Ozone during TORERO – Measurement, distributions, and boundary conditions

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And

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The scientific results and conclusions, as well as any views or opinions expressed herein, are those of the author(s) and do not necessarily reflect the views of NOAA or the Department of Commerce.

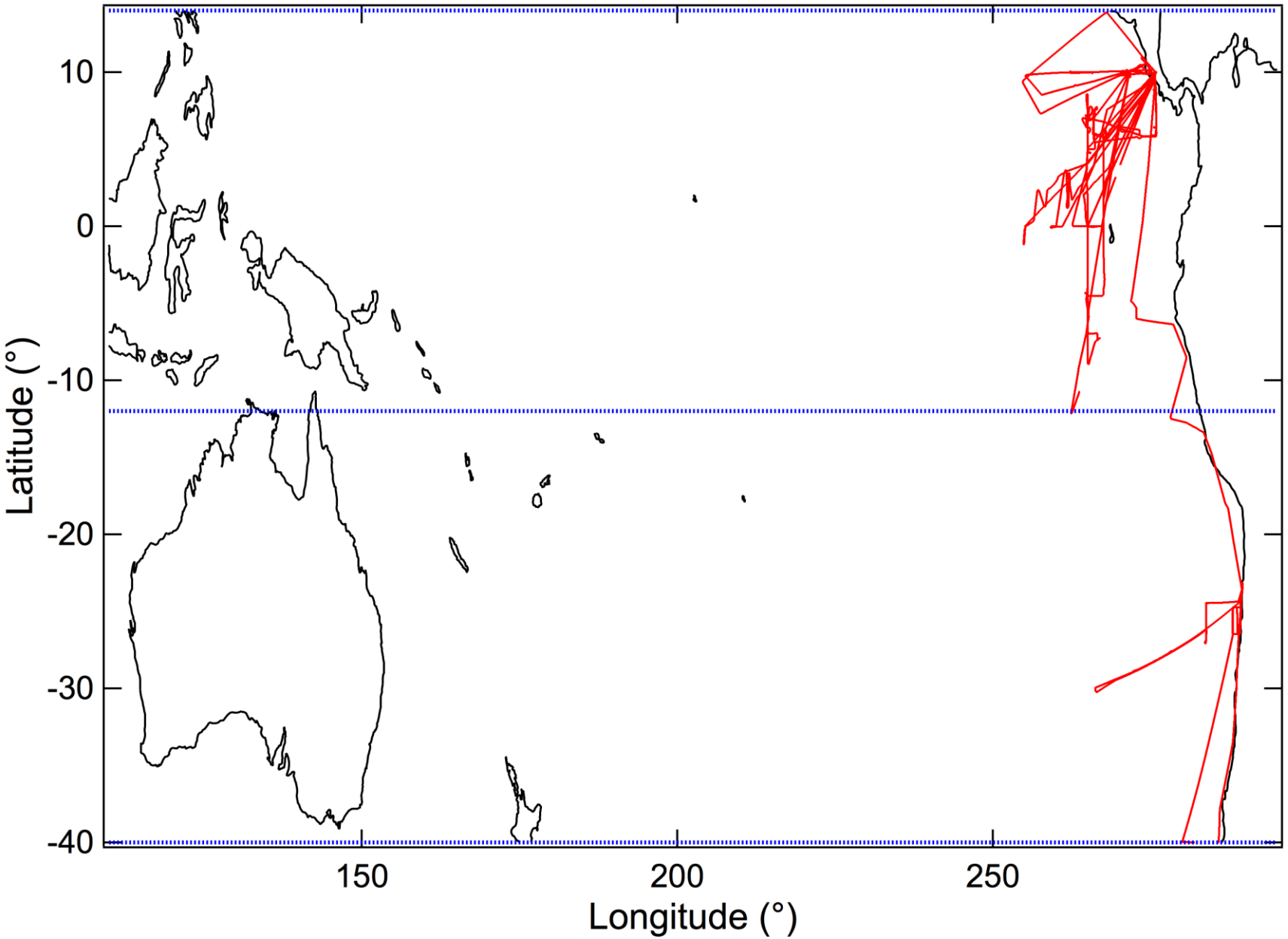
O_3 data summary

- No data for ferry flight 1 and research flights 1 – 3
  - Leaks in the sample line, data not recoverable

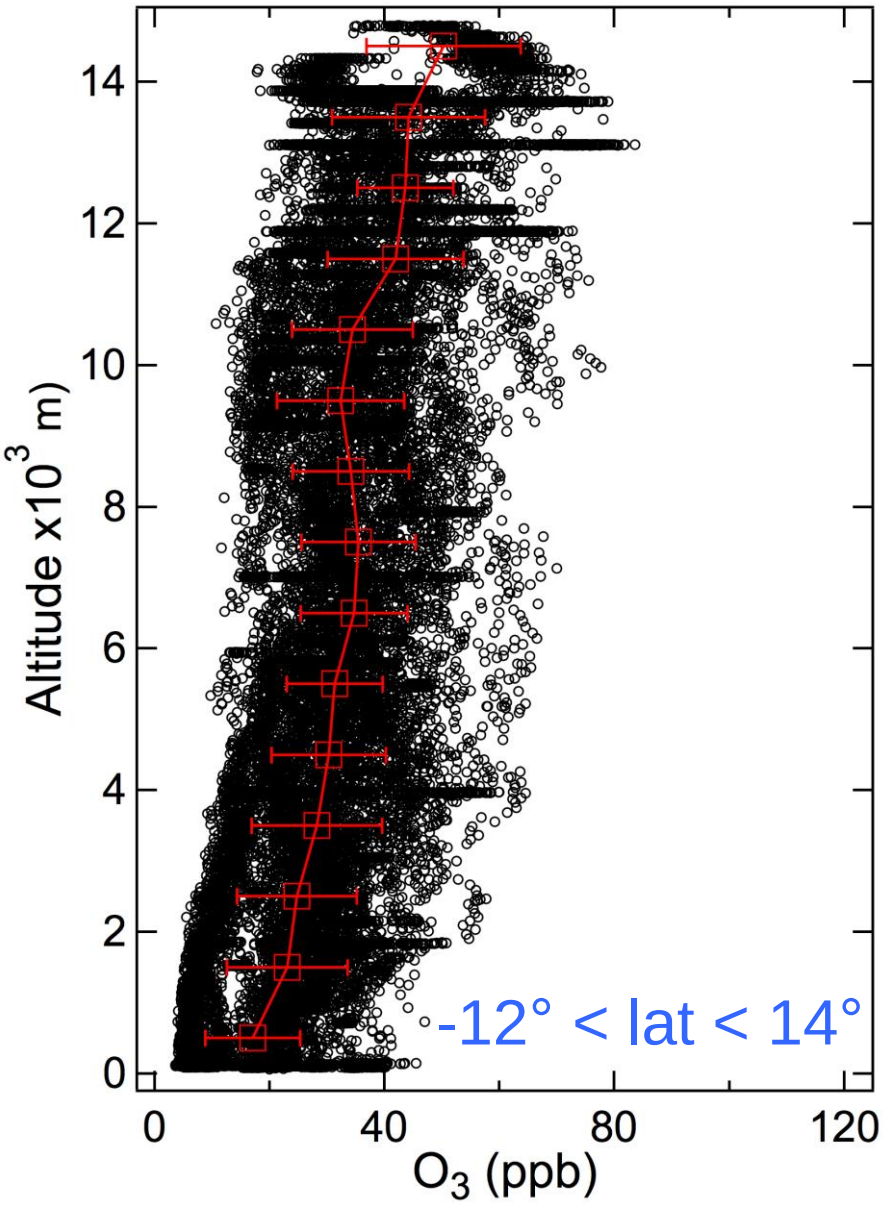
- No data for the 2nd half of research flight 13 (20120219)
  - Instrument was operational, but disk was full
  - 10-s data may be recovered if needed

