DACOM CO and CH_4 for INTEX-A

Glen Sachse
Glenn Diskin
Mario Rana
Tom Slate

Special Thanks
Blake, Blake et al.
Fried and Walega
SACRIFICIAL OFFERING
INTEX-NA
EXIT

INTEX-A Data Summary

CO

- Available for all flights except Flt 13
- Data gaps in most flights
- Precision: 2 ppb or 2%
- Accuracy: NOAA/CMDL standards

CH_4

- Available for flights 18, 19, 20
- Some data available for flights 5, 7, 8, 9, 12
- Precision: ~0.5%
- Accuracy: NOAA/CMDL standards

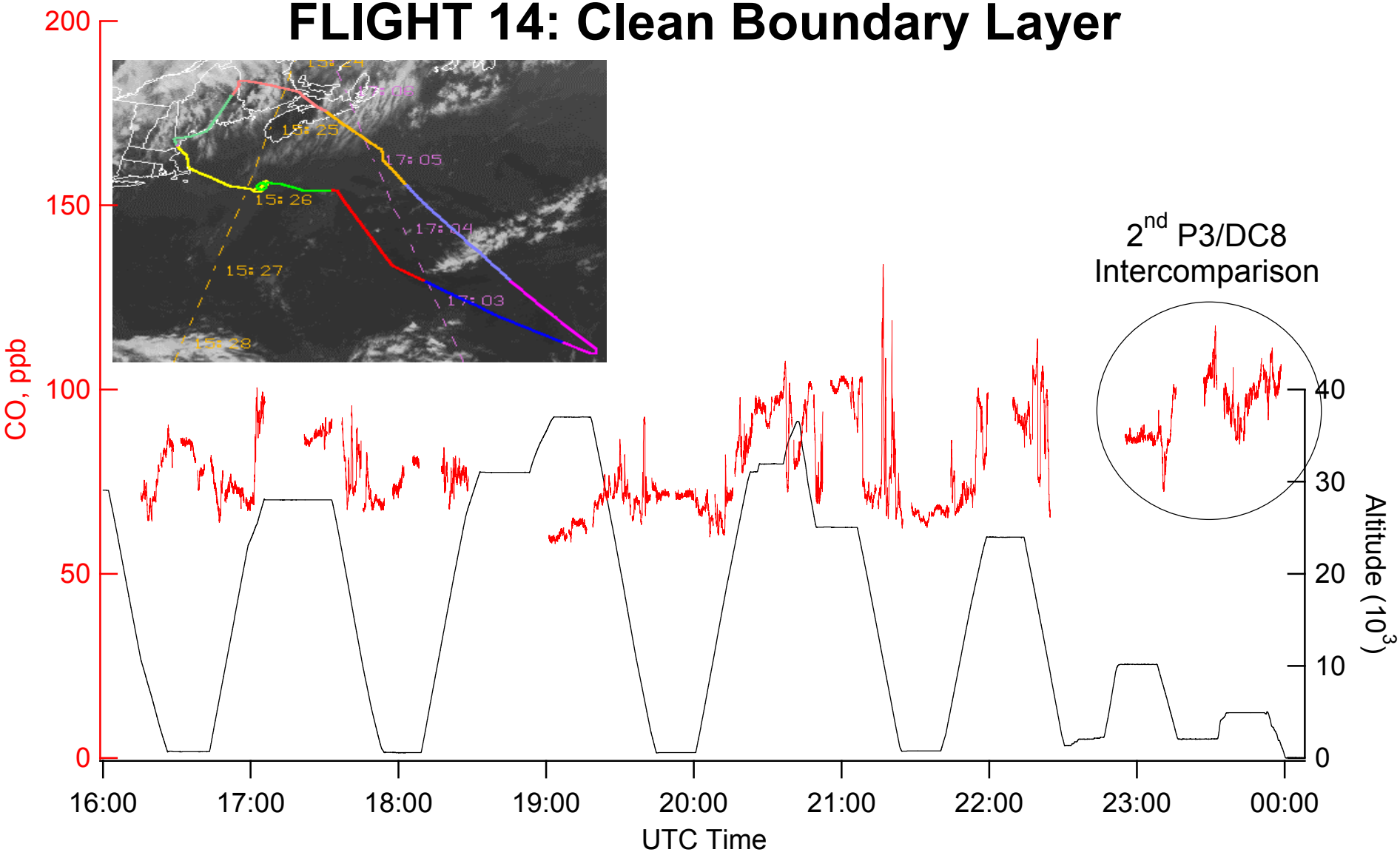
NOAA/CMDL CO Scales

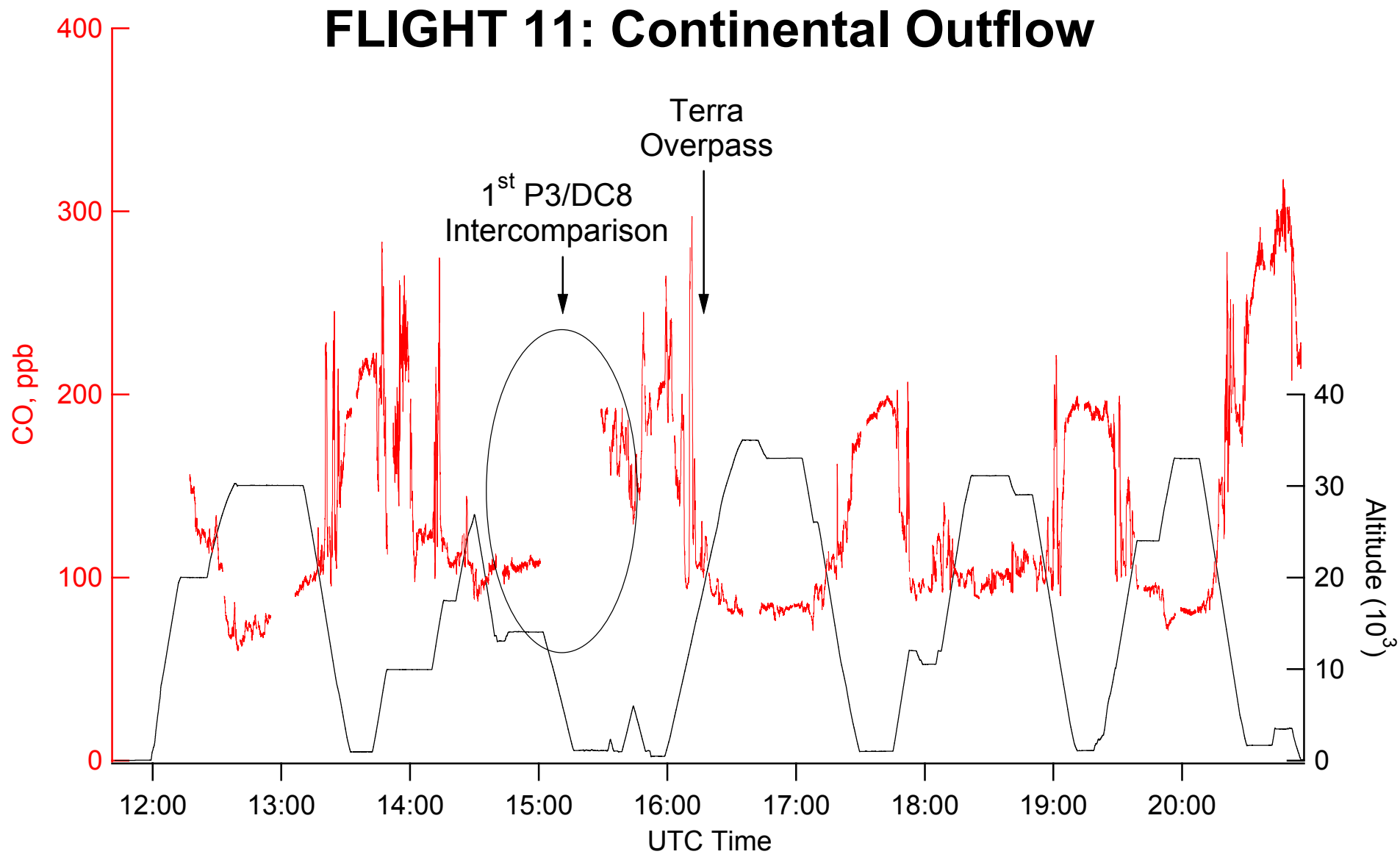
- NOAA/CMDL Calibration Cylinders provided with two CO calibration values
  1. RGA value – based on HgO detector
  2. VUVRF value – based on Vacuum UV resonance fluorescence detector

