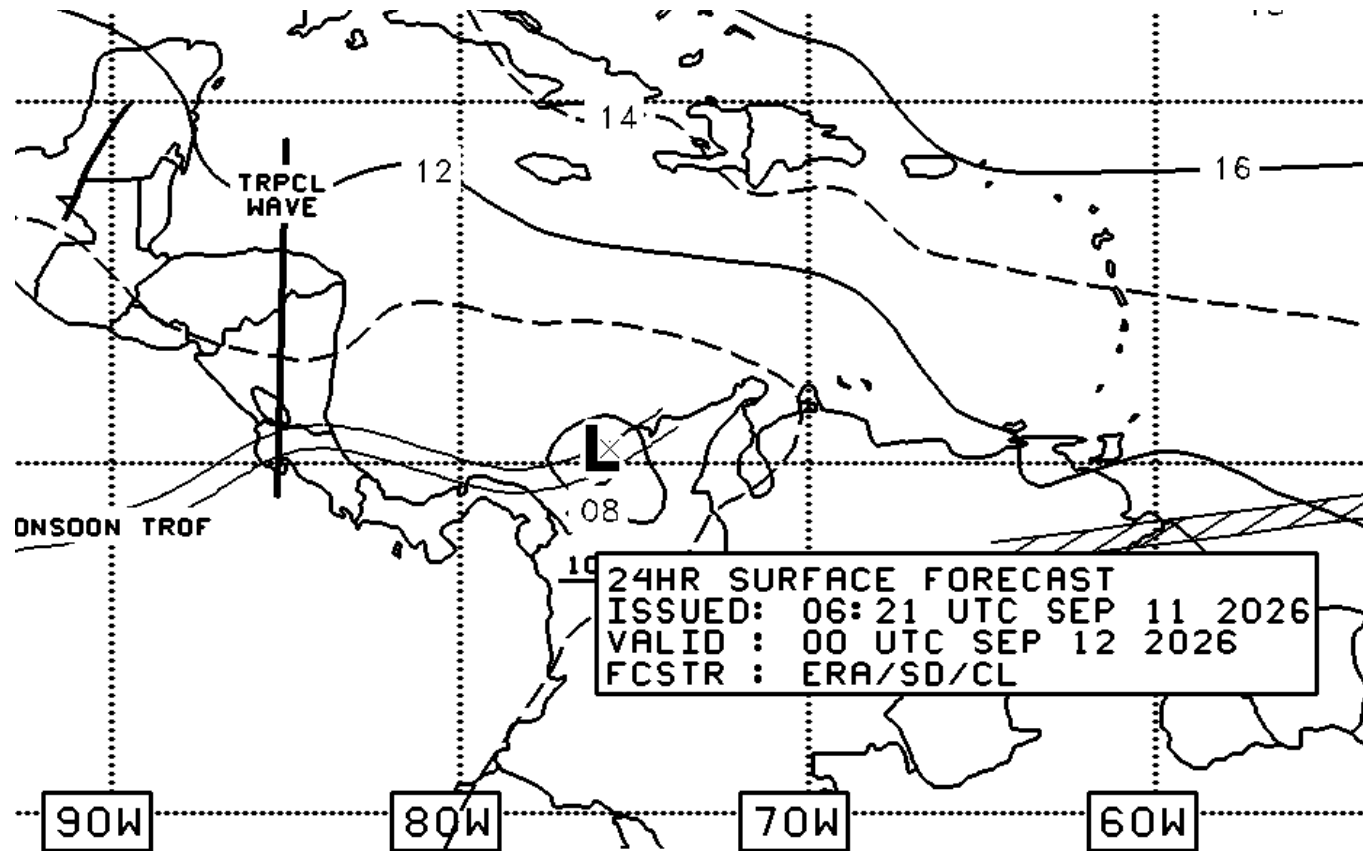


SABRE Forecast Discussion

09/11/2026

Surface Chart

09/12 00z (7pm local time)



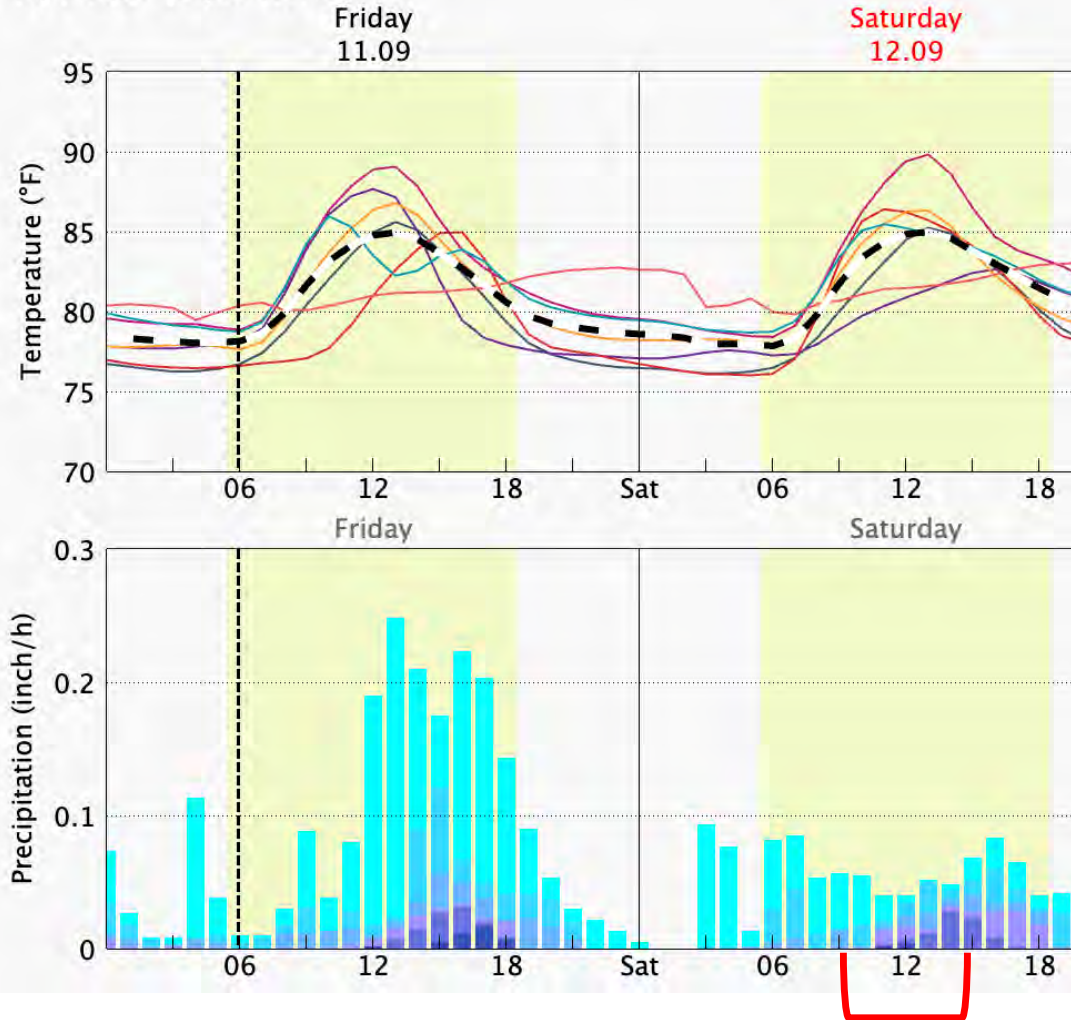
NWS/NHC/TROPICAL ANALYSIS AND FORECAST

The monsoon trough will be just north of Panama tonight and a surface low just to the east. A common pattern recently.

Local Forecasts

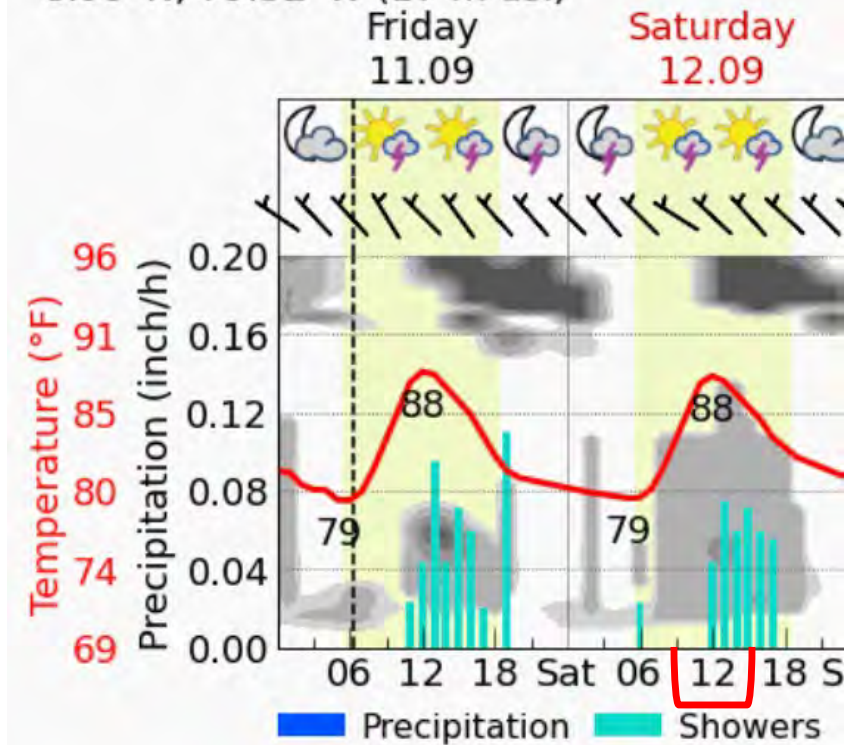
Panama City

8.99°N, 79.52°W (17 m asl)



