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

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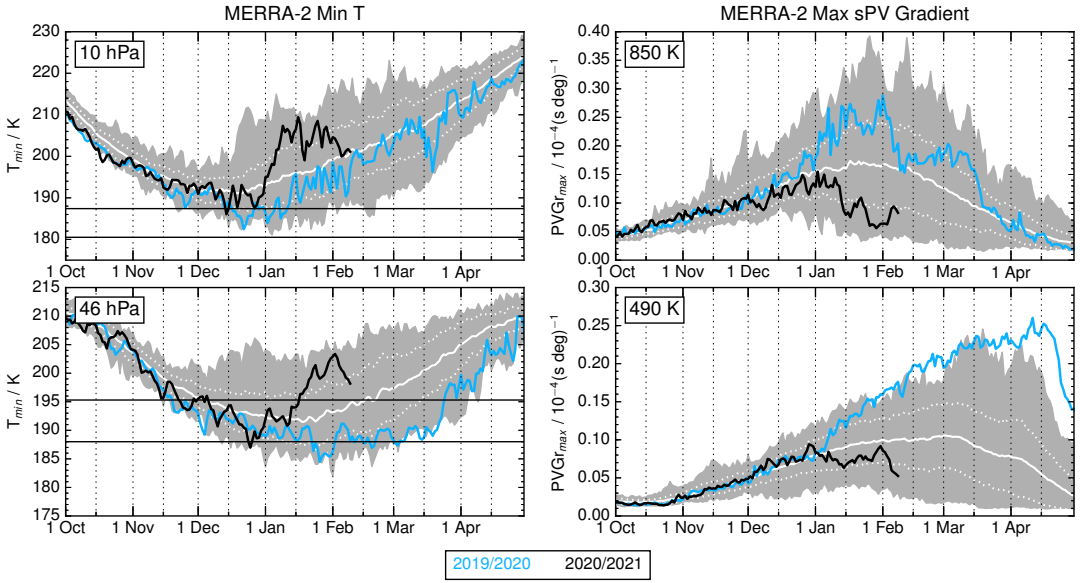
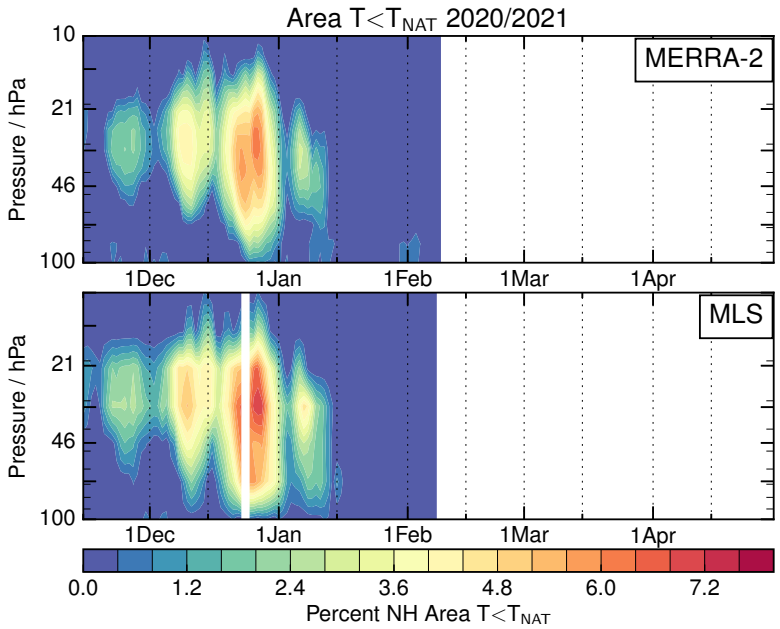
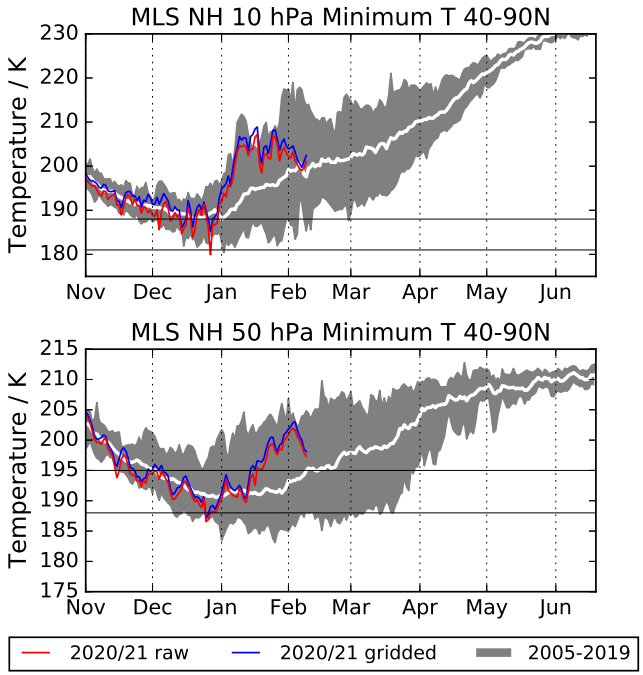
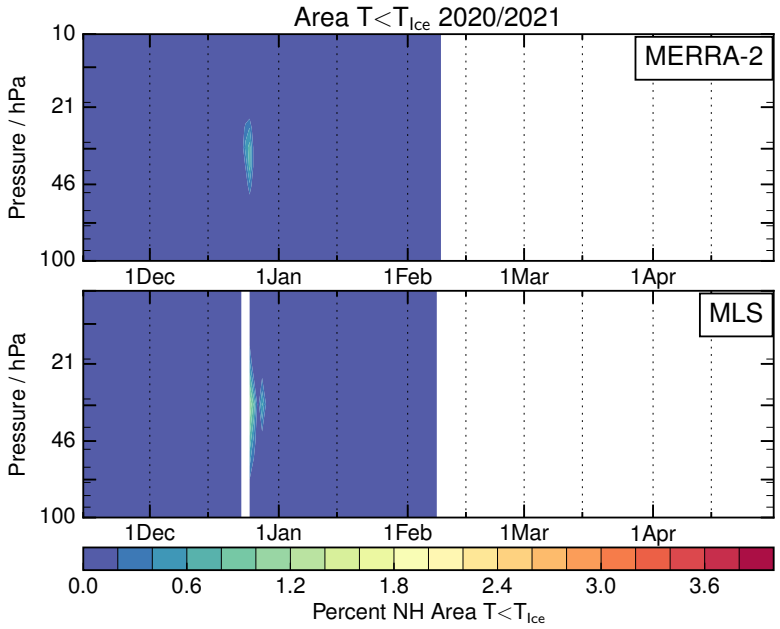
Government sponsorship acknowledged.