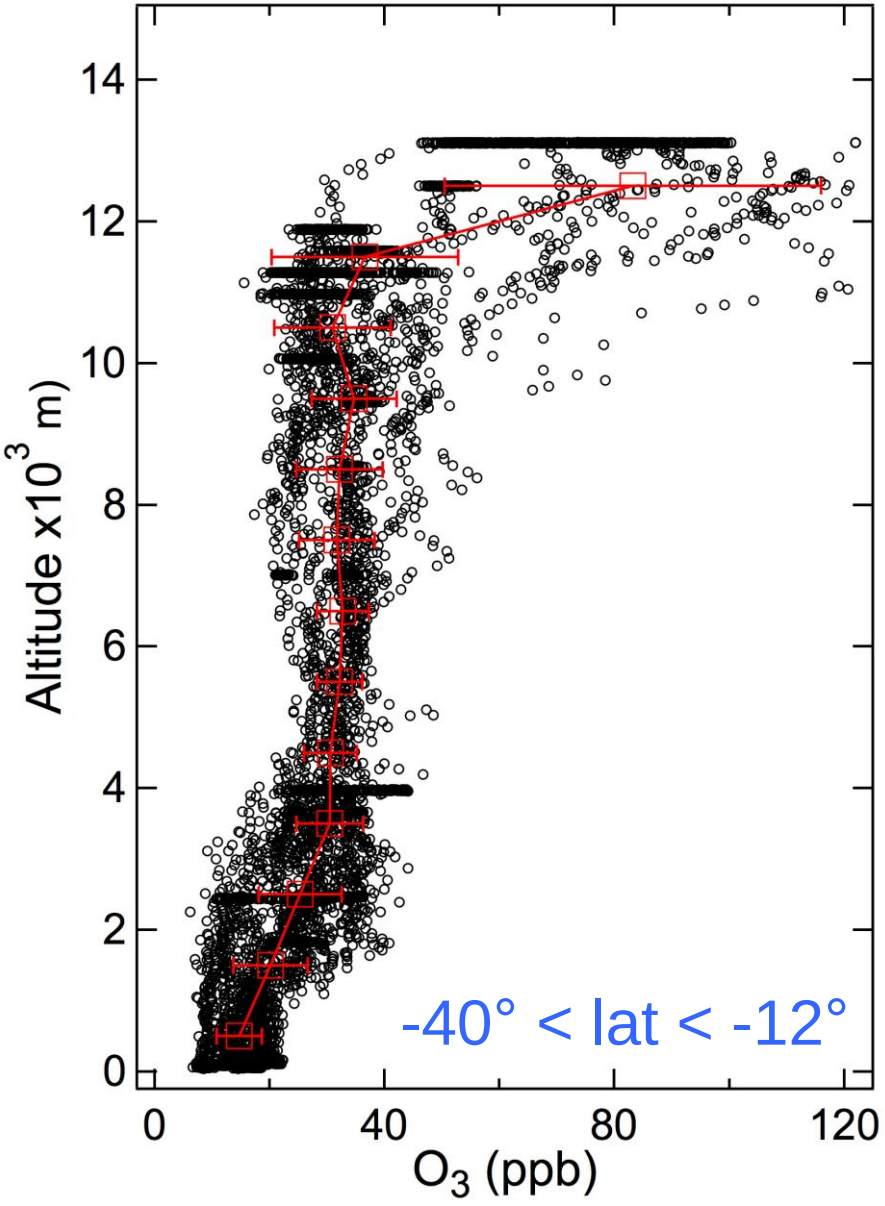
- Data for other flights are all final

TORERO flight paths



TORERO O_3 summary

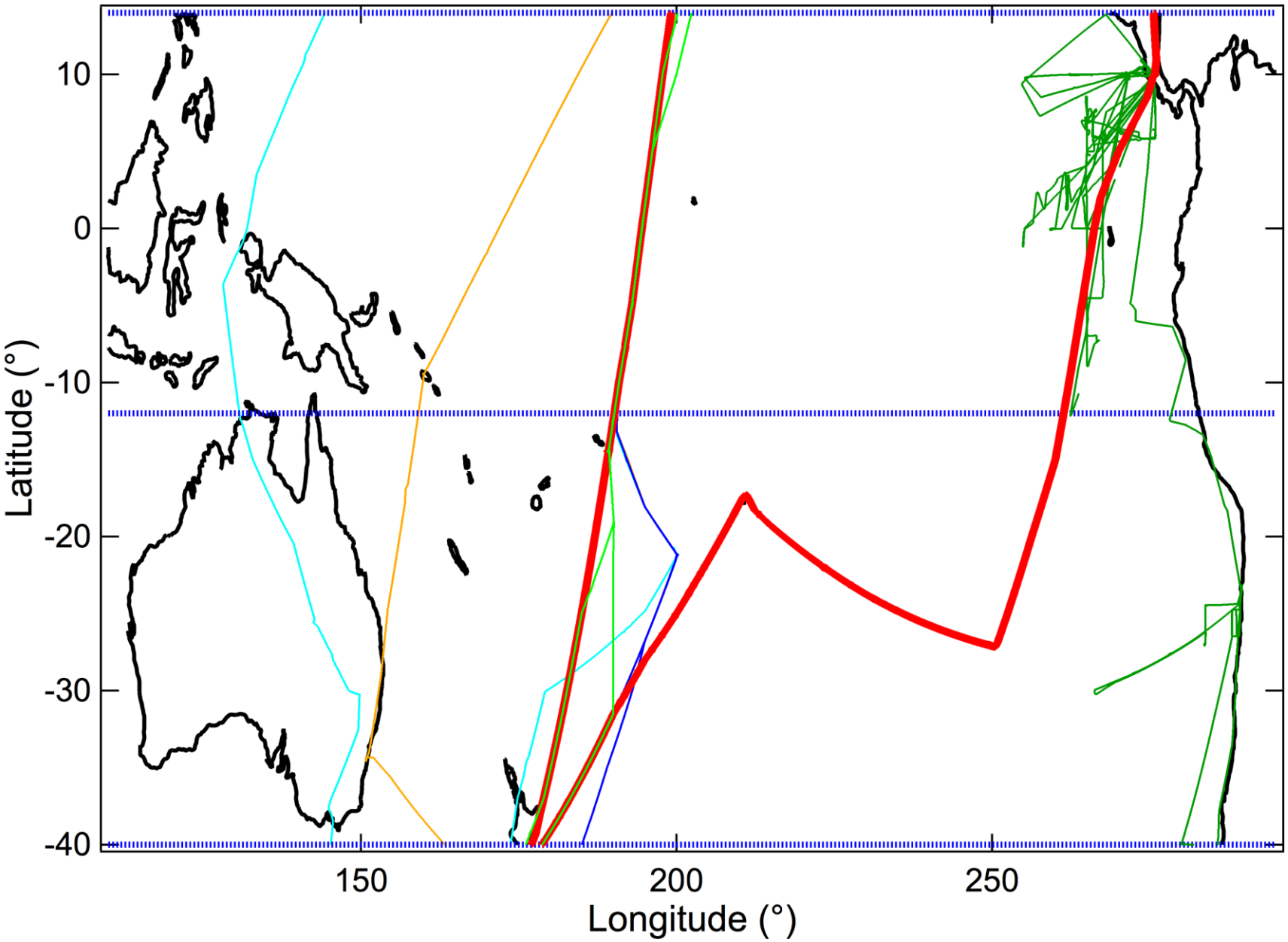




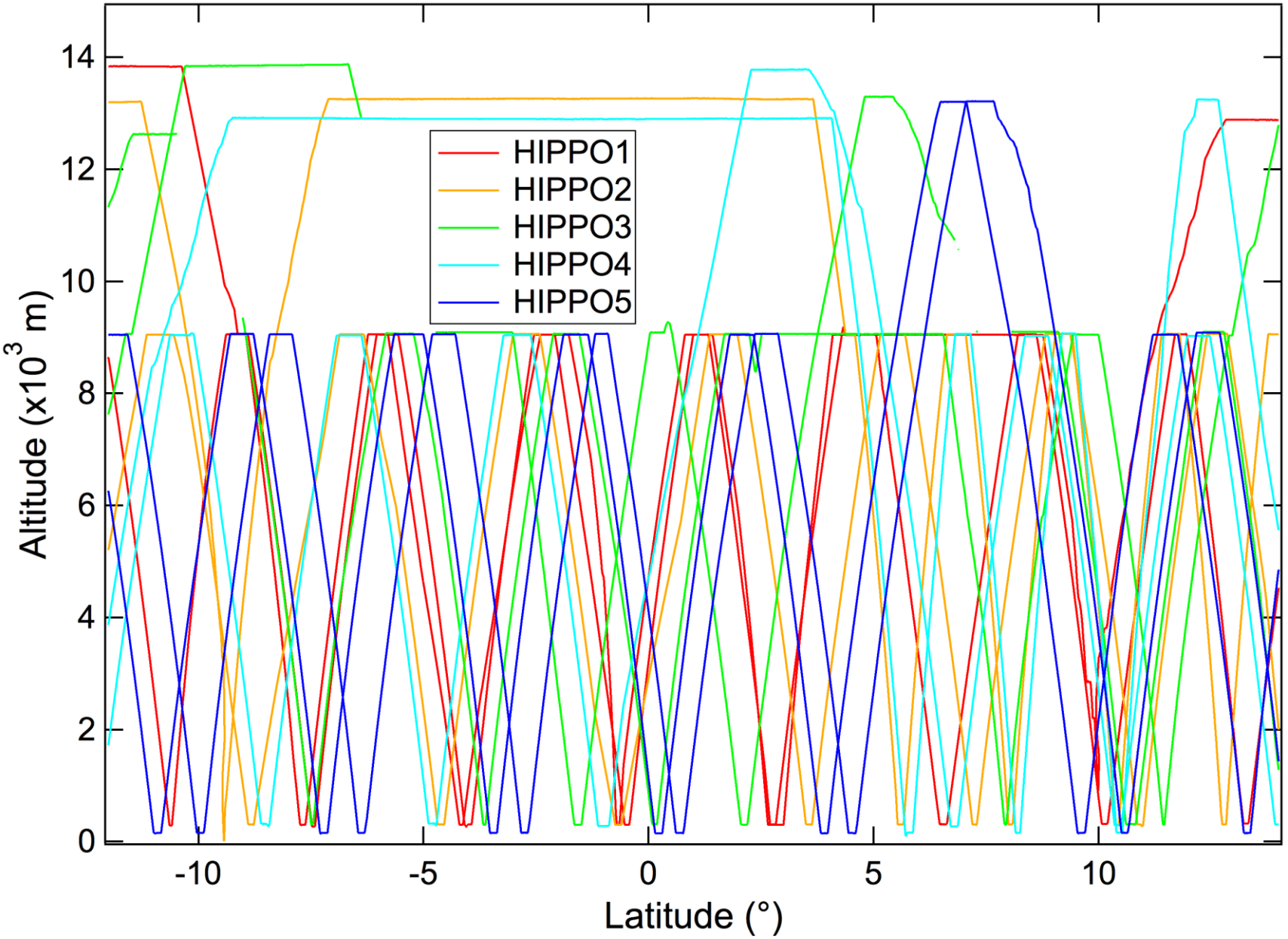
Boundary conditions for TORERO O_3

- HIPPO measurements as the Pacific boundary
- WB-57B C-R measurements as the top boundary
  - Supplemented by ER-2 measurements
- Not perfect, but will provide reference points