Panama City

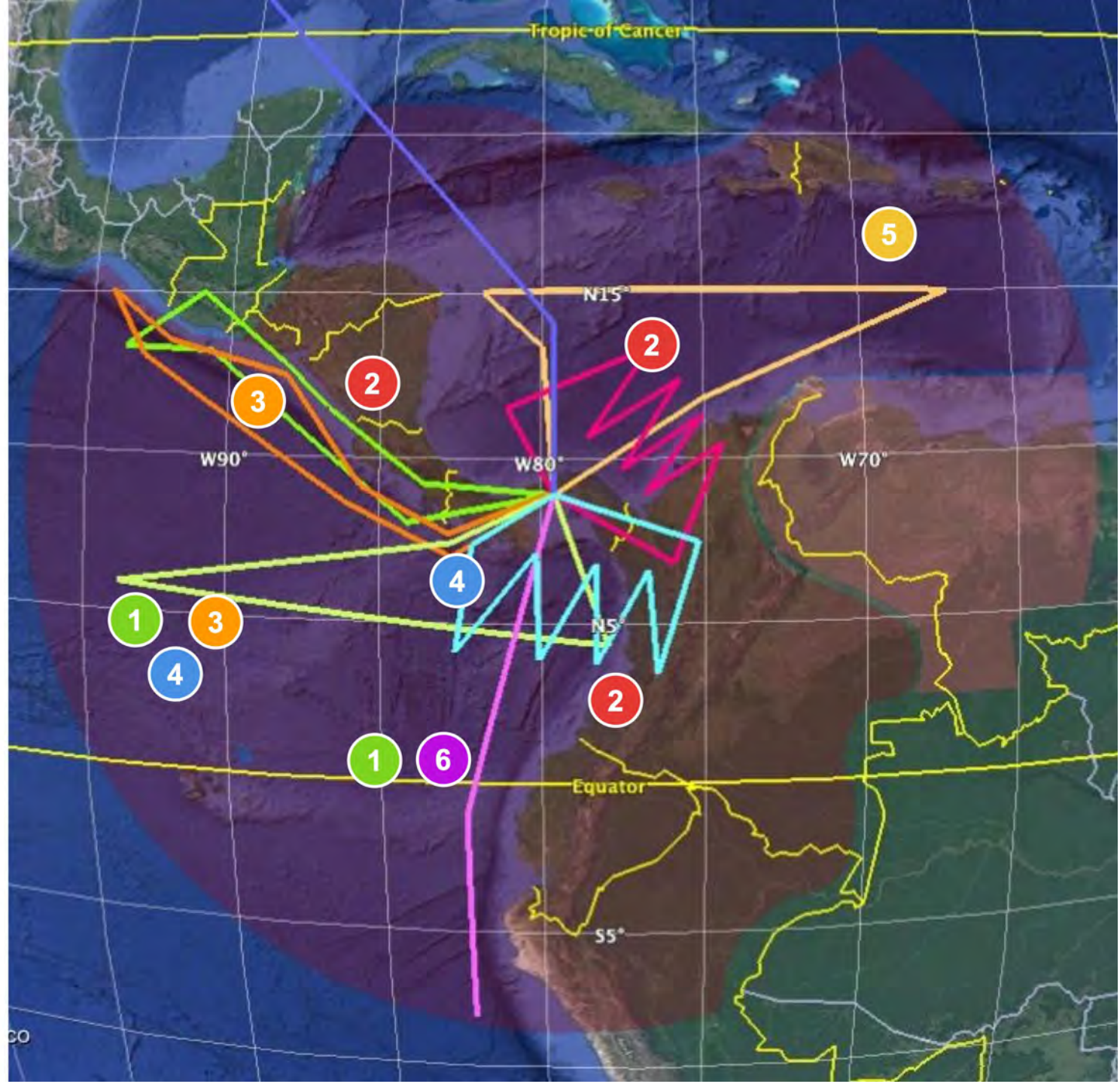
8.99°N, 79.52°W (17 m asl)



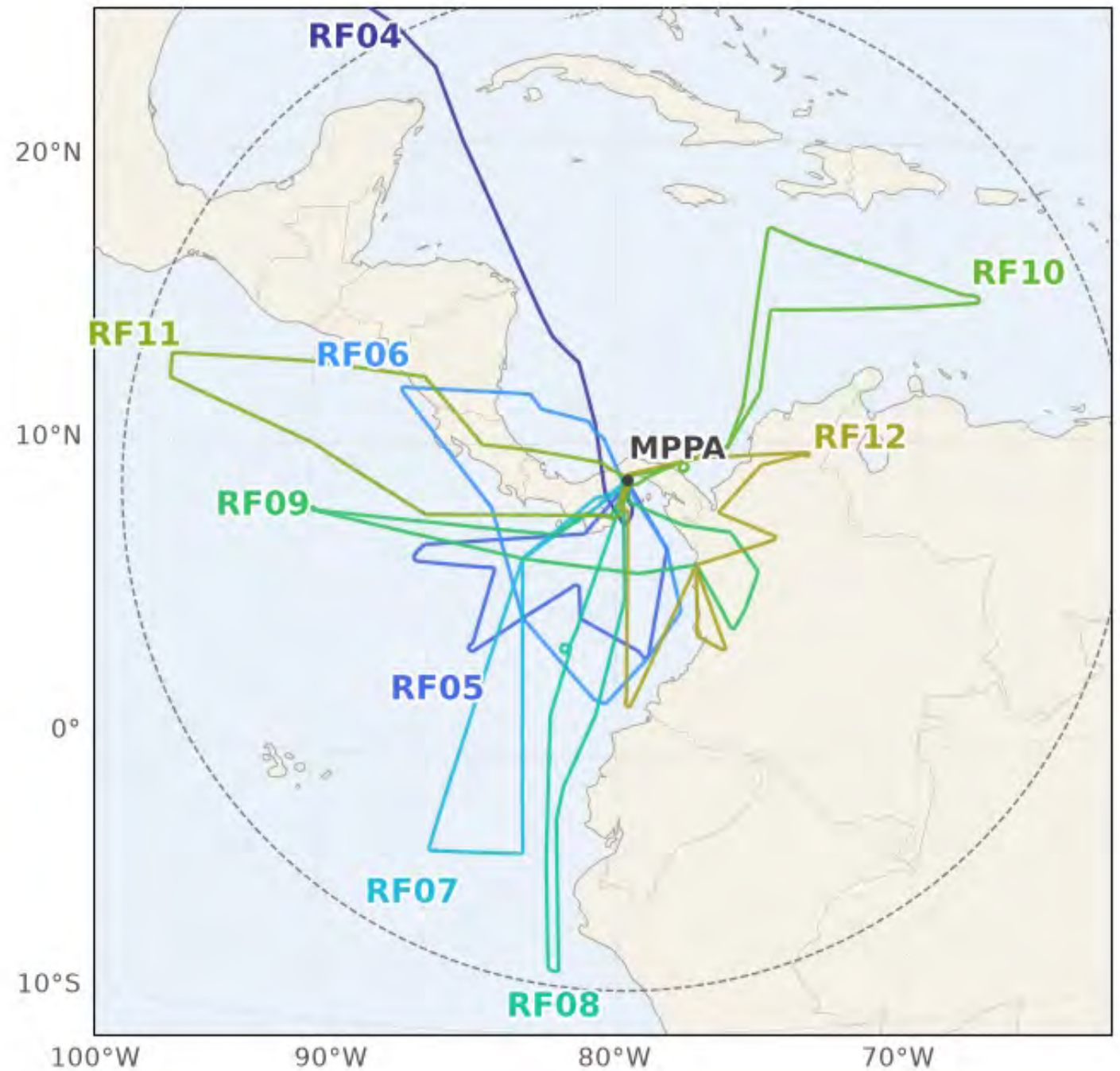
Flight time has the usual range of afternoon precip probabilities, cloudy through most of the day.

SABRE Tropics Flight Plan Options

- 1 Vertical gradients through the TTL into the LS (under 'background' conditions and in outflow)
✓ ✓
- 2 Near-field continental deep convective outflow
✓ ✓
- 3 Aged outflow from deep continental convection (and/or longitudinal sampling)
✓
- 4 Marine deep ($> \sim 14.5$ km) convective outflow
✓ ✓
- 5 Sampling of long-range transport from ASM/WAM crossing the Atlantic
✓ ✓
- 6 Cross-ITCZ/equator flights for inter-hemispheric tropical comparison/gradients
✓



SABRE Tropics Flights so far



Upper Level Forecasts for 09/12/2026 and RF13 Flight Plan

RF13 Flight Plan

Targets

- Sample inter-hemispheric gradient in lower stratosphere.
- Sample convective outflow from Central and South America.

