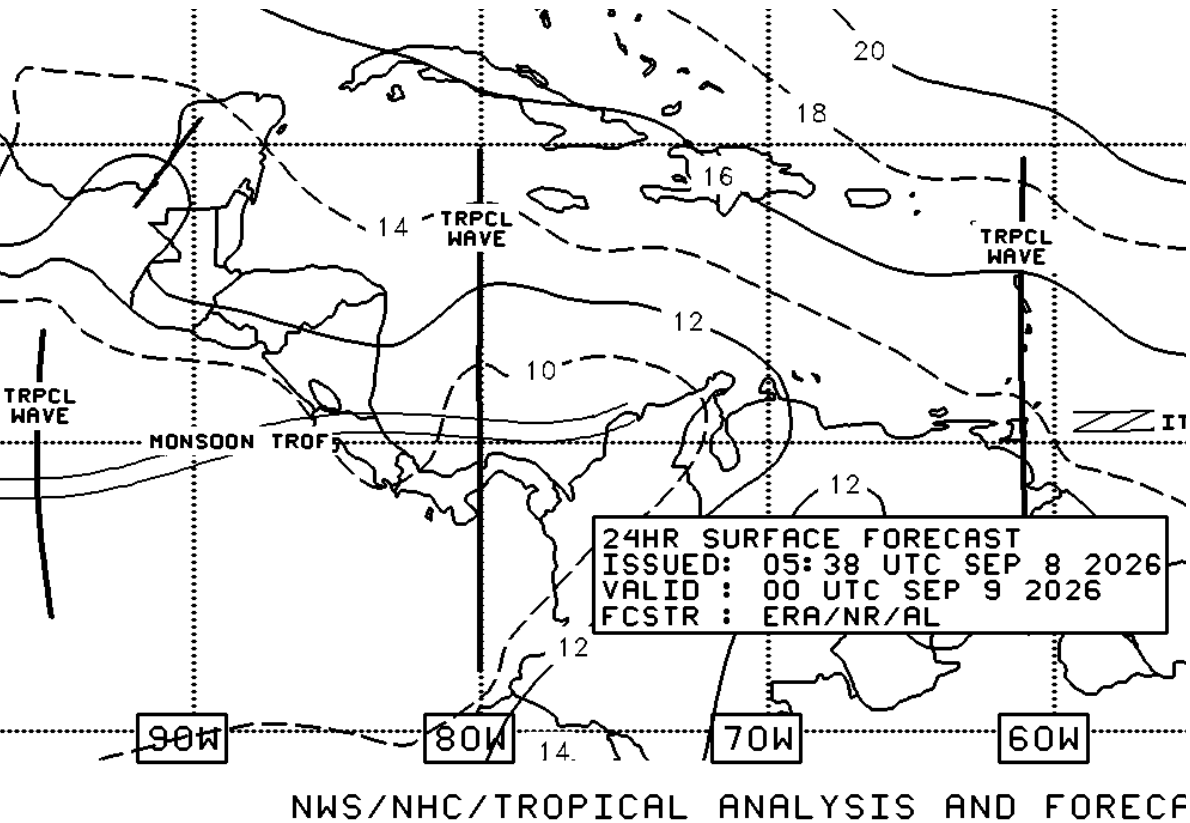


SABRE Forecast Discussion

09/08/2026

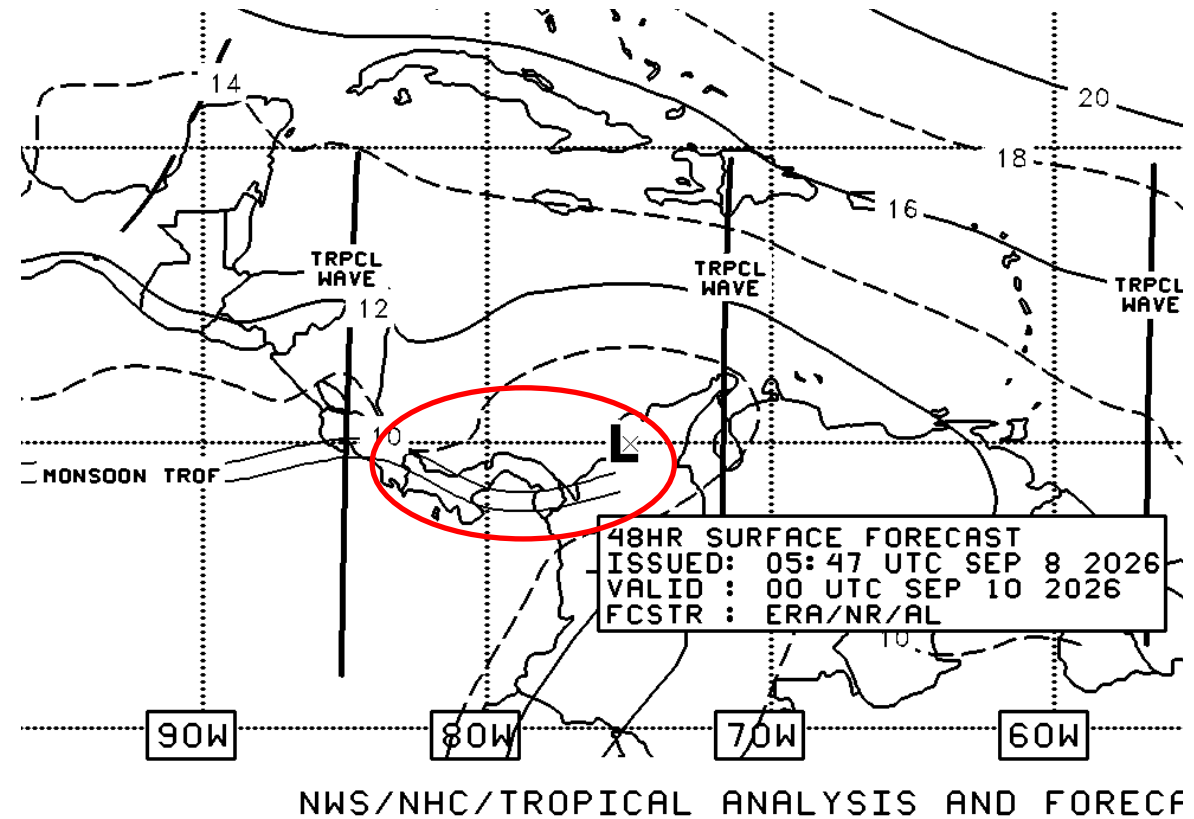
Surface Charts

09/09 00z (7pm local time)



The monsoon trough will be north of Panama today and no surface low in the region.

09/10 00z (7pm local time)



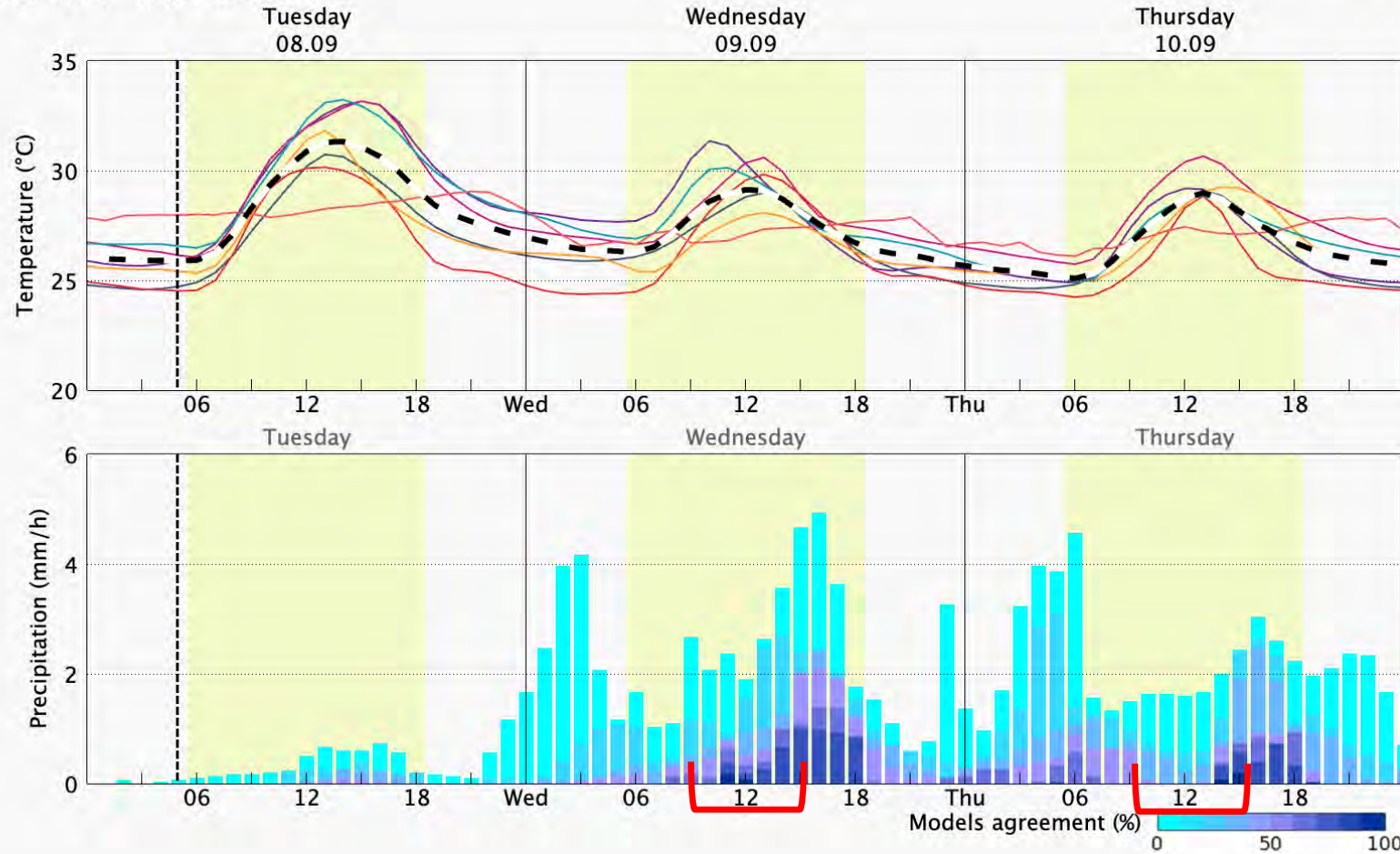
Wednesday the monsoon trough is forecast to move back south over Panama and a surface low returns to our east.

Local Forecasts

Panama City

8.99°N, 79.52°W (17 m asl)

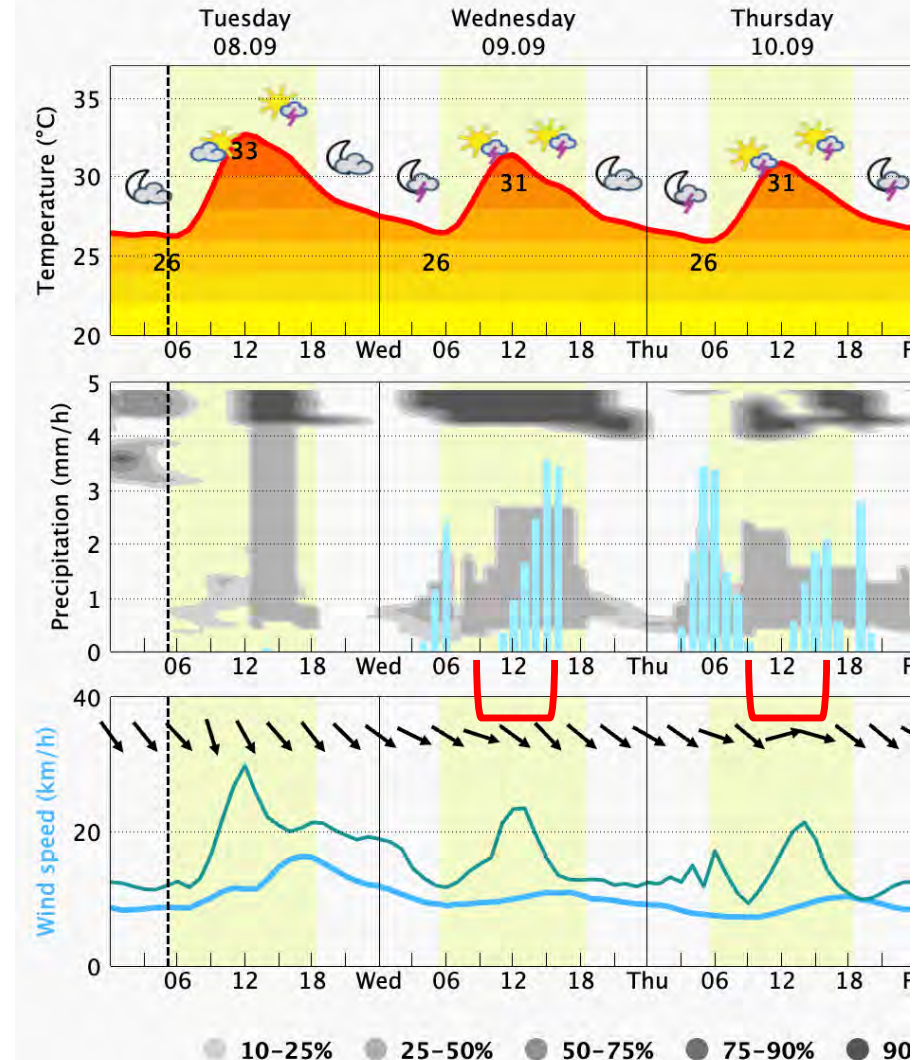
meteoblue®



- Relatively dry forecast today with higher precip probabilities returning on Wed. and Thurs.
- Flight time has the usual range of afternoon precip probabilities, although with additional late night/early morning peak as well.

