH Polar Stratosphere – LS Vortex Avg v4.2 HNO_3 & O_3 Anomalies



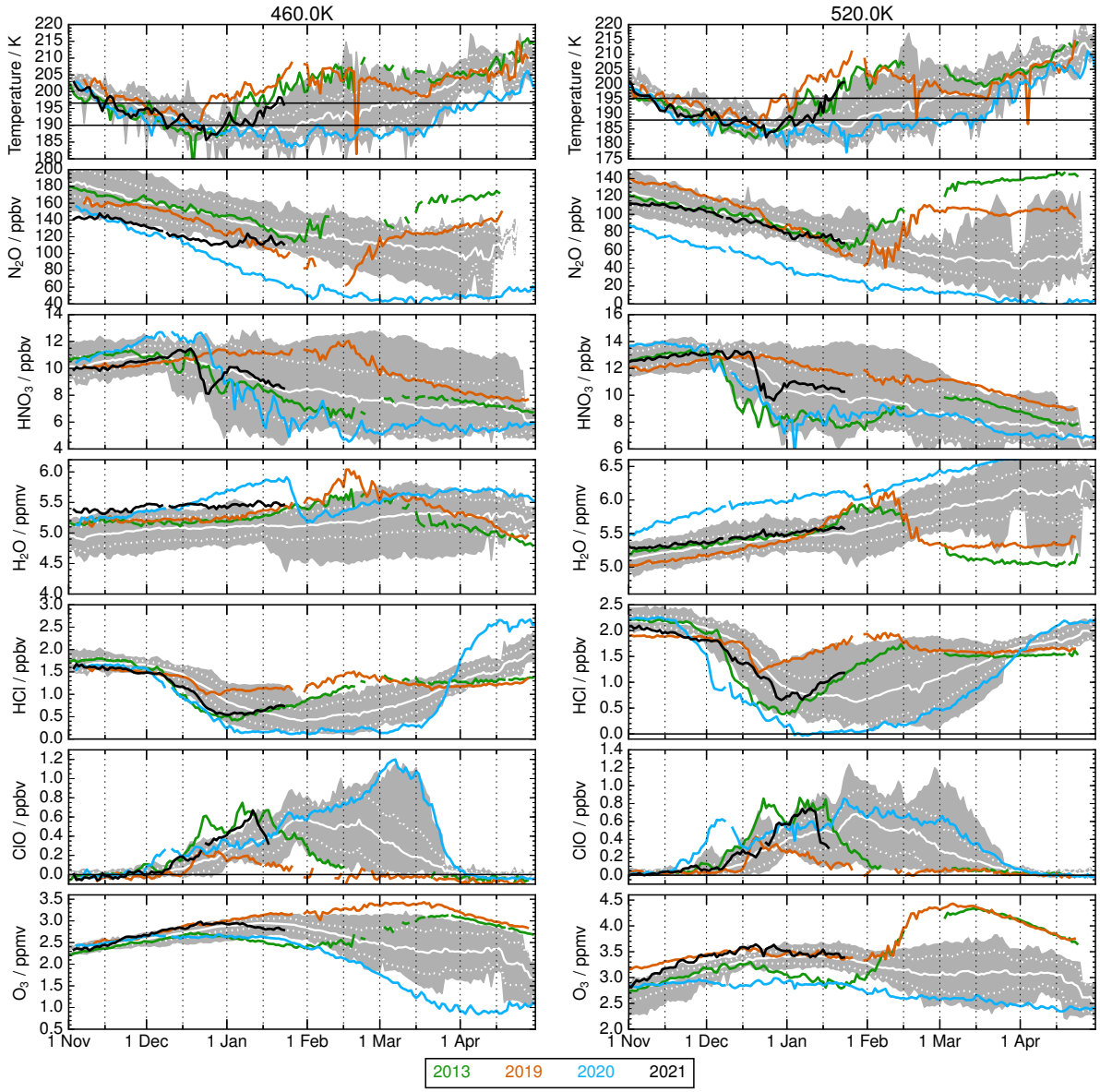