Flight Specs

- Take off: 9:30am
- Landing time: 3:15-3:30pm
- Distance: ~2050 nm
- Duration: 5.75 - 6 hours

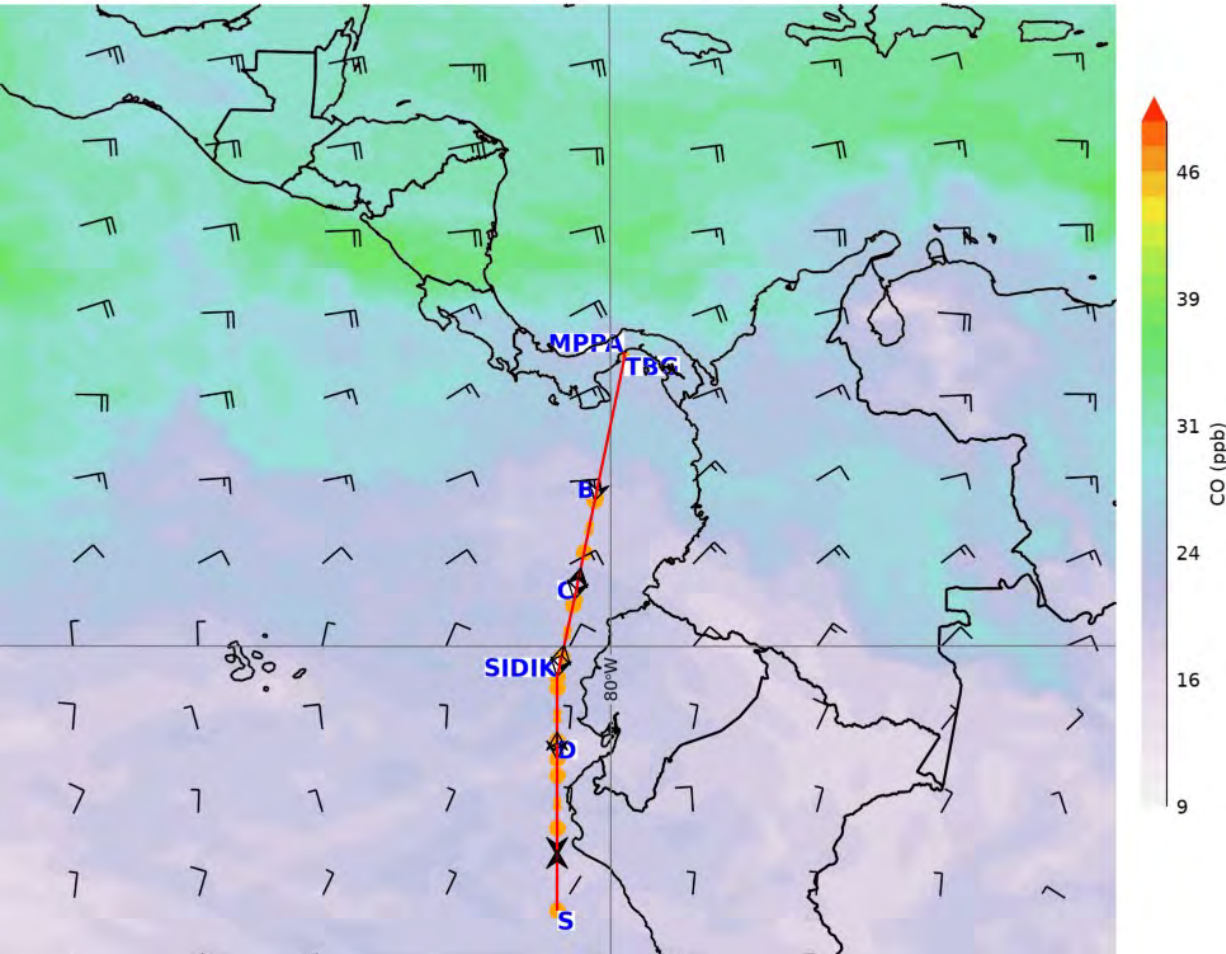


Upper Level Forecasts

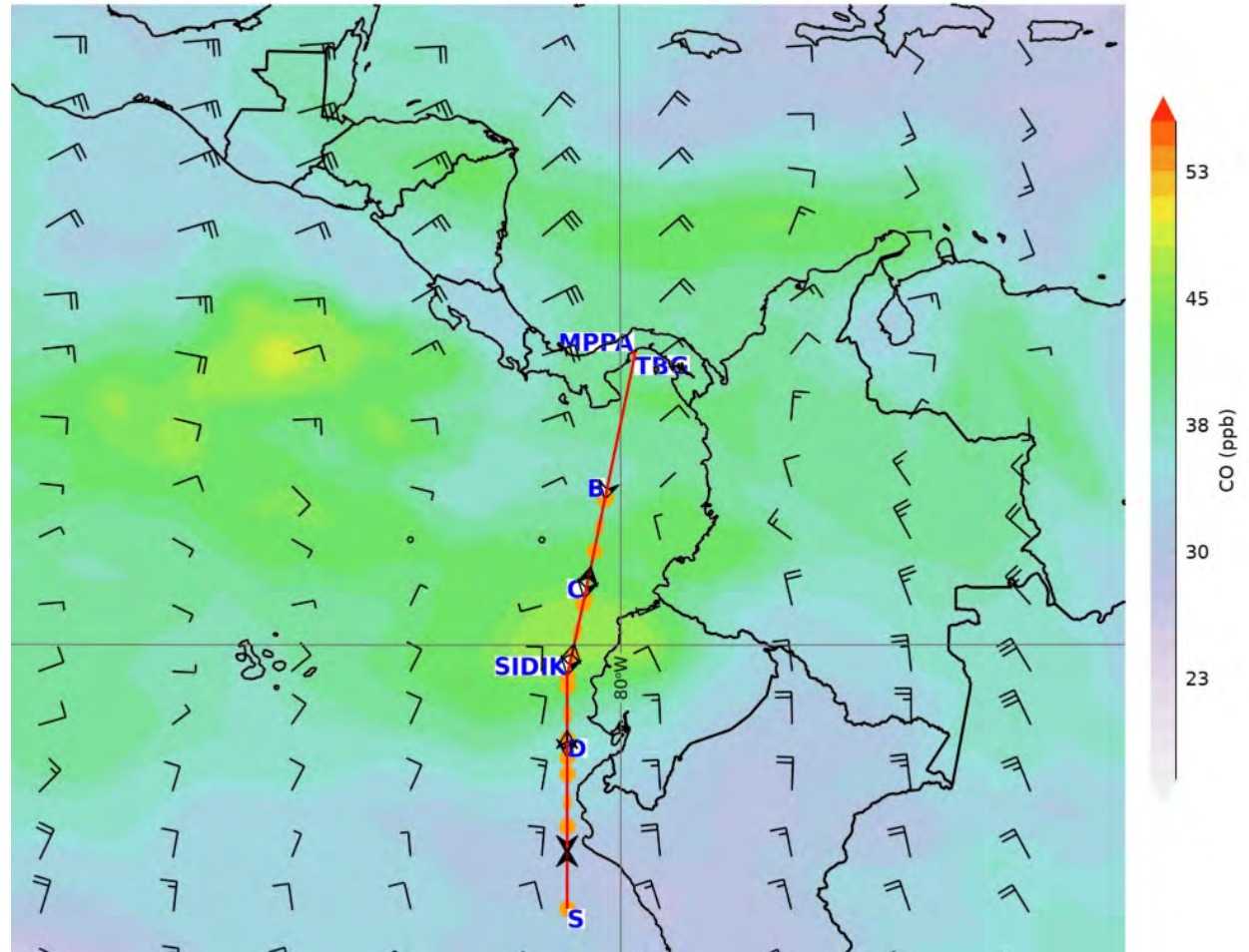
GEOS CO 70 hPa

CAMS CO 83 hPa

GEOS CO 70 hPa Init: 2026091100 Valid: 2026091218



CAMS CO 83 hPa Init: 2026091100 Valid: 2026091218

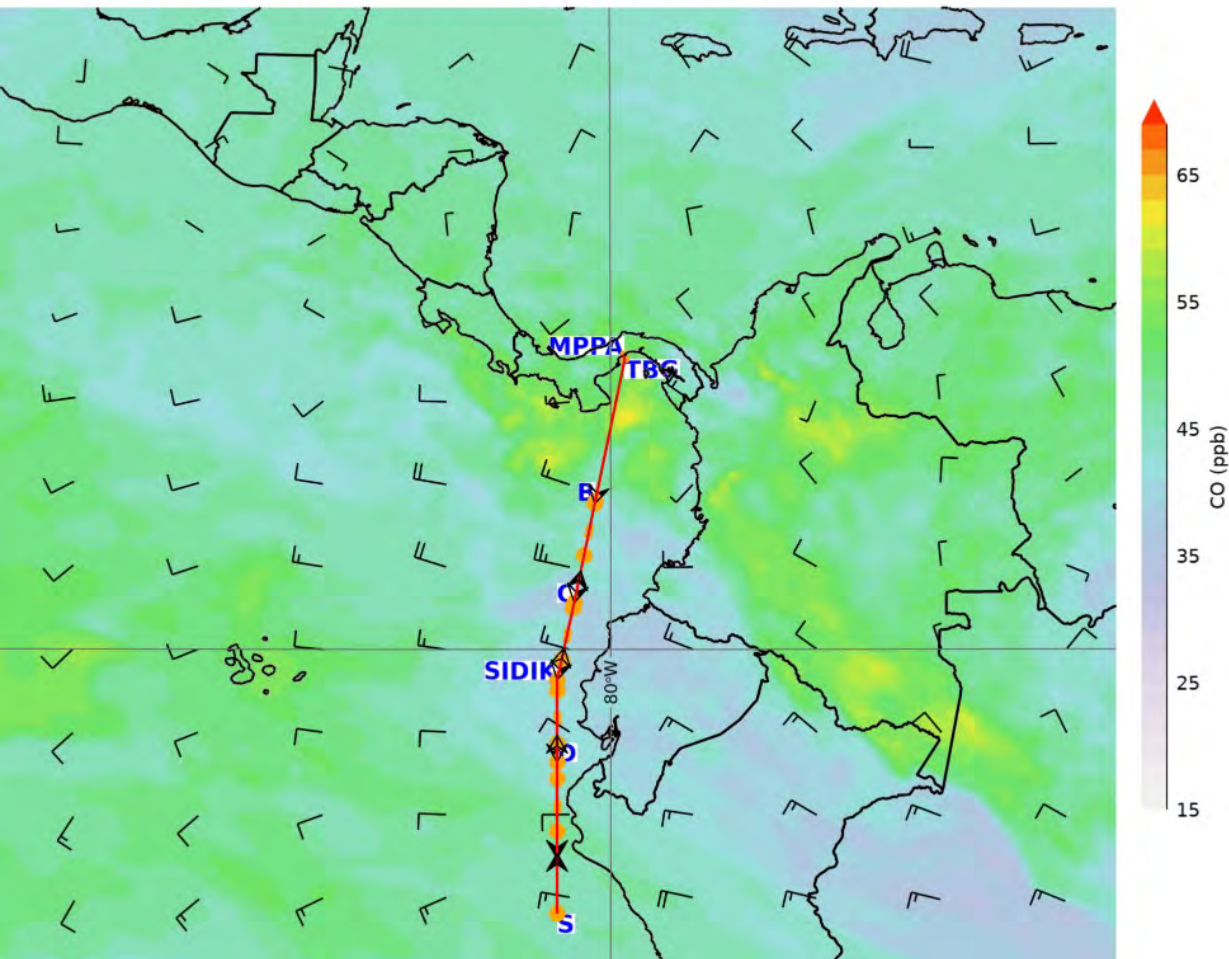


Latitudinal gradient in CO apparent at 70 hPa.