Polar Winter Stratosphere – Arctic Temperatures and Vortex

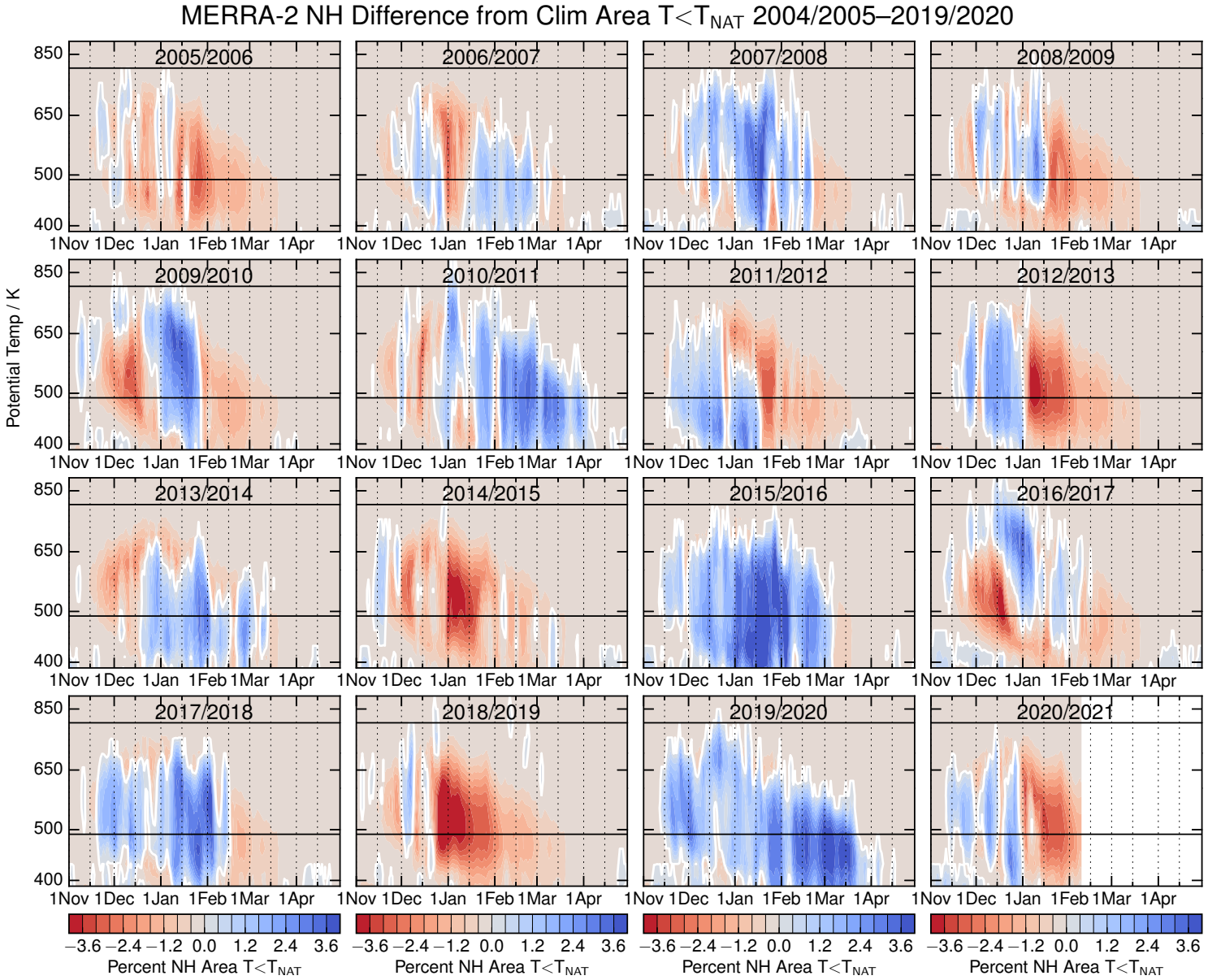




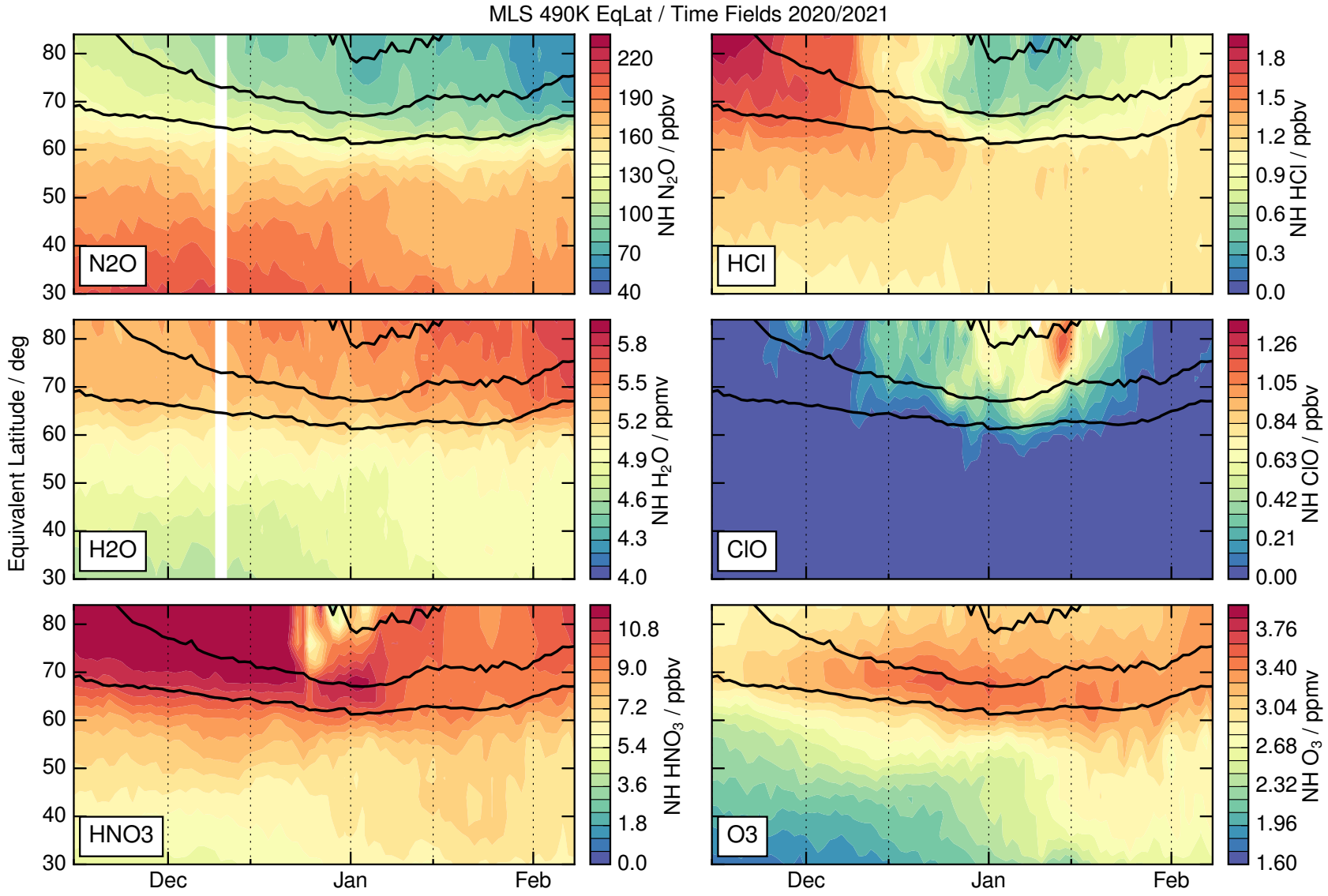




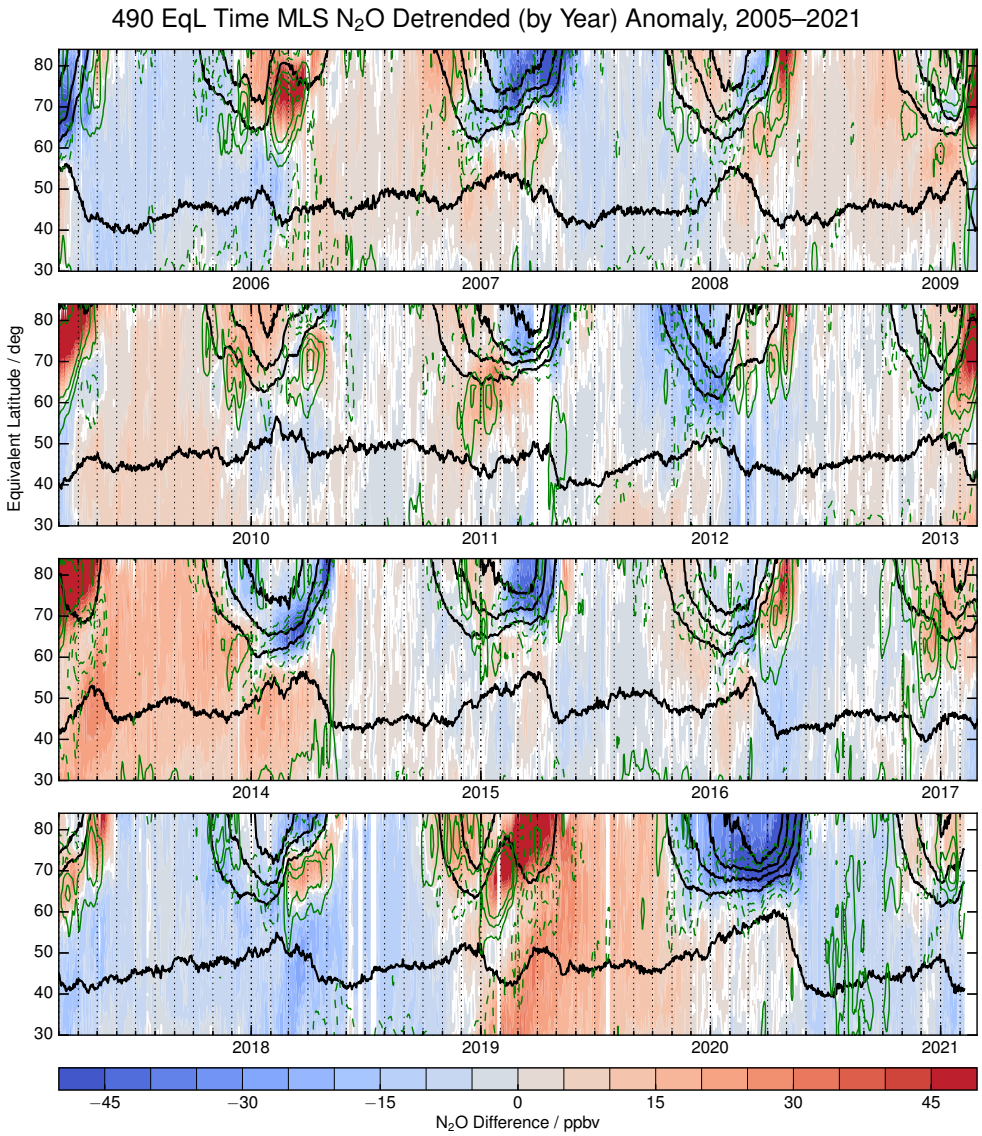
Polar Winter Stratosphere – Arctic NAT T Area Anomalies