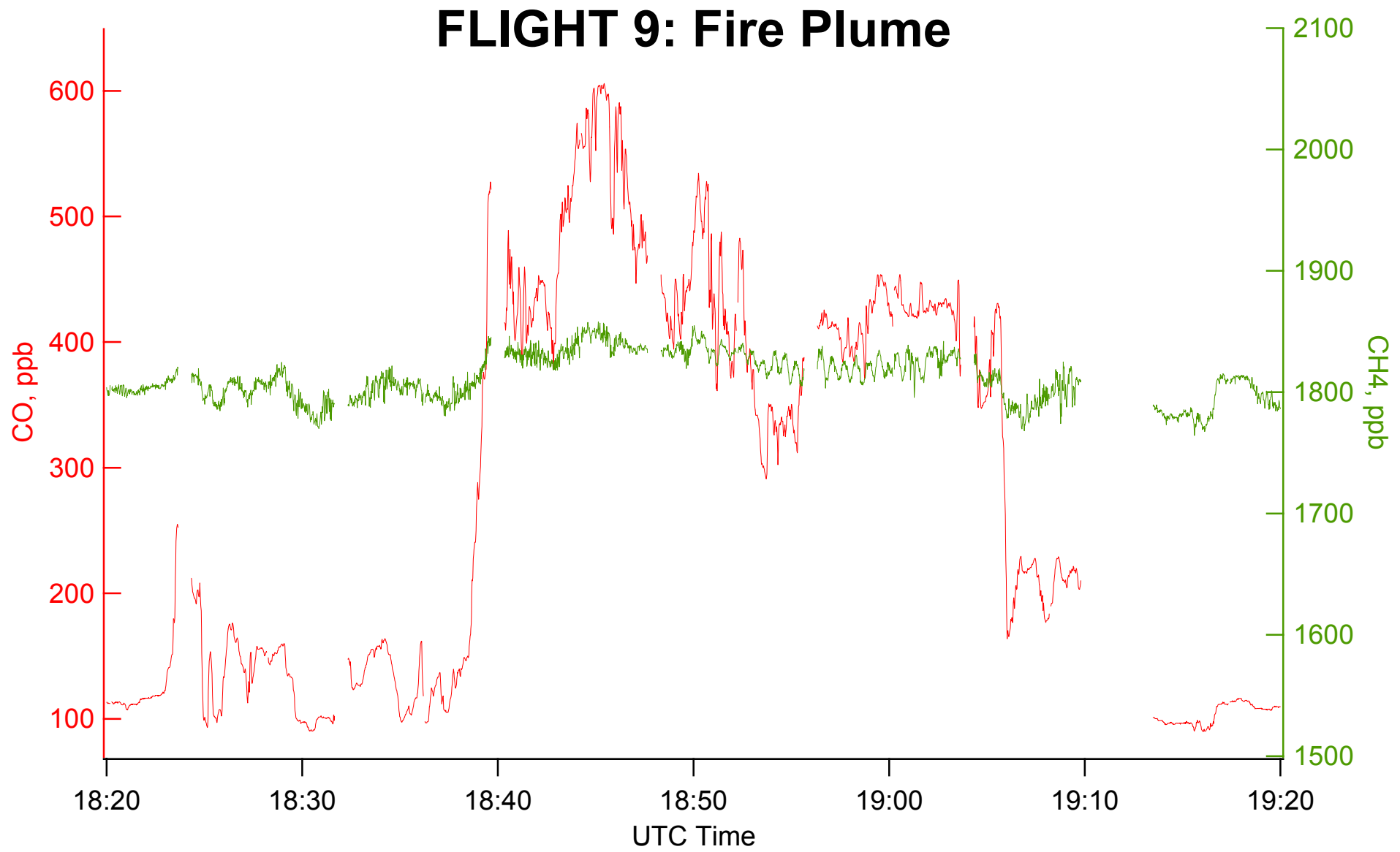
- VUVRF value is <u>approximately</u> 5% greater than RGA