NH Polar Stratosphere – LS Vortex Avg MLS v4.2 HCl & ClO Anomalies

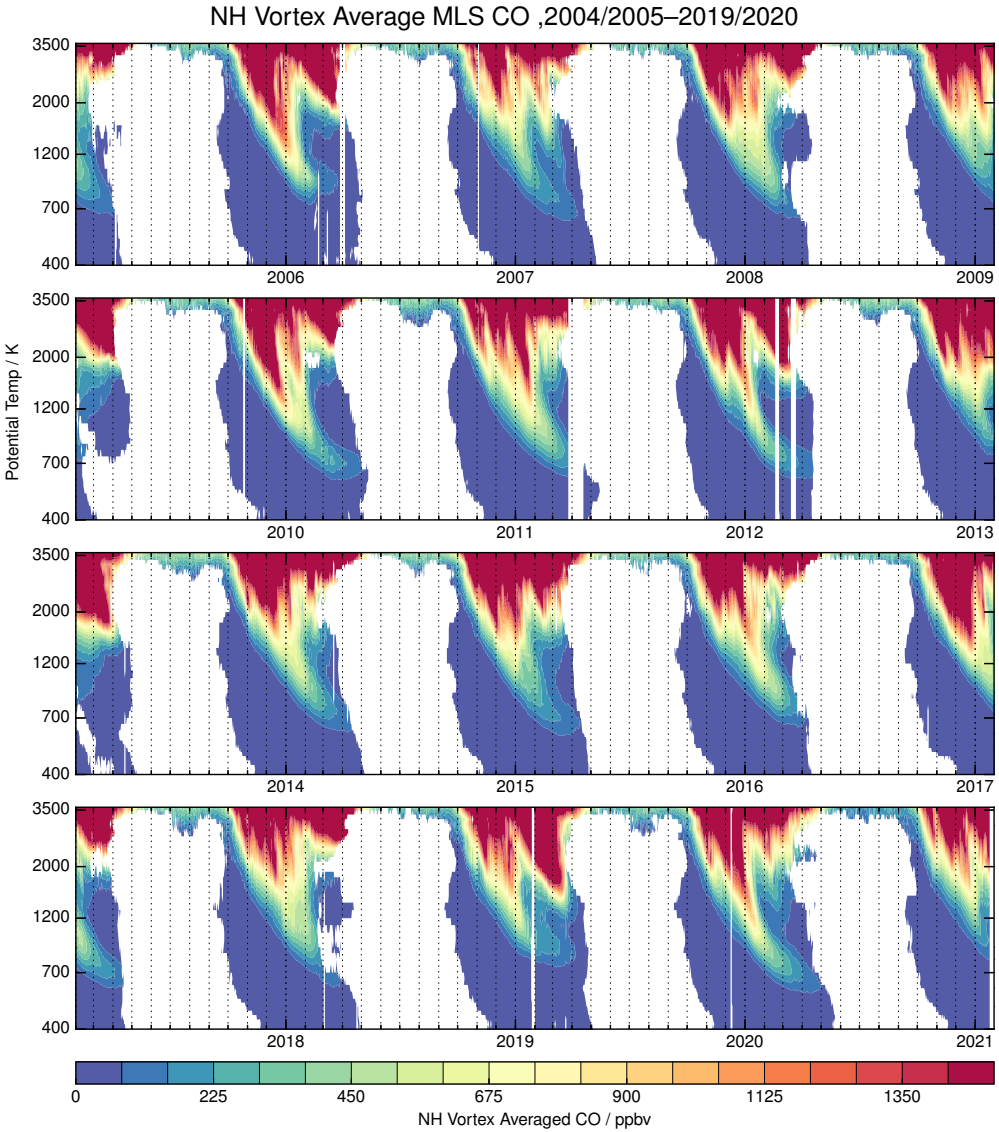