Upper Level Forecasts

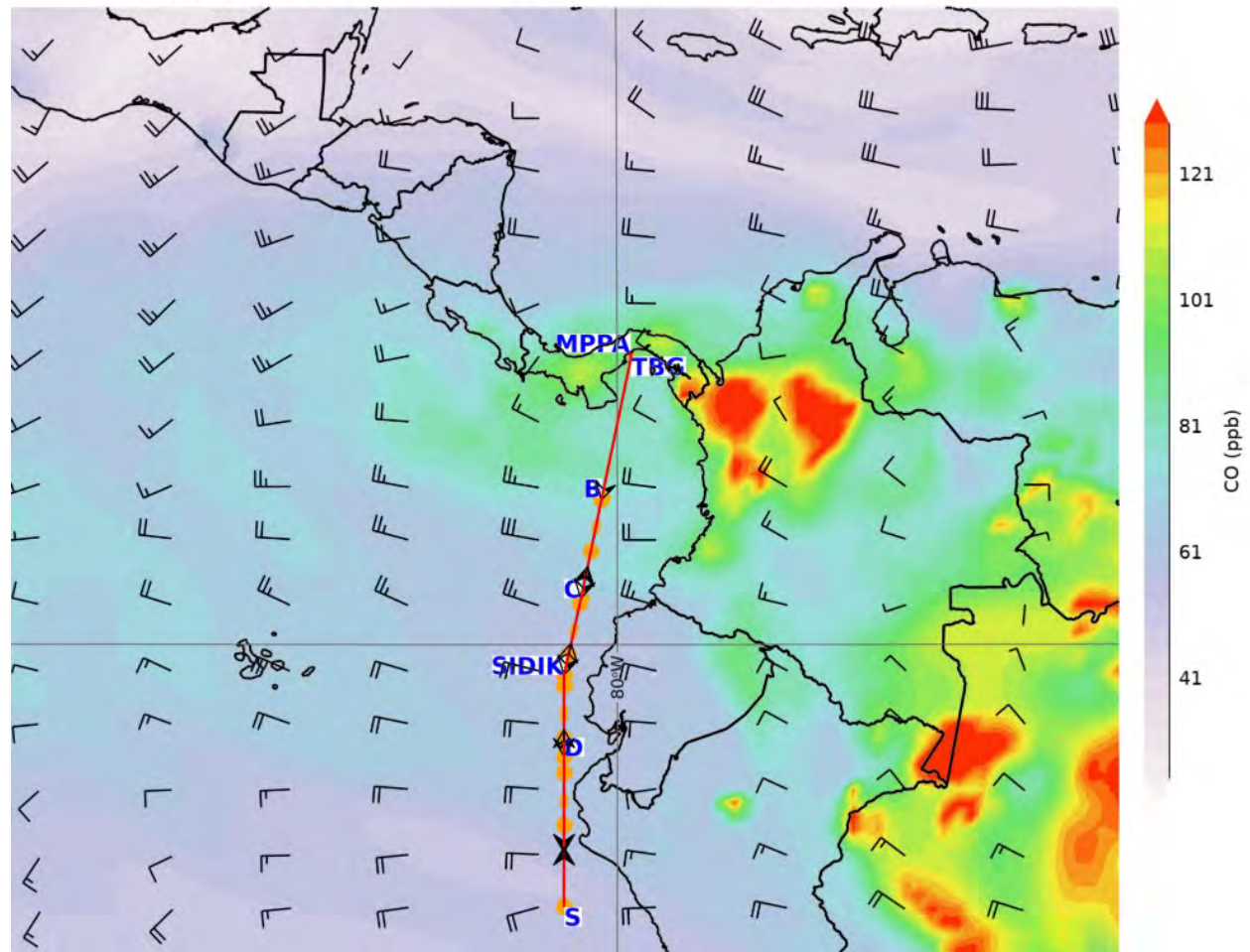
GEOS CO 100 hPa

GEOS CO 100 hPa Init: 2026091100 Valid: 2026091218



CAMS CO 121 hPa

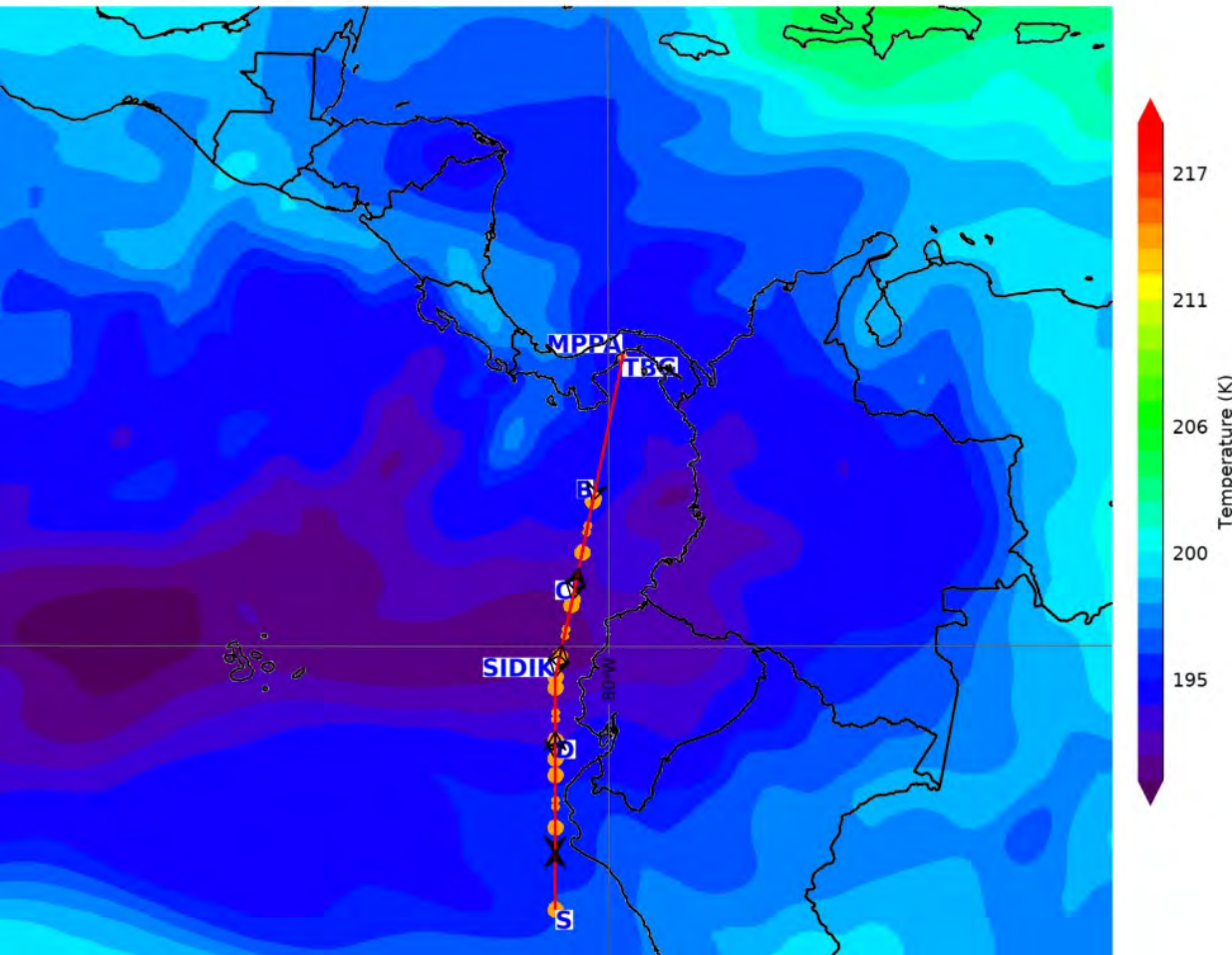
CAMS CO 121 hPa Init: 2026091100 Valid: 2026091218