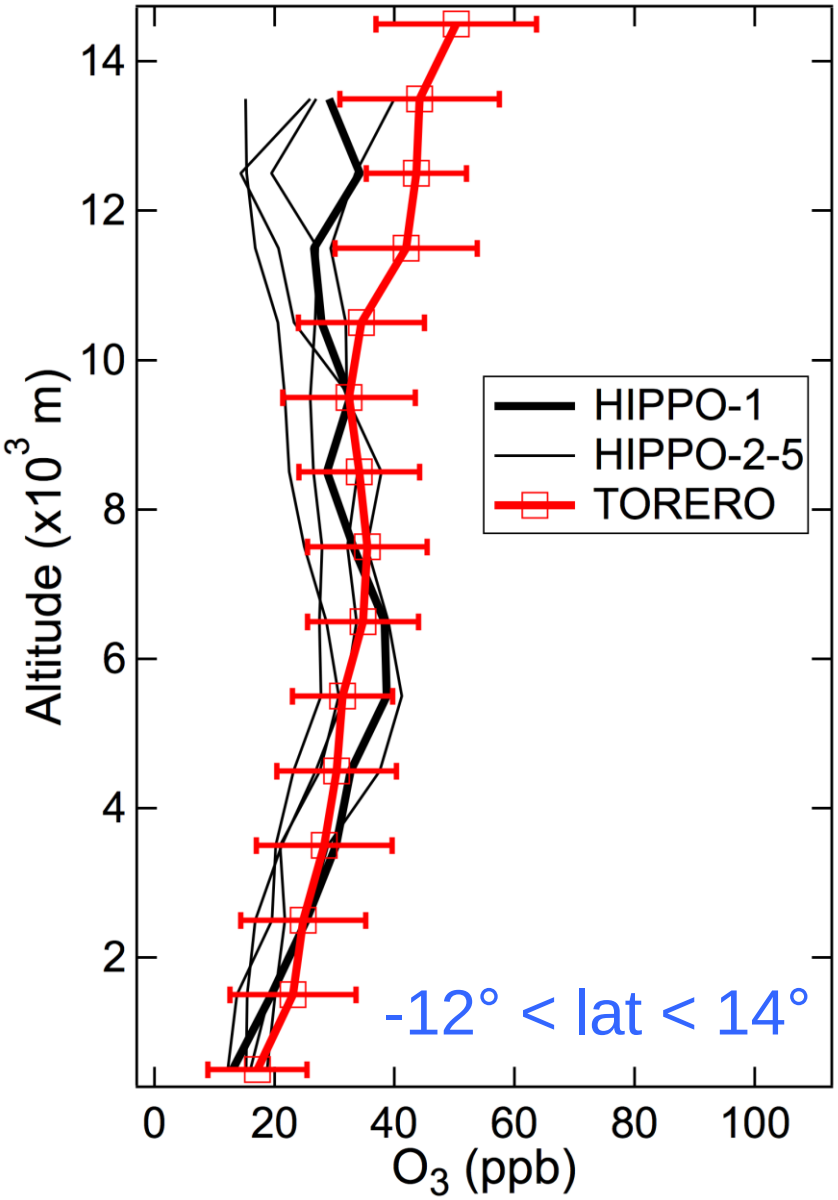
HIPPO flight paths

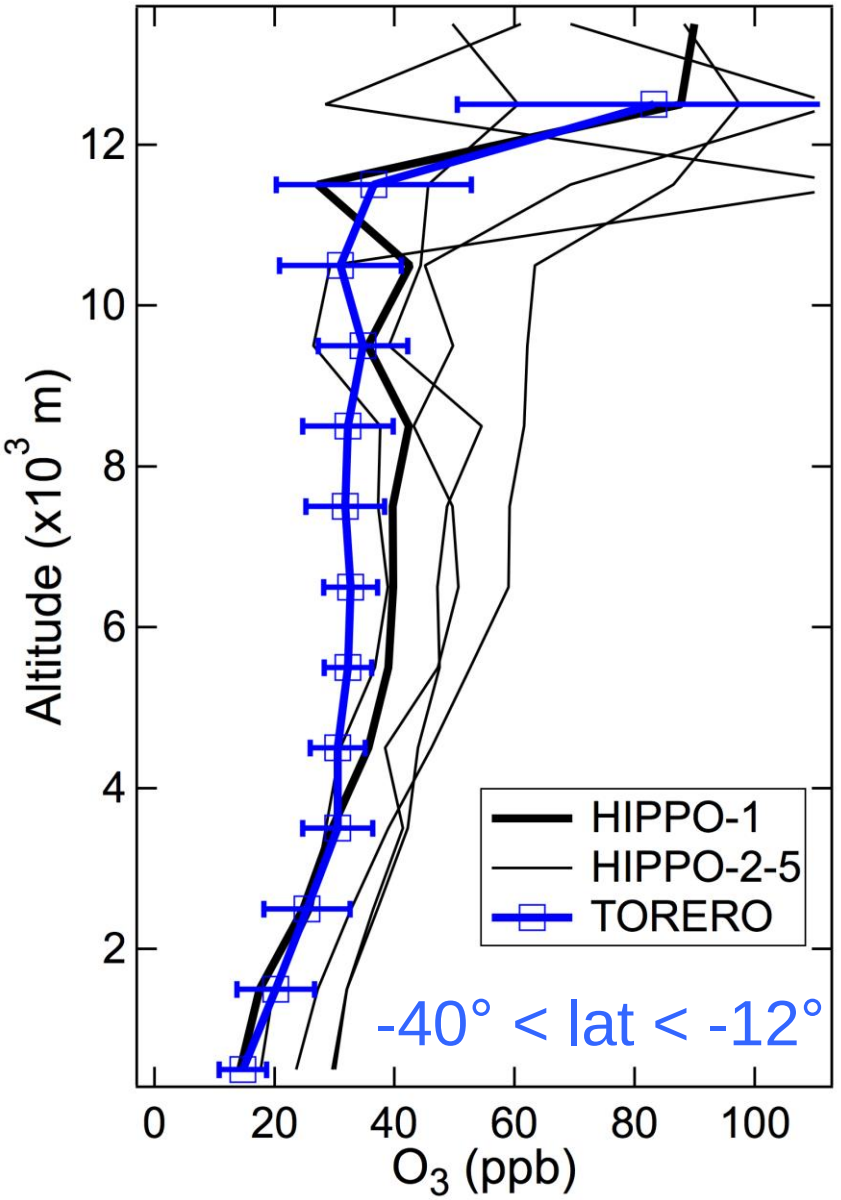


HIPPO tropical profiles