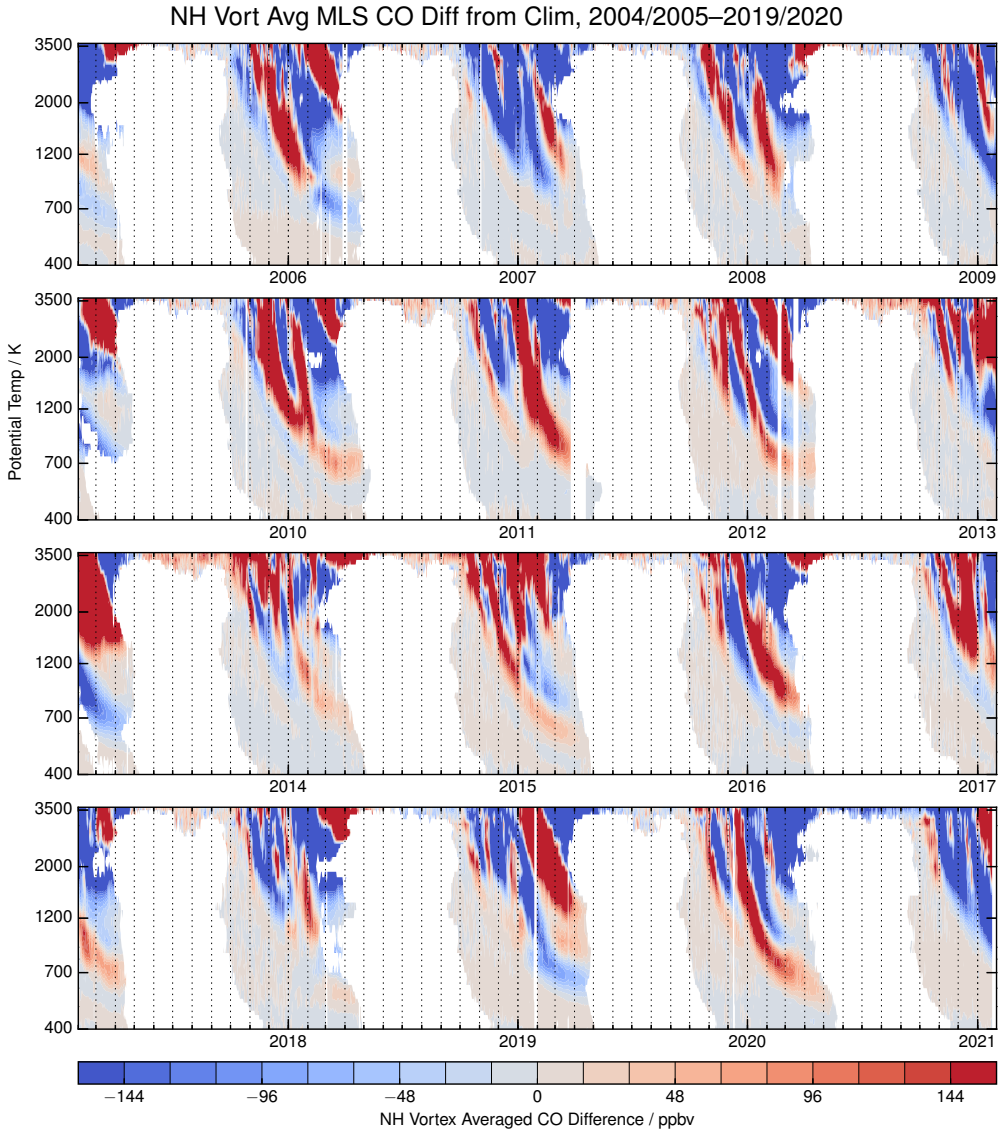


SH Polar Stratosphere – LS Vortex Averages MLS v4.2 Summary



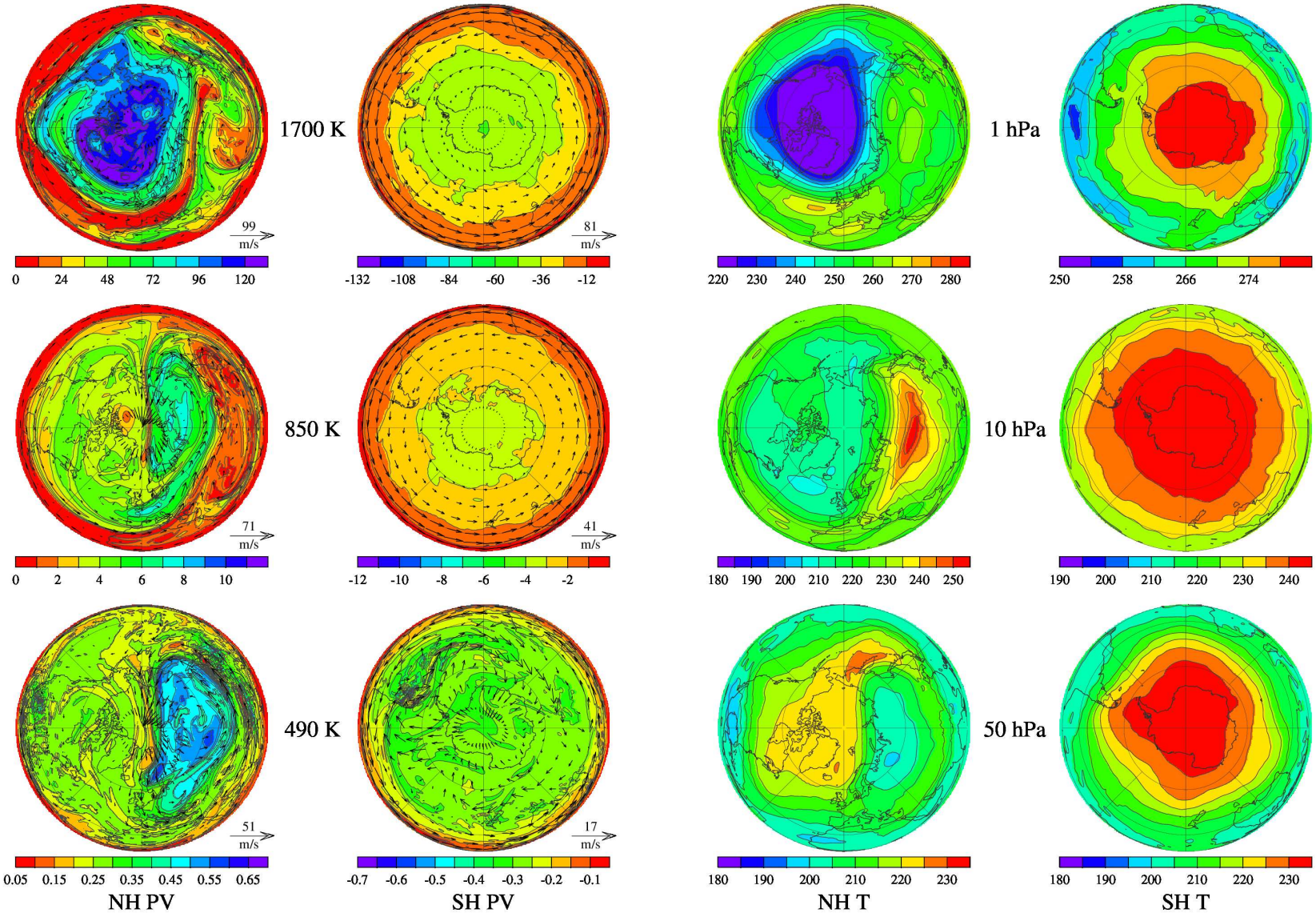
NH Polar Stratosphere – USLM Vortex Average v4.2 CO





GEOS-5.124 PV and Temperature: 25 Jan 2021 (2021d025)