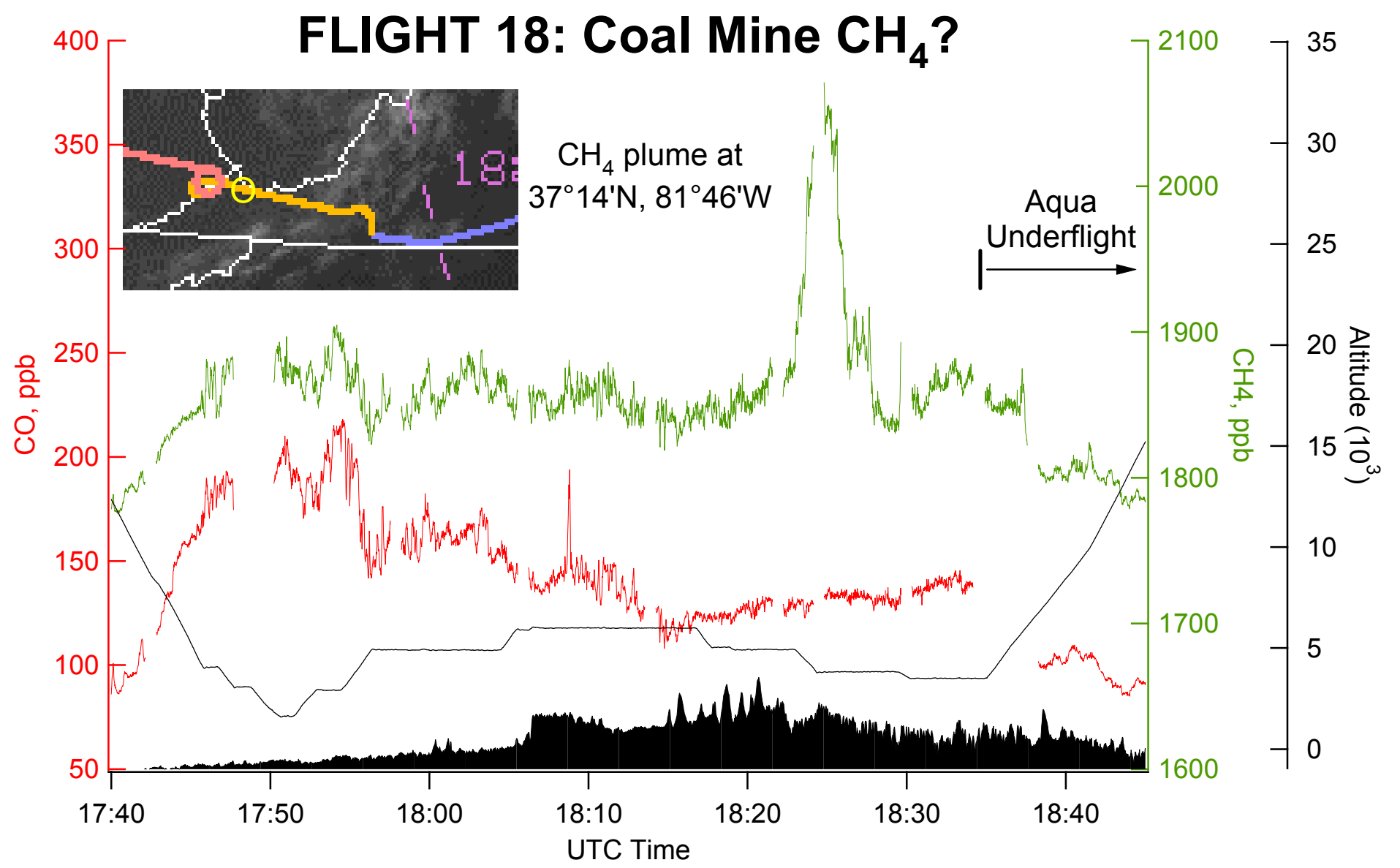
- Starting with INTEX-A, DACOM CO data will use the new VUVRF value