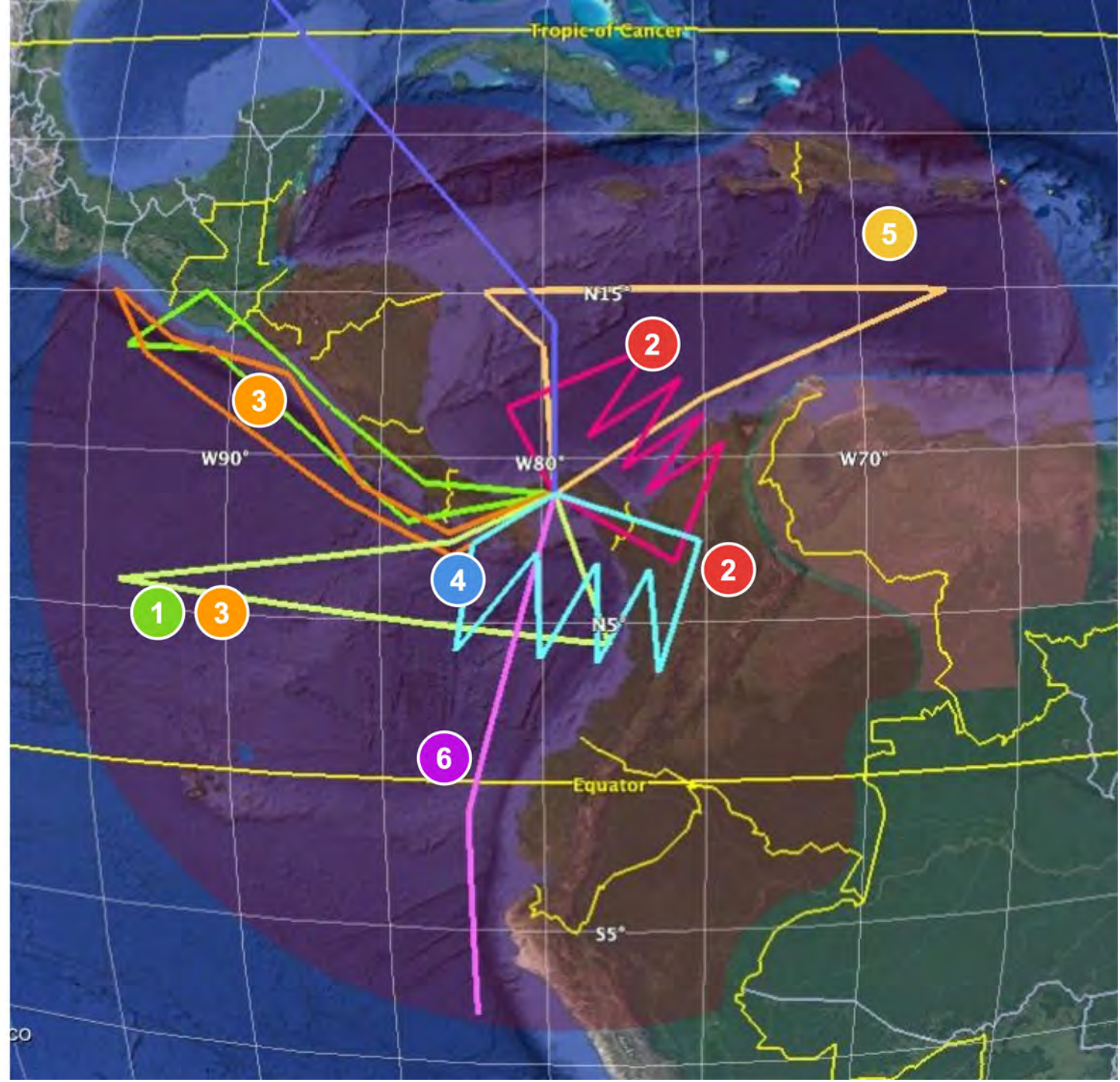
Panama City

8.99°N, 79.52°W (17 m asl)