Upper Level Forecasts

CAMS Temperature 88 hPa

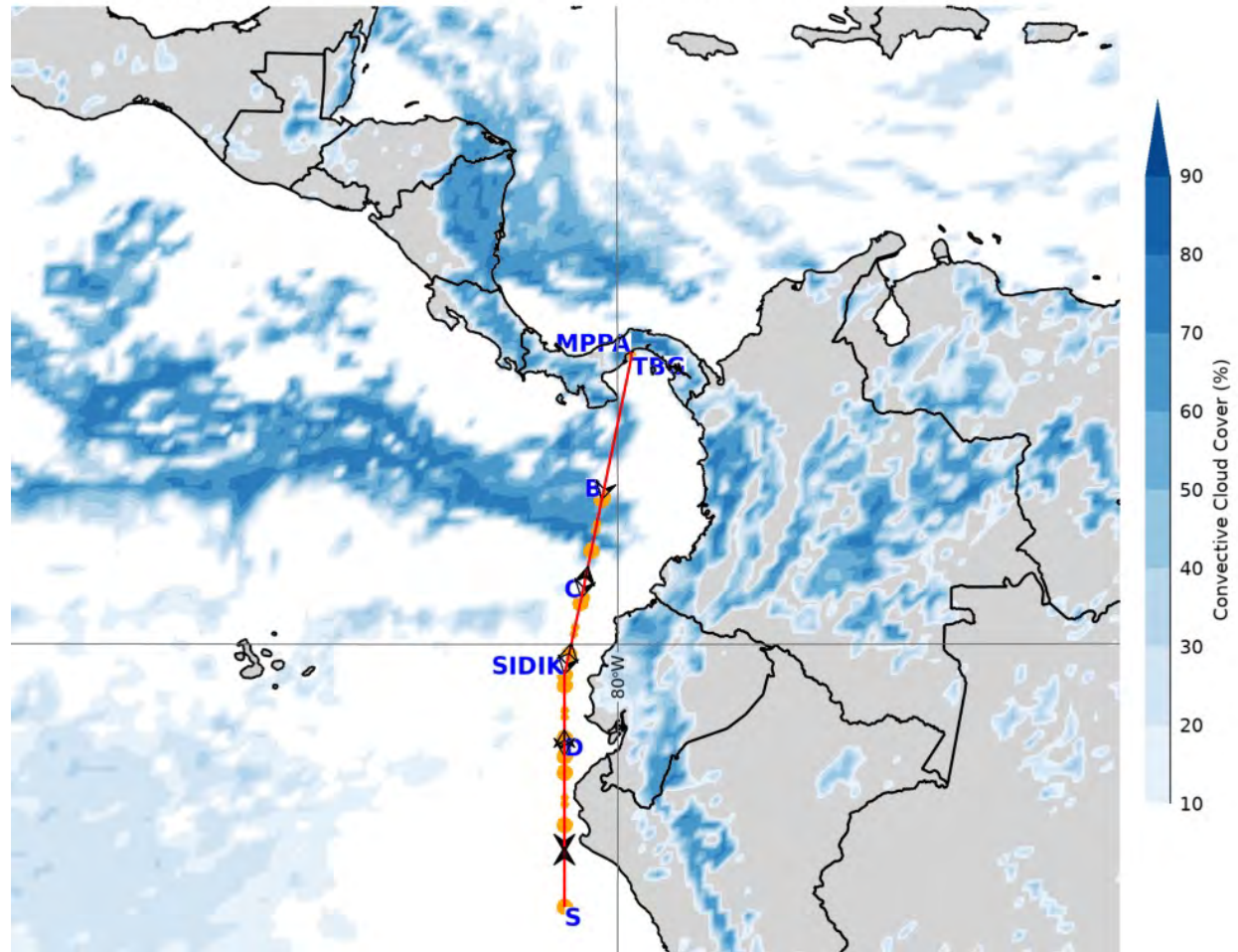
CAMS Temperature 88 hPa Init: 2026091100 Valid: 2026091218



Region of exceptionally low temps forecast on way down to south point.