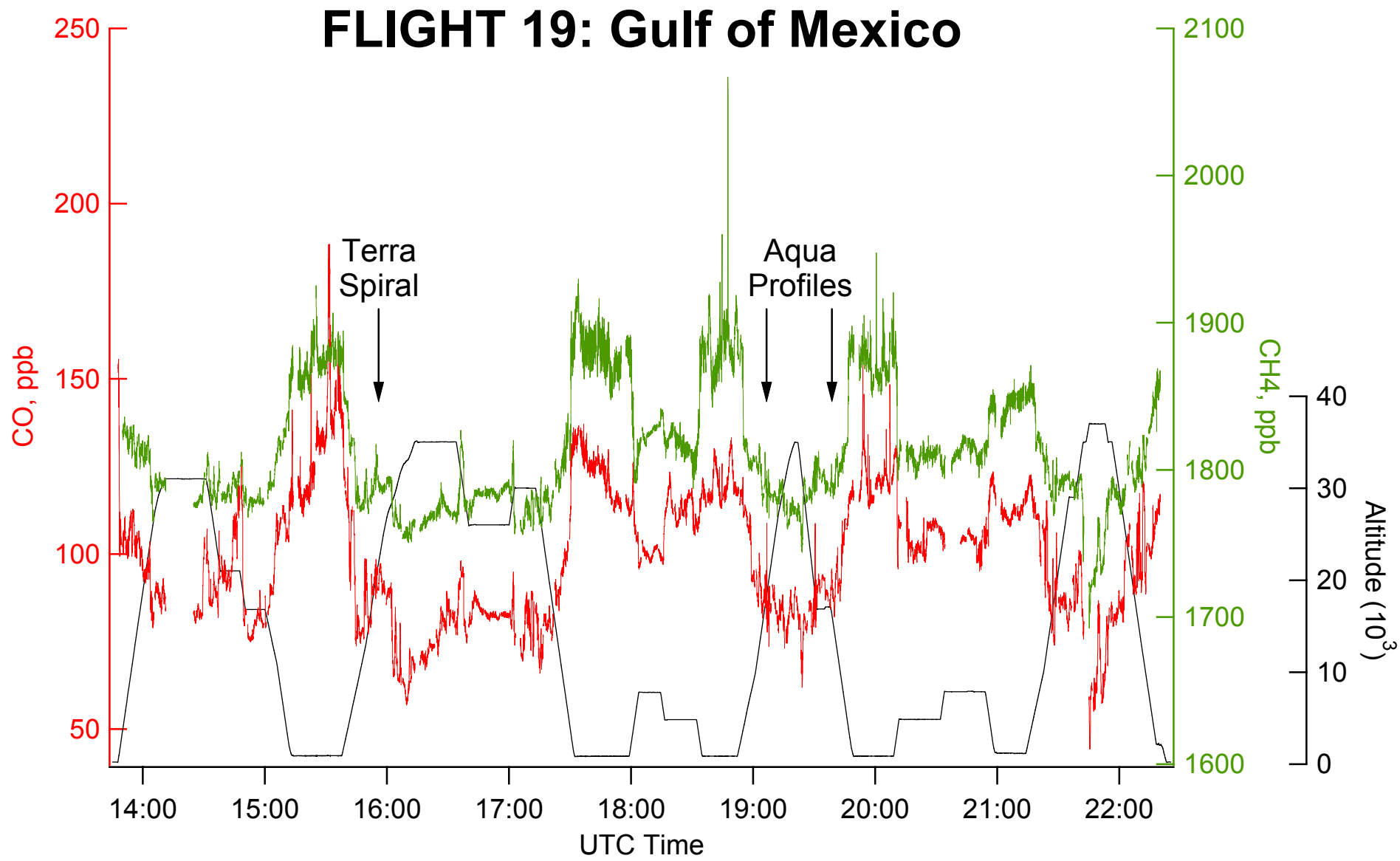
FLIGHT 14: Clean Boundary Layer



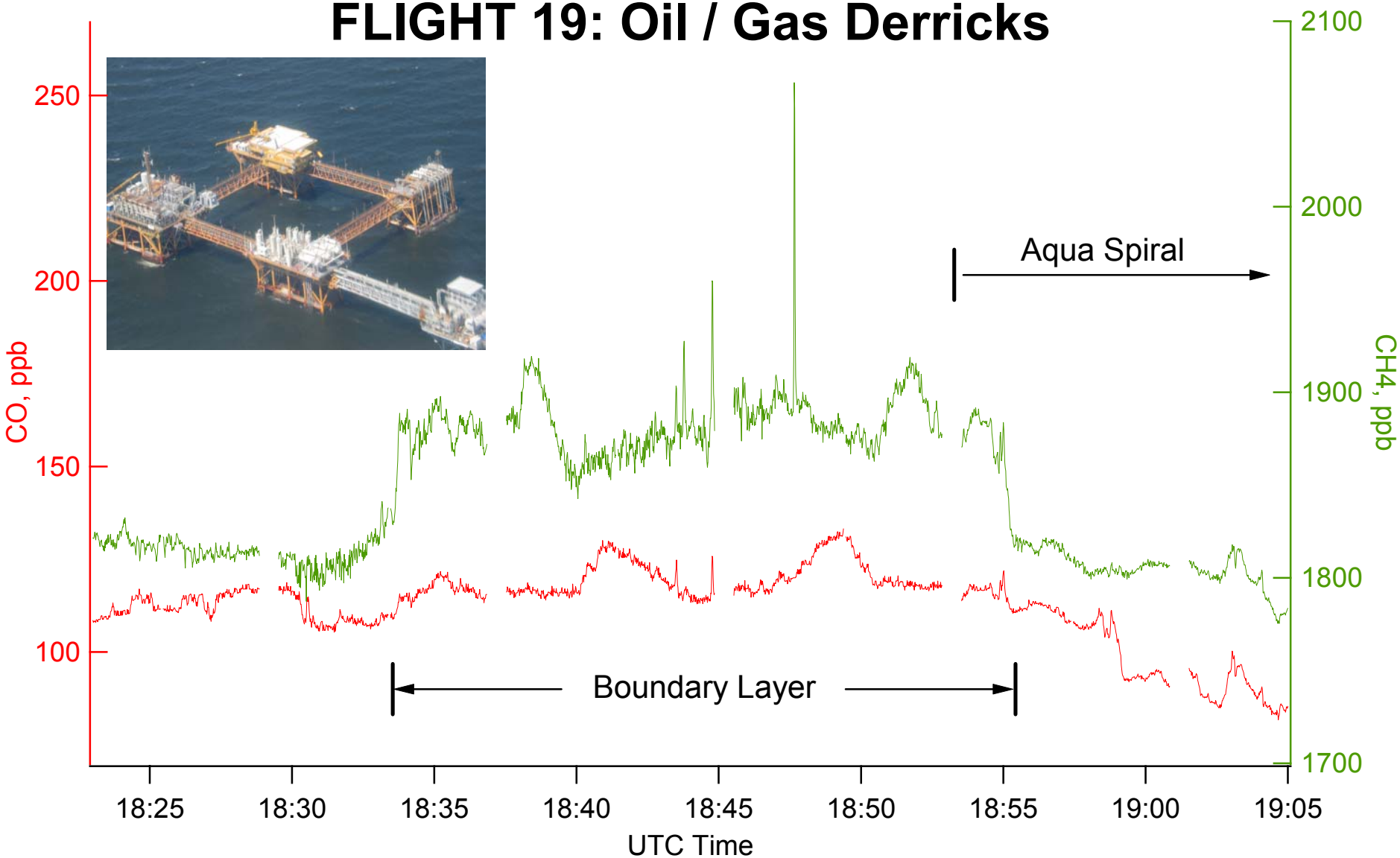

FLIGHT 11: Continental Outflow
Terra
Overpass
1st P3/DC8
Intercomparison
CO, ppb
400
300
200
100
0
Altitude (10^3)
40
30
20
10
0
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
UTC Time