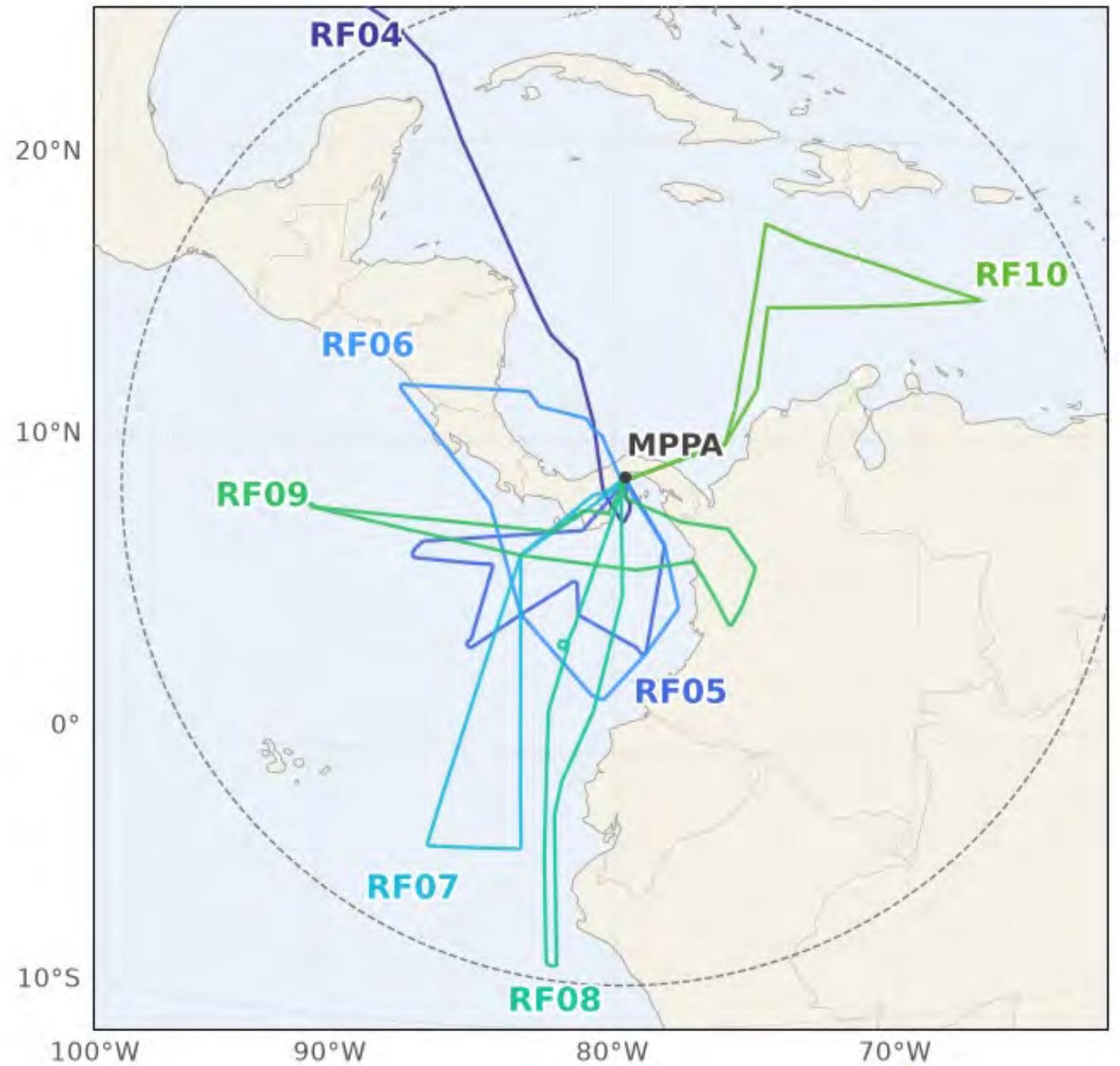


SABRE Tropics Flight Plan Options

- 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

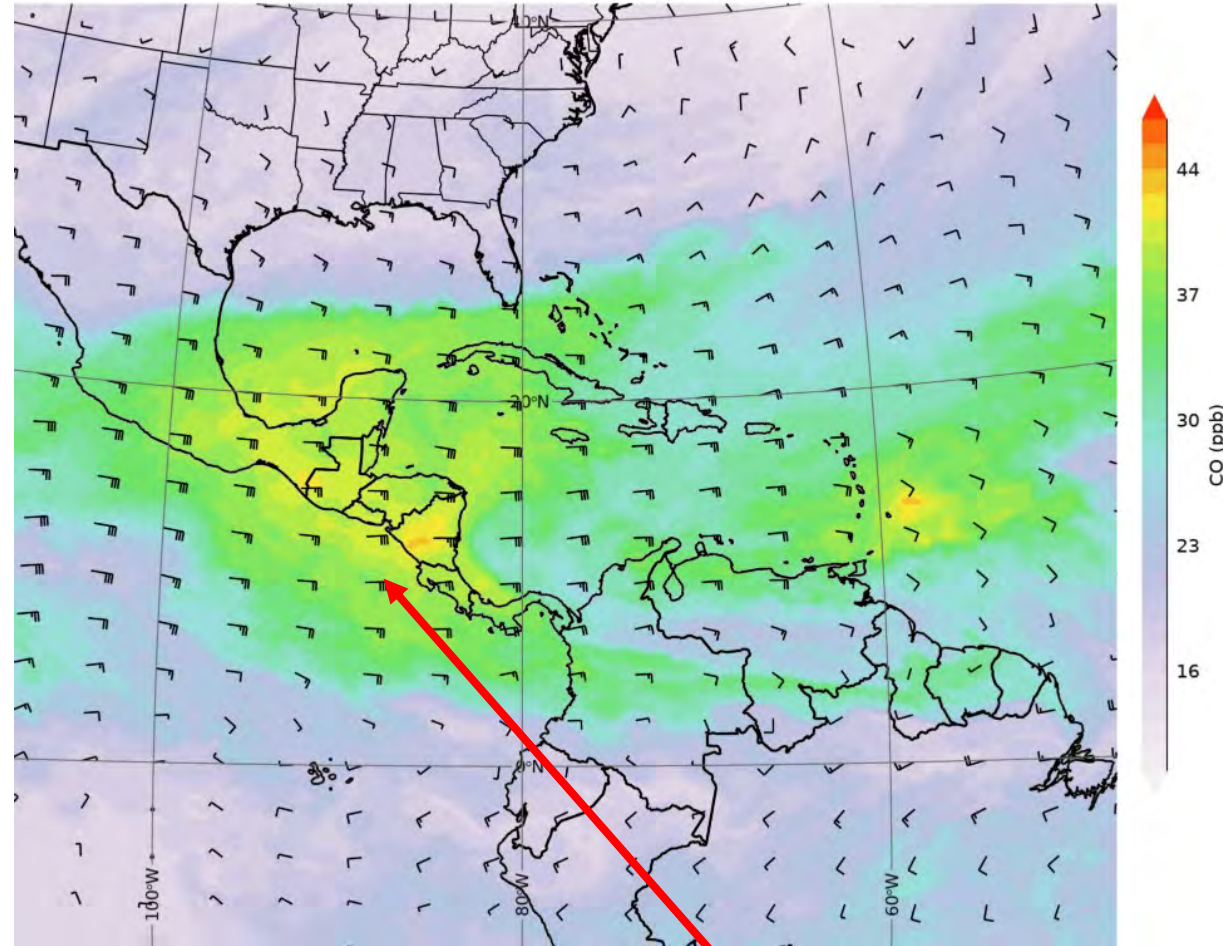


Upper Level Forecasts for 09/09/2026 and RF11 Flight Plan

Asian Monsoon outflow as indicated by CO forecasts

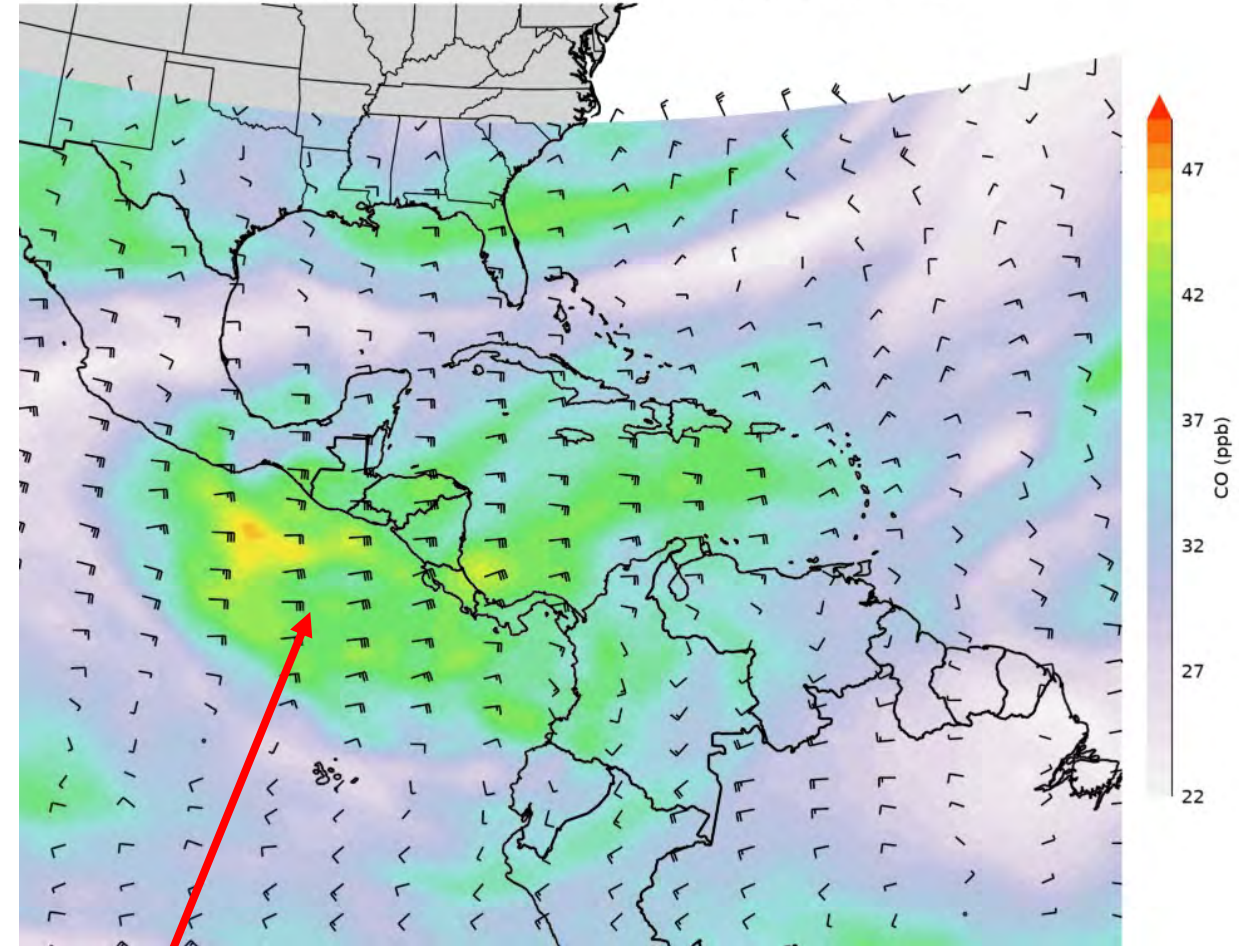
GEOS 70 hPa

GEOS CO 70 hPa Init: 2026090712 Valid: 2026090918



CAMS 83 hPa

CAMS CO 83 hPa Init: 2026090712 Valid: 2026090918

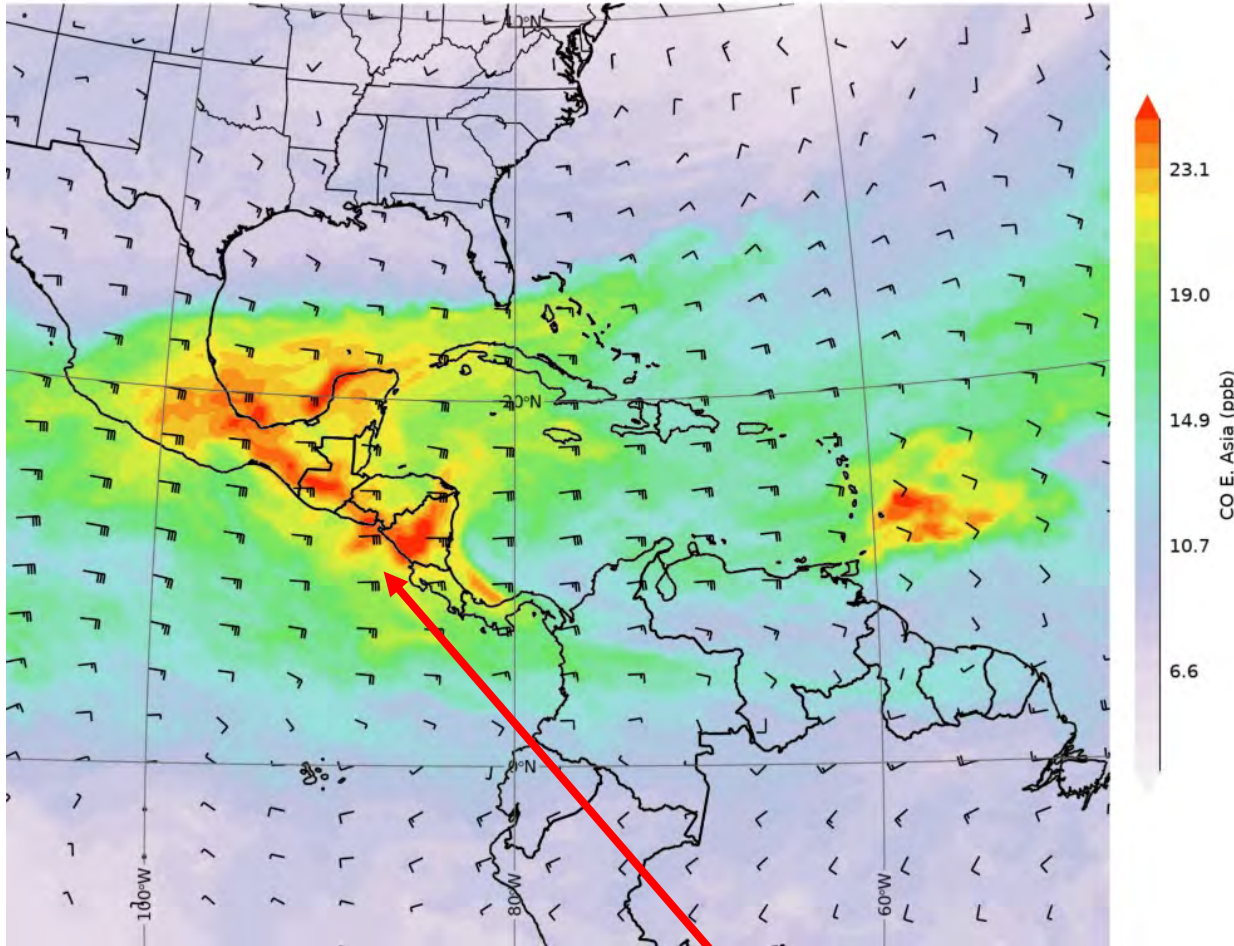


Large region of high CO in the lower stratosphere that was in forecasts yesterday over the western Atlantic and Caribbean will move west over Central America and the eastern Pacific by tomorrow.

