Nitrous oxide mixing rate during Dry and Wet Seasons in vertical profile over Central Amazon.

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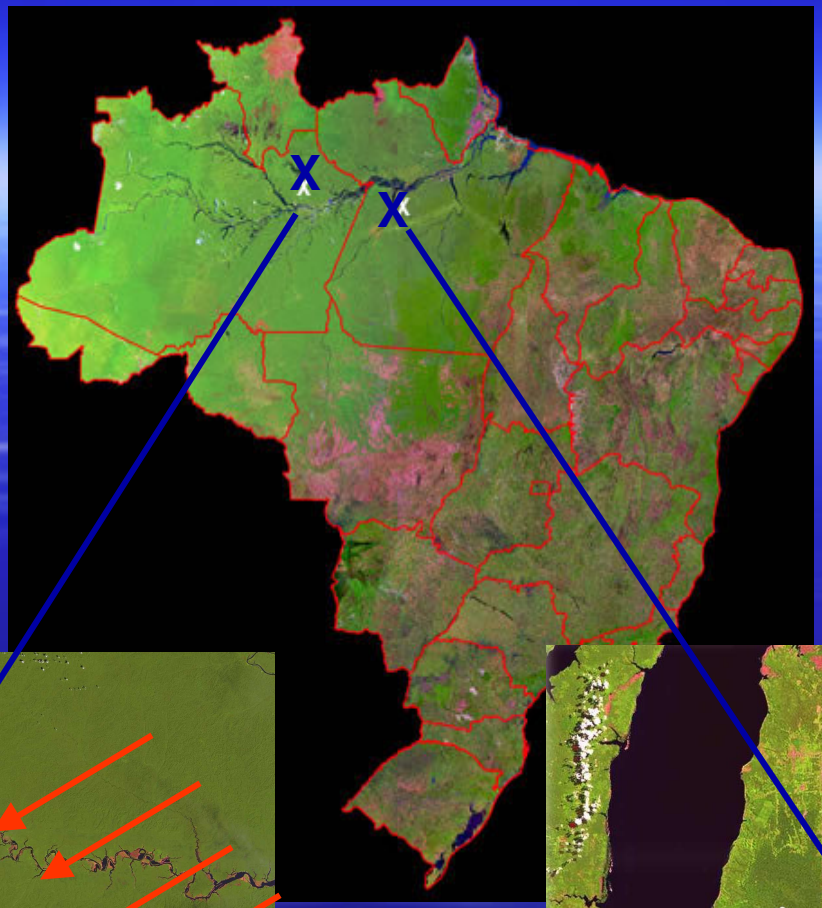
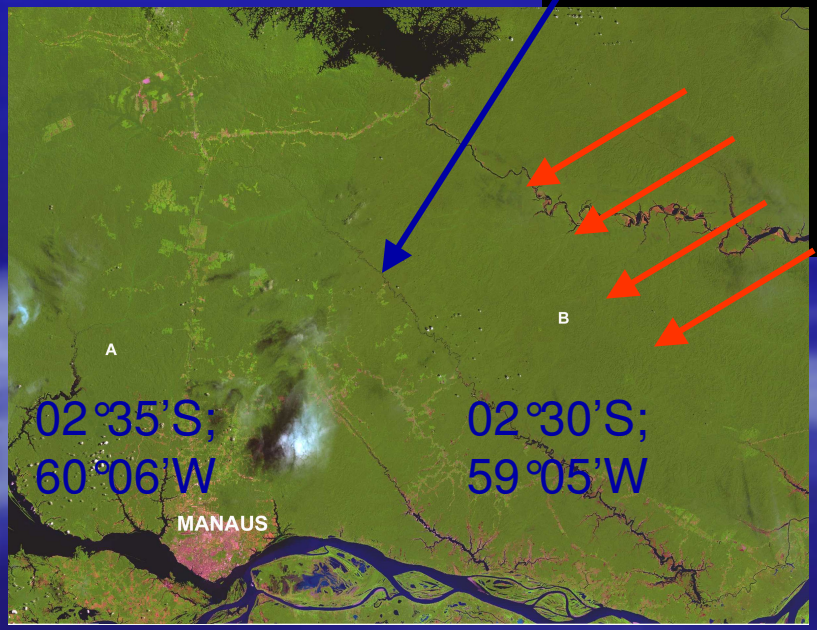
Recent Studies