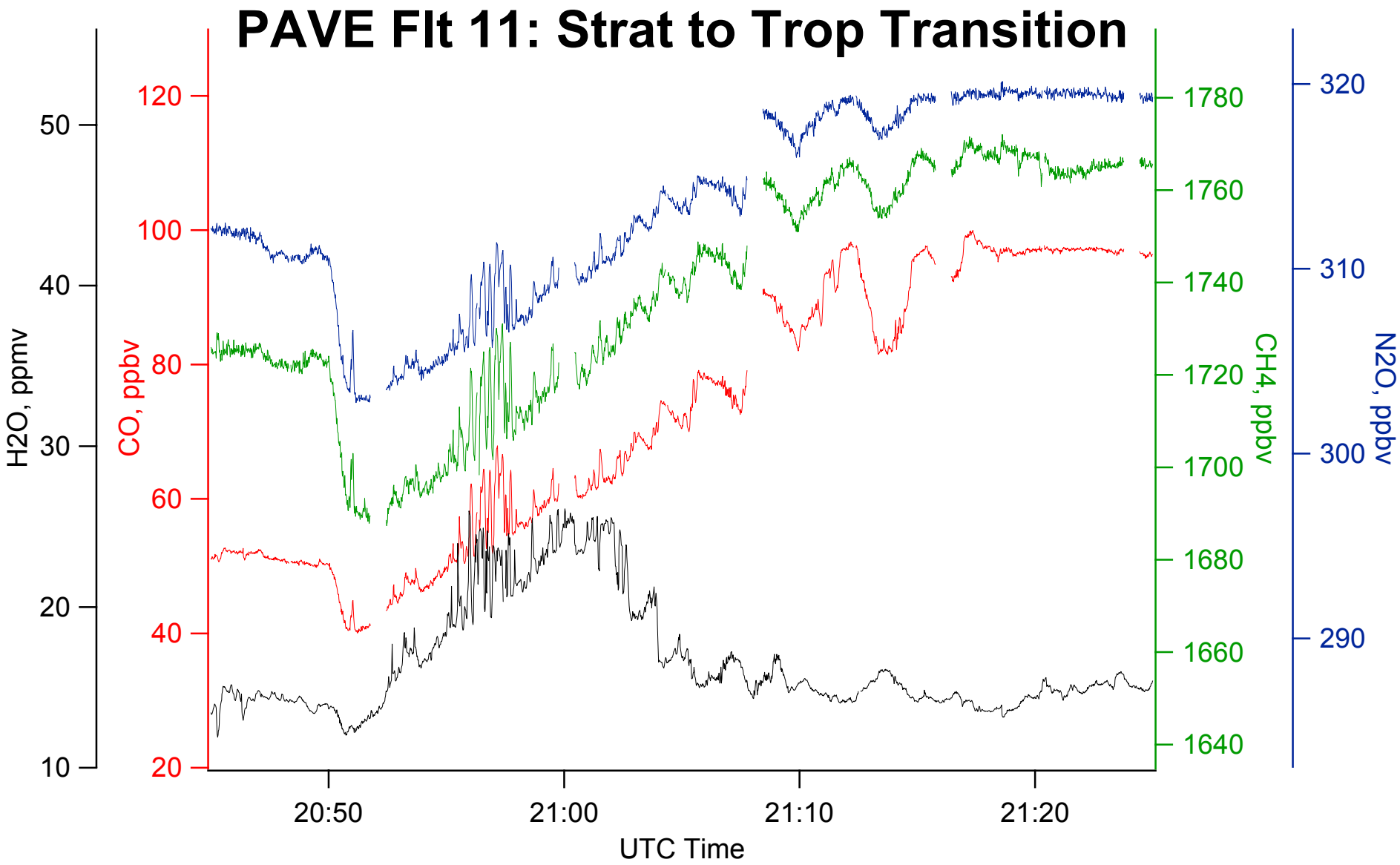

FLIGHT 9: Fire Plume
CO, ppb
600
500
400
300
200
100
CH4, ppb
2100
2000
1900
1800
1700
1600
1500
18:20
18:30
18:40
18:50
19:00
19:10
19:20
UTC Time