Asian Monsoon outflow as indicated by tagged CO forecasts

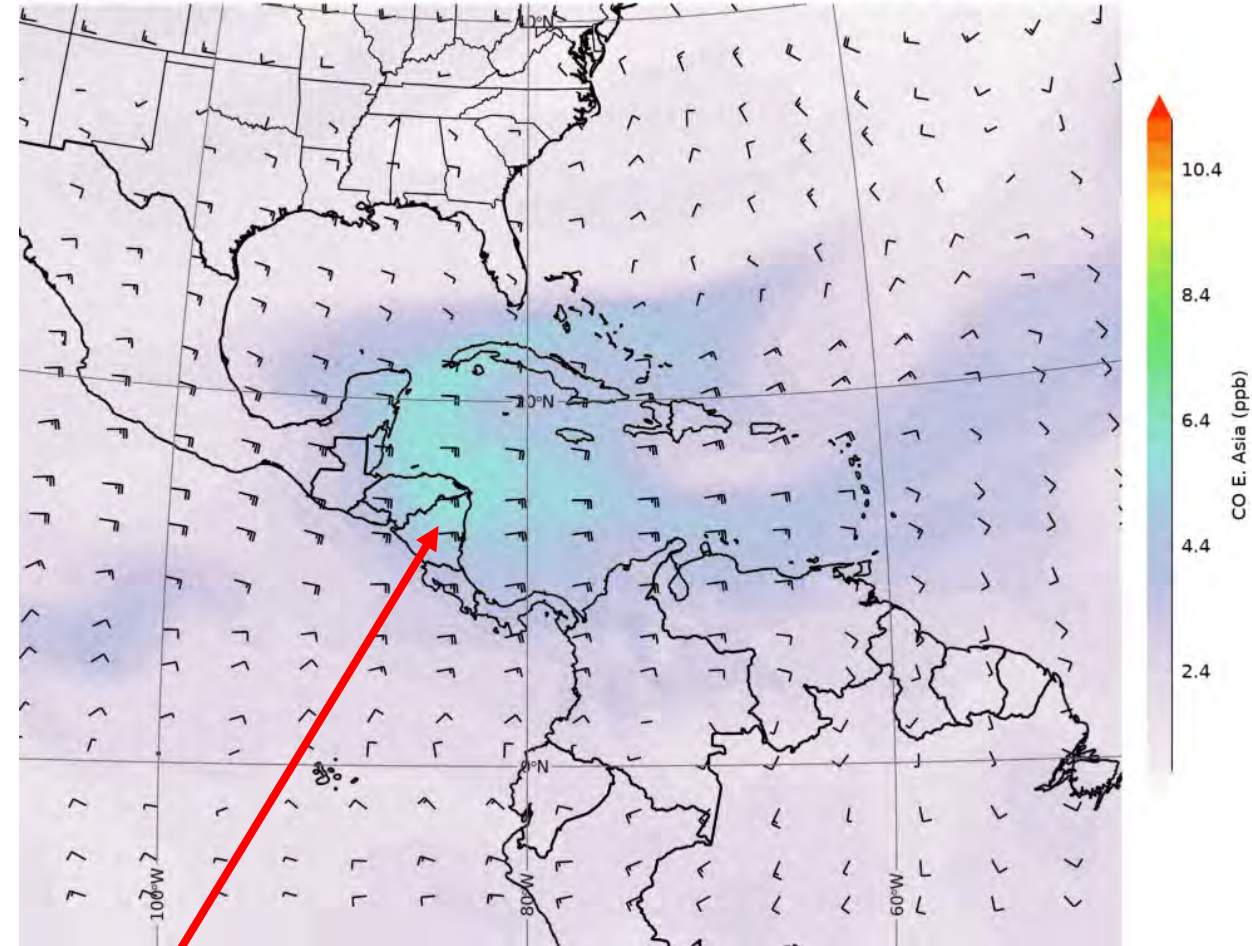
GEOS 70 hPa

GEOS CO E. Asia 70 hPa Init: 2026090712 Valid: 2026090918



WACCM 85 hPa

WACCM CO E. Asia 85 hPa Init: 2026090600 Valid: 2026090918

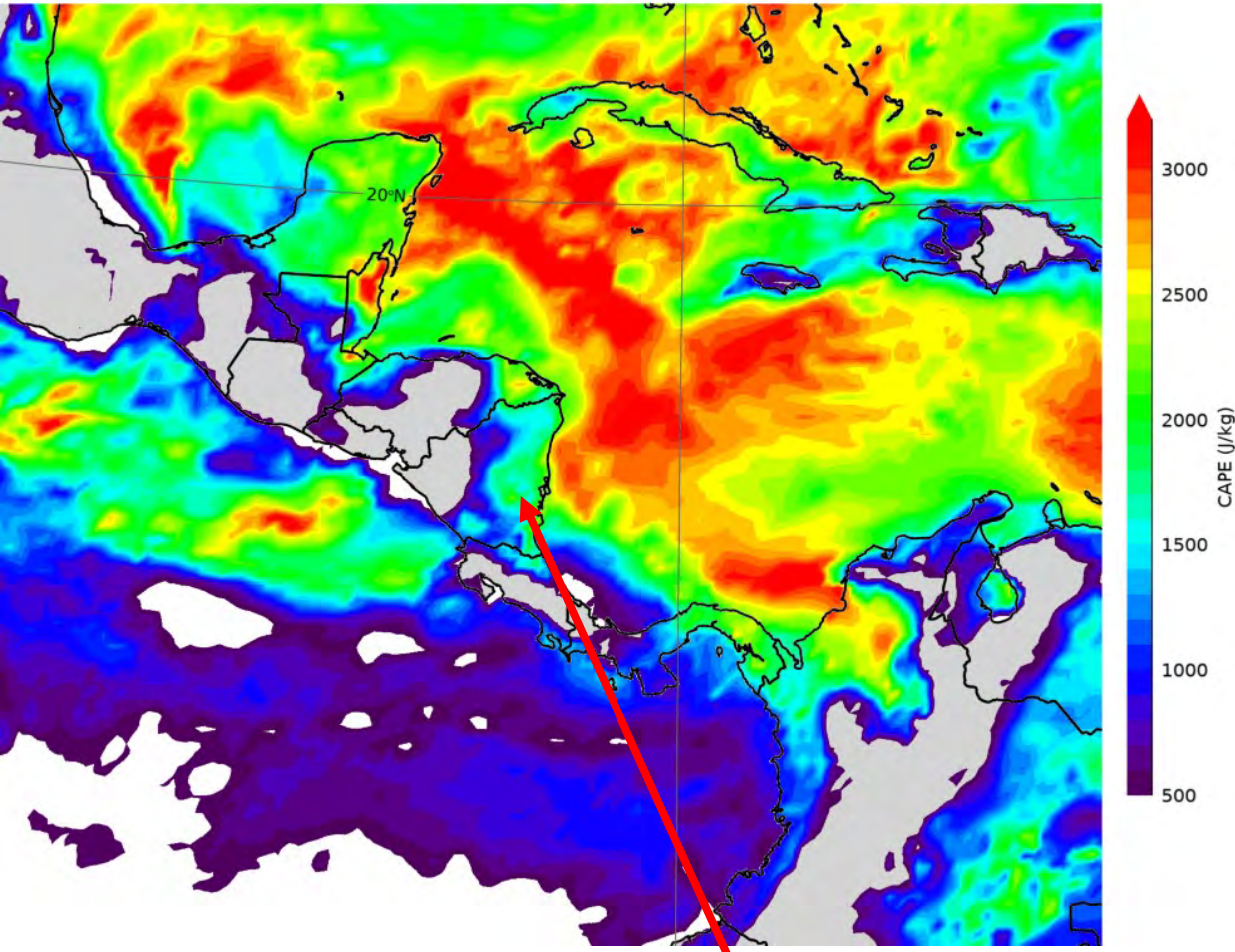


Tagged E. Asia CO indicates most of this enhanced CO is from the Asian monsoon region.
Less progressive and smaller amounts in WACCM.

Convection over Central America

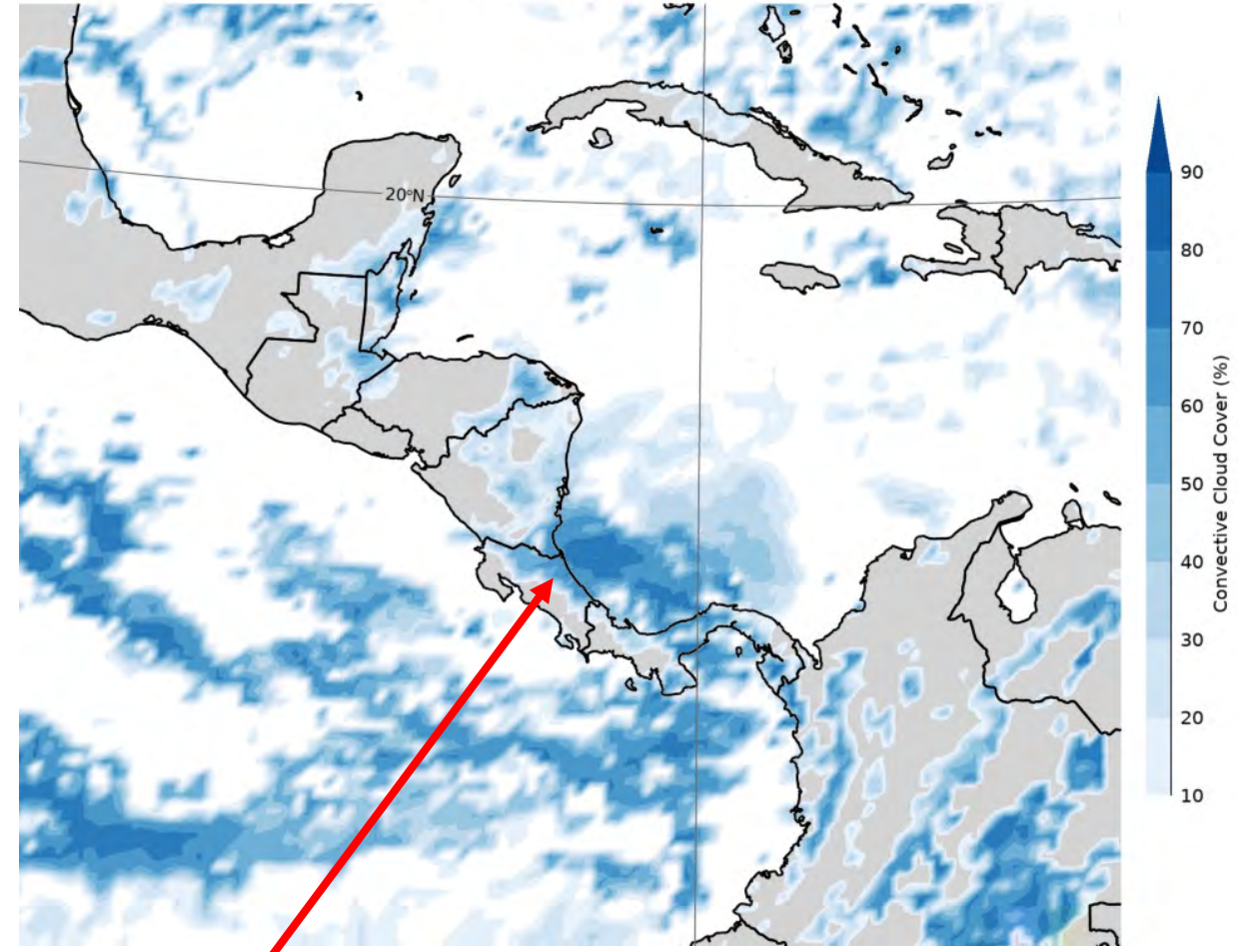
CAPE

NCEP CAPE 70 hPa Init: 2026090806 Valid: 2026090915



WACCM 85 hPa

NCEP Convective Cloud Cover Init: 2026090806 Valid: 2026090915



Relatively high levels of CAPE and convective cloud cover over regions of Central America on Wed. morning.

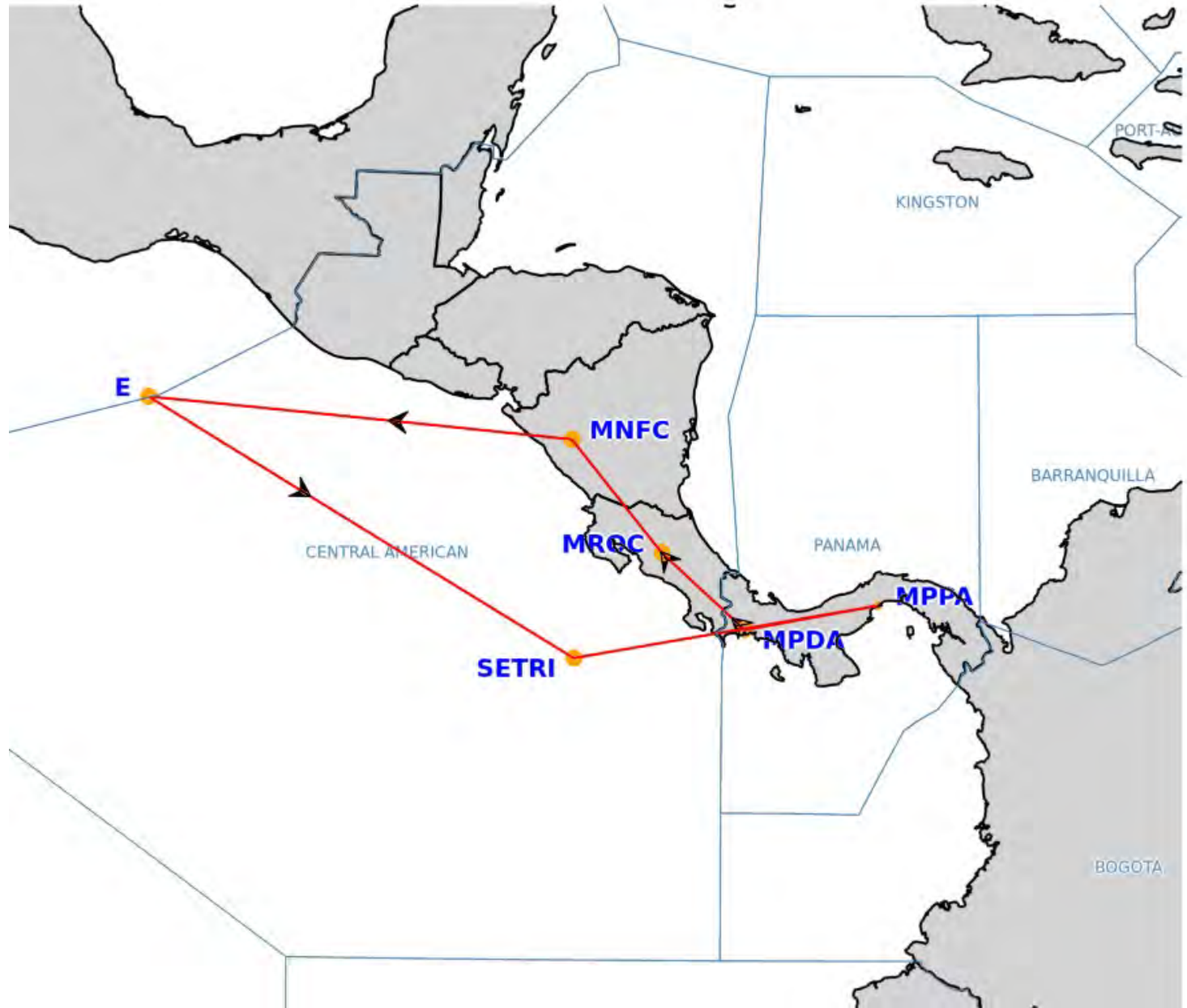
RF11 Flight Plan

Targets

- Sampling of long-range transport from ASM/WAM, similar airmass as in the Caribbean on Monday.
- Sample convective outflow from Central America.