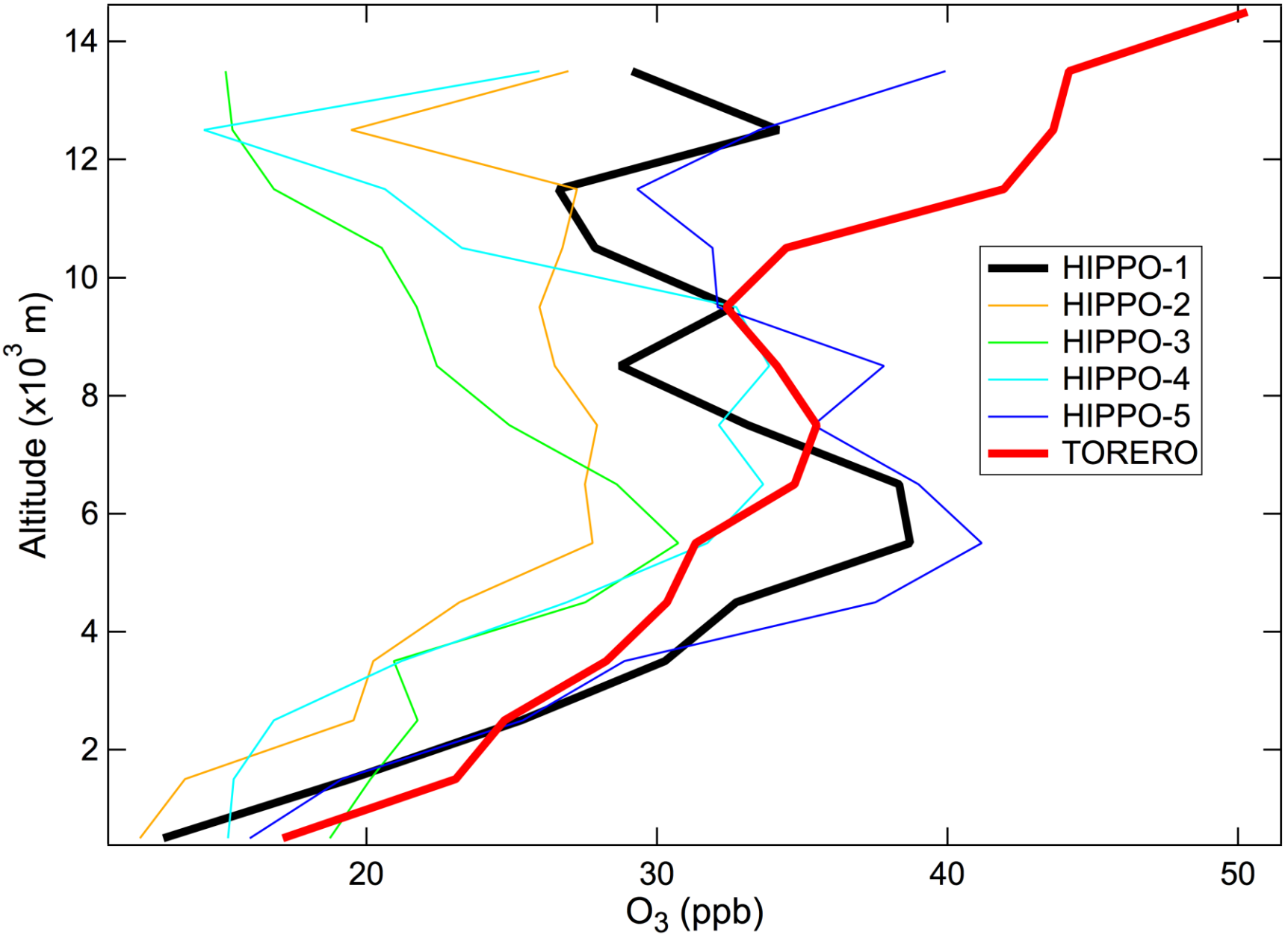


HIPPO and TORERO profiles

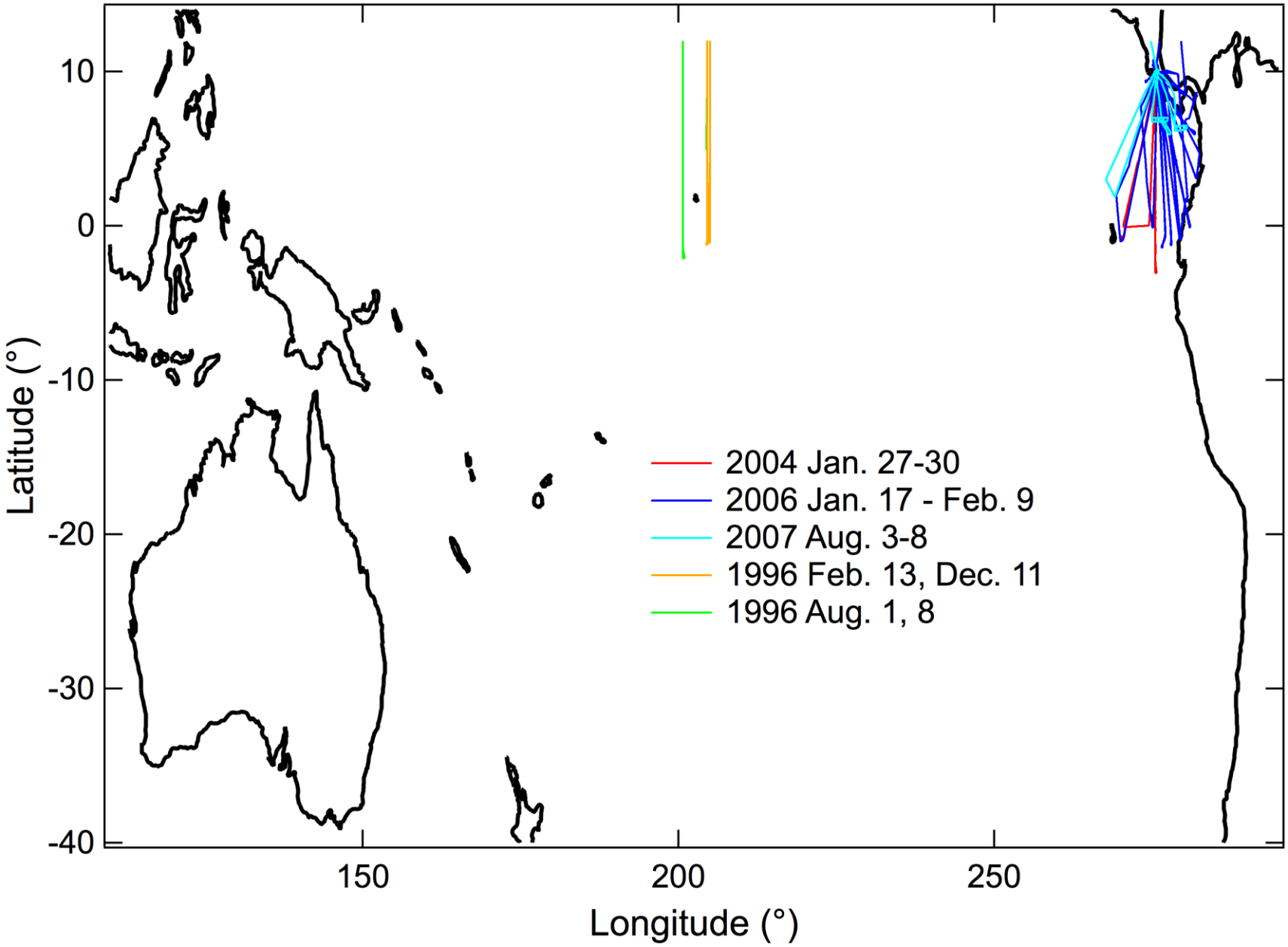