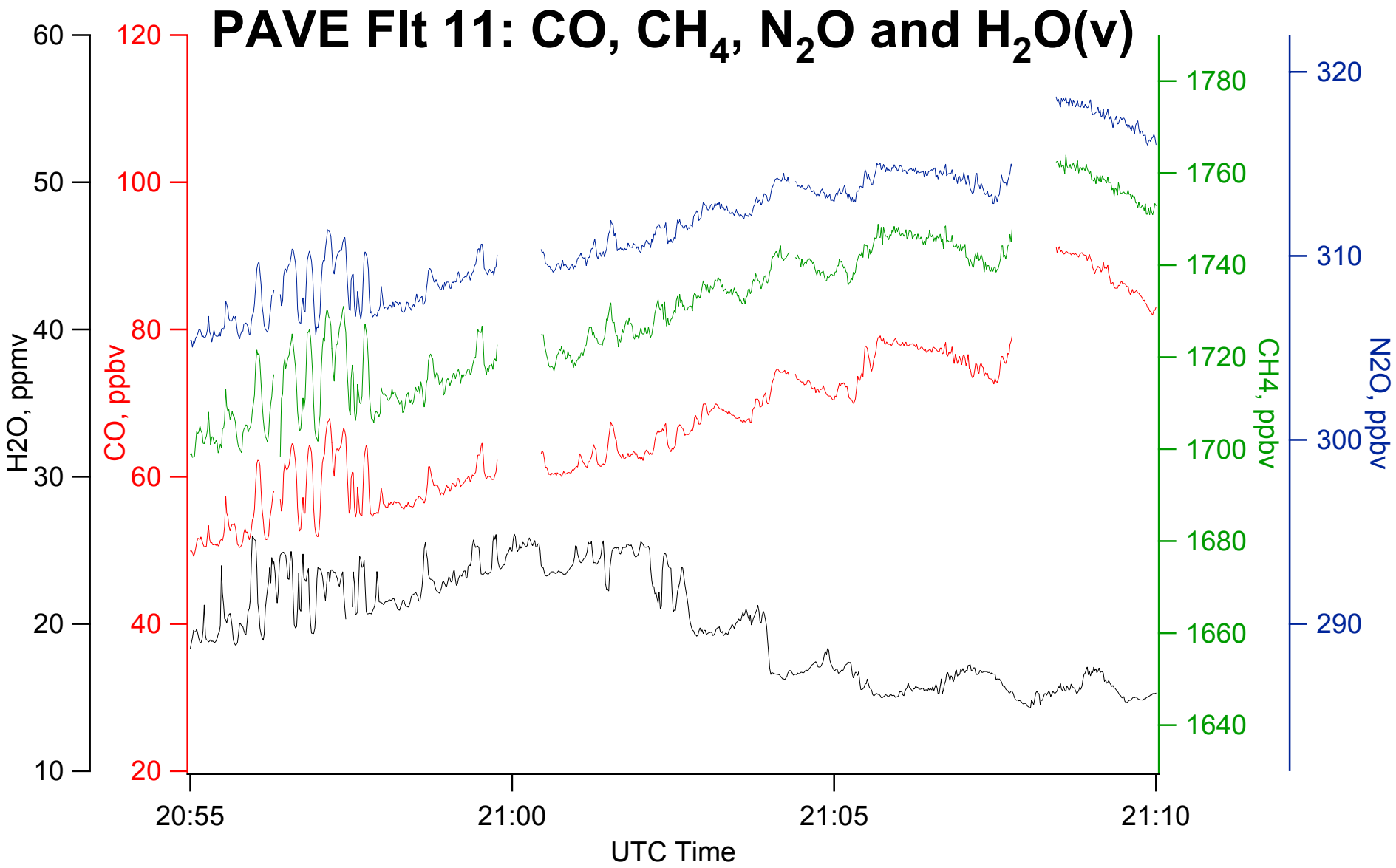

FLIGHT 18: Coal Mine CH4?
CH4 plume at
37°14'N, 81°46'W
Aqua
Underflight
CO, ppb
CH4, ppb
Altitude (10^3)
UTC Time
400
350
300
250
200
150
100
50
2100
2000
1900
1800
1700
1600
35
30
25
20
15
10
5
0
17:40
17:50
18:00
18:10
18:20
18:30
18:40


FLIGHT 19: Gulf of Mexico
Terra
Spiral
Aqua
Profiles
CO, ppb
CH4, ppb
Altitude (10^3)
UTC Time
250
200
150
100
50
2100
2000
1900
1800
1700
1600
40
30
20
10
0
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00

FLIGHT 19: Oil / Gas Derricks




PAVE Flt 11: Strat to Trop Transition
H2O, ppmv
CO, ppbv
CH4, ppbv
N2O, ppbv
UTC Time
20:50
21:00
21:10
21:20
10
20
30
40
50
20
40
60
80
100
120
1640
1660
1680
1700
1720
1740
1760
1780
290
300
310
320


PAVE Flt 11: CO, CH4, N2O and H2O(v)
H2O, ppmv
CO, ppbv
CH4, ppbv
N2O, ppbv
60
50
40
30
20
10
120
100
80
60
40
20
1780
1760
1740
1720
1700
1680
1660
1640
320
310
300
290
20:55
21:00
21:05
21:10
UTC Time