Produced : Tue Jan 26 06:55:50 PST 2021

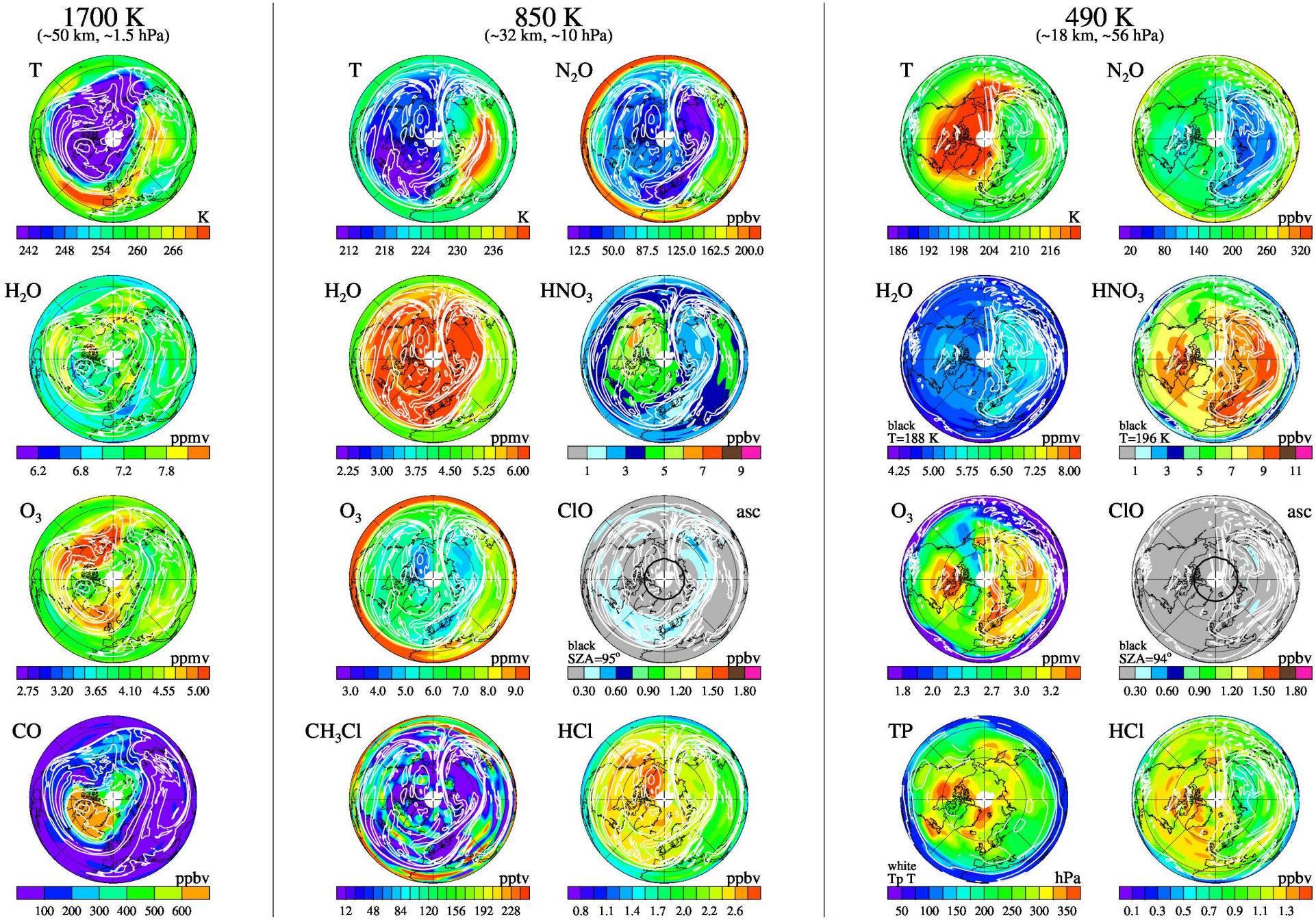


From the Global Modeling and Assimilation Office GEOS-5.124 Data
Produced by Gloria Manney at the Jet Propulsion Laboratory, California Institute of Technology, under contract with NASA, JPL Clearance CL#05-1922

Aura MLS Daily Map: (NH) January 24, 2021 (2021d024)

Data Version: v04.23-c01, Produced On: January 27, 2021

White Contours: Typically Scaled PV from GEOS-5; Black Contours: Temperature from GEOS-5 (MLS Solar Zenith Angle when specified)