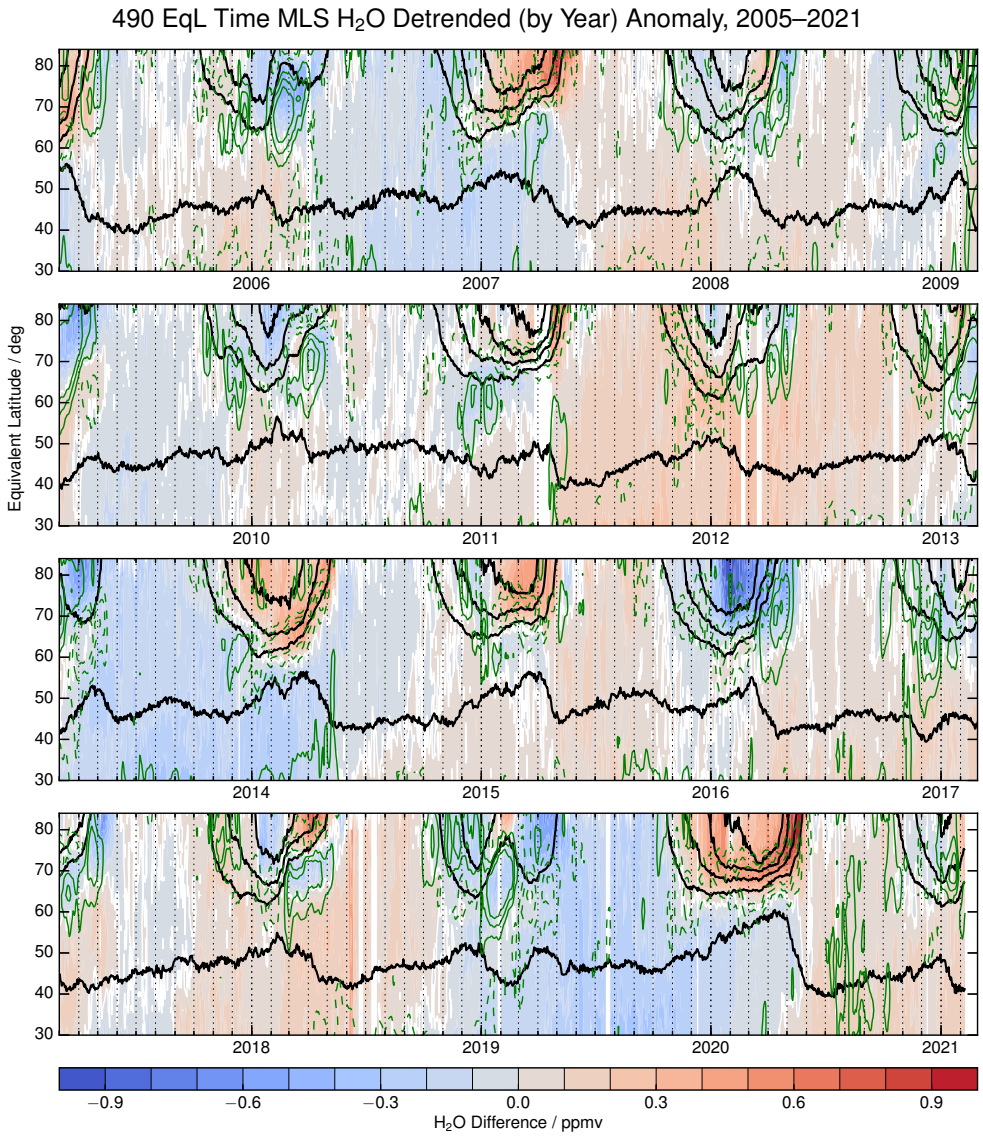


NH Polar Winter Stratosphere – Arctic Polar Processing

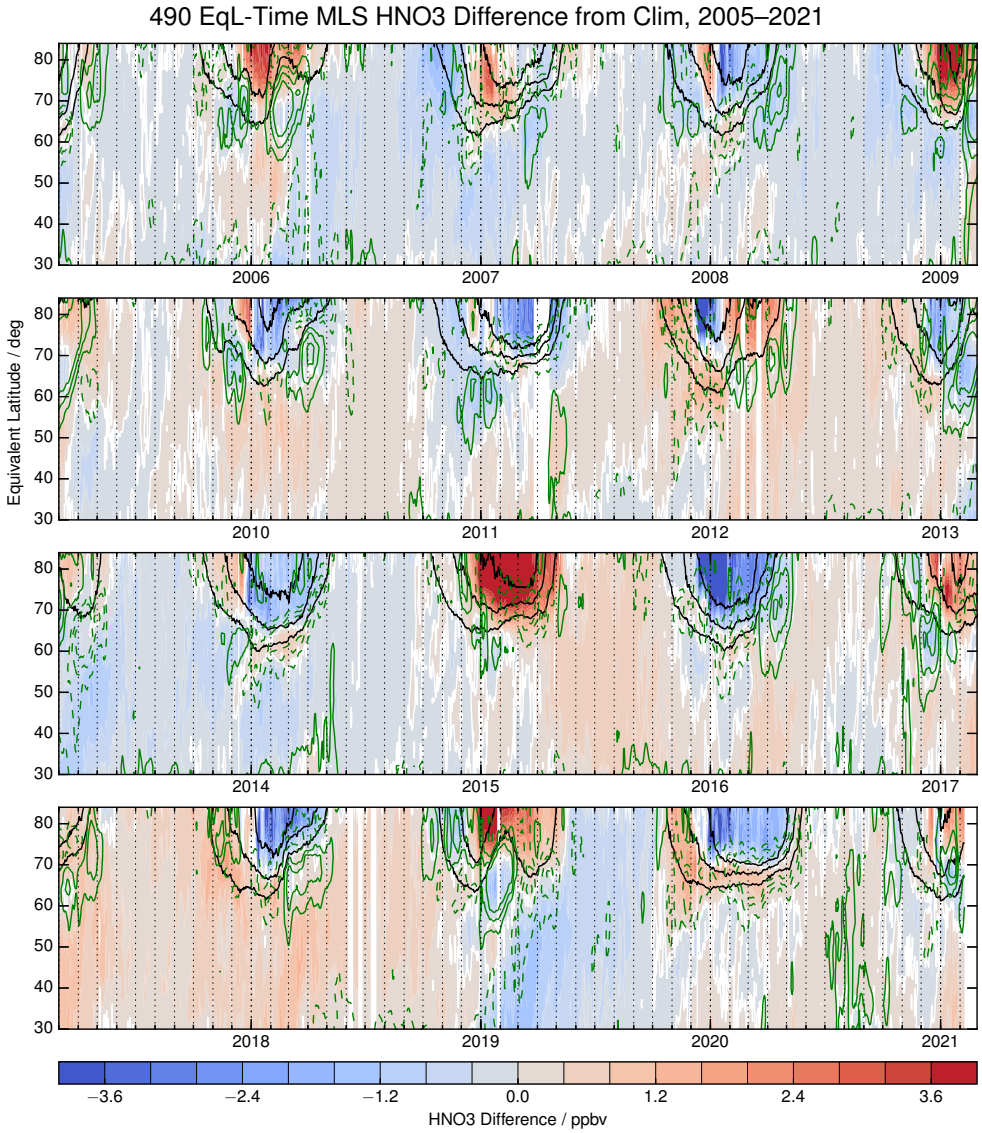


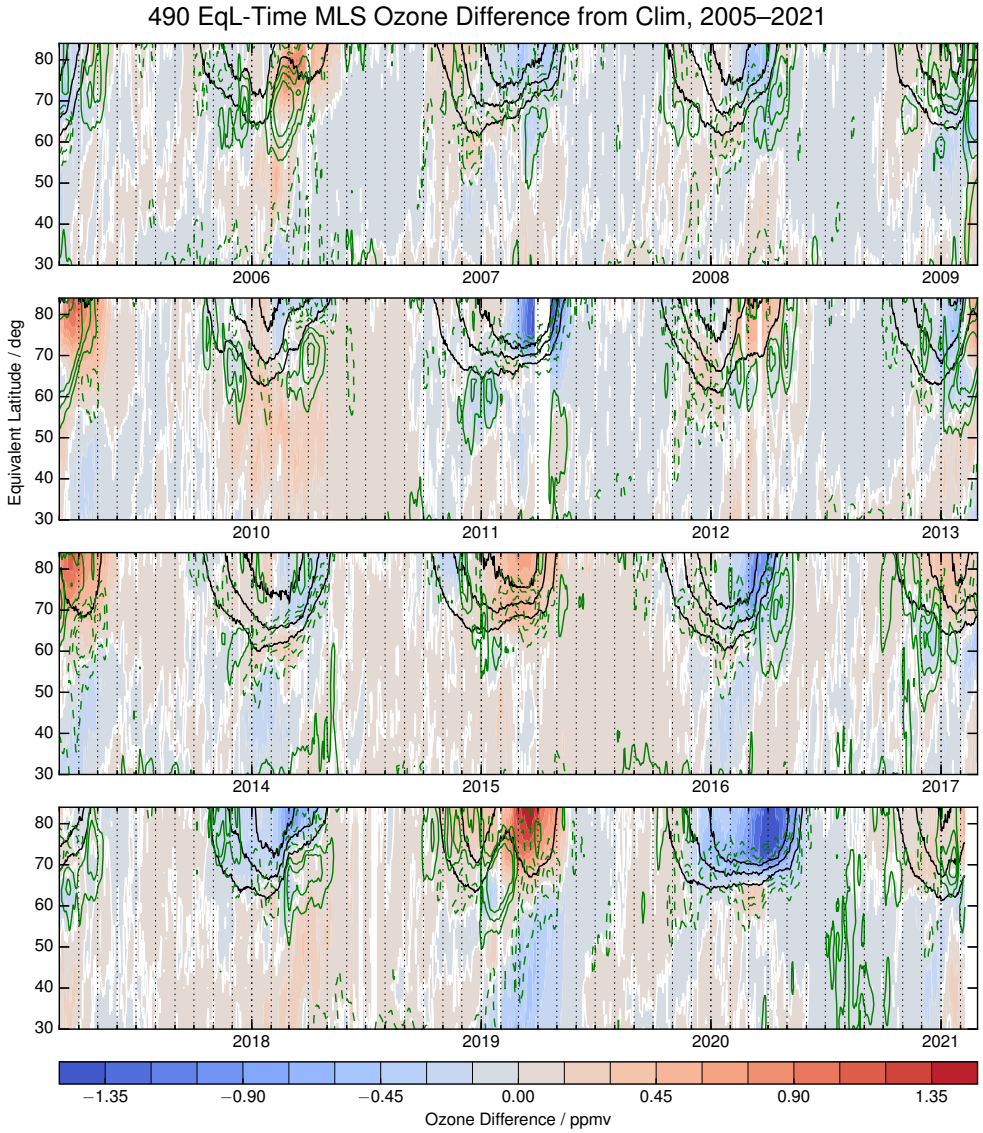
NH Polar Stratosphere – LS 490K v4.2 EqL/Time N_2O & H_2O Anomalies



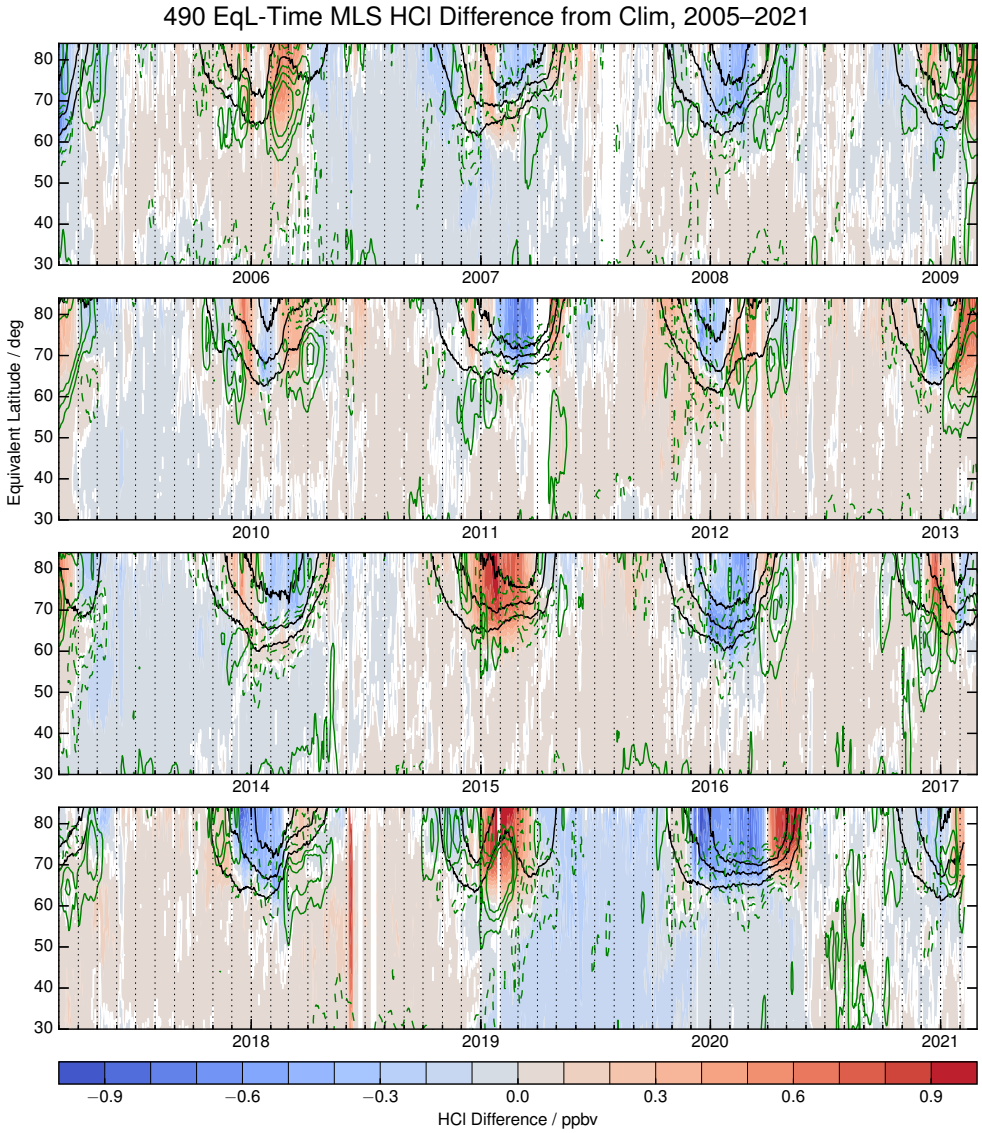


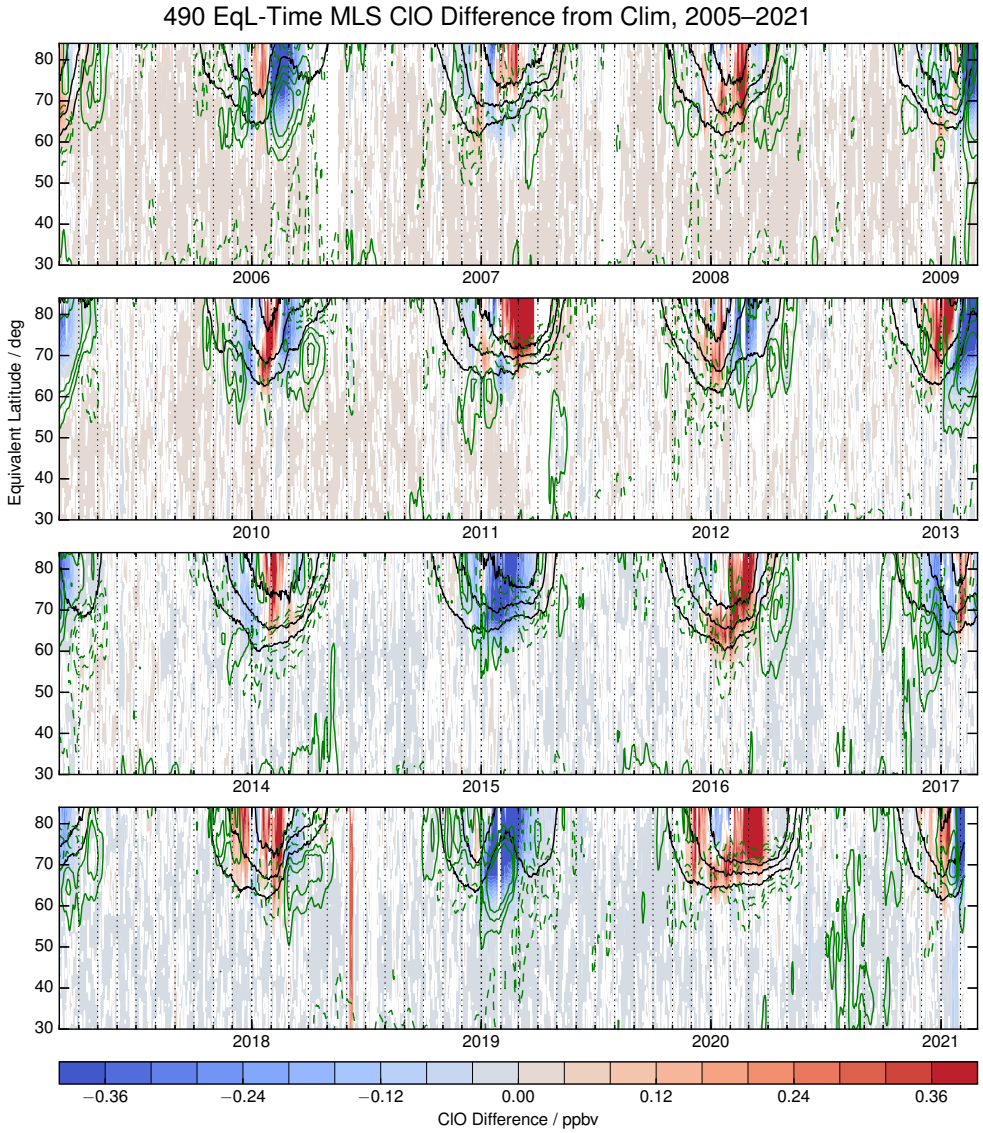
NH Polar Stratosphere – LS 490K v4.2 EqL/Time HNO_3 & O_3 Anomalies