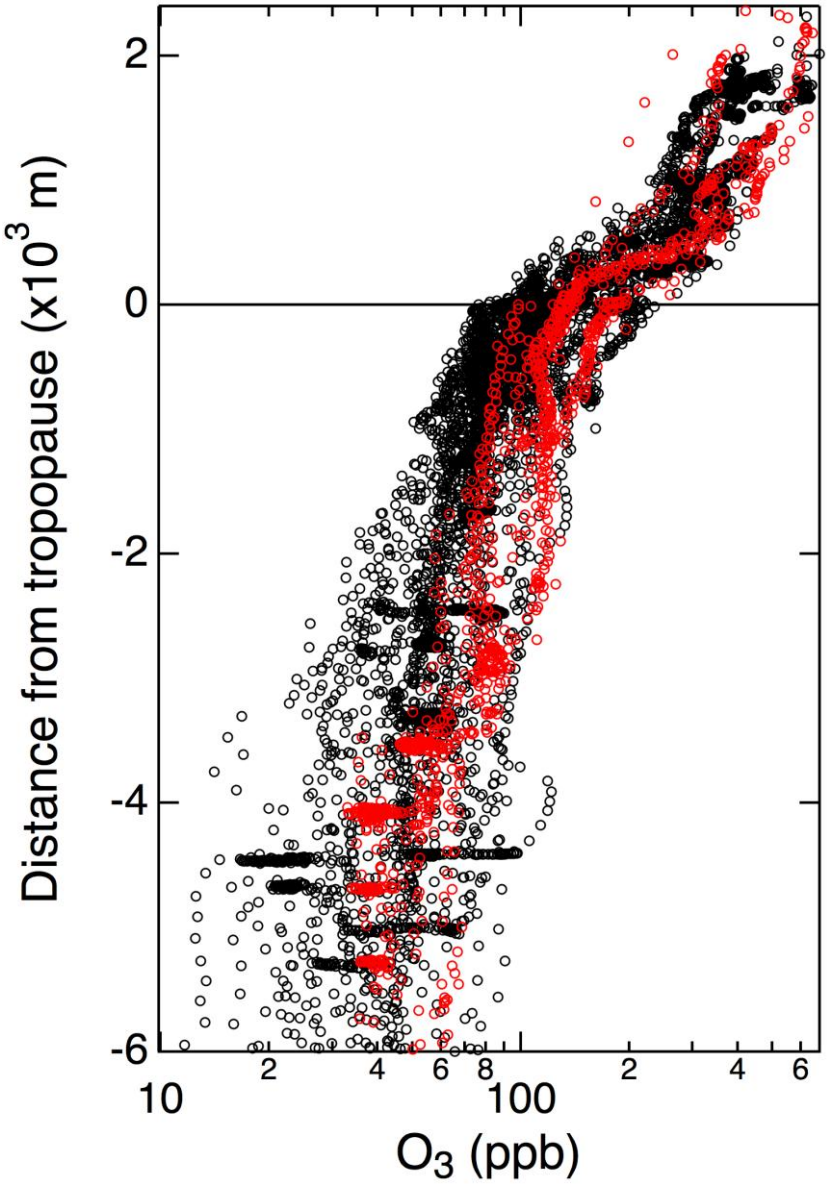
Close-up: 14° < Lat < -12°

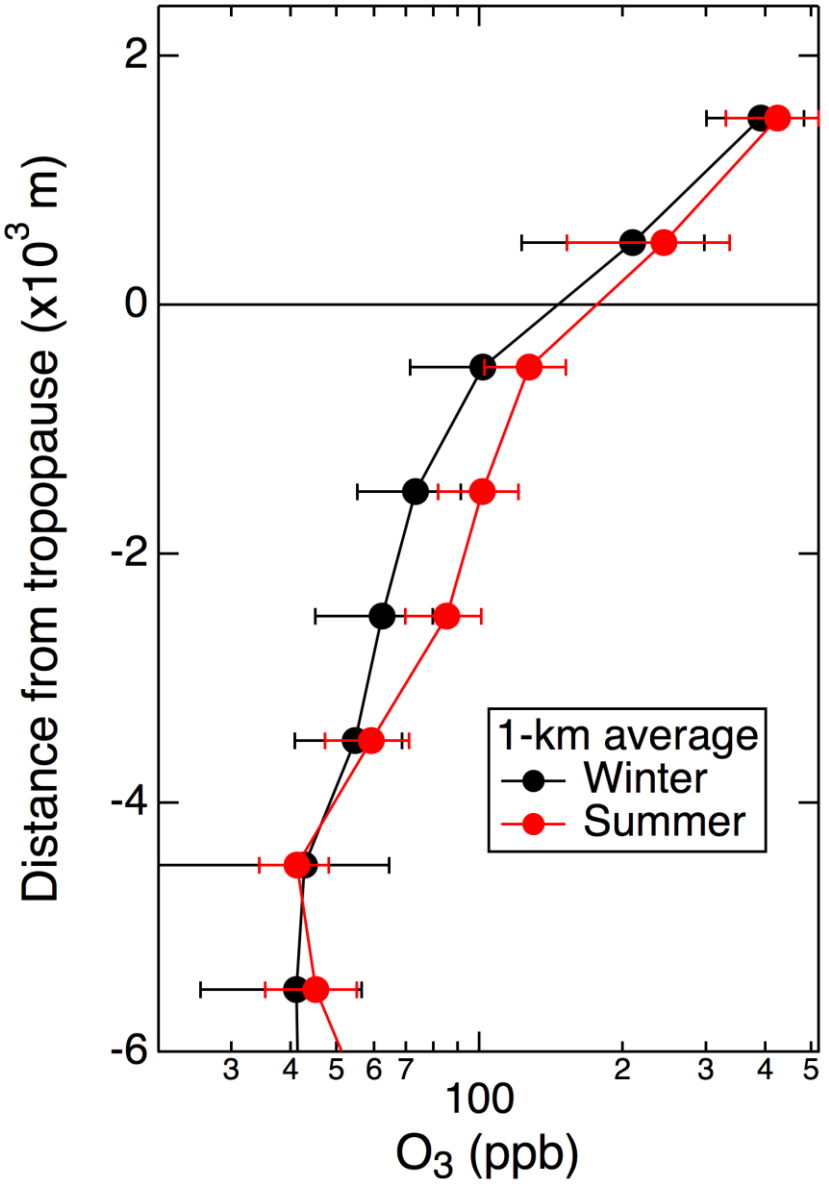


WB-57F and ER-2 flight paths