Flight Specs

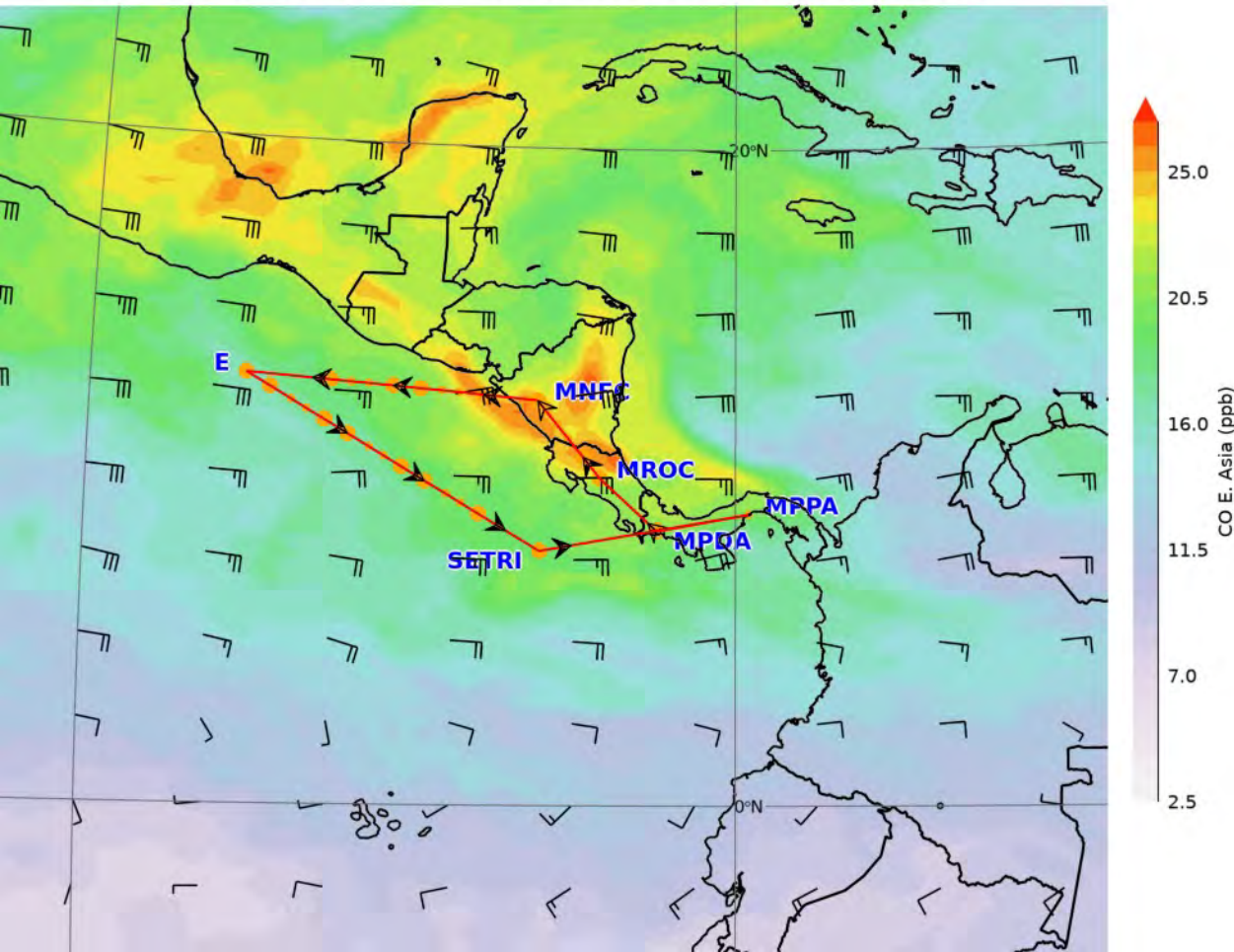
- Take off: 9:30am
- Landing time: 3:00-3:30pm
- Distance: ~2000 nm
- Duration: 5.5 - 6 hours



Upper Level Forecasts

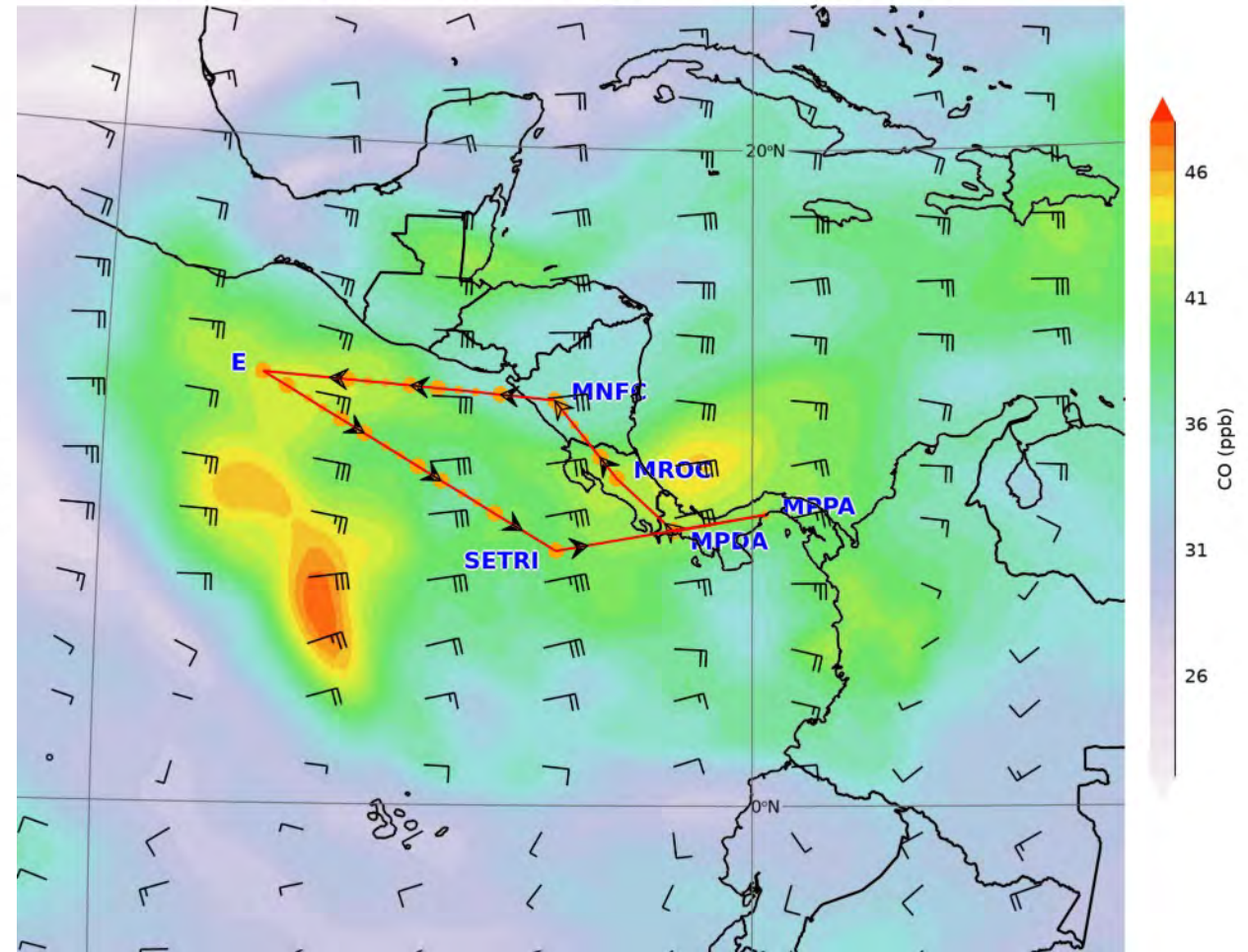
GEOS E. Asia CO

GEOS CO E. Asia 70 hPa Init: 2026090800 Valid: 2026090918



CAMS CO

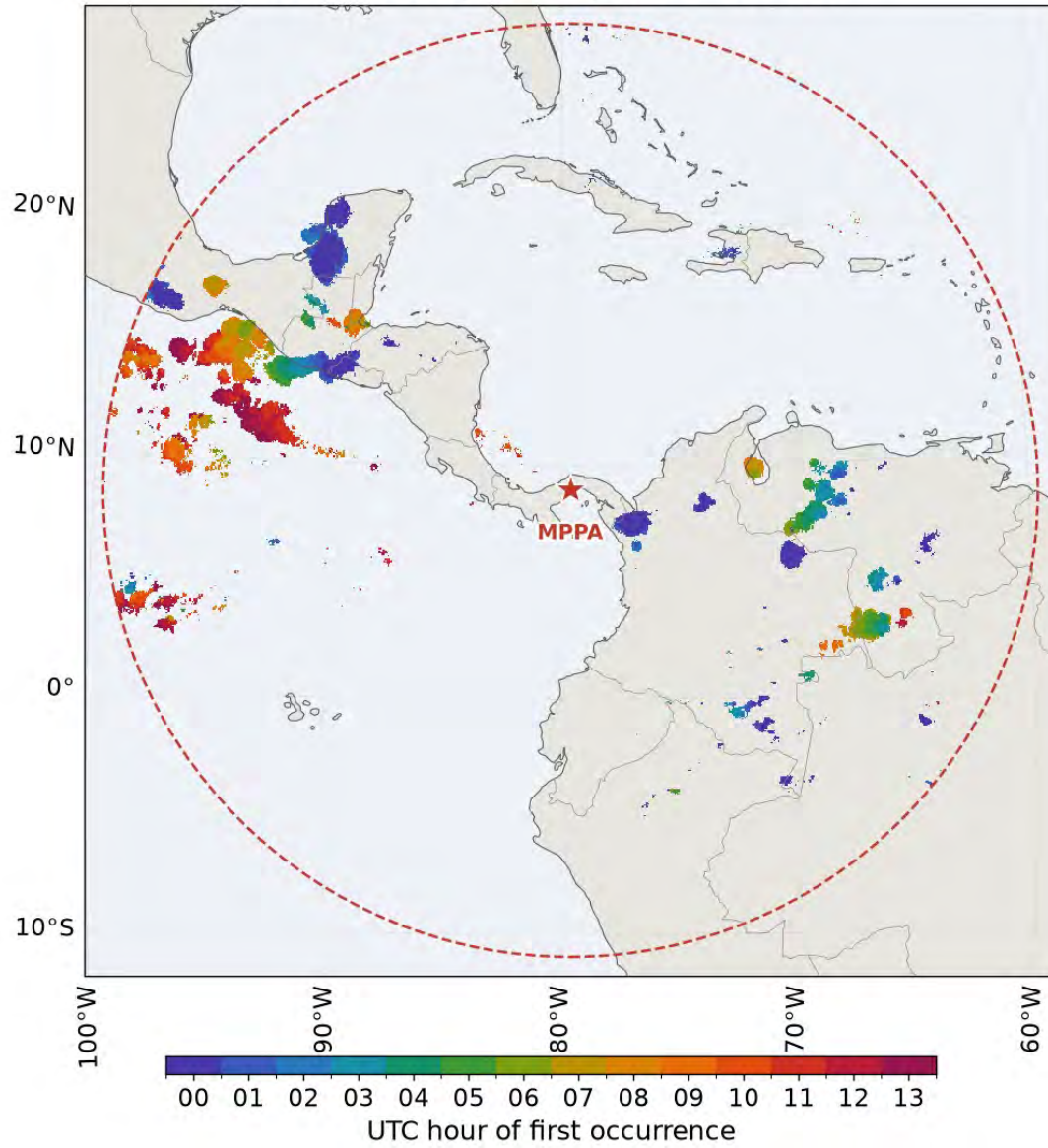
CAMS CO 83 hPa Init: 2026090800 Valid: 2026090918