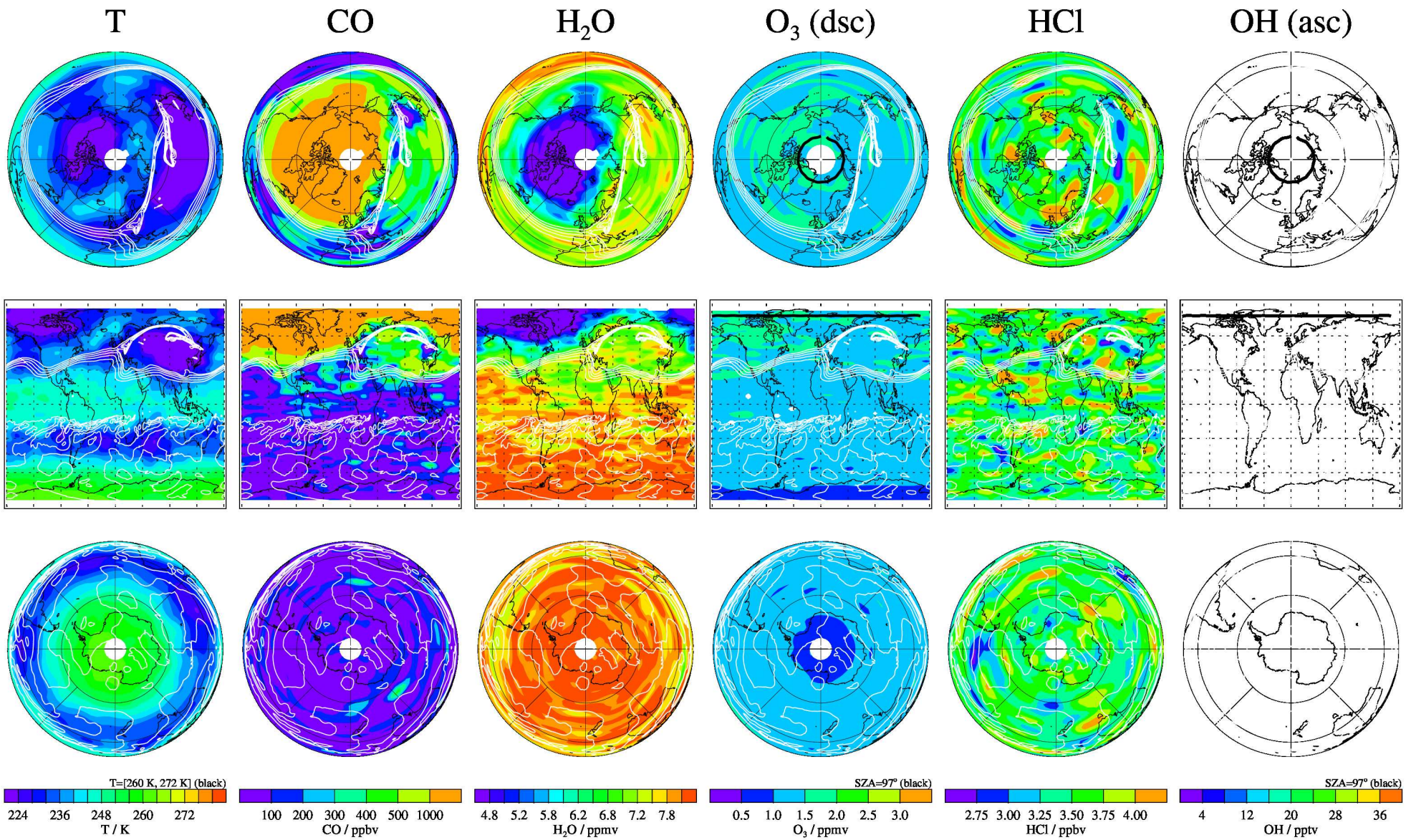
Produced by the MLS Science Team at the Jet Propulsion Laboratory, California Institute of Technology, under contract with NASA, from EOS MLS and GMAO GEOS-5 data: JPL Clearance CL#05-3463

Produced on 27-Jan-2021 06:04:20 using plot version 1.51

MLS Aura Daily Map: 2700 K (~60 km, ~0.2 hPa) January 24, 2021 (2021d024)

Data Version: v04.23-c01, Produced On: January 27, 2021

White Contours: Scaled PV from GEOS-5; Black Contours: MLS Solar Zenith Angle (Temperature from GEOS-5 when specified)