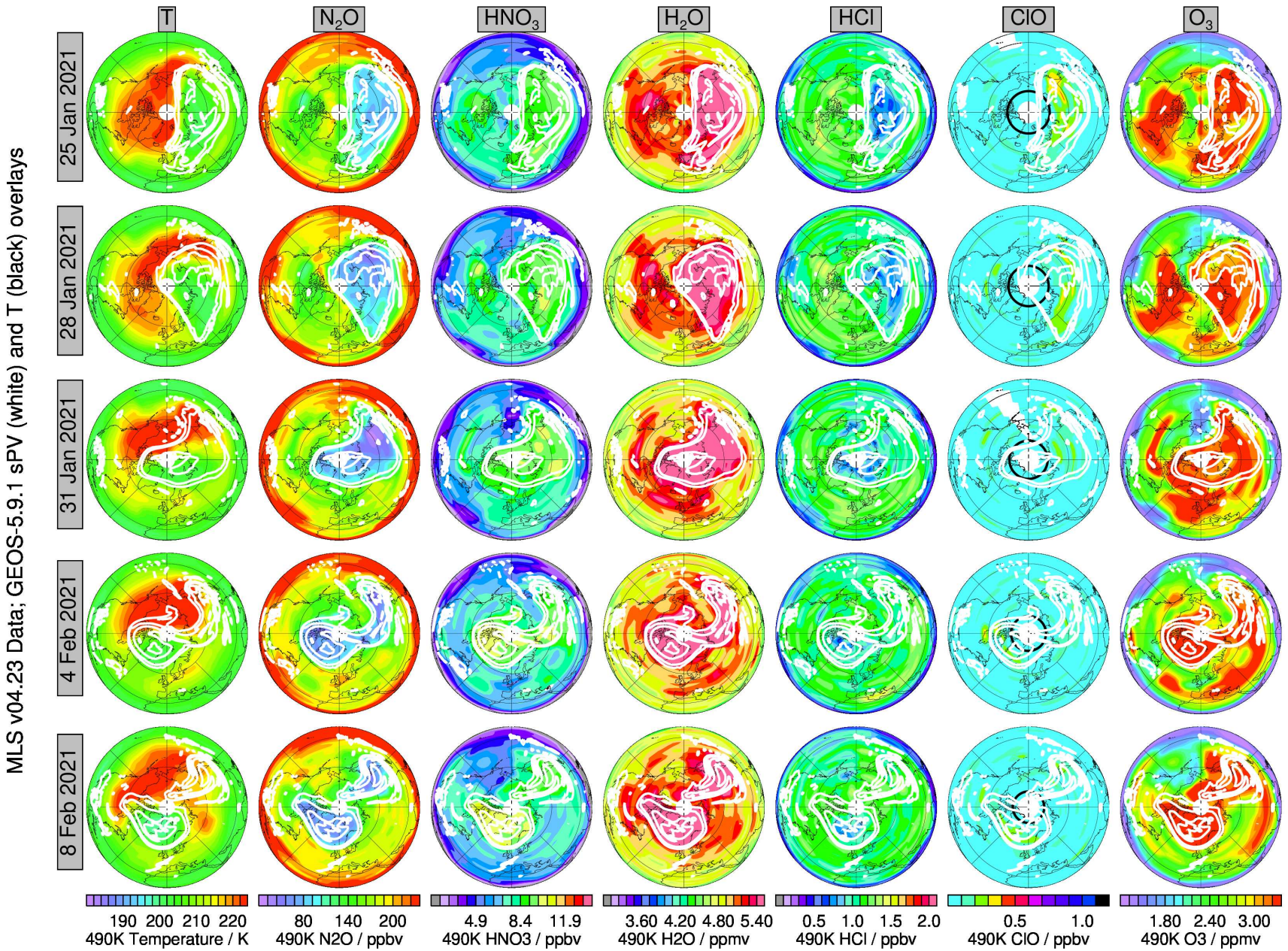


NH Polar Stratosphere – LS 490K v4.2 EqL/Time HCl & ClO Anomalies

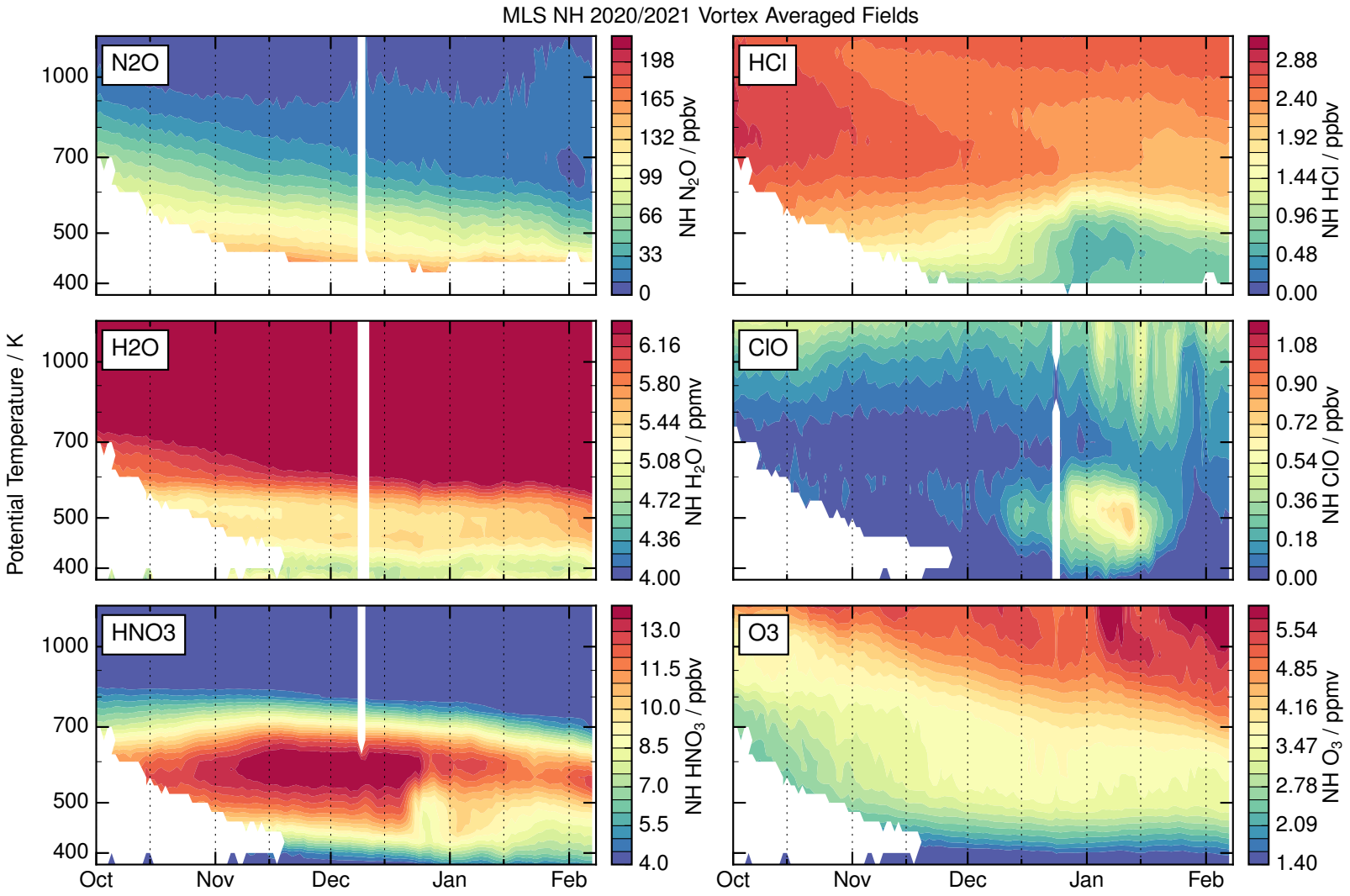




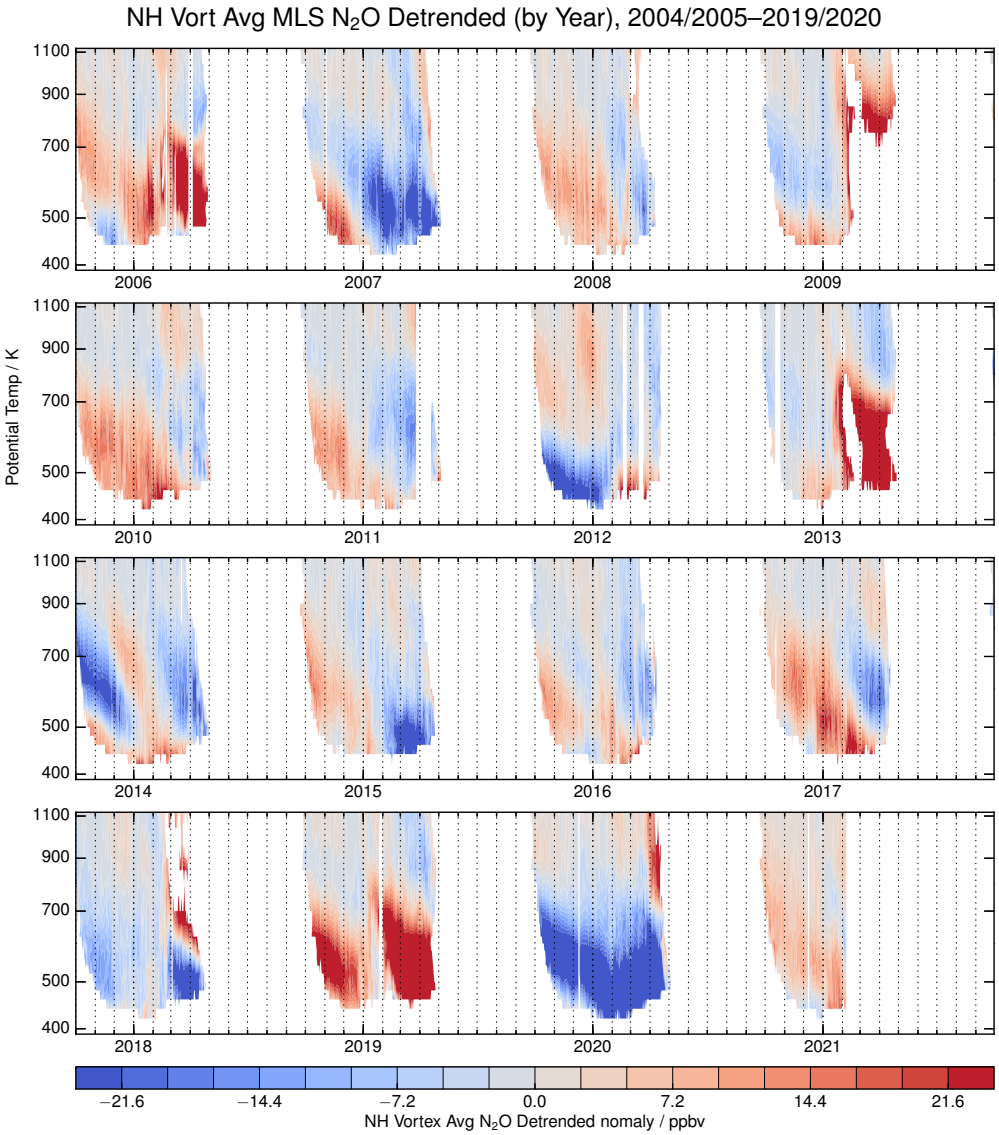
NH Polar Lower Stratosphere – 490K Maps (v4.2)

