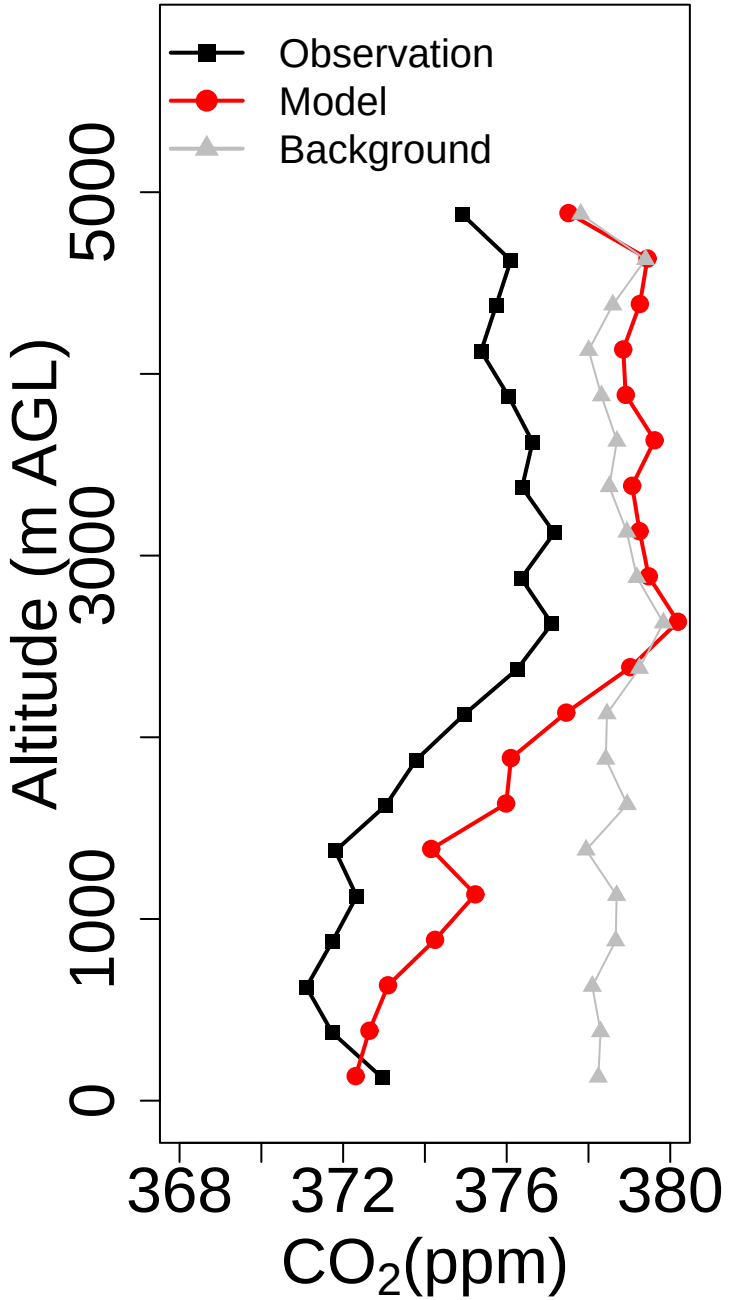
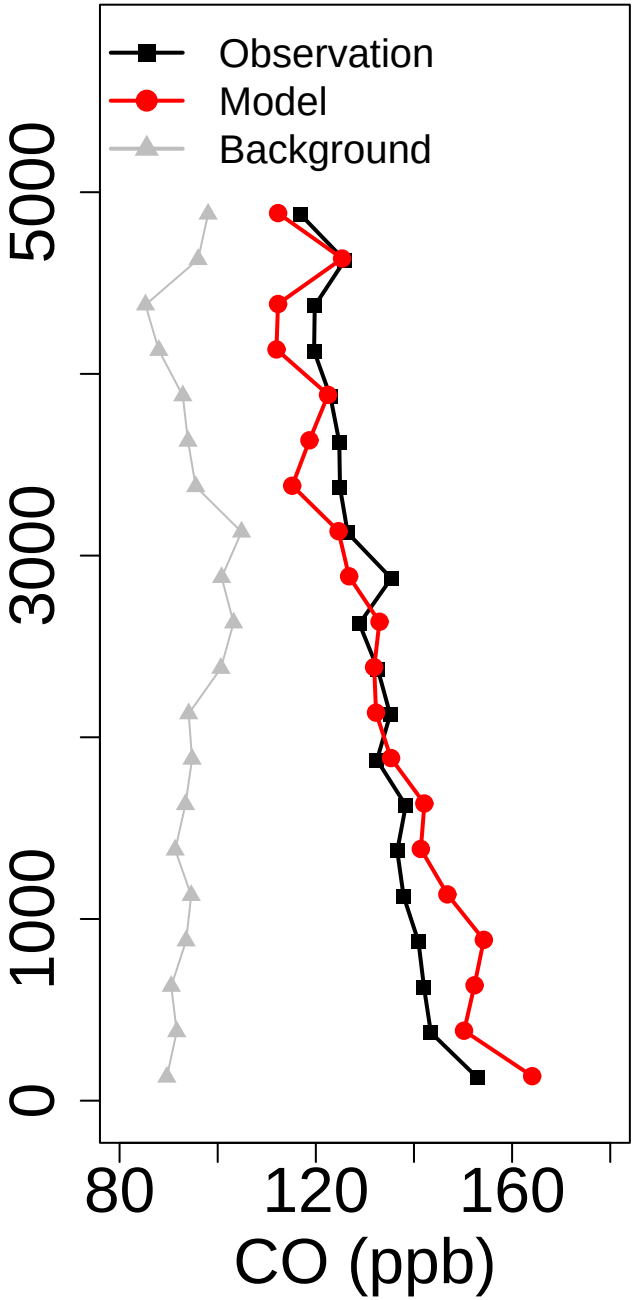
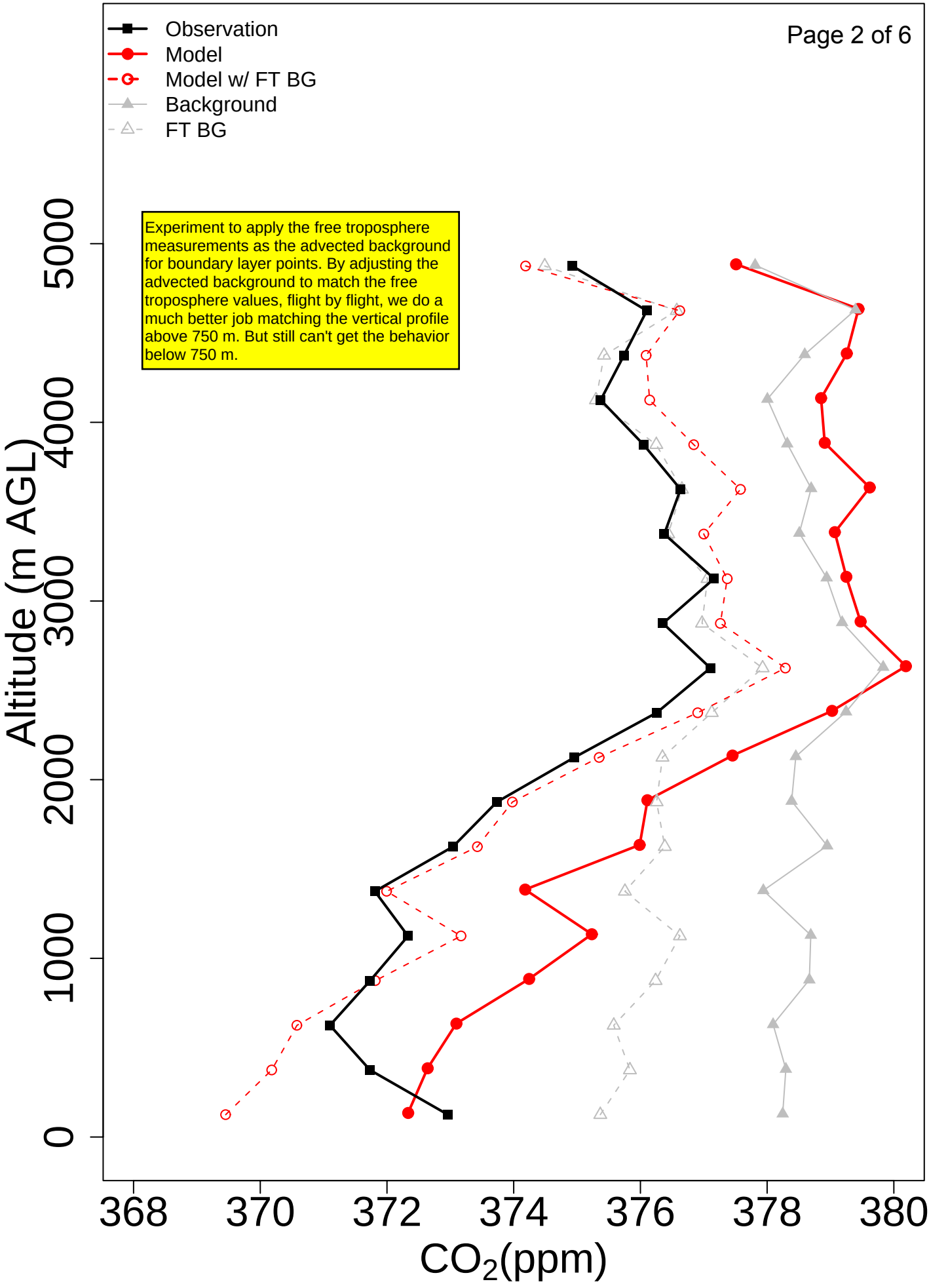
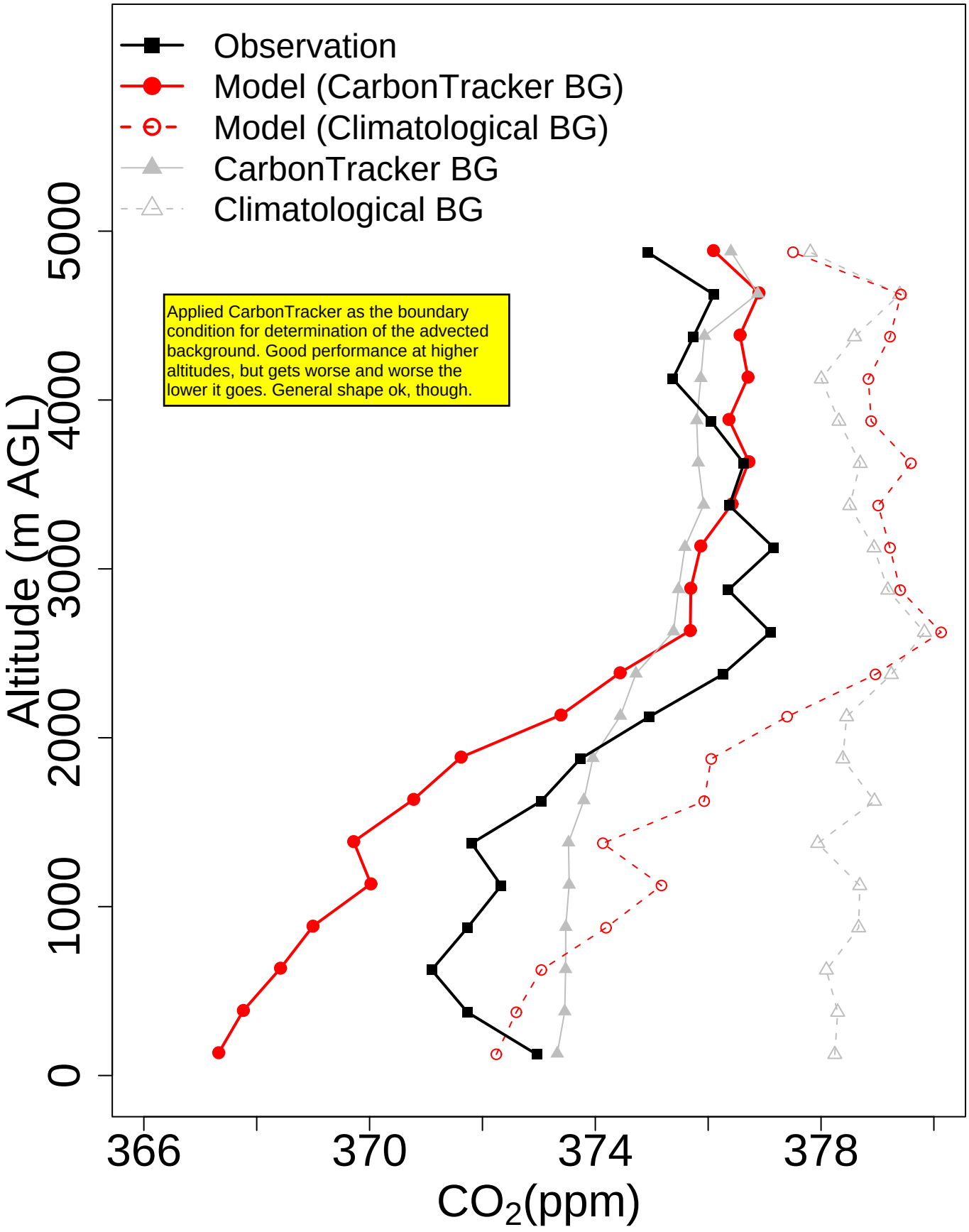
All are FORWARD model runs using BRAMS for CORBA-Maine. This slide shows a climatological advected background. There are >100 receptors per altitude box up to 3K, no fewer than ~70 receptor points above that. Receptors spread across the summer (all NE flights utilized); biased towards the vicinity of Argyle above 2K.