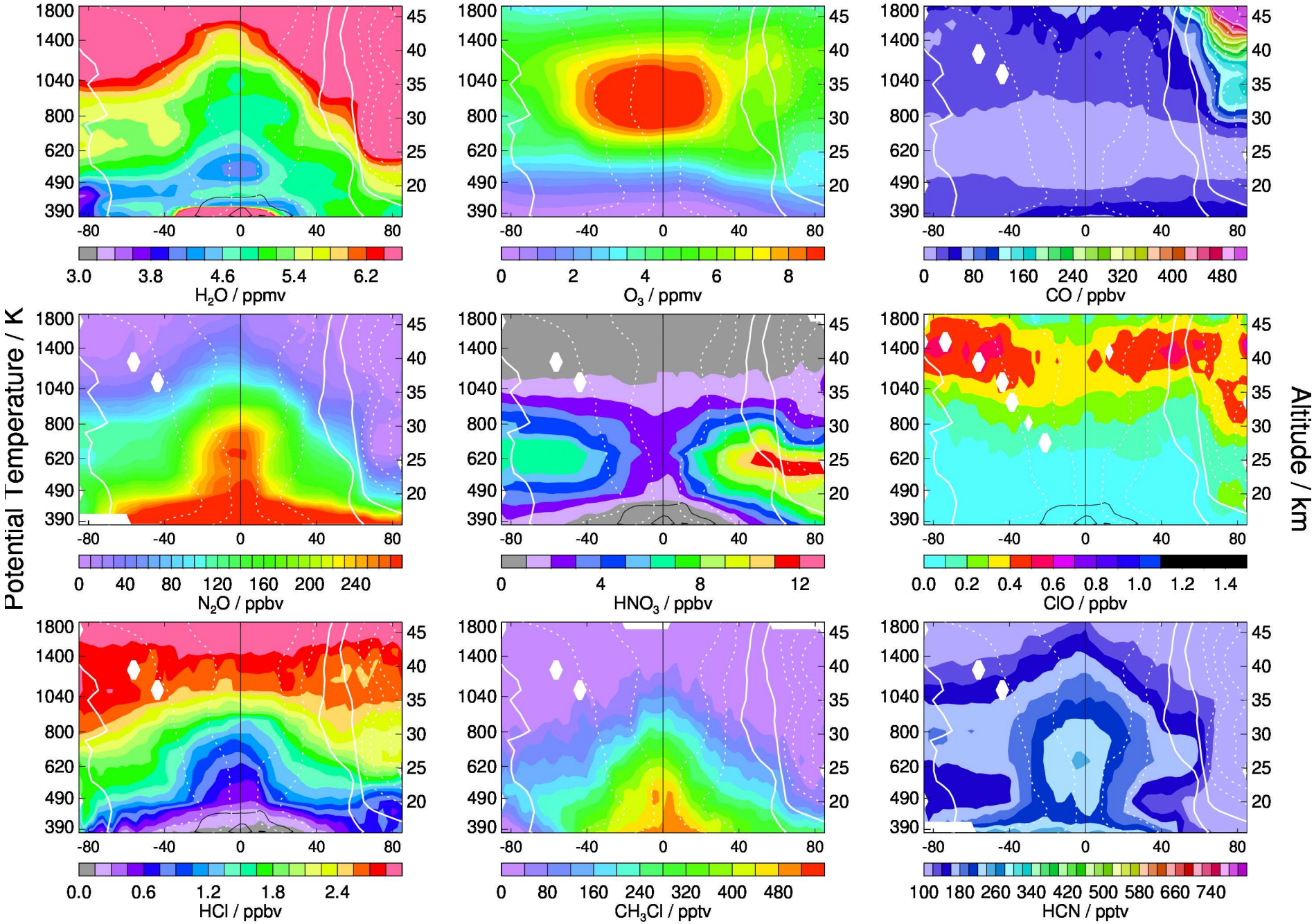
Produced by the MLS Science Team at the Jet Propulsion Laboratory, California Institute of Technology, under contract with NASA, from EOS MLS and GMAO GEOS-5 data: JPL Clearance CL#05-3463