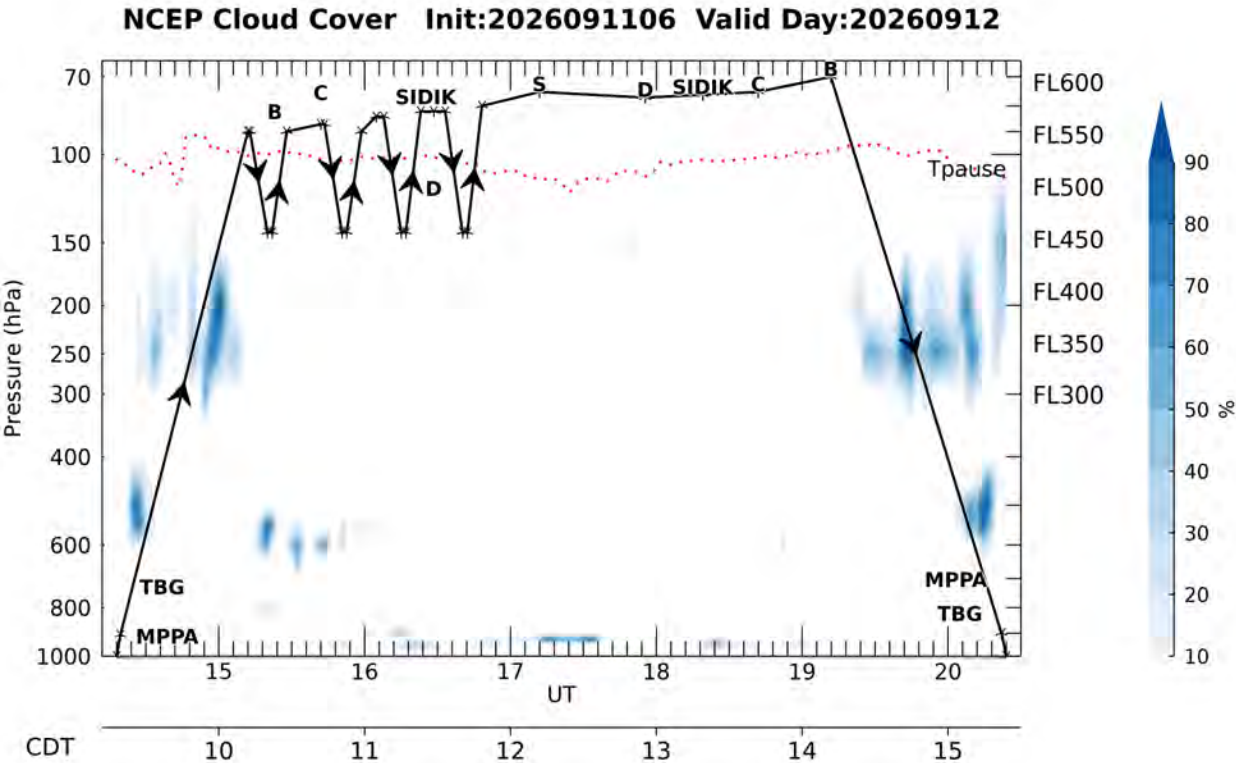
Convective Clouds

NCEP Convective Cloud Cover Init: 2026091106 Valid: 2026091218

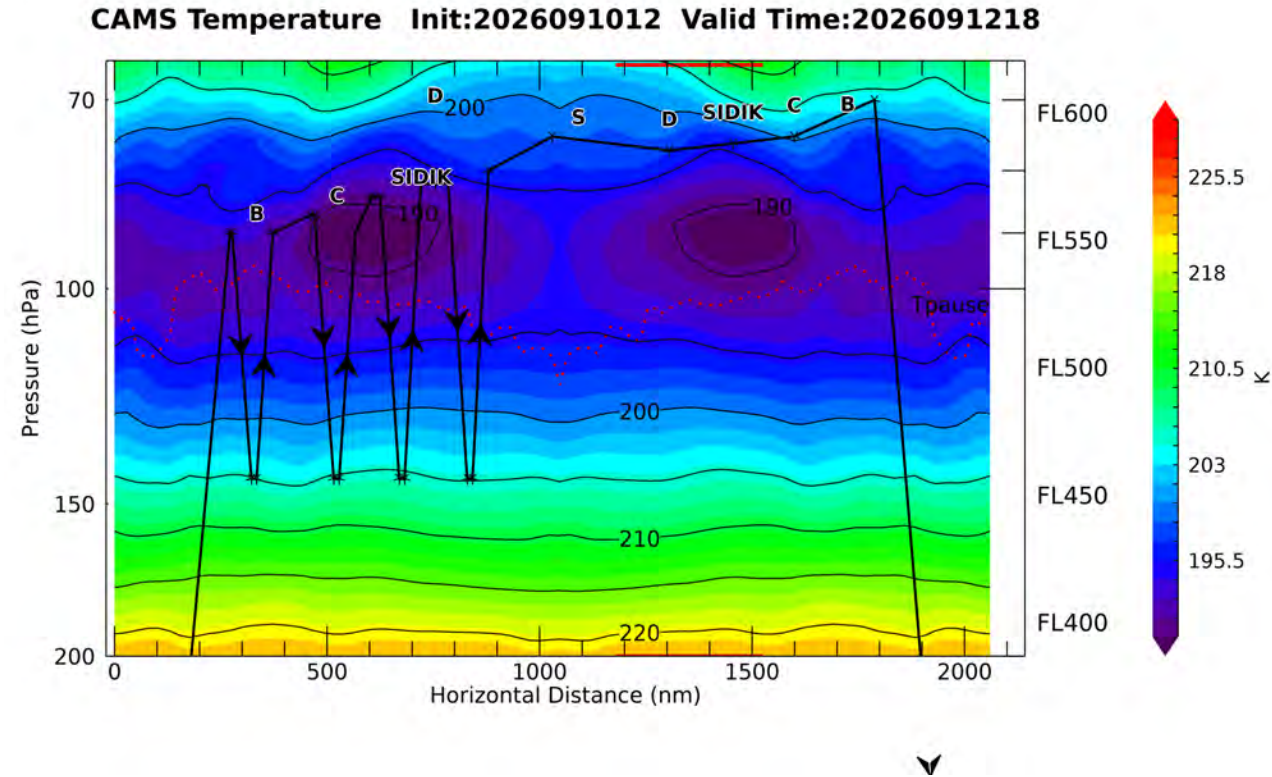


Flight Curtains of Clouds and Temperature

NCEP Clouds



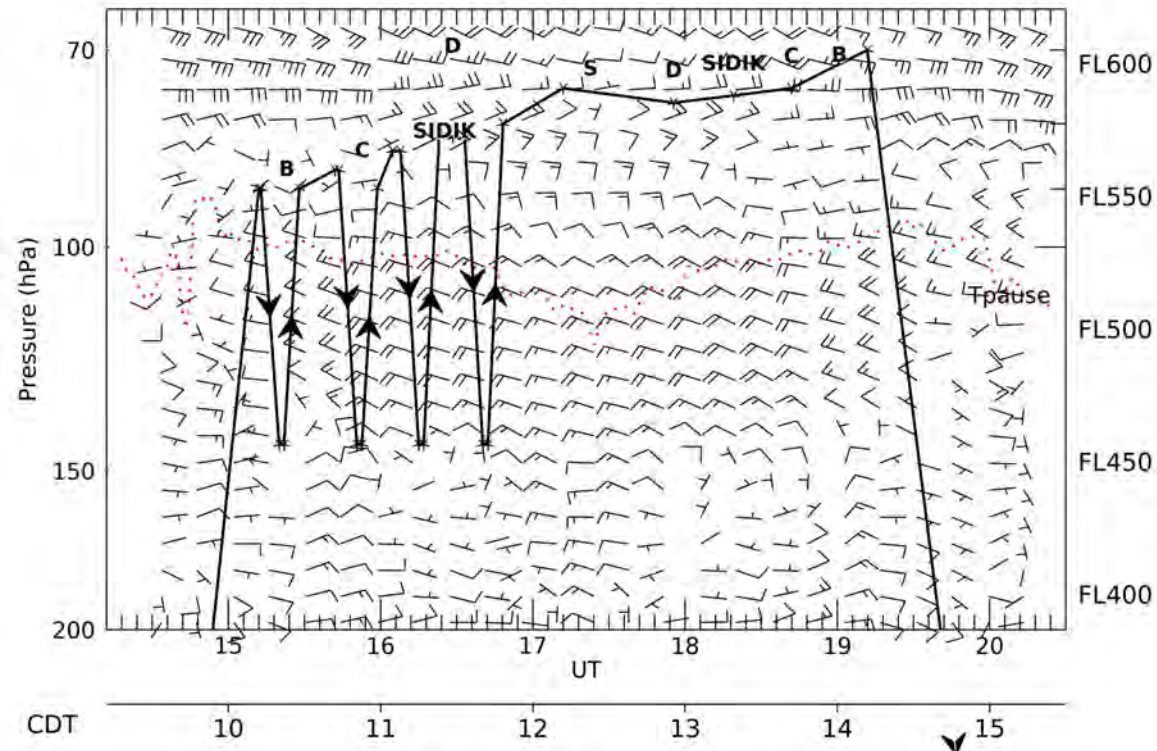
CAMS Temperature



Zoomed in Flight Curtains

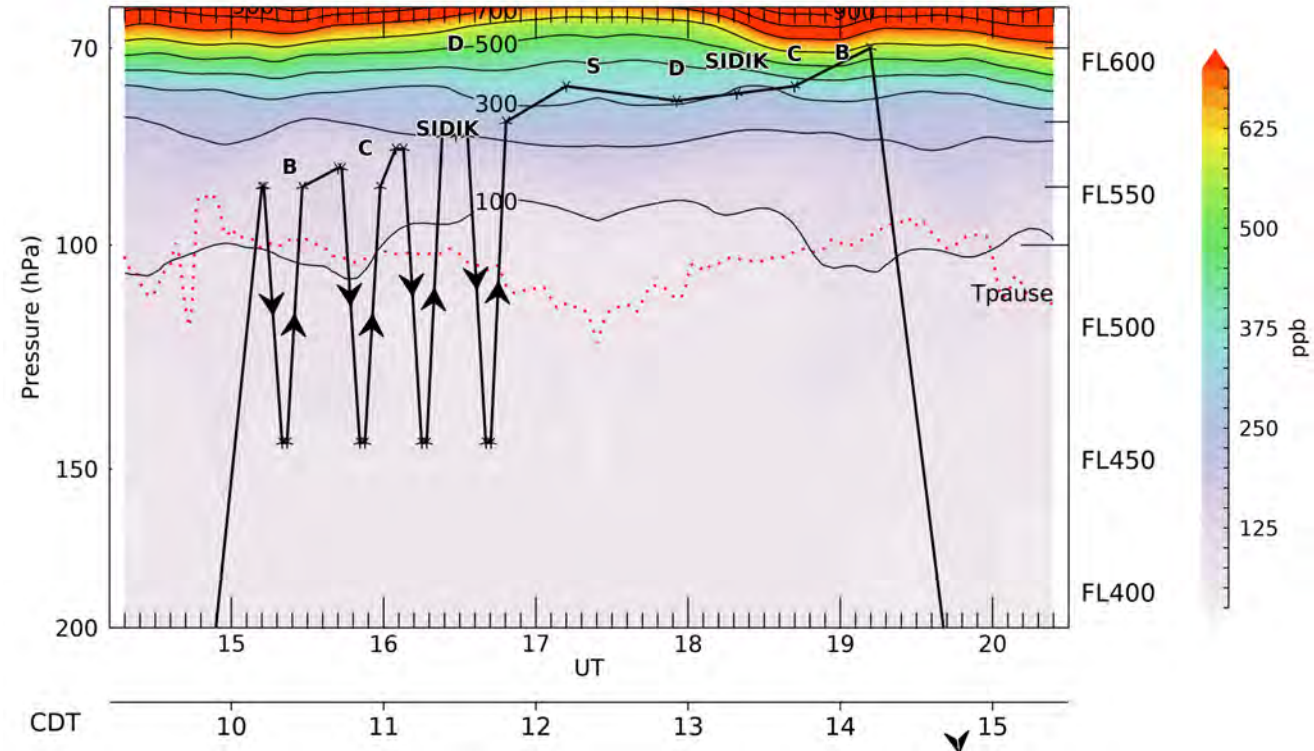
CAMS Winds

CAMS Wind Flags Init:2026091012 Valid Day:20260912



CAMS Ozone

CAMS Ozone Init:2026091012 Valid Day:20260912

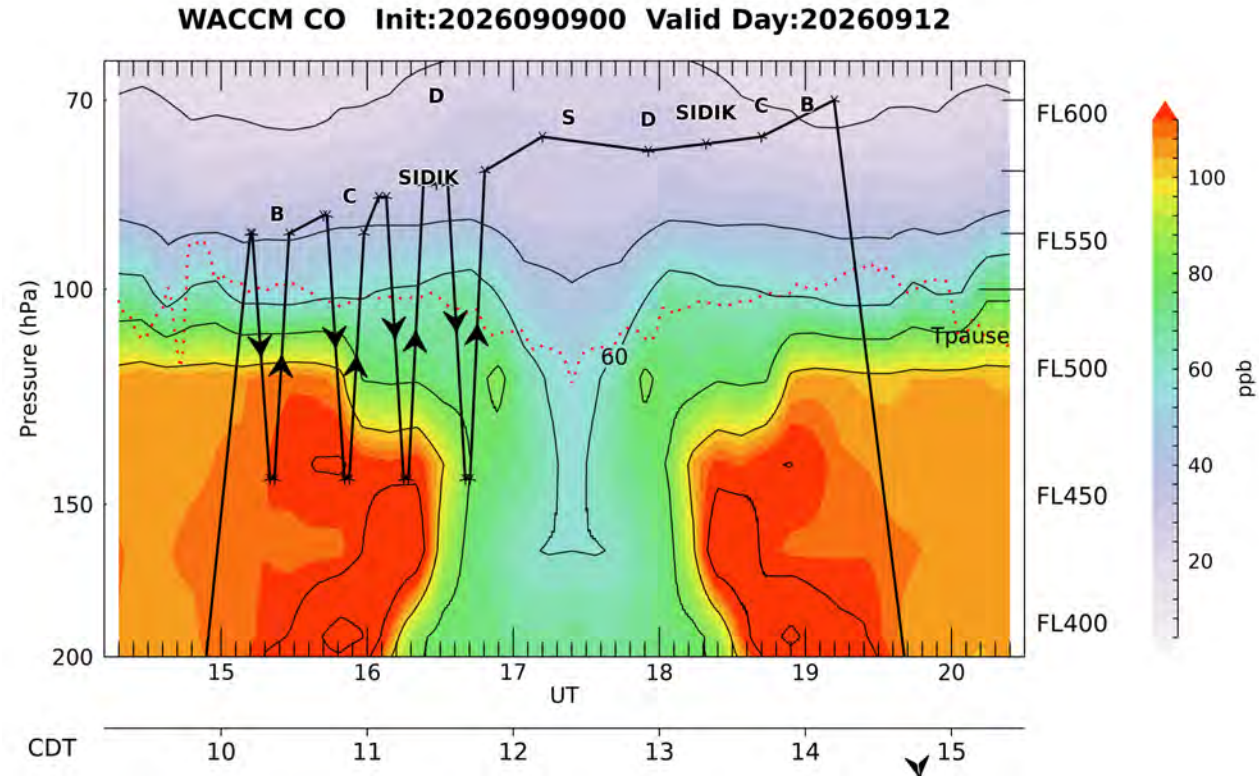
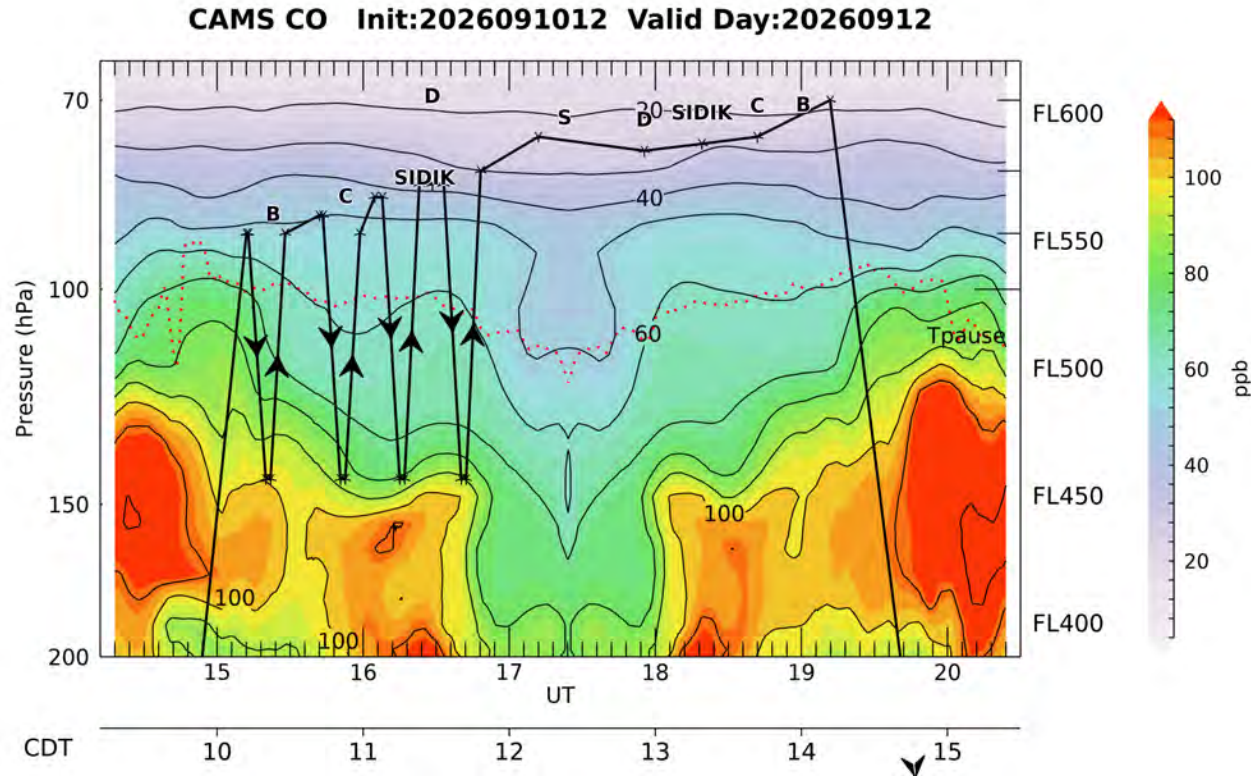