Convective Outflow last night and this morning

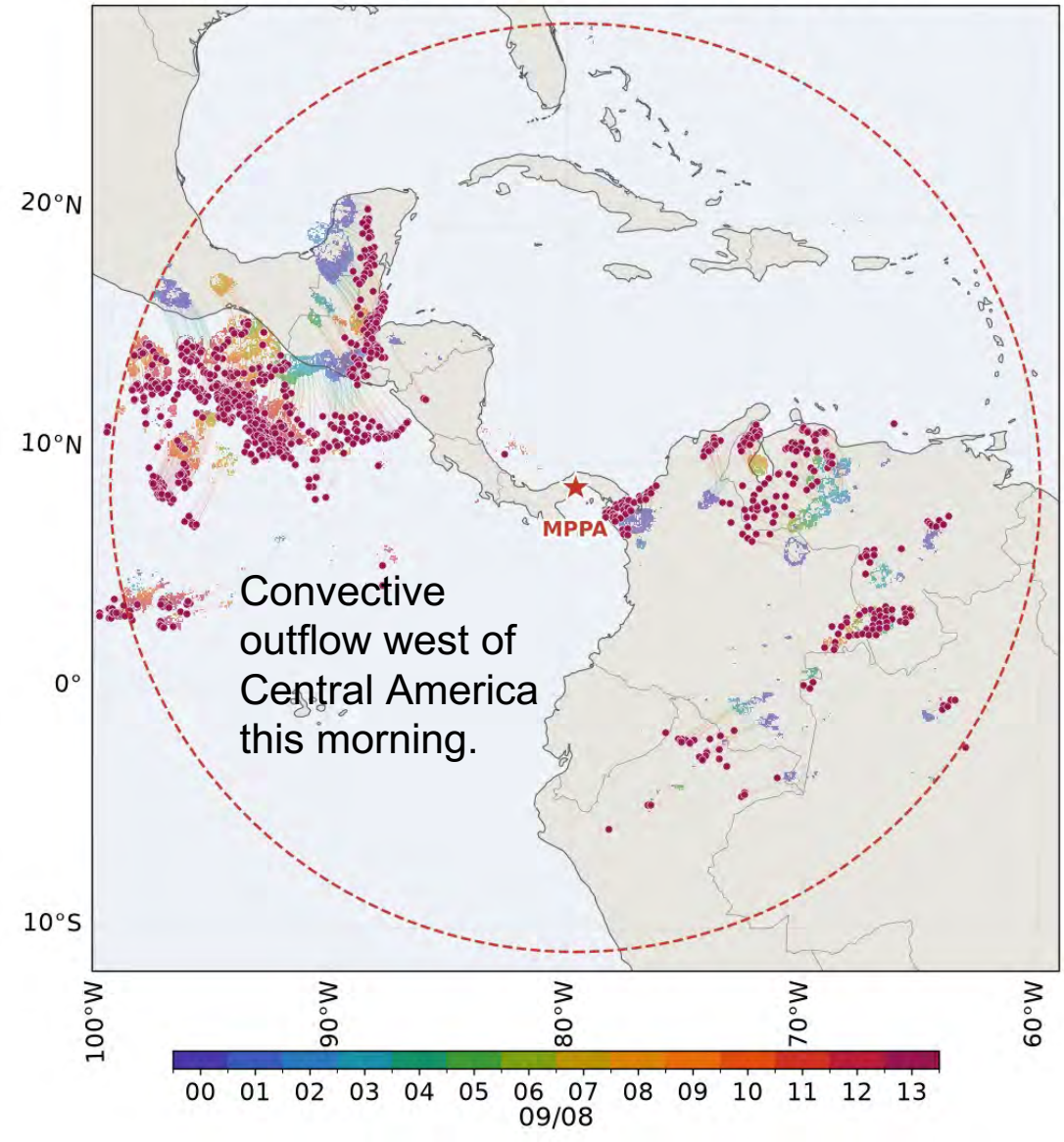
Deep convection, 2026-09-08

GOES-19 band 13 $T_B < 205$ K | 00:00 to 14:00 UTC



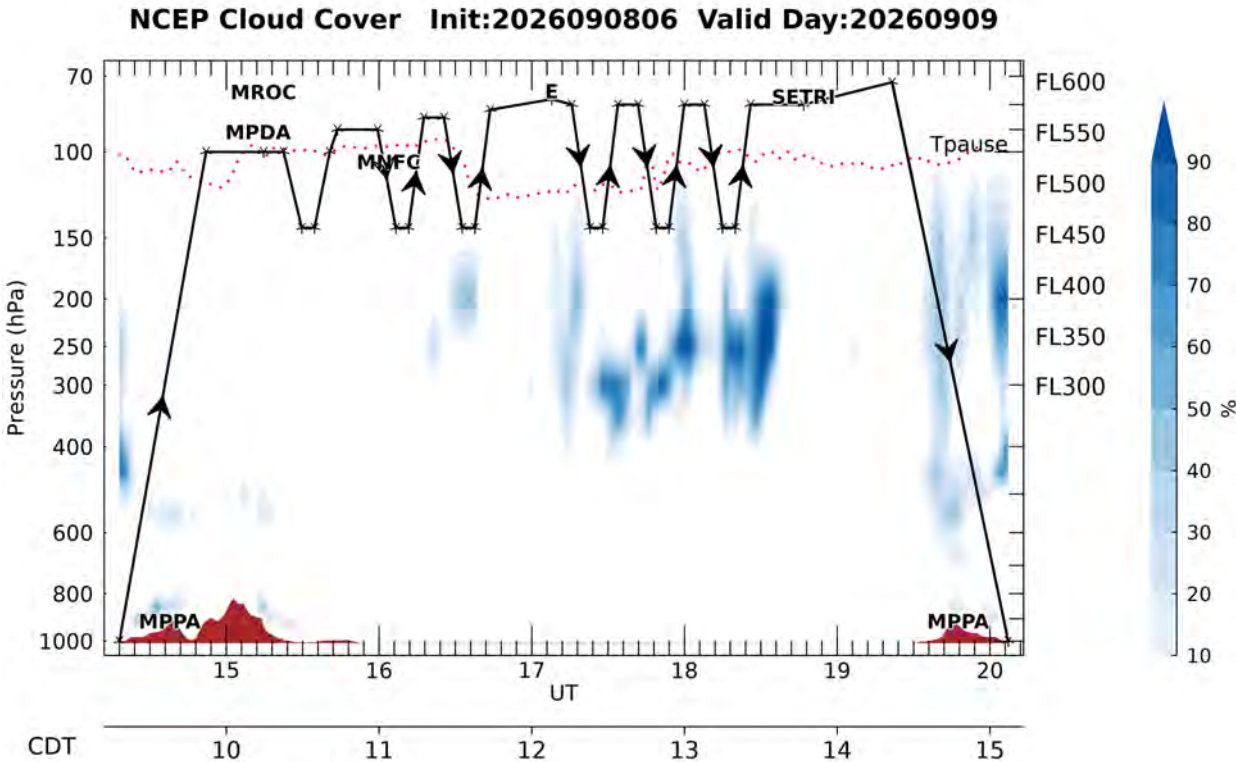
Convective outflow at 140 hPa — 9/8 14:00Z

tops 130-150 hPa | CAMS winds 09-07 00Z init, +24 to +38 h



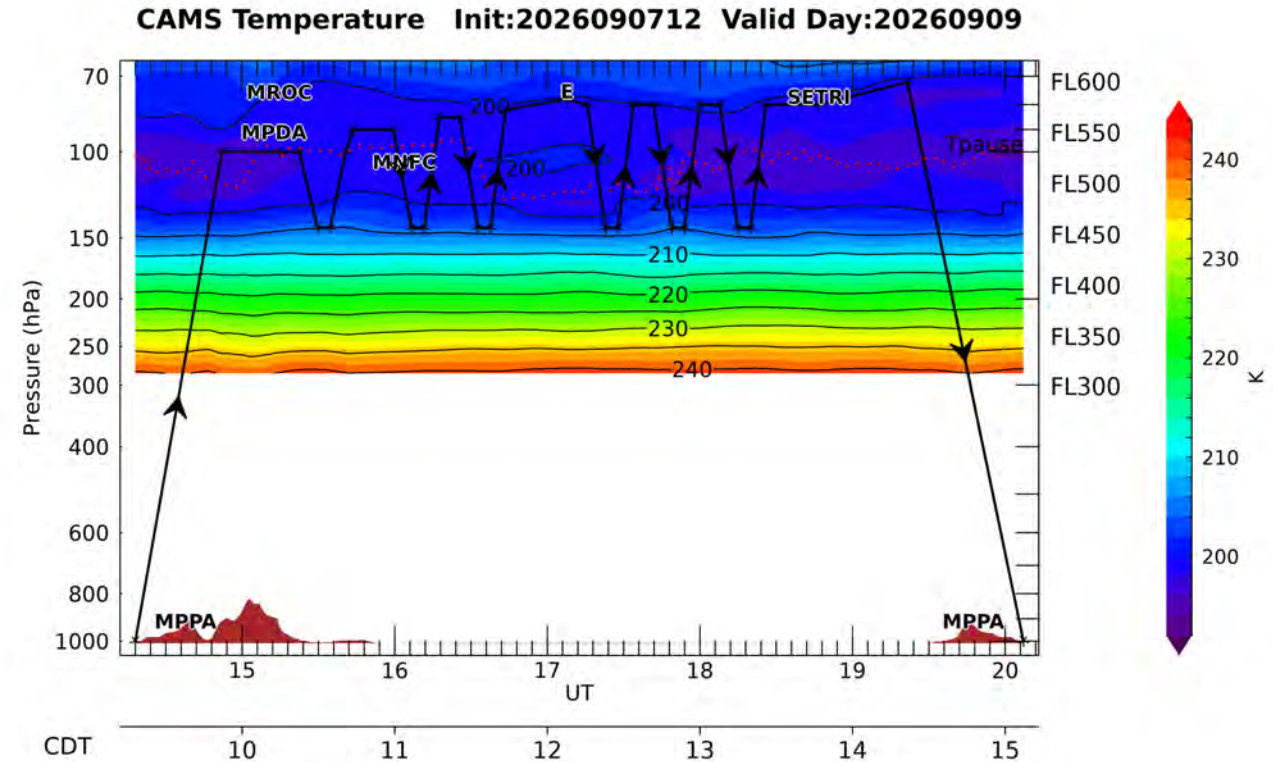
Flight Curtains of Clouds and Temperature

NCEP Clouds



Clouds up to tropopause level on some portions of flight and final descent into MPPA.

CAMS Temperature



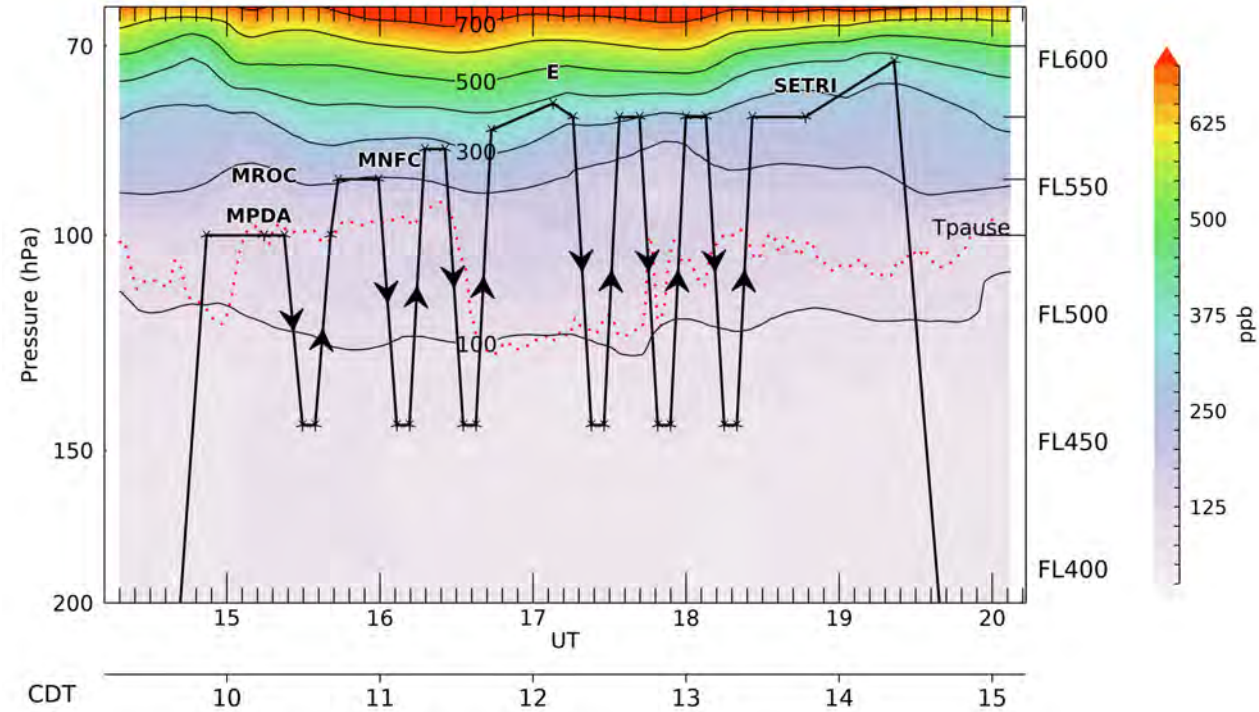
Tropopause temperatures will generally be from 195-200K.