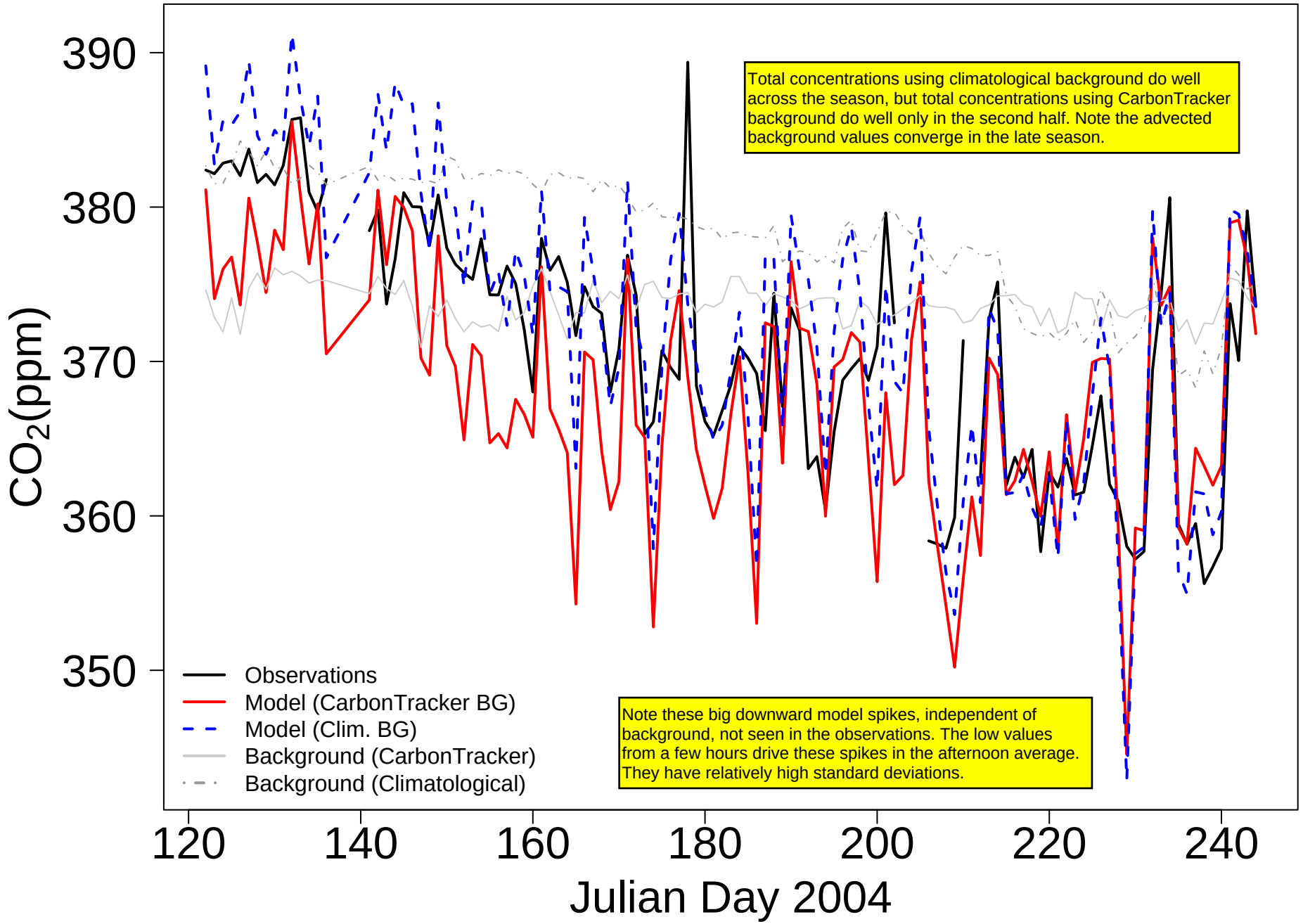


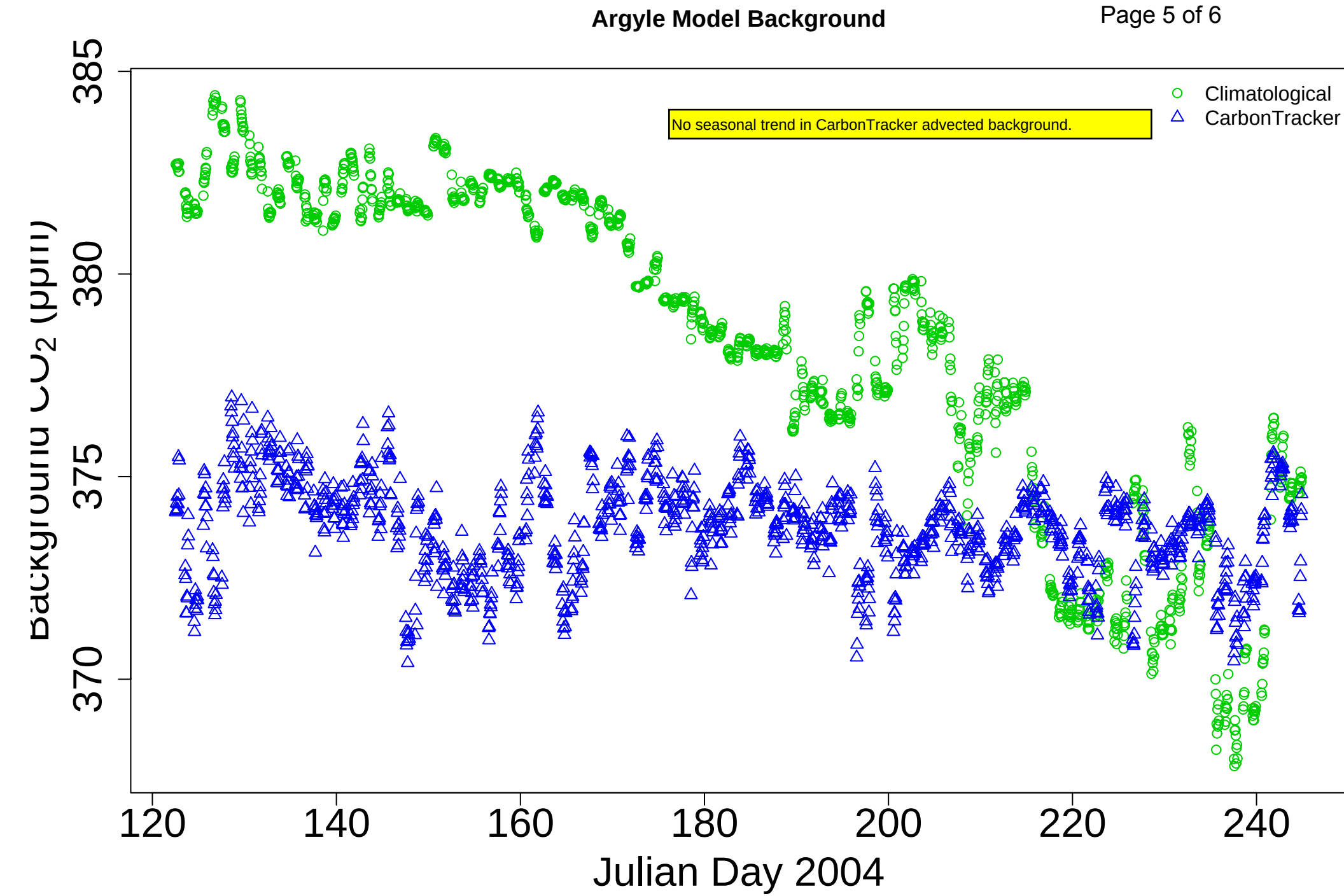
CO looks good, but CO2 does has issues. Note the CO2 vegetation signal is not prominent at altitude, indicating that our advected background, climatological here, is not good, at least part of the time.


Observation
Model
Model w/ FT BG
Background
FT BG
Experiment to apply the free troposphere measurements as the advected background for boundary layer points. By adjusting the advected background to match the free troposphere values, flight by flight, we do a much better job matching the vertical profile above 750 m. But still can't get the behavior below 750 m.
Altitude (m AGL)
0
1000
2000
3000
4000
5000
368
370
372
374
376
378
380
CO2(ppm)


Observation
Model (CarbonTracker BG)
Model (Climatological BG)
CarbonTracker BG
Climatological BG
Applied CarbonTracker as the boundary condition for determination of the advected background. Good performance at higher altitudes, but gets worse and worse the lower it goes. General shape ok, though.
Altitude (m AGL)
0
1000
2000
3000
4000
5000
366
370
374
378
CO2(ppm)

Argyle Afternoon Average Timeseries




Argyle Model Background
No seasonal trend in CarbonTracker advected background.
Climatological
CarbonTracker
Background CO_2 (ppm)
385
380
375
370
120
140
160
180
200
220
240
Julian Day 2004

sample advected background distributions, Argyle, 4 receptors