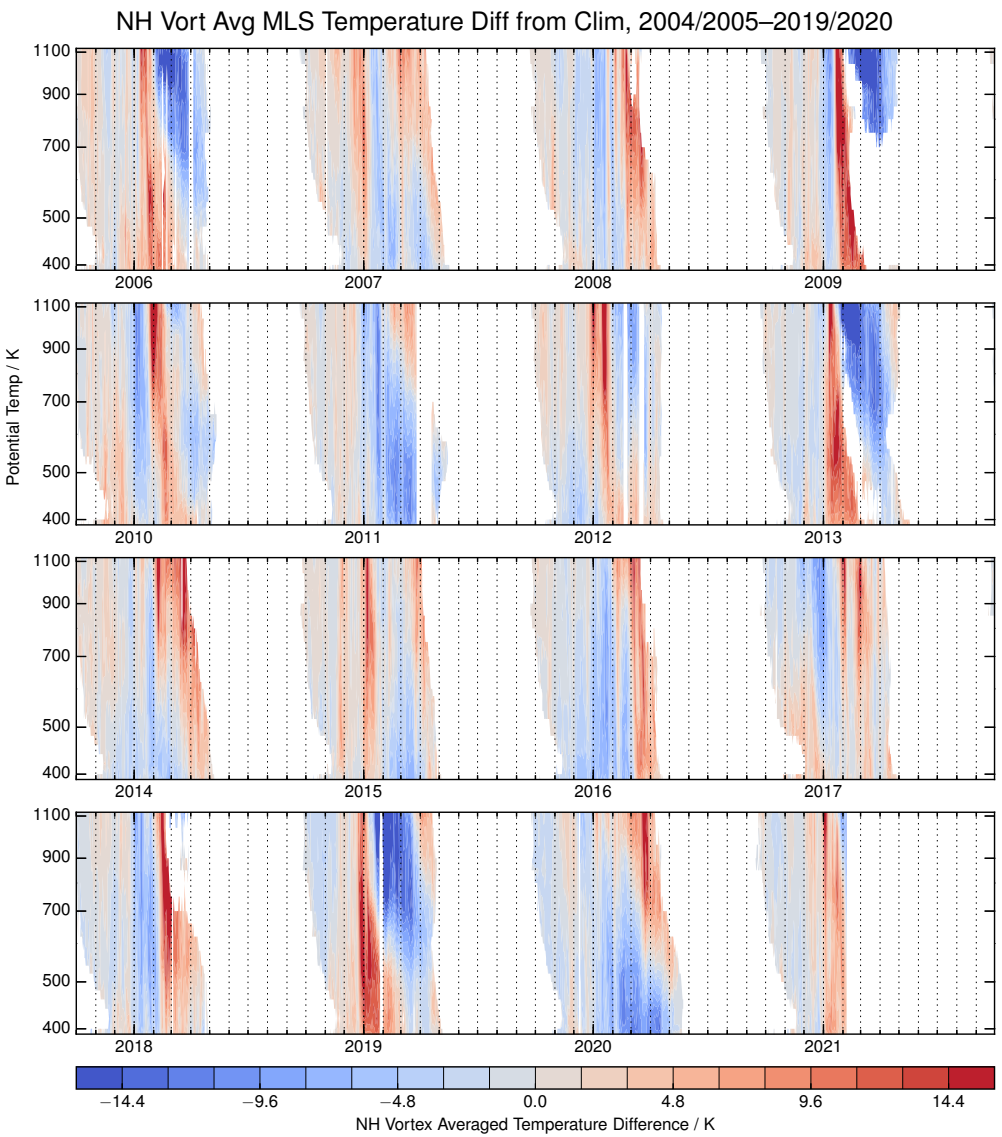


NH Polar Stratosphere – LS Vortex Average v4.2 Summary

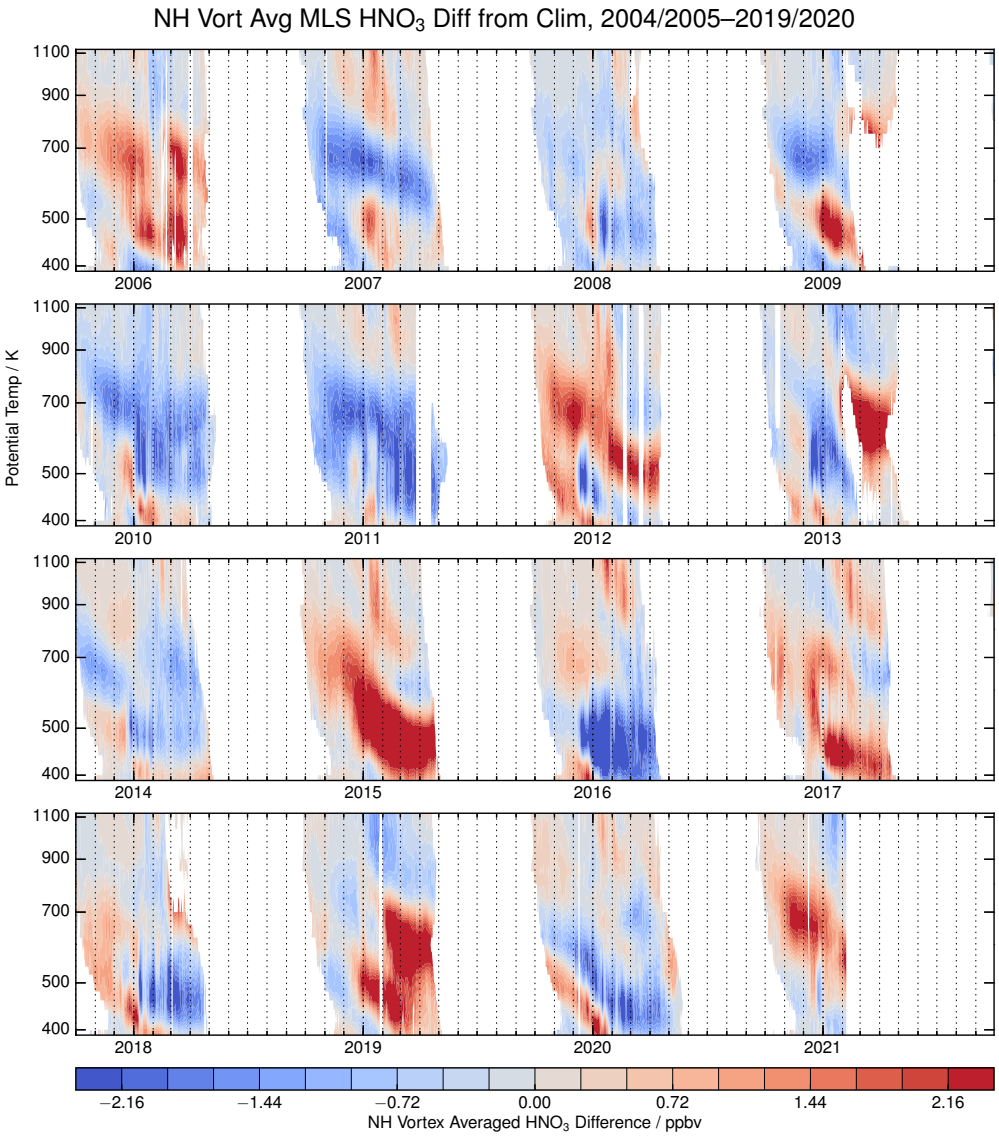


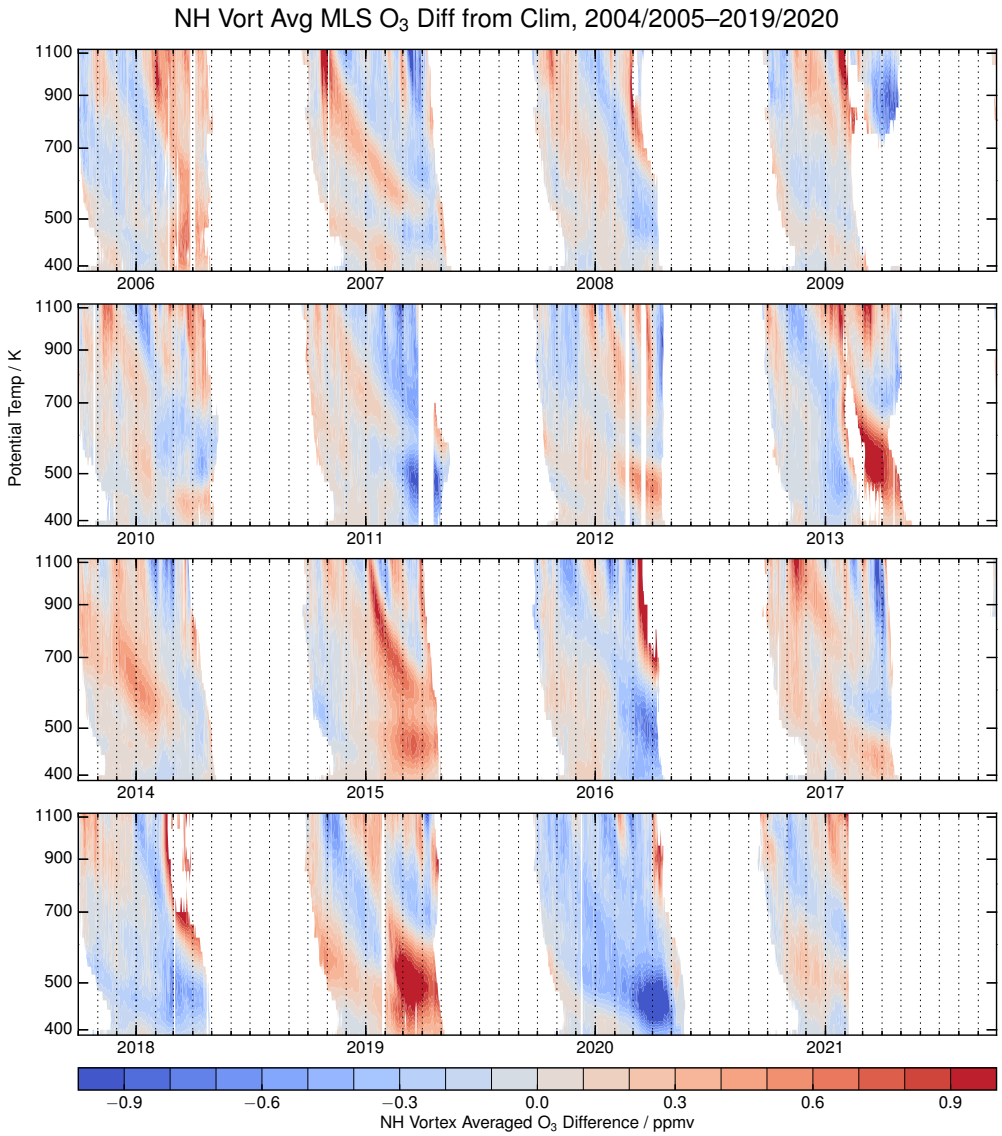
NH Polar Stratosphere – LS Vortex Avg v4.2 N_2O & T Anomalies