Zoomed in Flight Curtains

CAMS Ozone

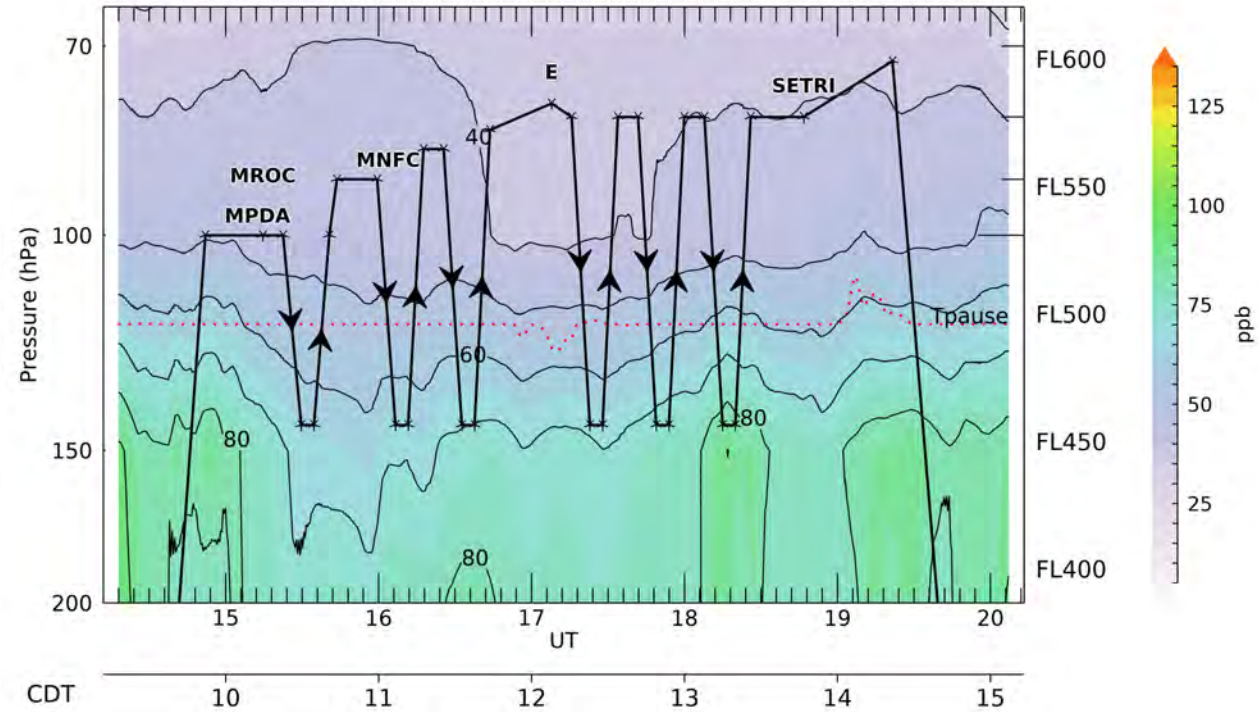
GEOS CO

CAMS Ozone Init:2026090712 Valid Day:20260909



Similar ozone gradient in lower stratosphere as we've seen on previous flights.

GEOS CO Init:2026090712 Valid Day:20260909

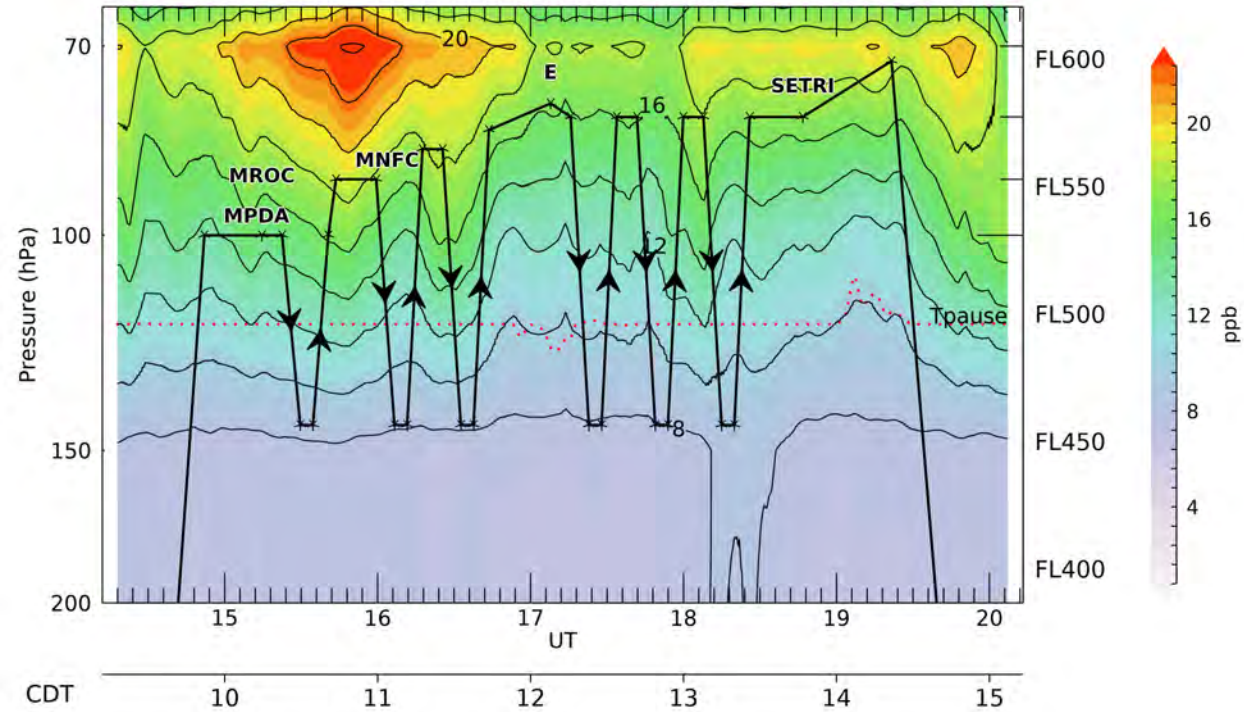


Elevated CO expected in the lower stratosphere.

Zoomed in Flight Curtains

GEOS E. Asia CO

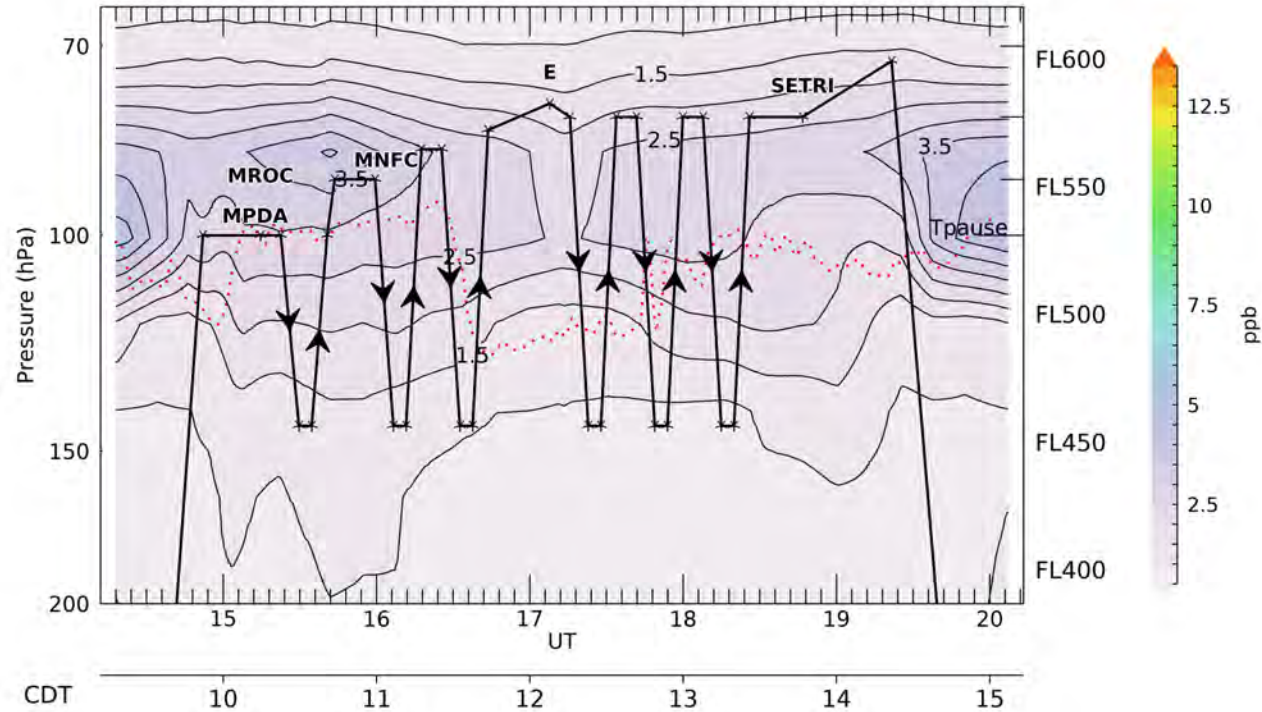
GEOS CO E. Asia Init:2026090712 Valid Day:20260909



GEOS shows ASM layer between 150-70 hPa with peak generally at 70 hPa but no levels between 100 and 70 to specify.

WACCM E. Asia CO

WACCM CO E. Asia Init:2026090600 Valid Day:20260909



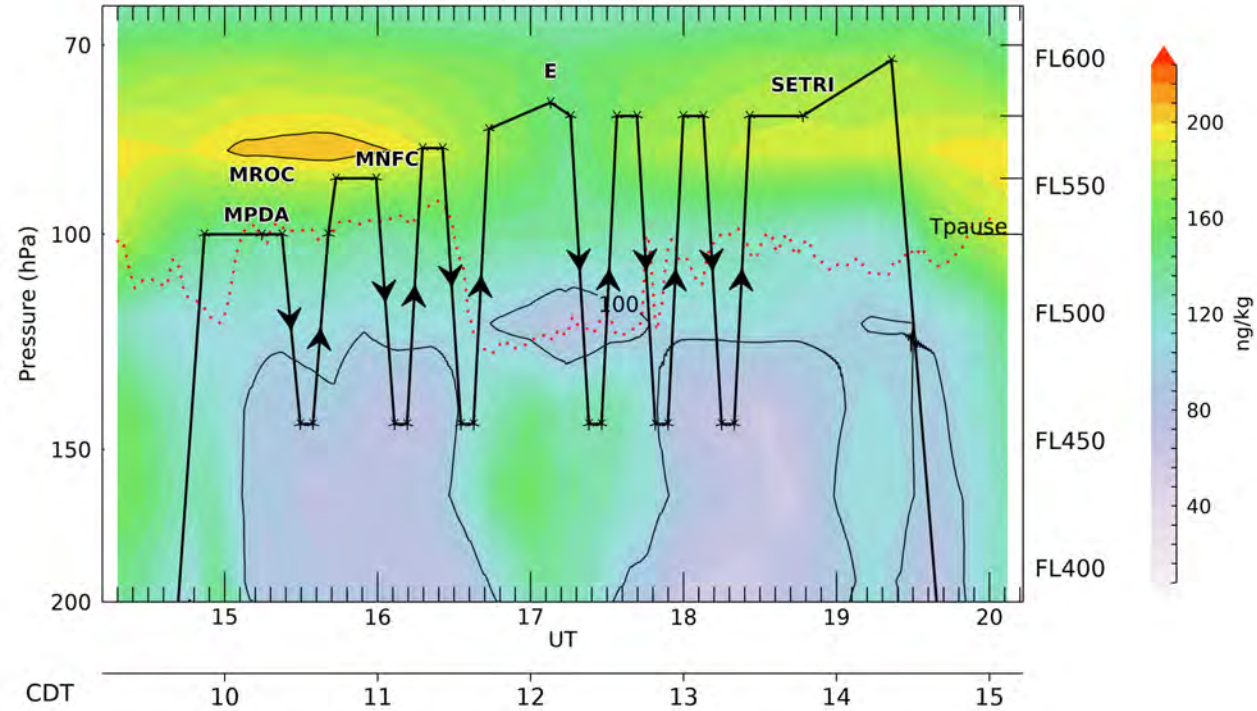
WACCM has the ASM layer from 120-80 hPa and much lower CO amounts but generally similar structure.