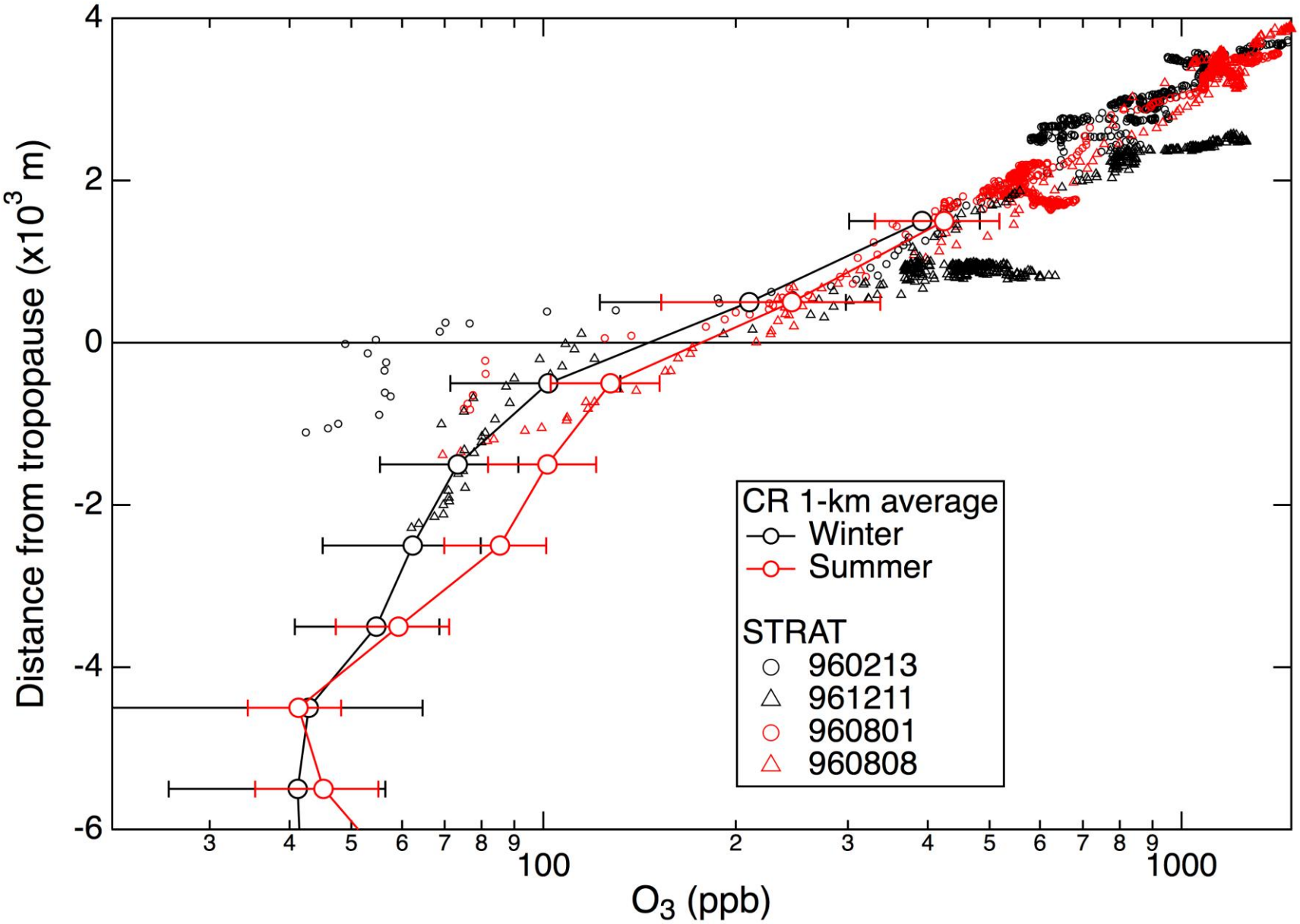


WB-57F profiles





Costa Rica (2004-2007) vs central Pacific (1996)