- Studies outside Amazonia have shown that compared to original forest, elevated N_2O and NO fluxes may occur in young pastures (Keller et al., 1993; Veldkamp et al., 1999).
- Pastures older than 10 years all have show very low emissions (Keller et al., 1993; Veldkamp et al., 1999; Erickson et al., 2001) unless they are fertilized (Veldkamp et al., 1998; Mosier and Delgado, 1997).

start December 2004

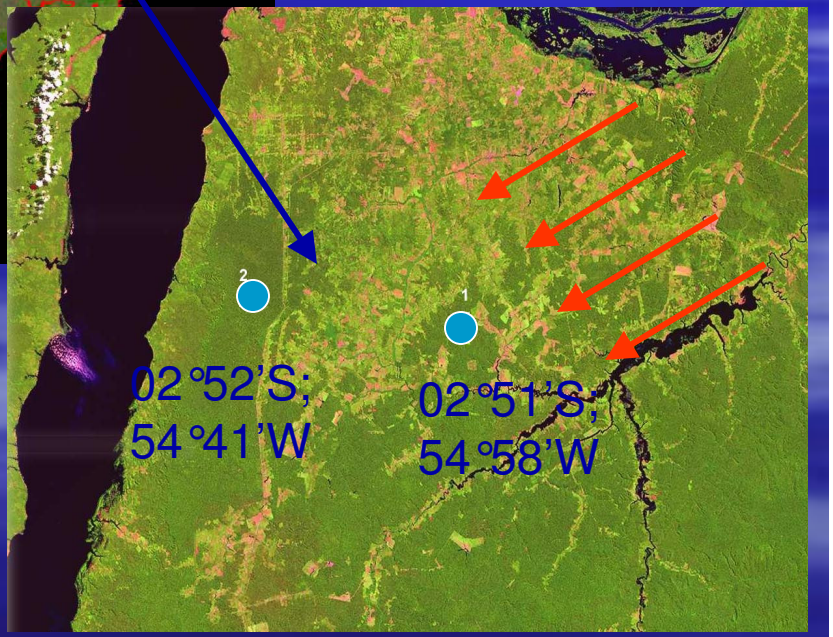