Zoomed in Flight Curtains

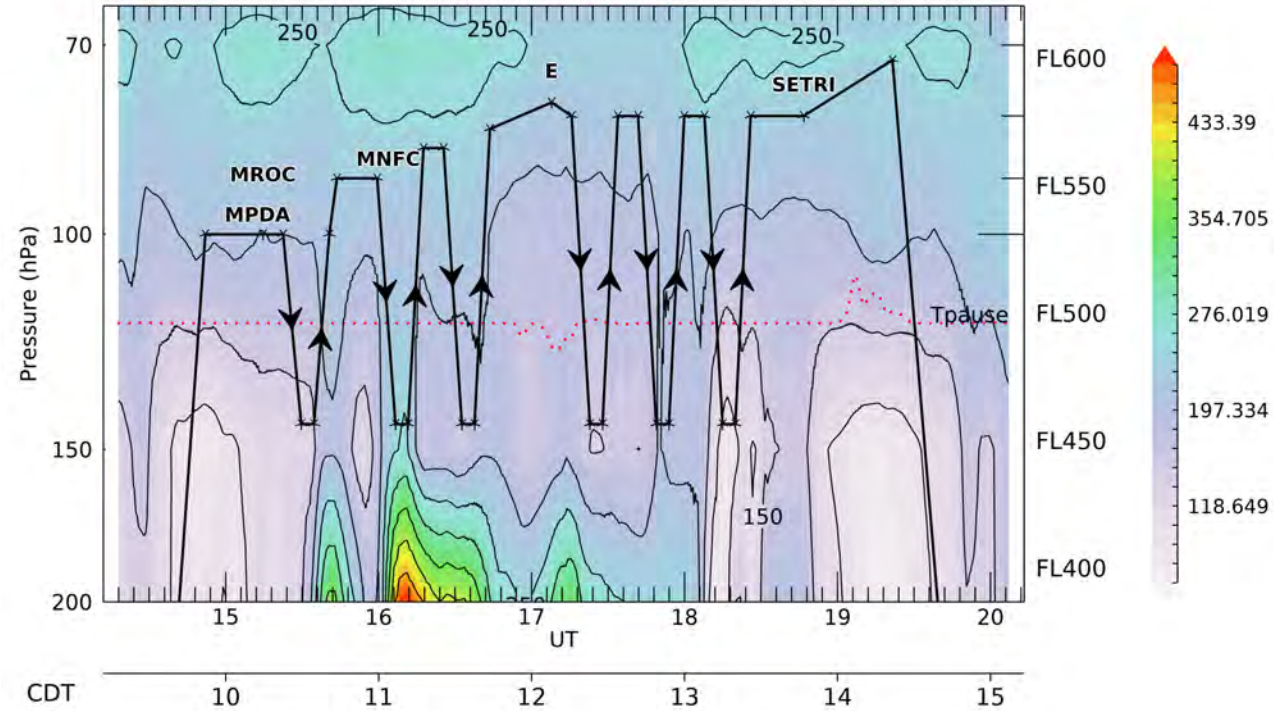
WACCM Primary Organic

GEOS Organic Carbon

WACCM POA Init:2026090600 Valid Day:20260909



GEOS Organic Carbon Init:2026090712 Valid Day:20260909



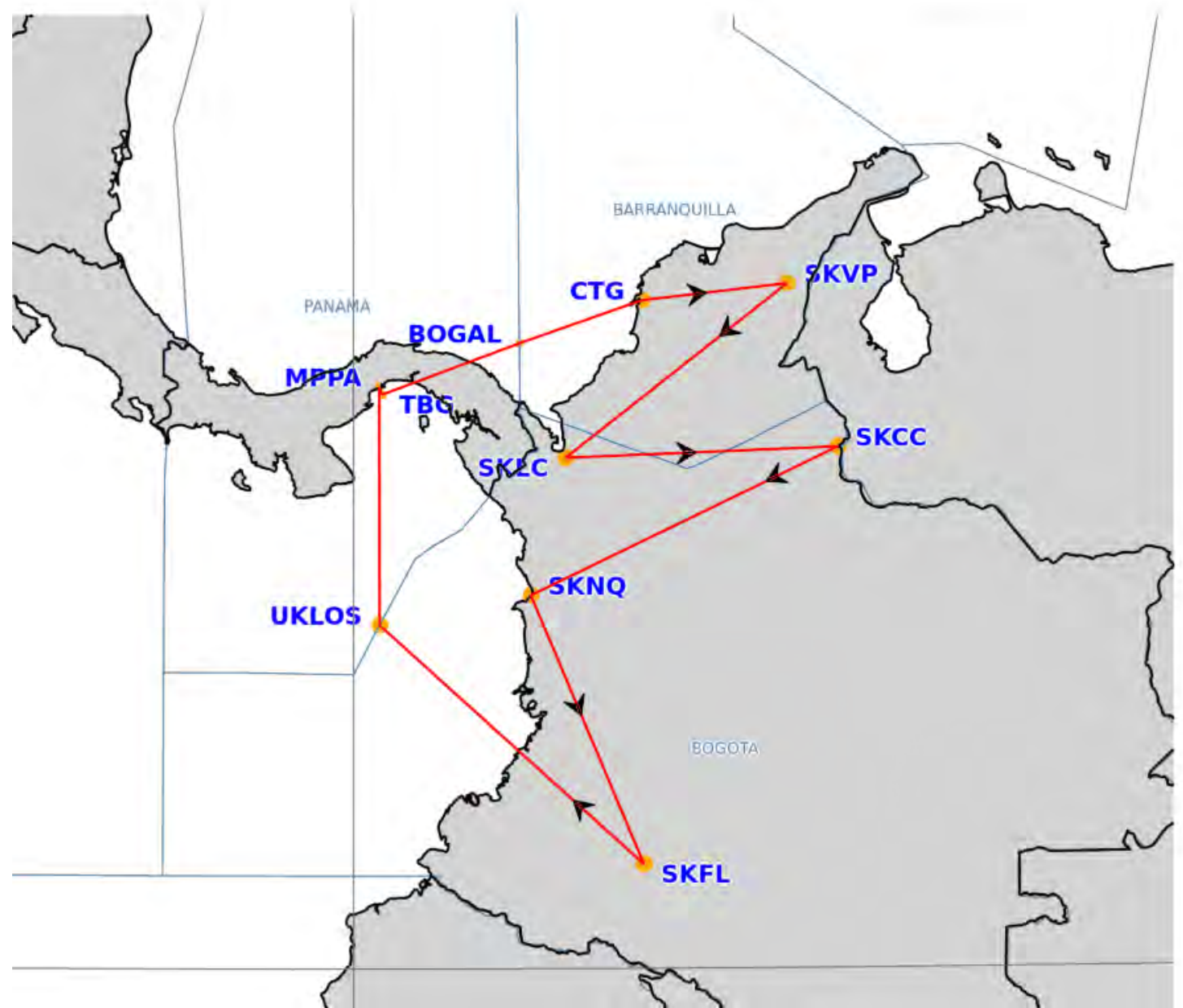
RF12 Flight Plan

Targets

- Sampling of continental convective outflow over Columbia.

Flight Specs

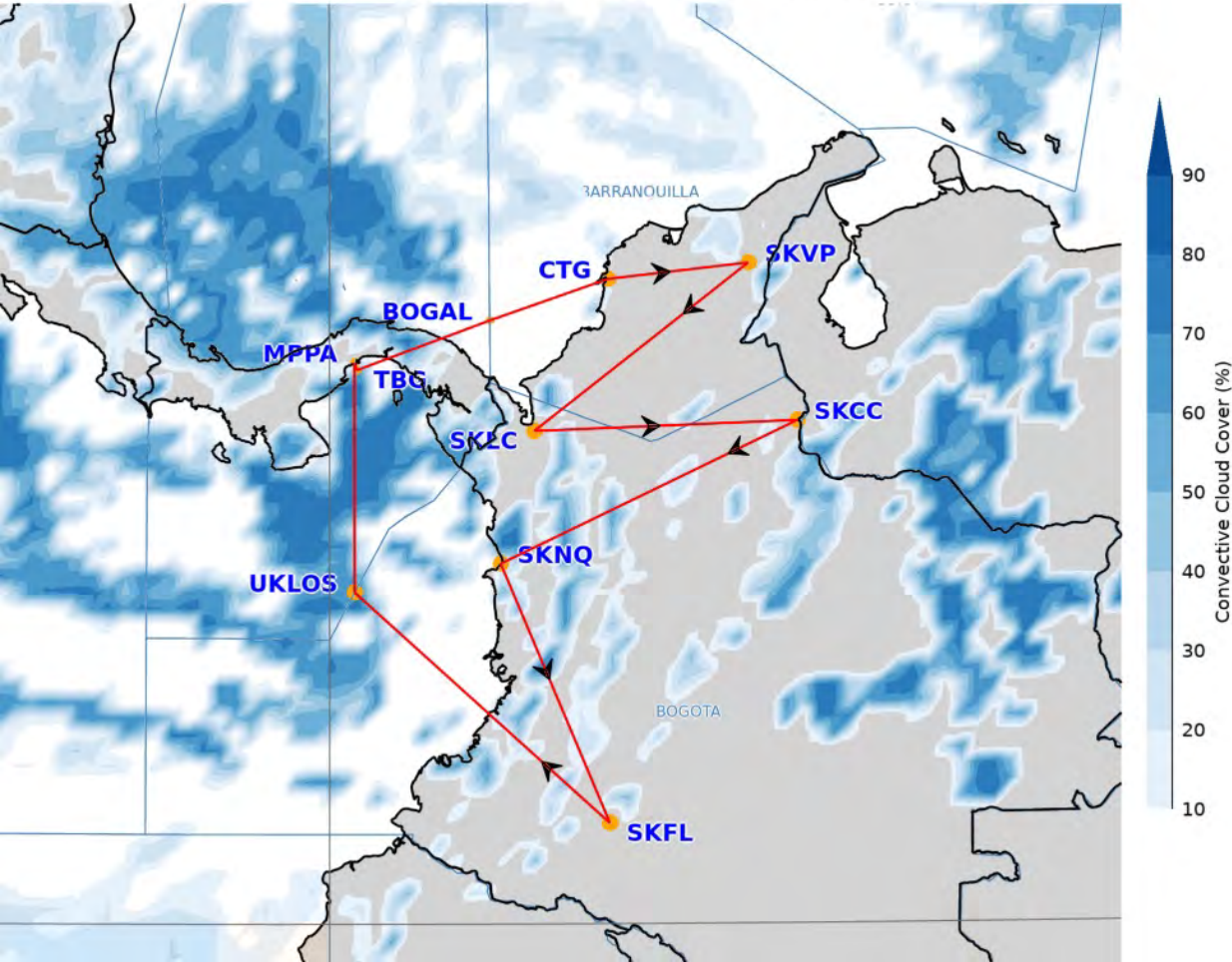
- Take off: 9:30am
- Landing time: 3:00-3:30pm
- Distance: ~2000 nm
- Duration: 5.5 - 6 hours



Convection Forecasts for Thursday 09/10

Convective Clouds

NCEP Convective Cloud Cover Init: 2026090806 Valid: 2026091015



CAPE

NCEP CAPE 100 hPa Init: 2026090806 Valid: 2026091015