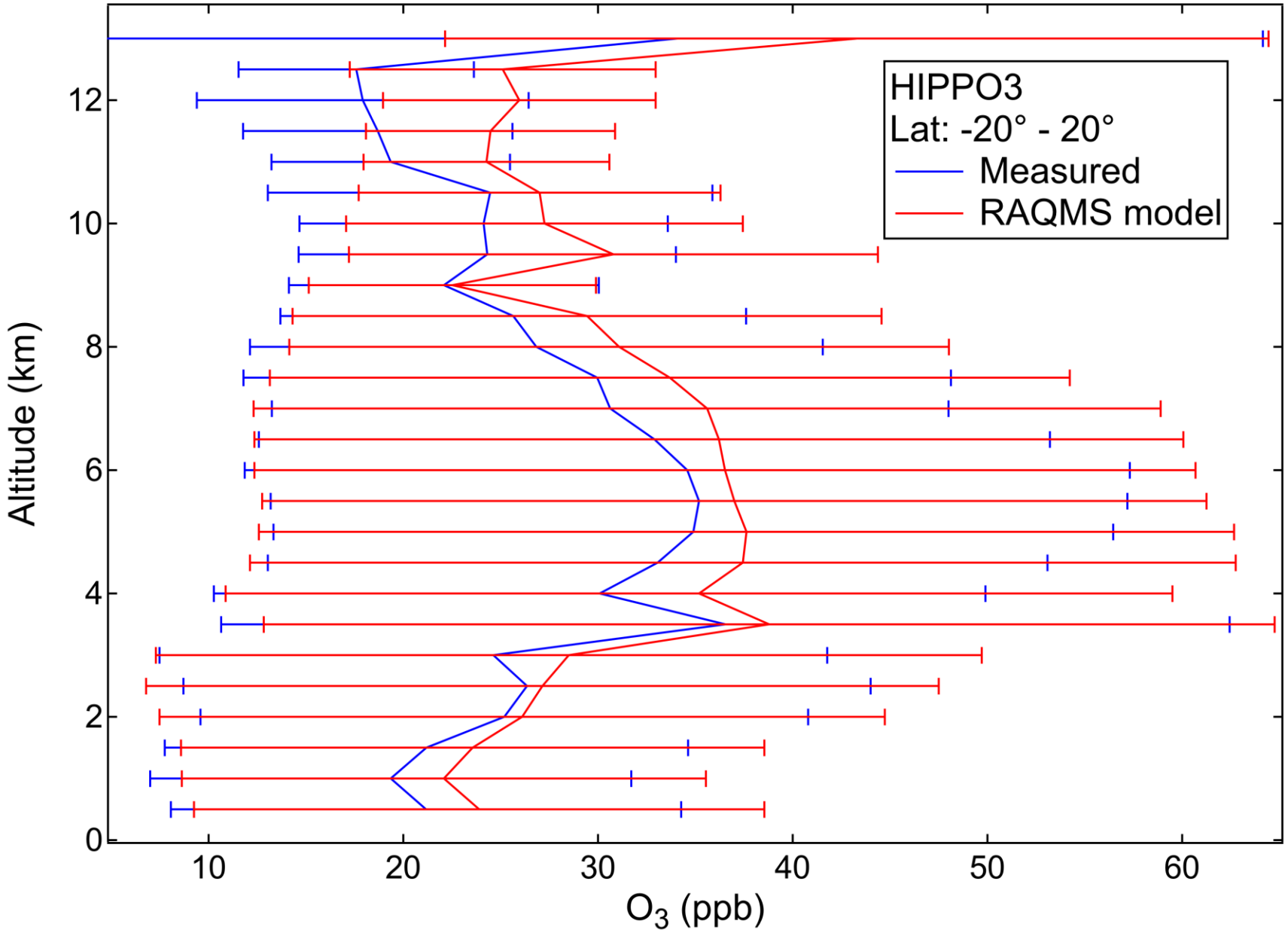


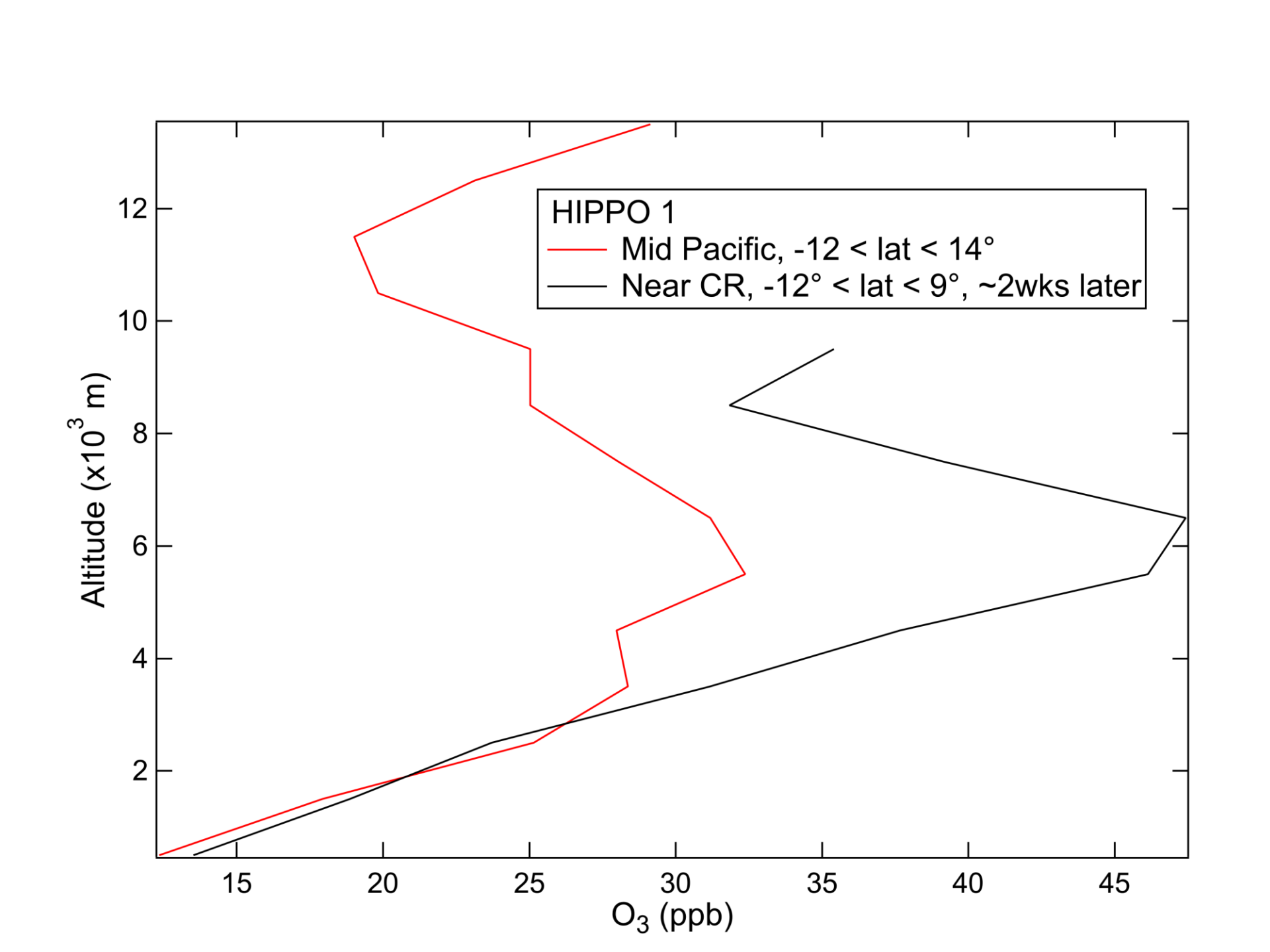
Summary

- Data have been finalized

- The SH (Lat < -12°) data were lower than the HIPPO data between 4 - 9 km

- The tropics vertical distribution differed from the HIPPO data
    - Increased vertical mixing?


HIPPO3
Lat: -20° - 20°
Measured
RAQMS model
Altitude (km)
0
2
4
6
8
10
12
10
20
30
40
50
60
O3 (ppb)


HIPPO 1
Mid Pacific, -12 < lat < 14°
Near CR, -12° < lat < 9°, ~2wks later
Altitude (x10^3 m)
12
10
8
6
4
2
15
20
25
30
35
40
45
O3 (ppb)