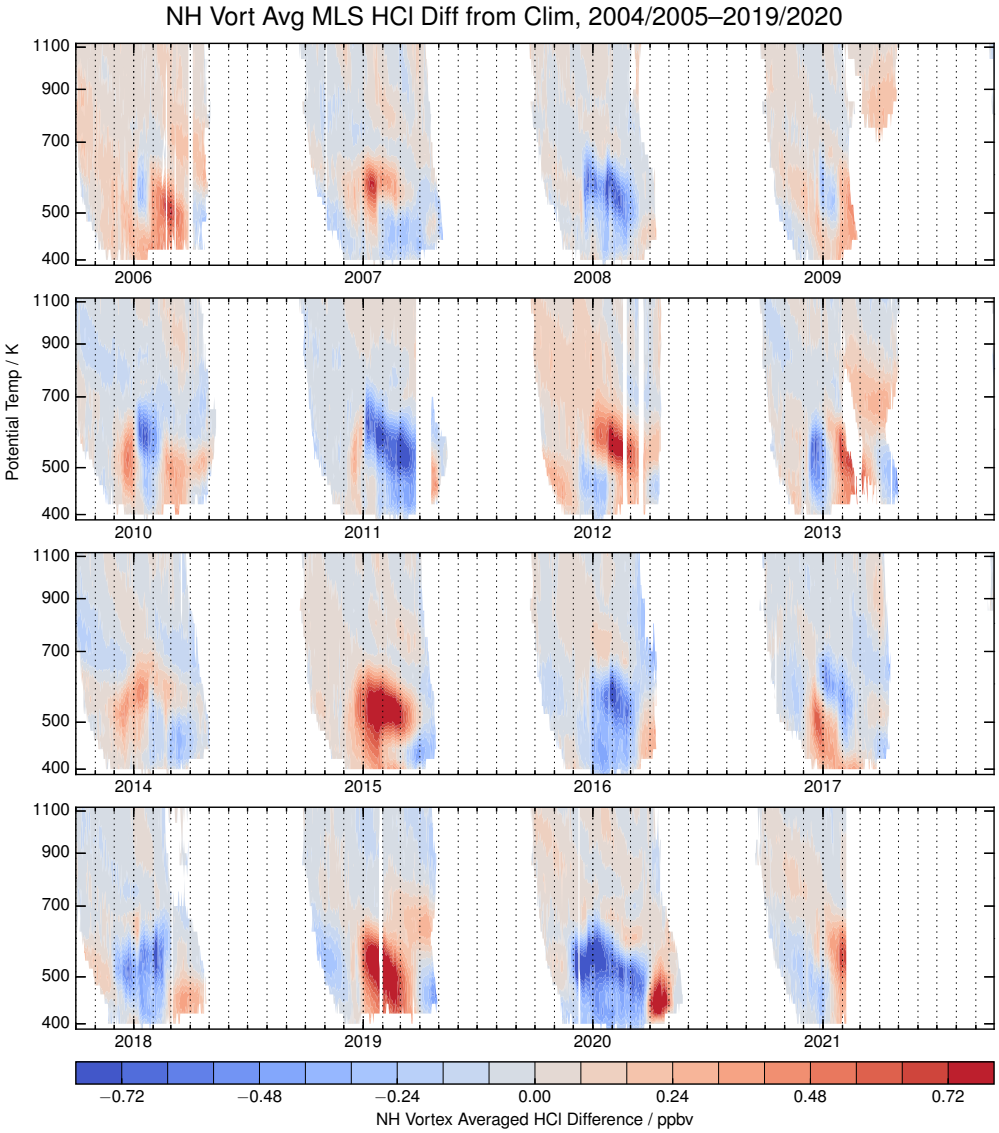


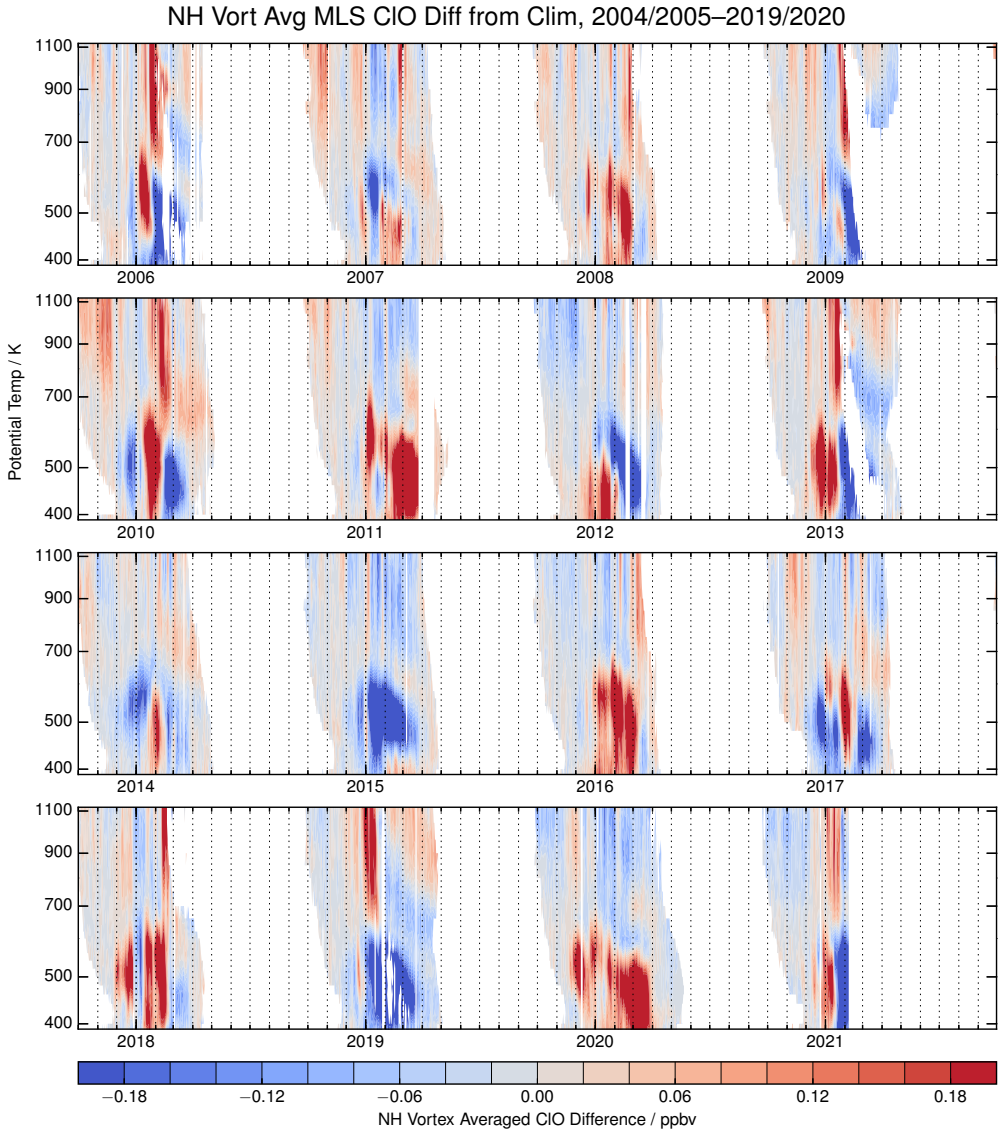
NH Polar Stratosphere – LS Vortex Avg v4.2 HNO_3 & O_3 Anomalies