Produced on 27-Jan-2021 06:03:34 using plot version 1.38

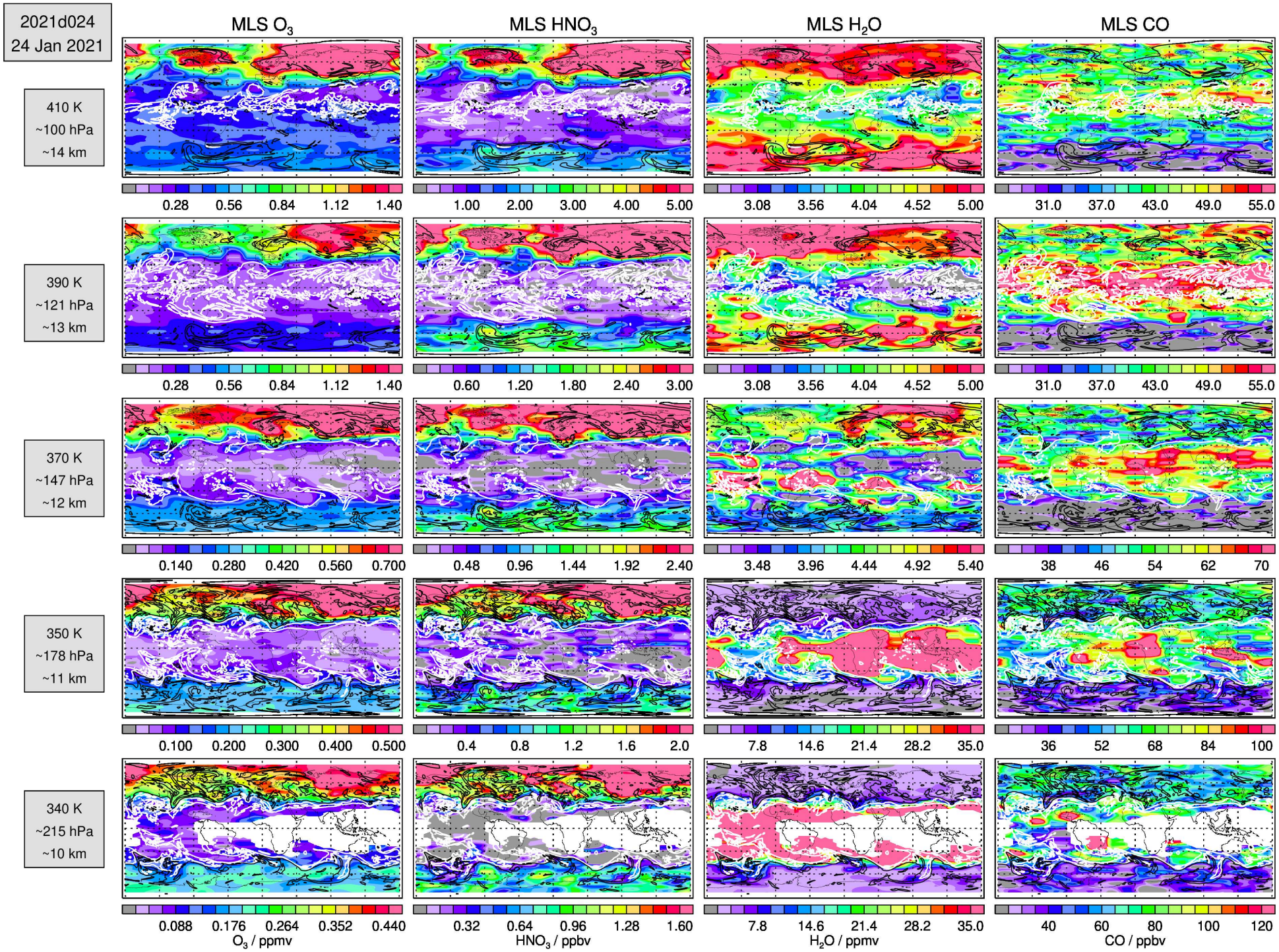
Aura MLS Equivalent Latitude / θ Global Sections: January 23, 2021 (2021d023)

Data Version: v04-23-c01
Produced on: January 26, 2021

White Contours: Scaled PV from GEOS-5.124
Black Contours: Temperature from GEOS-5.124, 180 to 200 by 5K



Produced by Gloria Manney at the Jet Propulsion Laboratory, California Institute of Technology, under contract with NASA, from EOS MLS and GMAO GEOS-5.124 data: JPL Clearance CL#05-2126


2021d024
24 Jan 2021
MLS O_3
MLS HNO_3
MLS H_2O
MLS CO
410 K
~100 hPa
~14 km
0.28 0.56 0.84 1.12 1.40
1.00 2.00 3.00 4.00 5.00
3.08 3.56 4.04 4.52 5.00
31.0 37.0 43.0 49.0 55.0
390 K
~121 hPa
~13 km
0.28 0.56 0.84 1.12 1.40
0.60 1.20 1.80 2.40 3.00
3.08 3.56 4.04 4.52 5.00
31.0 37.0 43.0 49.0 55.0
370 K
~147 hPa
~12 km
0.140 0.280 0.420 0.560 0.700
0.48 0.96 1.44 1.92 2.40
3.48 3.96 4.44 4.92 5.40
38 46 54 62 70
350 K
~178 hPa
~11 km
0.100 0.200 0.300 0.400 0.500
0.4 0.8 1.2 1.6 2.0
7.8 14.6 21.4 28.2 35.0
36 52 68 84 100
340 K
~215 hPa
~10 km
0.088 0.176 0.264 0.352 0.440
O_3 / ppmv
0.32 0.64 0.96 1.28 1.60
HNO_3 / ppbv
7.8 14.6 21.4 28.2 35.0
H_2O / ppmv
40 60 80 100 120
CO / ppbv