Strong vertical shear predicted in the winds from 80-100 hPa through most of the flight.

Zoomed in Flight Curtains

CAMS CO

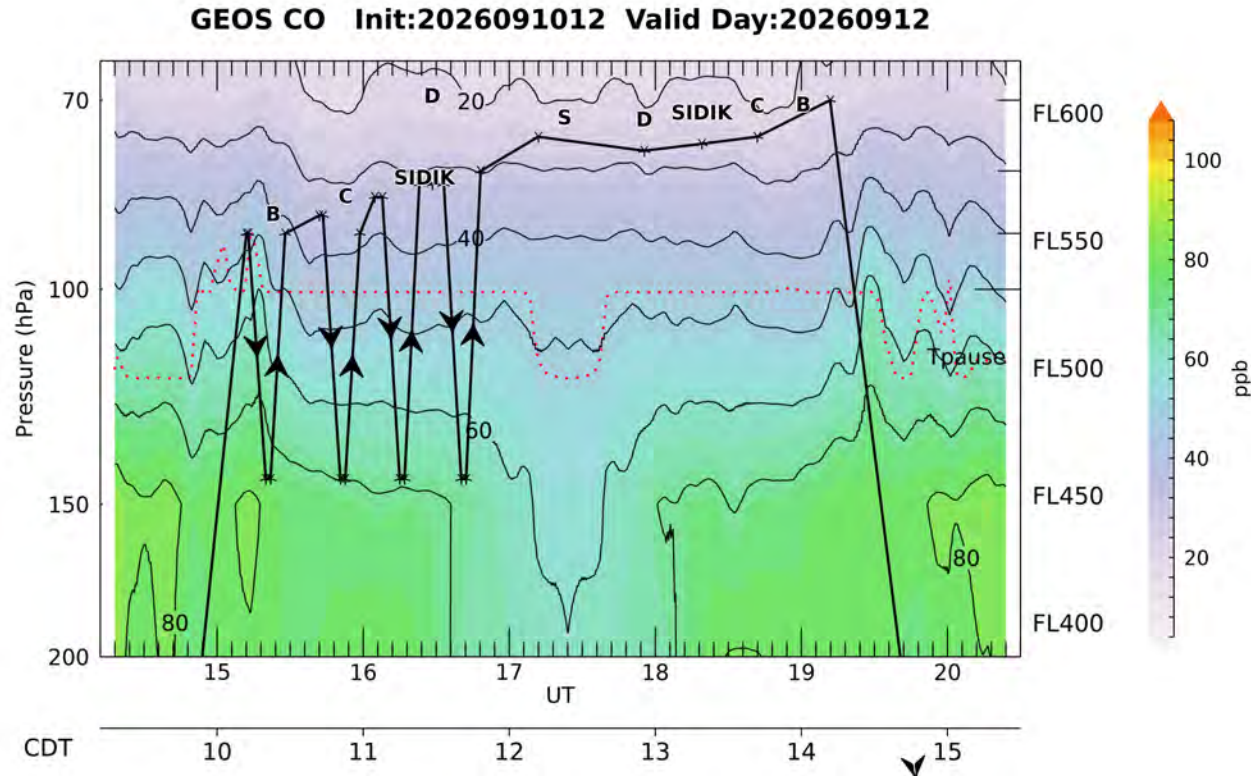
WACCM CO



Hemispheric gradient in CO is apparent from 150-90 hPa.