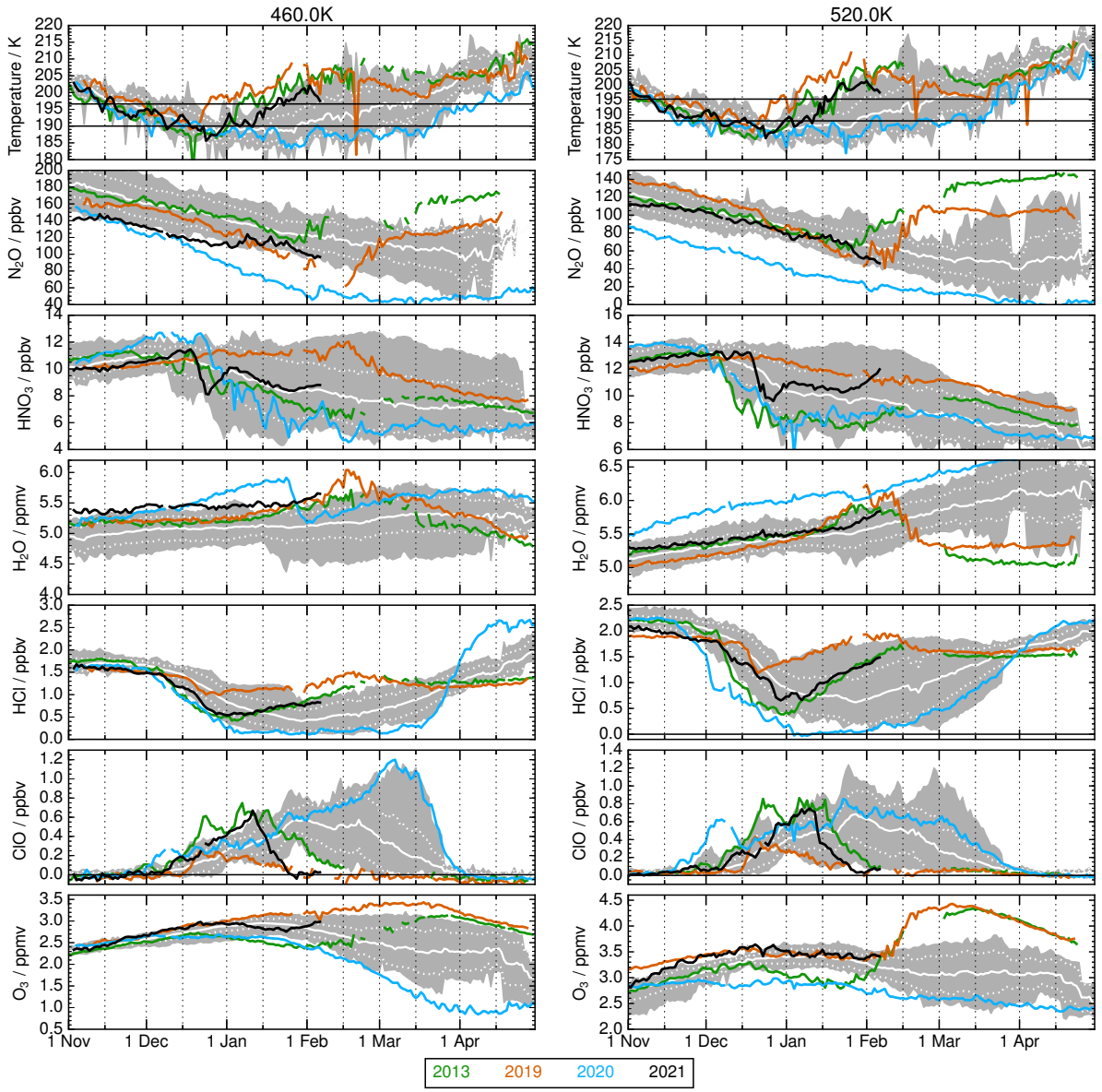


NH Polar Stratosphere – LS Vortex Avg MLS v4.2 HCl & ClO Anomalies

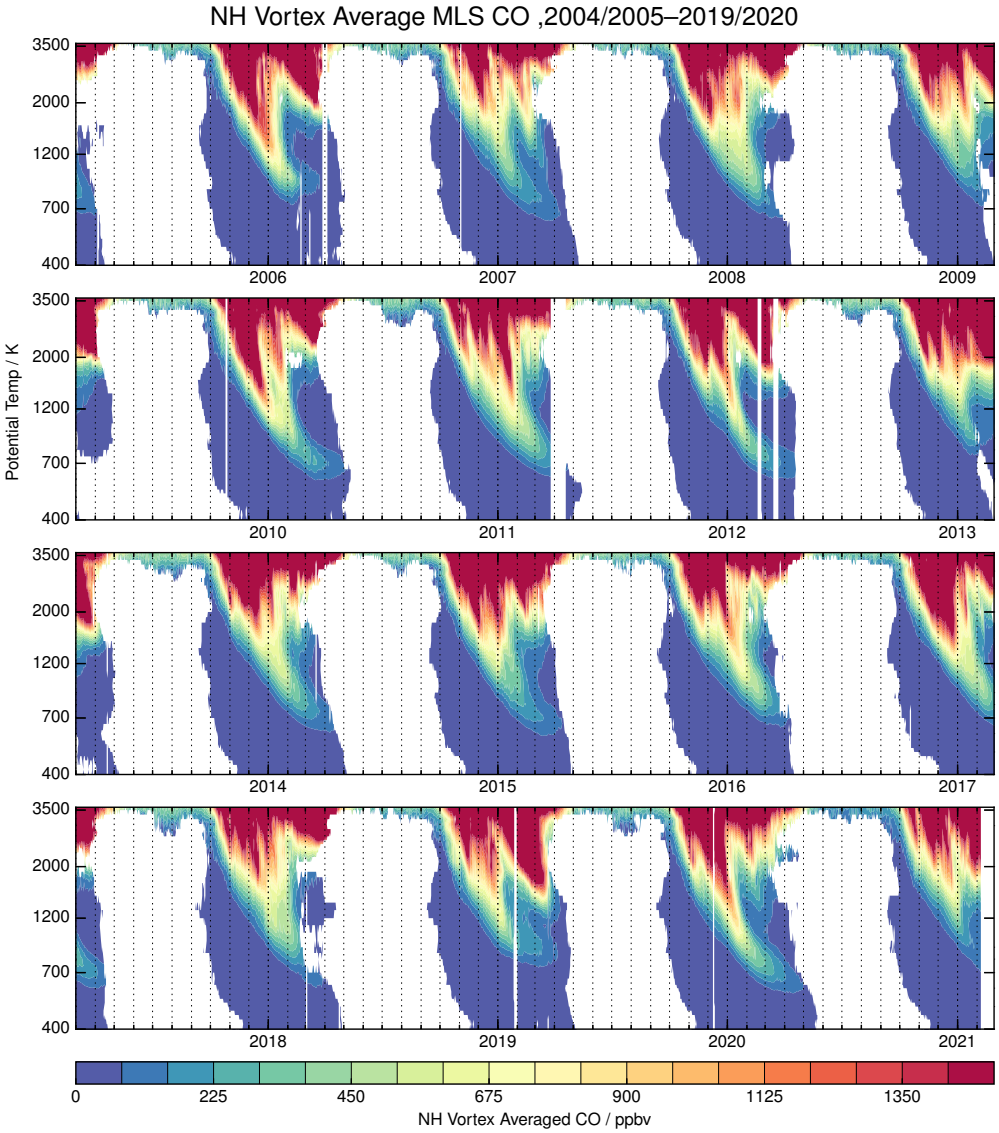


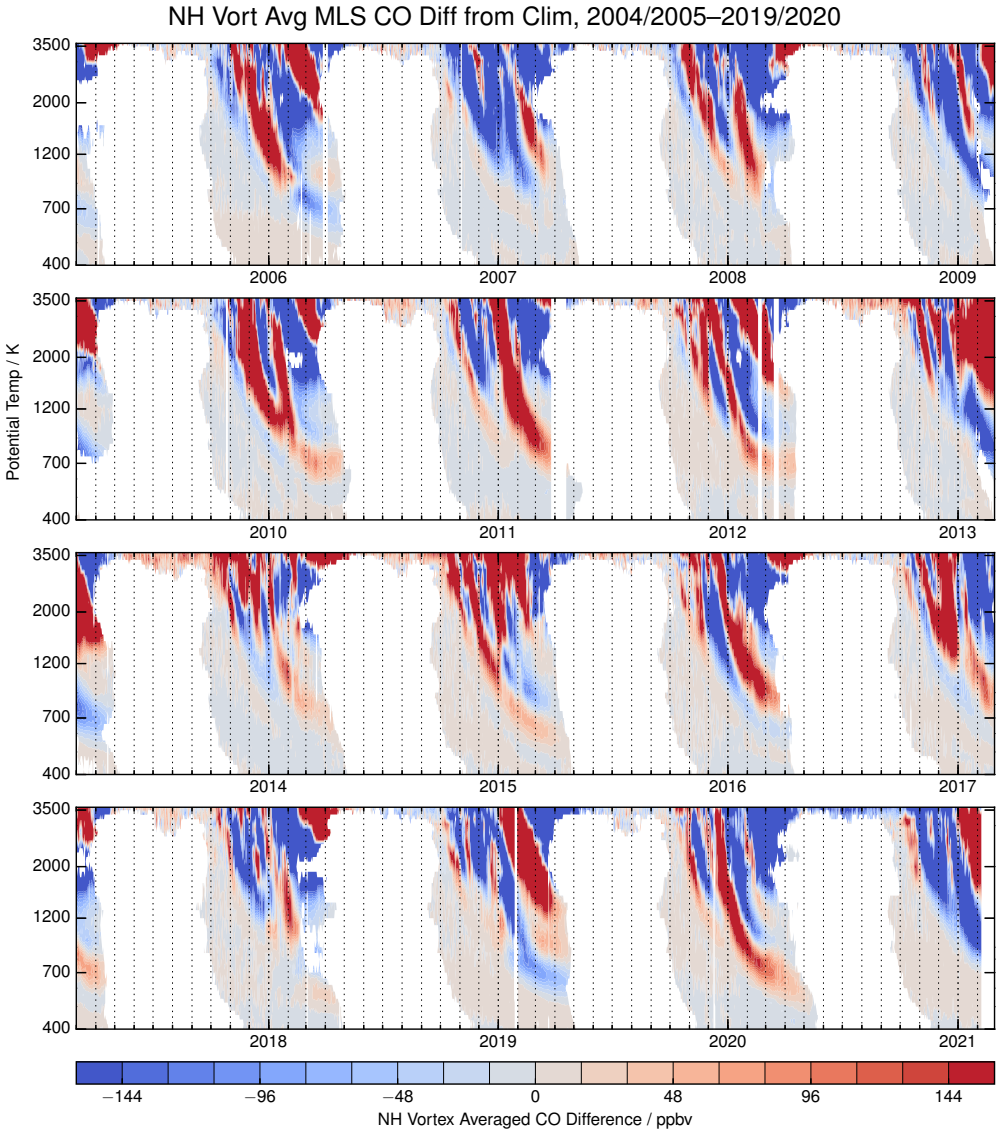


NH Polar Stratosphere – LS Vortex Averages MLS v4.2 Summary



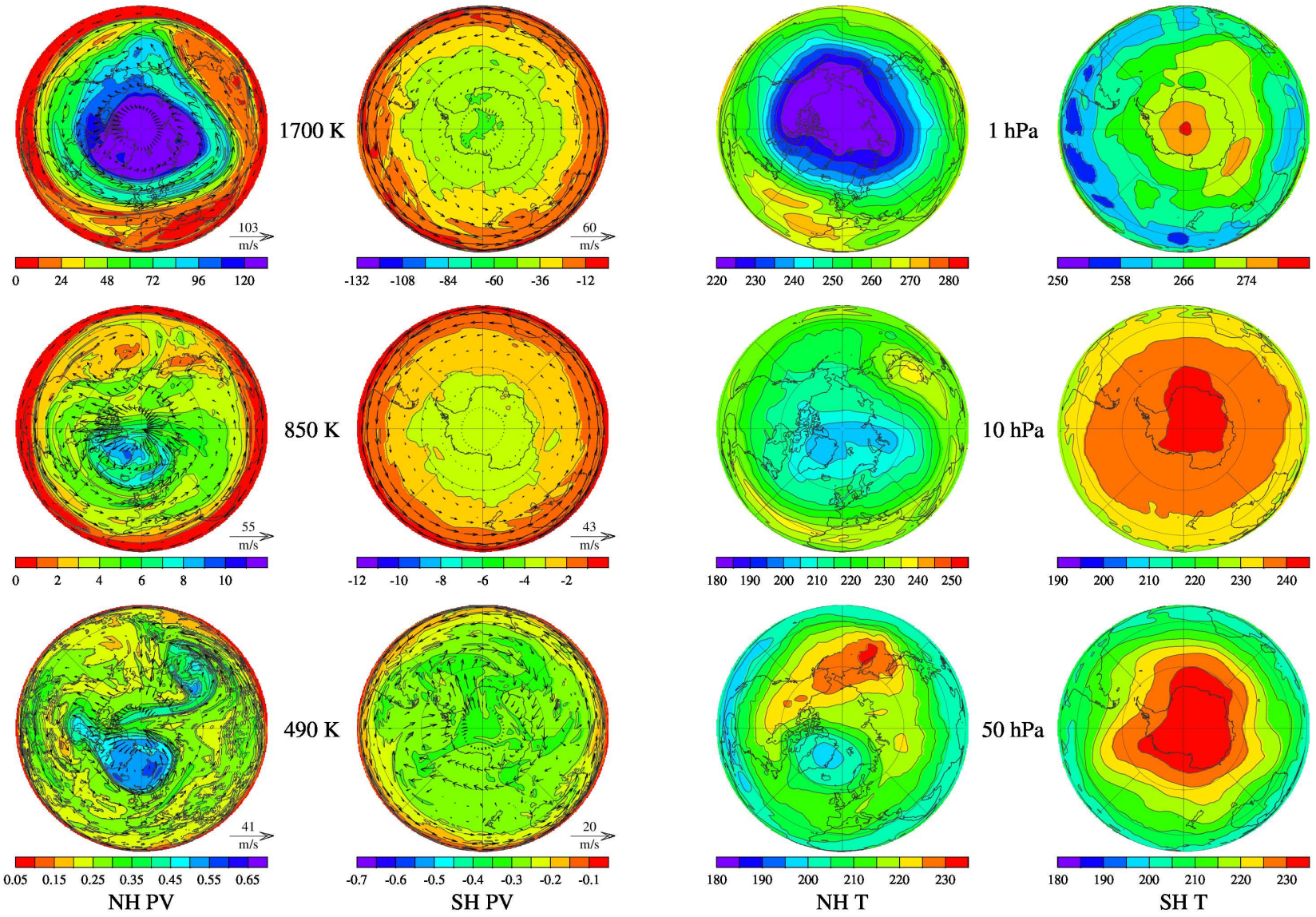
NH Polar Stratosphere – USLM Vortex Average v4.2 CO





GEOS-5.124 PV and Temperature: 9 Feb 2021 (2021d040)

Produced : Wed Feb 10 06:55:48 PST 2021



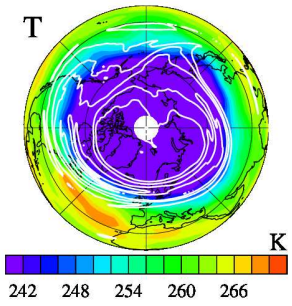
From the Global Modeling and Assimilation Office GEOS-5.124 Data
Produced by Gloria Manney at the Jet Propulsion Laboratory, California Institute of Technology,
under contract with NASA, JPL Clearance CL#05-1922

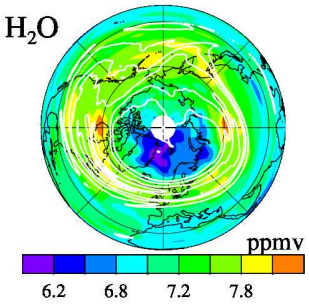
Aura MLS Daily Map: (NH) February 8, 2021 (2021d039)

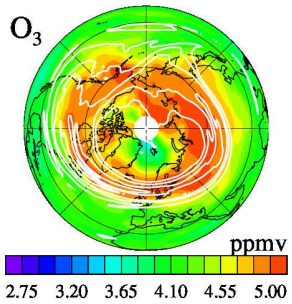
Data Version: v04.23-c01, Produced On: February 10, 2021

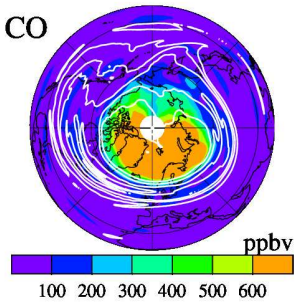
White Contours: Typically Scaled PV from GEOS-5; Black Contours: Temperature from GEOS-5 (MLS Solar Zenith Angle when specified)

1700 K
(~50 km, ~1.5 hPa)

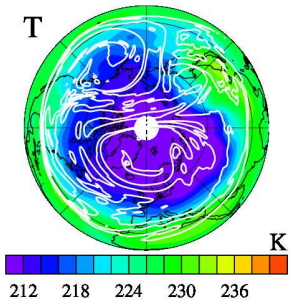


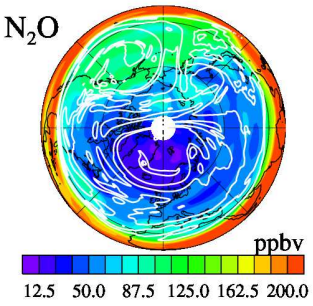


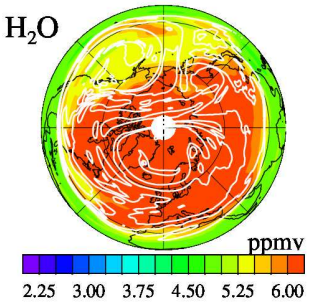


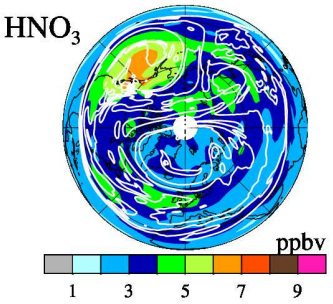


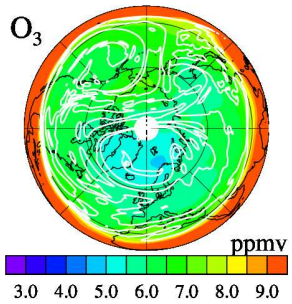
850 K
(~32 km, ~10 hPa)

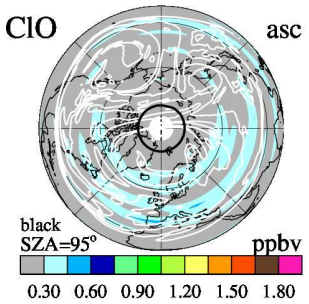


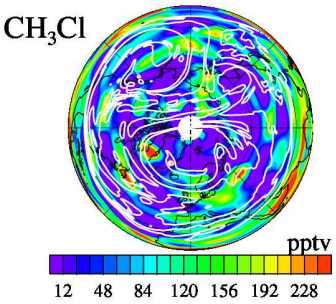


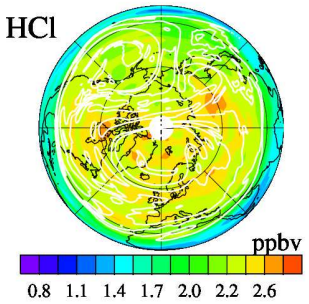




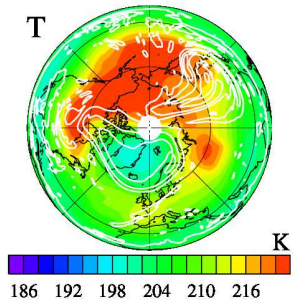


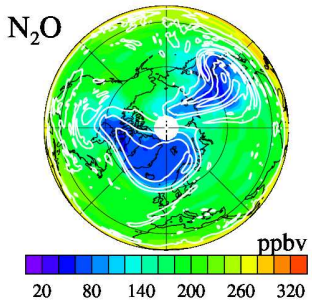


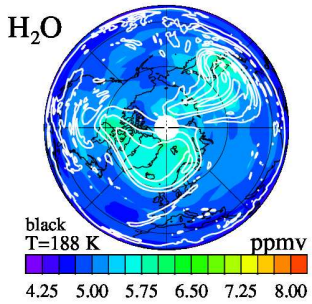


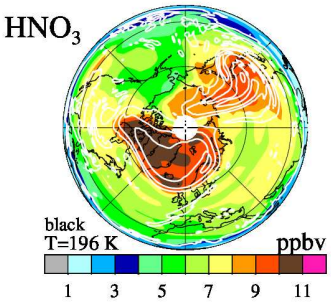


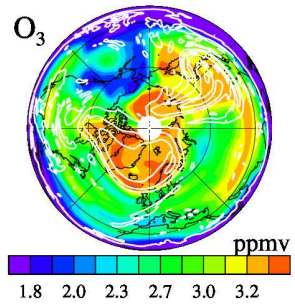
490 K
(~18 km, ~56 hPa)

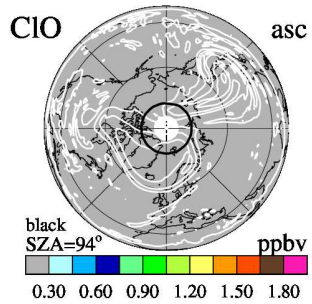


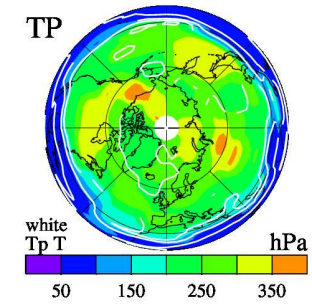


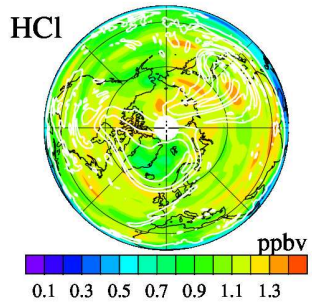












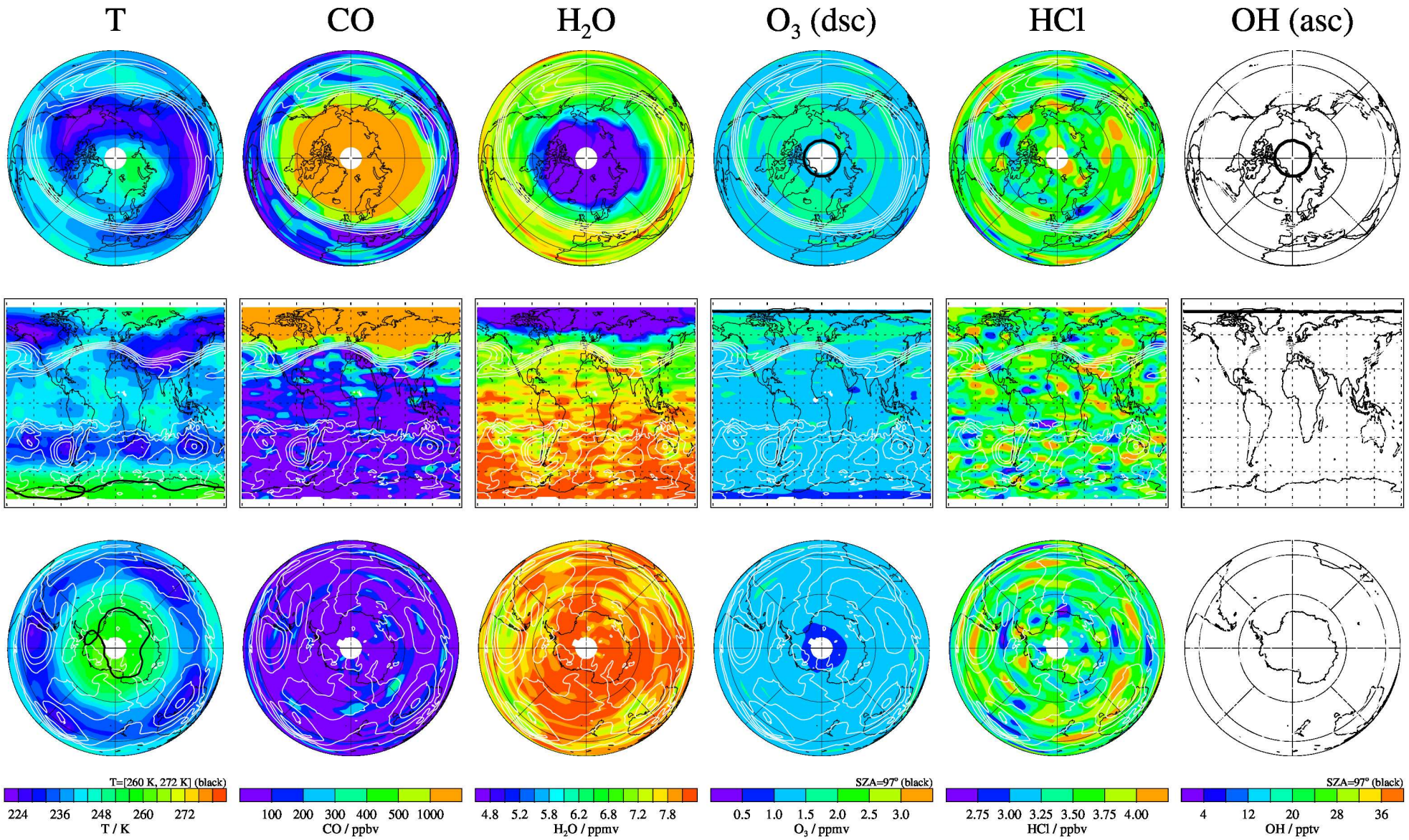
Produced by the MLS Science Team at the Jet Propulsion Laboratory, California Institute of Technology, under contract with NASA, from EOS MLS and GMAO GEOS-5 data: JPL Clearance CL#05-3463

Produced on 10-Feb-2021 06:05:36 using plot version 1.51

MLS Aura Daily Map: 2700 K (~60 km, ~0.2 hPa) February 8, 2021 (2021d039)

Data Version: v04.23-c01, Produced On: February 10, 2021

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



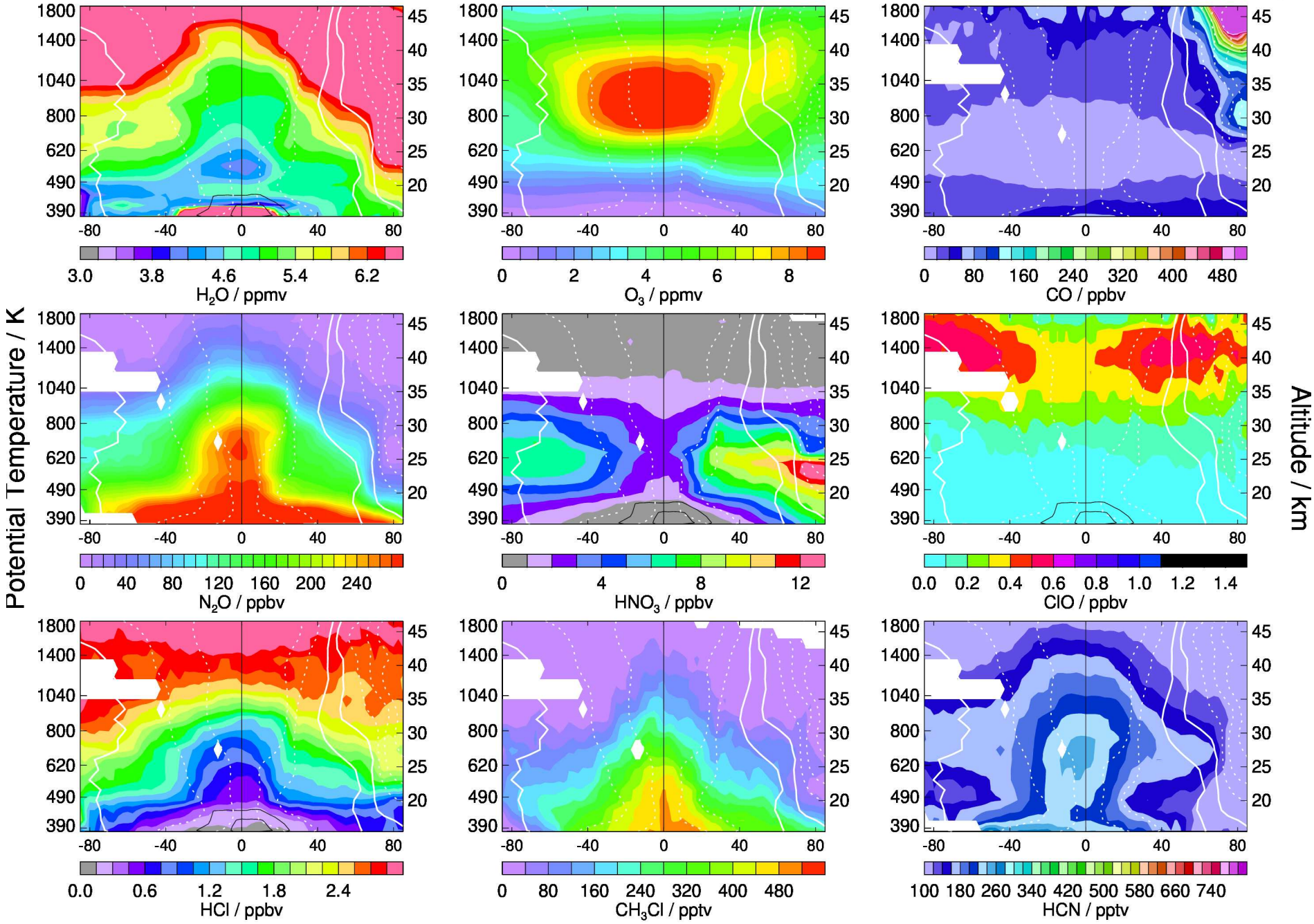
Produced by the MLS Science Team at the Jet Propulsion Laboratory, California Institute of Technology, under contract with NASA, from EOS MLS and GMAO GEOS-5 data: JPL Clearance CL#05-3463

Produced on 10-Feb-2021 06:04:48 using plot version 1.38

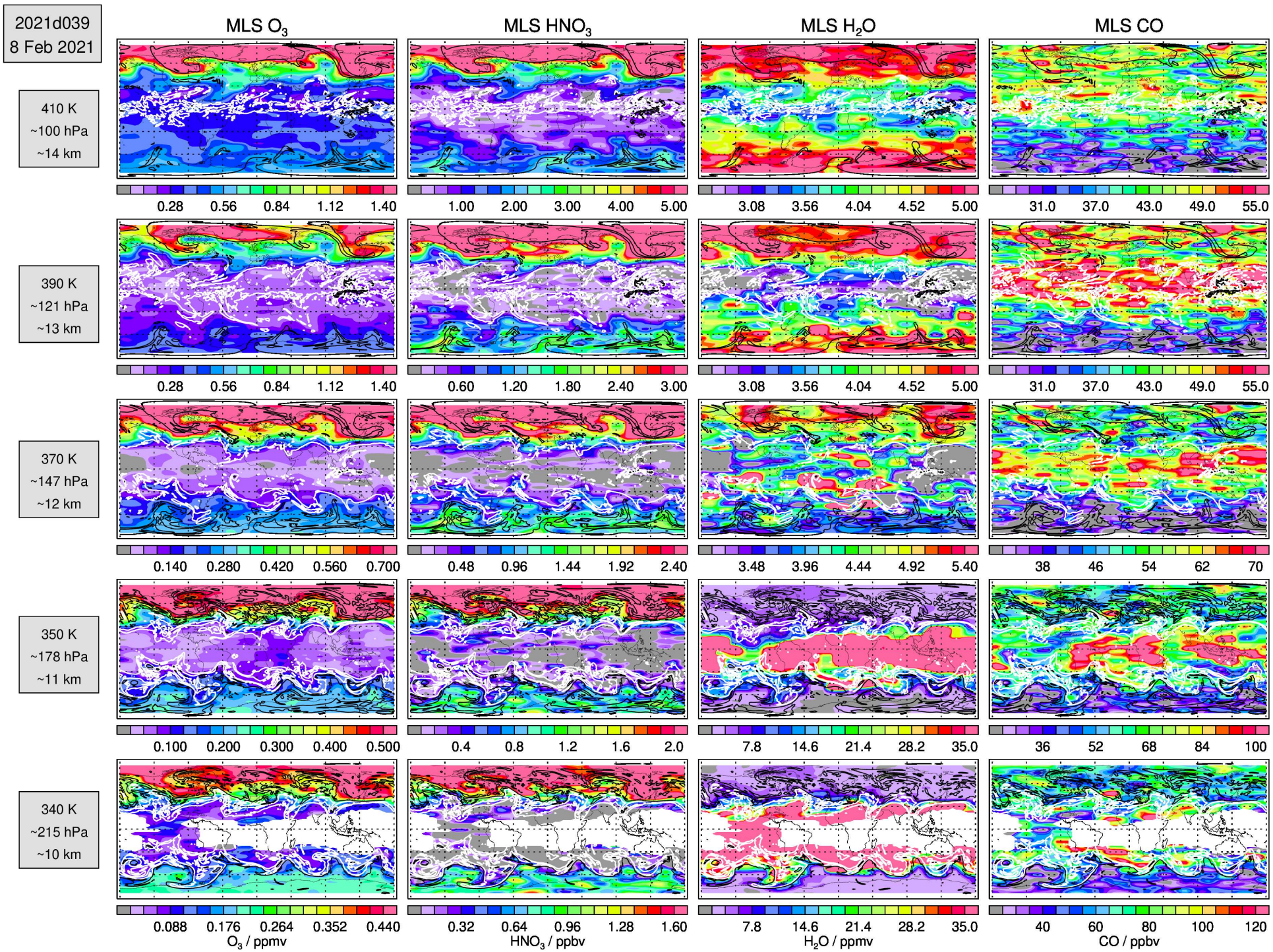
Aura MLS Equivalent Latitude / θ Global Sections: February 7, 2021 (2021d038)

Data Version: v04-23-c01
Produced on: February 10, 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


2021d039
8 Feb 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