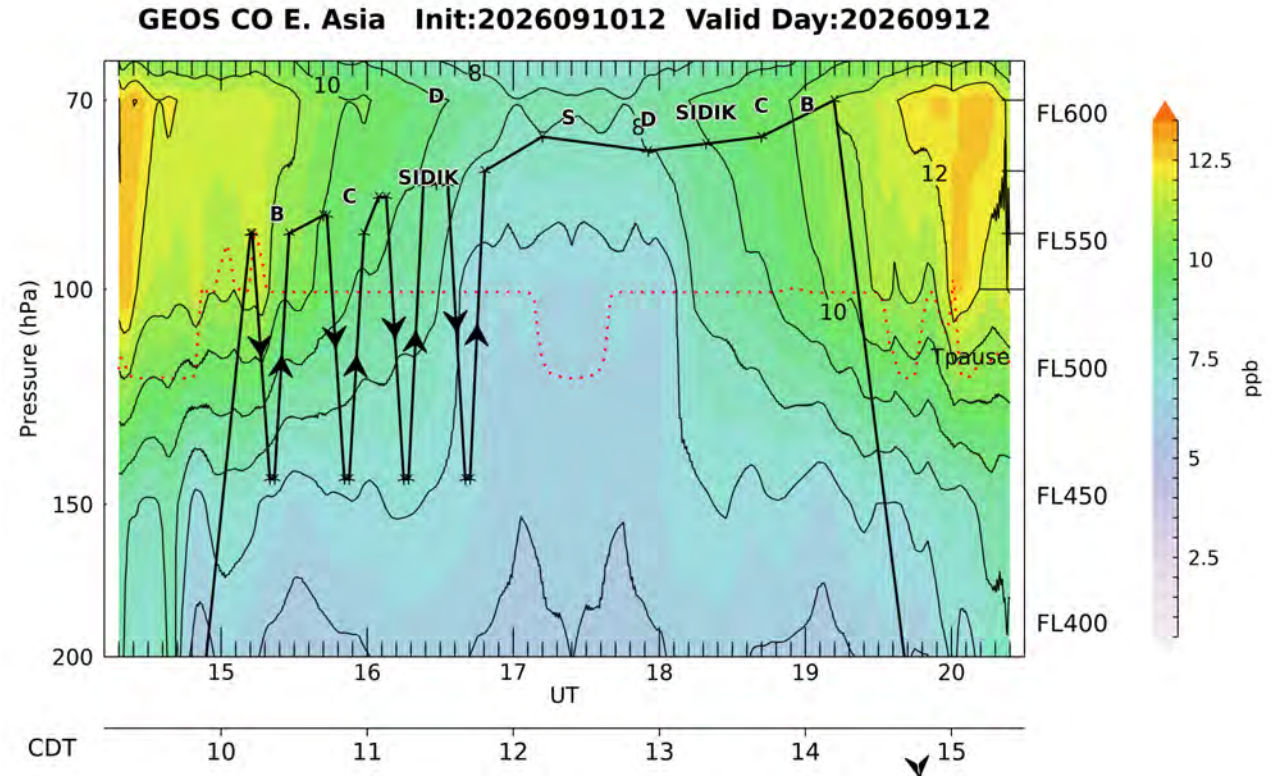
Zoomed in Flight Curtains

GEOS CO



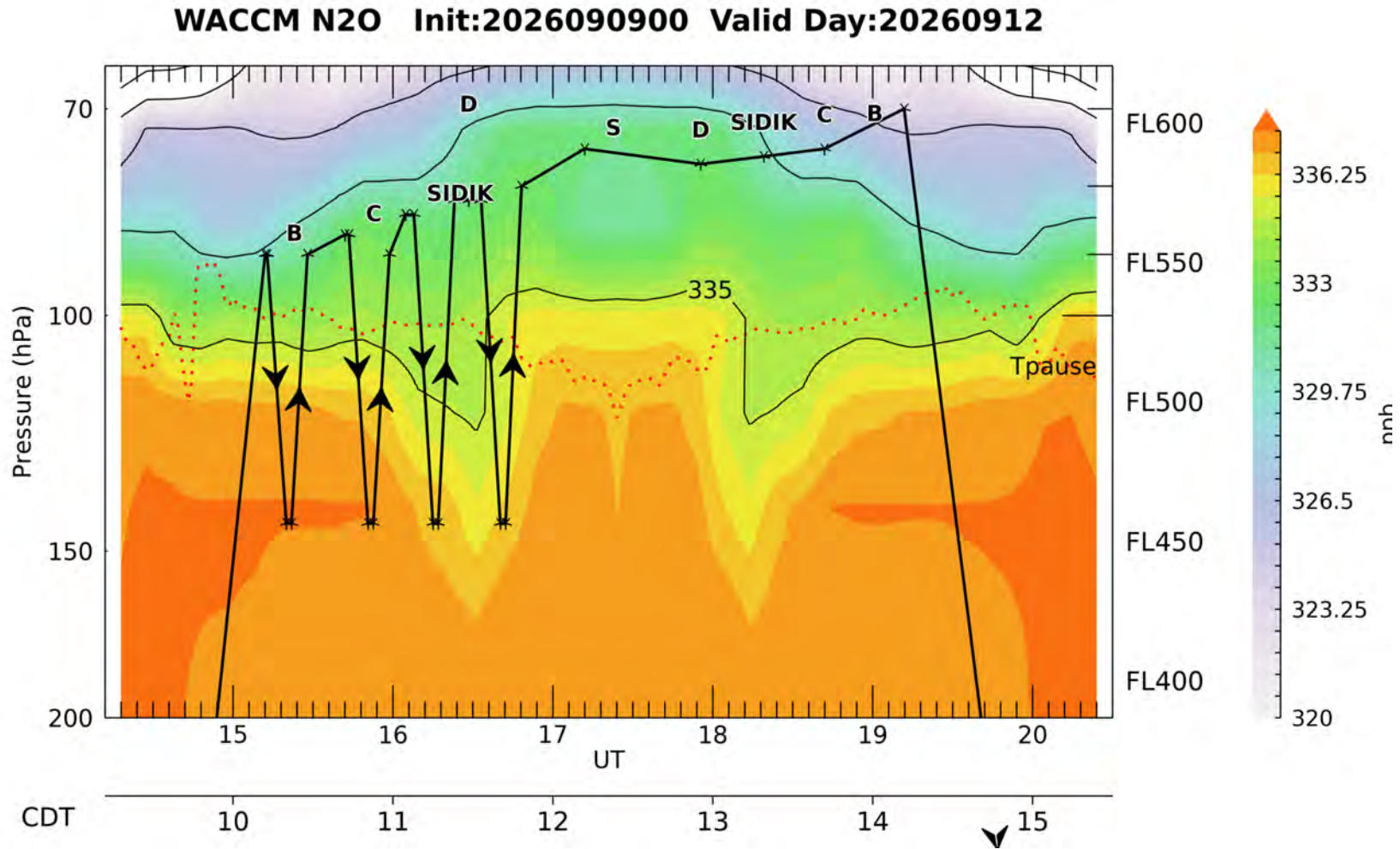
Hemispheric gradient is apparent from 150-90 hPa.

GEOS E. Asia CO



Tagged E. Asia CO shows a gradient along the entire flight.

Zoomed in Flight Curtain

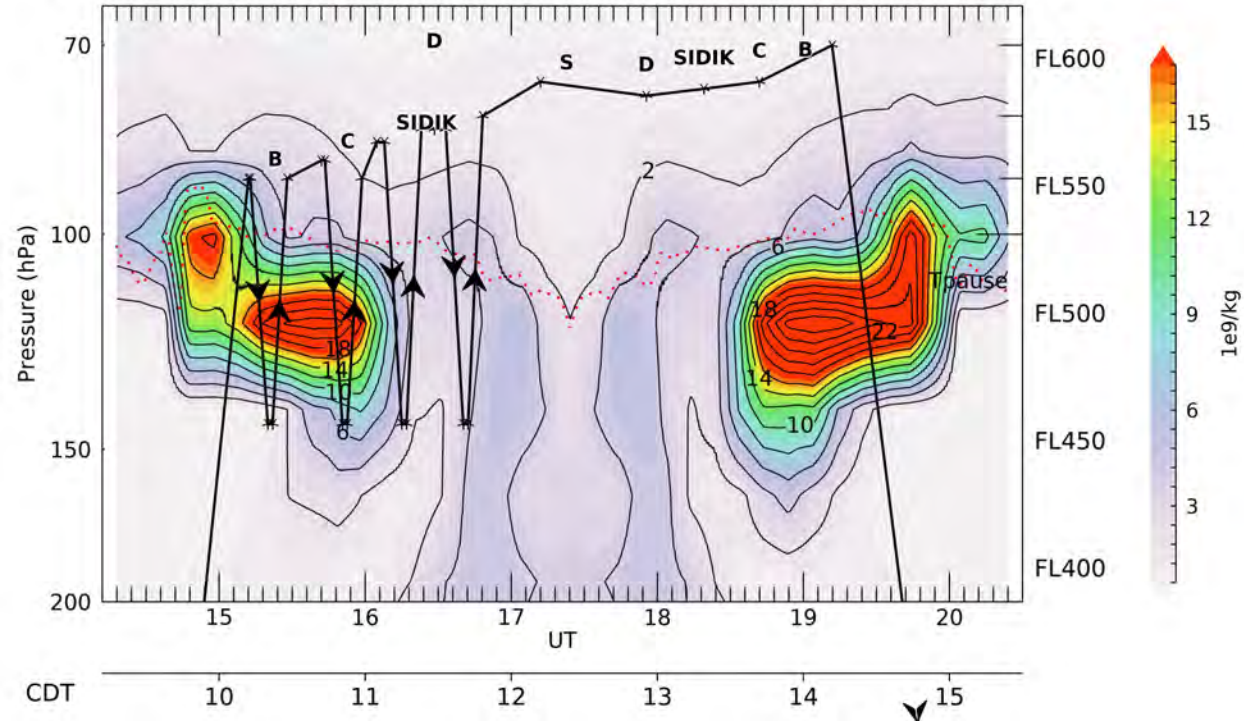


Gradient in N₂O such that it increases to the south suggesting the deep tropical lower stratosphere that is more isolated from mixing in of lower N₂O air from the extratropics.

Zoomed in Flight Curtains

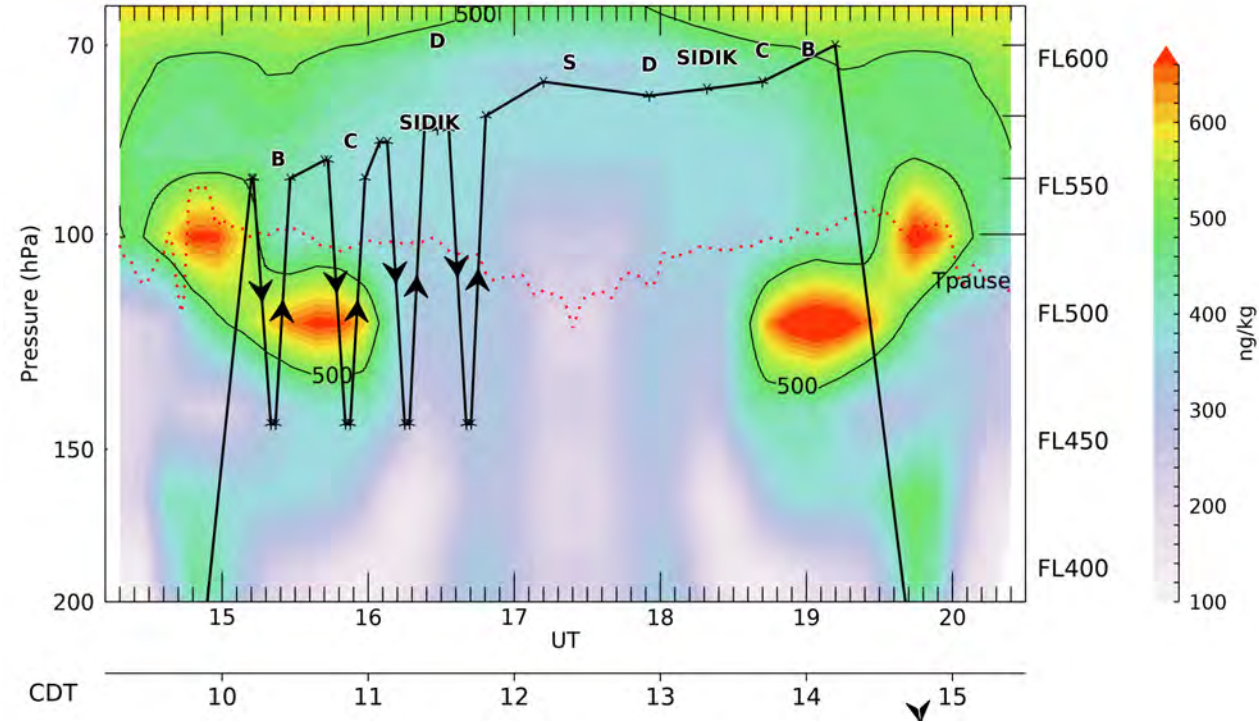
WACCM Aerosol Num Conc

WACCM Aerosol Num Conc Init:2026090900 Valid Day:20260912



WACCM Sulfate

WACCM Sulfate Init:2026090900 Valid Day:20260912



Hemispheric gradient in WACCM aerosols is also apparent from 150-70 hPa.