AMAZONAS



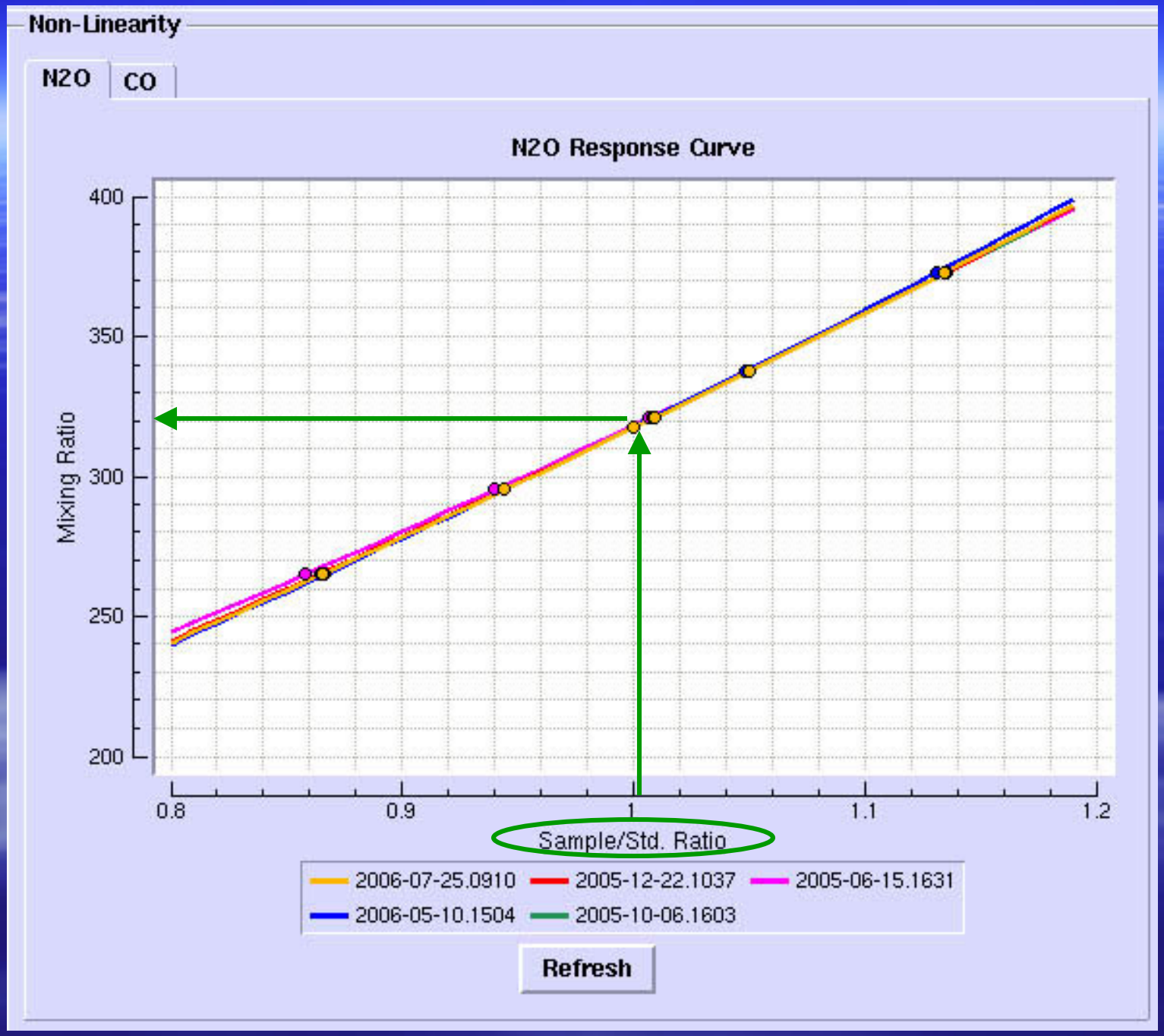


start December 2000

PARÁ

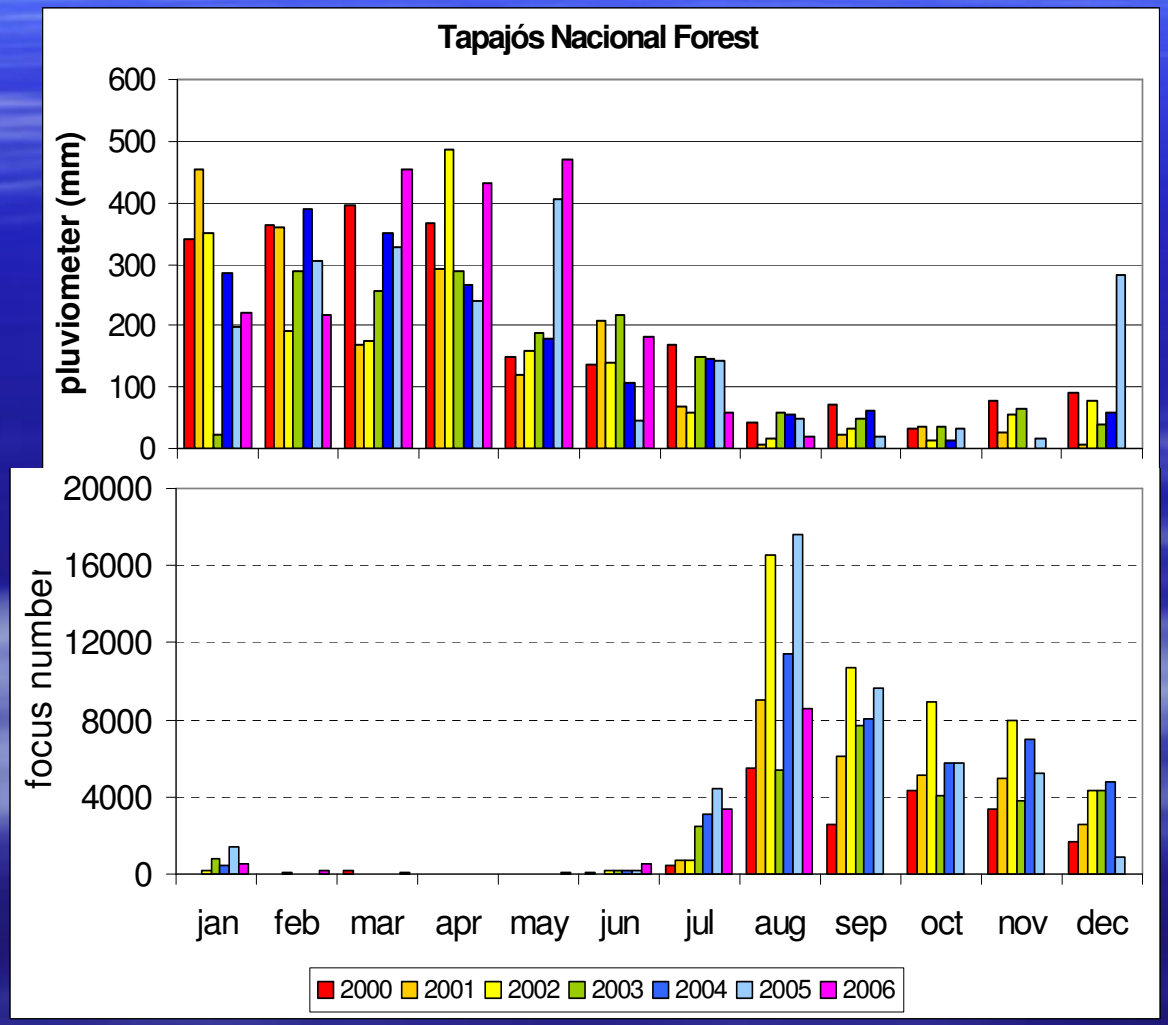


MATERIAL AND METHODS



RESULTS

Dry and Wet Classification
Flona Tapajós



Wet Season:

January to July

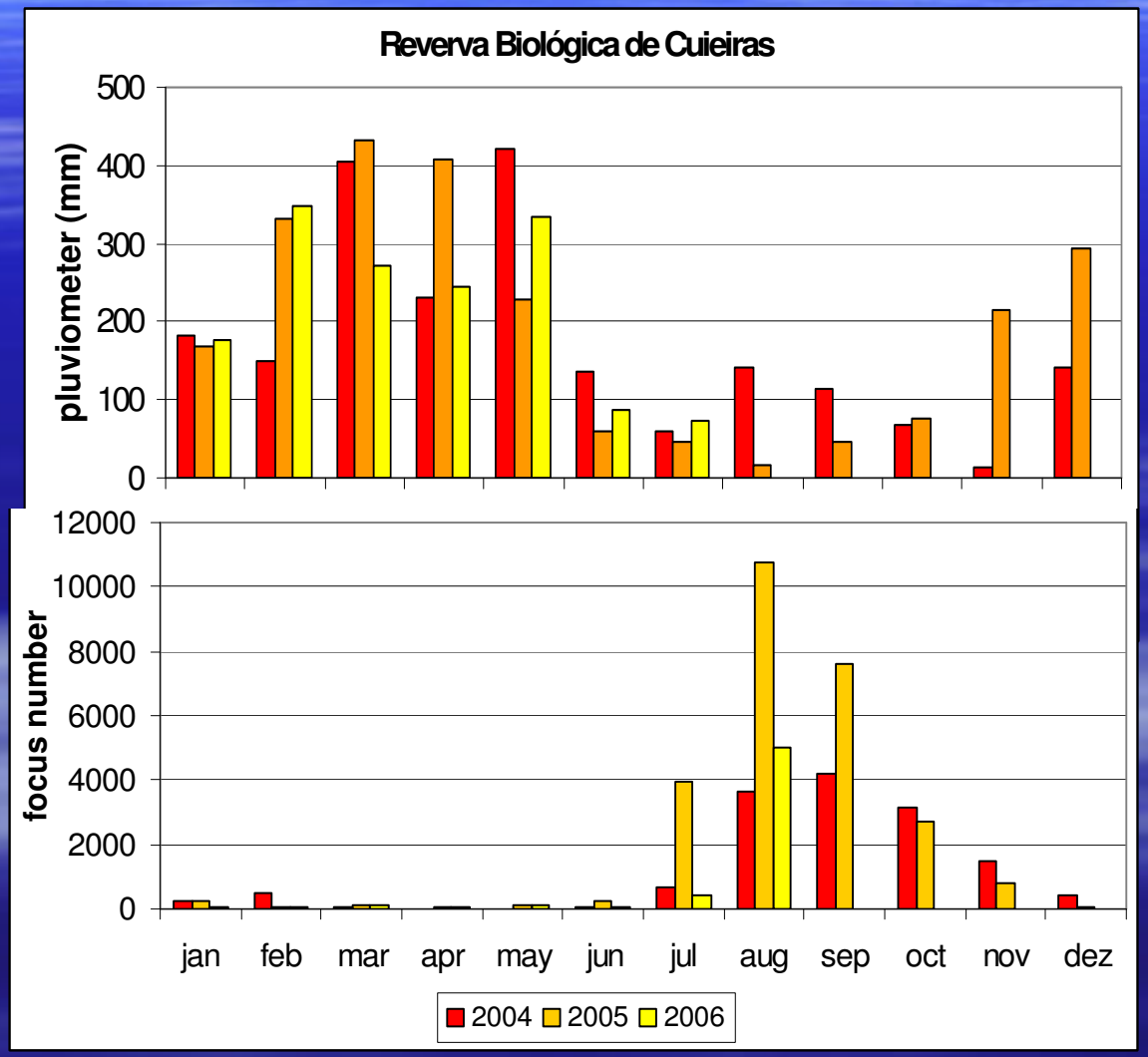
Dry Season:

August to December

We considered delay and anticipation

RESULTS

Dry and Wet Classification
Reserva Biológica de Cuieiras



Wet Season:

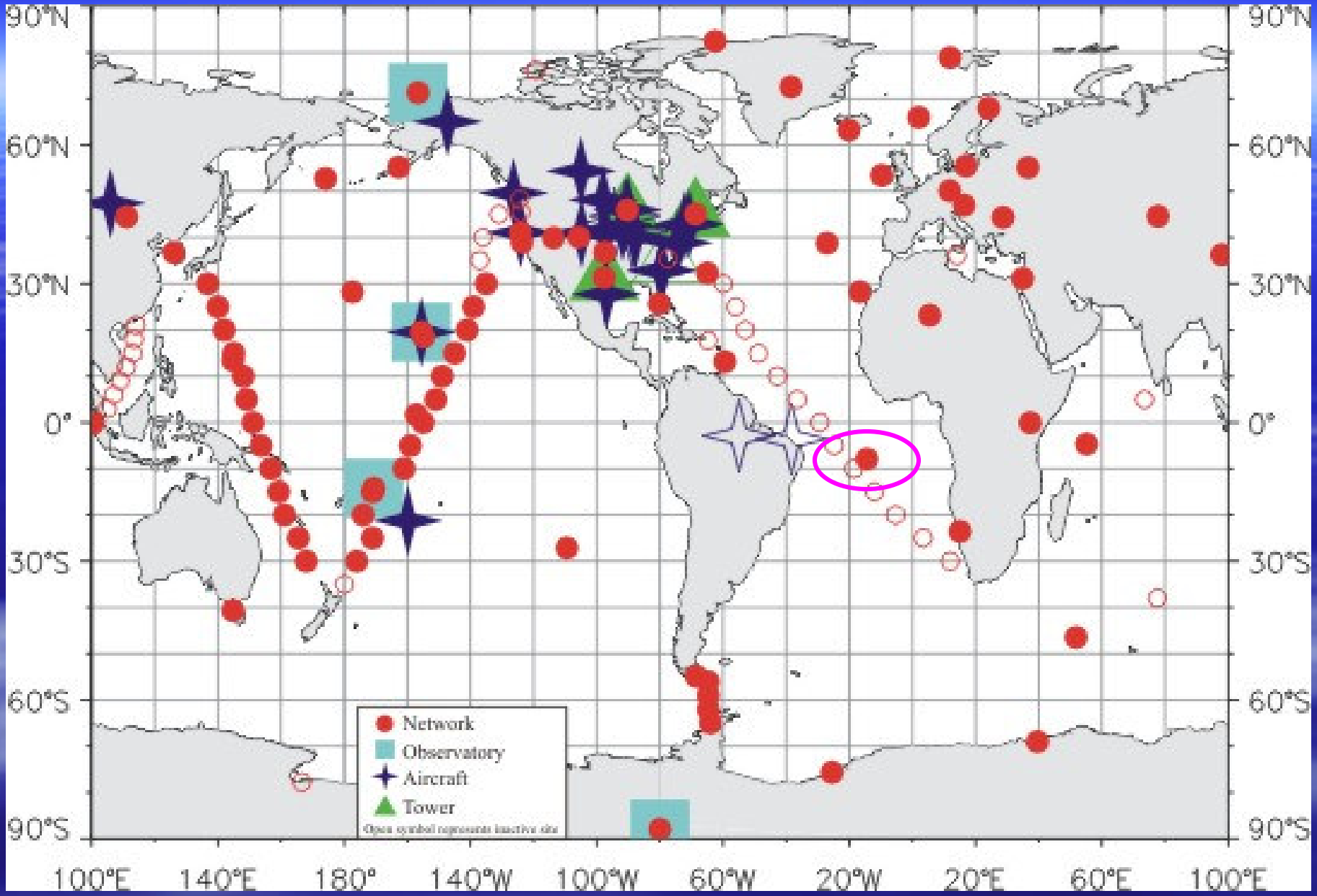
November to May

Dry Season:

June to October

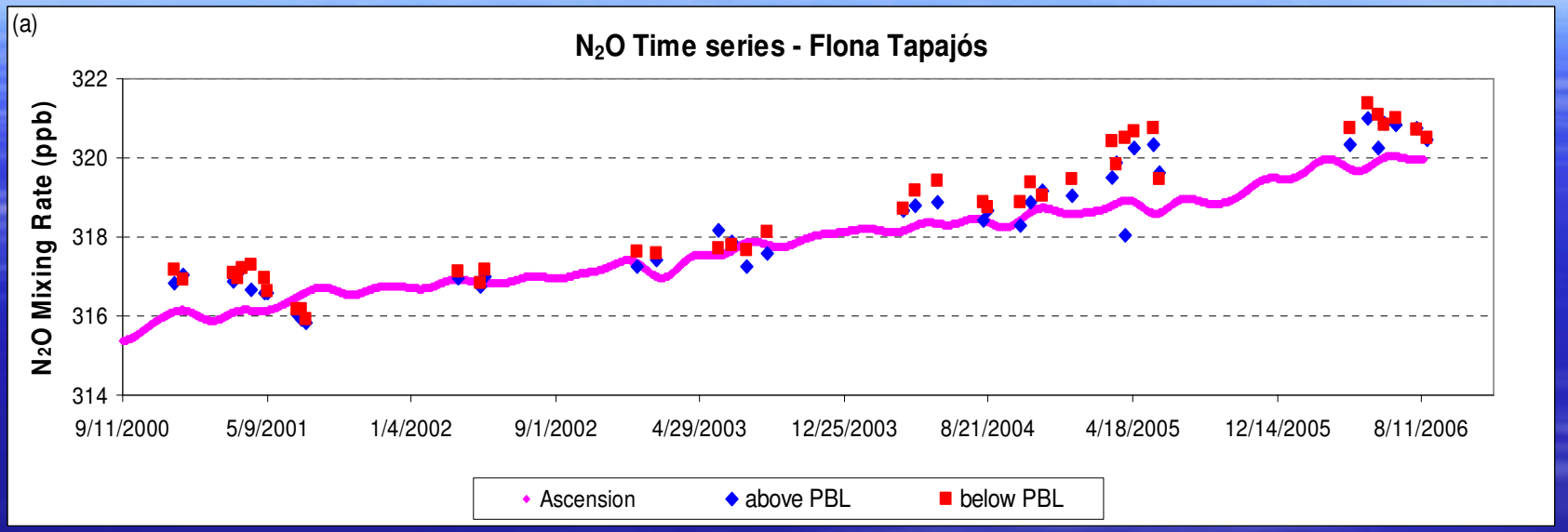
We considered delay and anticipation

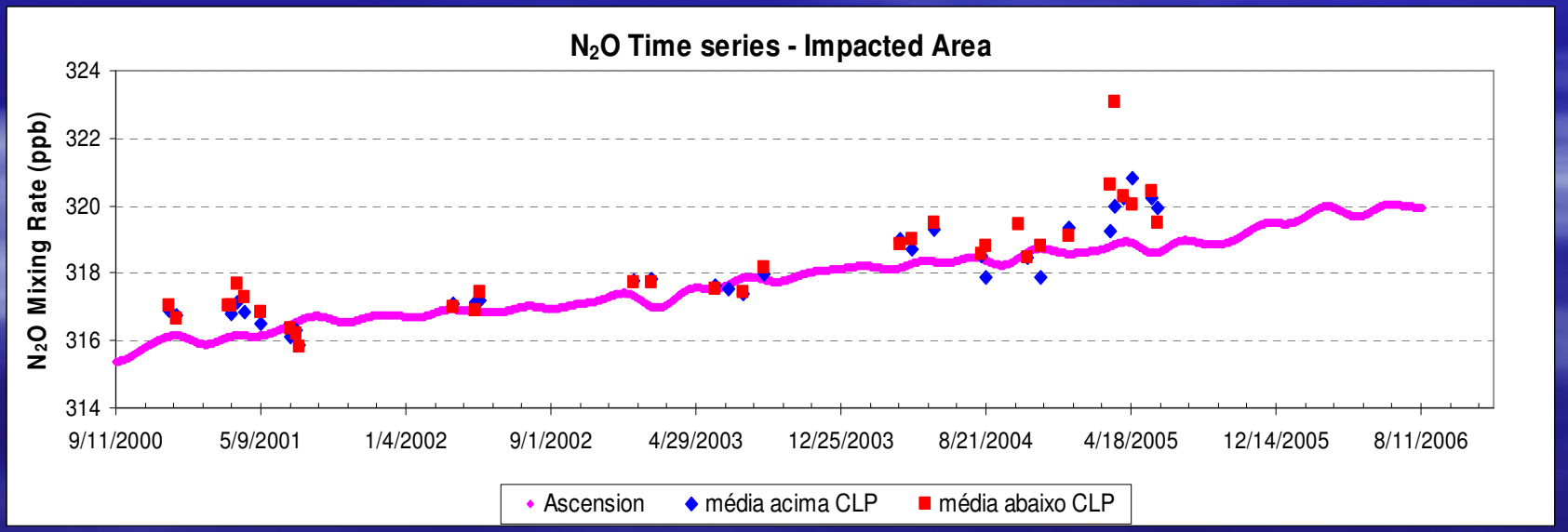
RESULTS

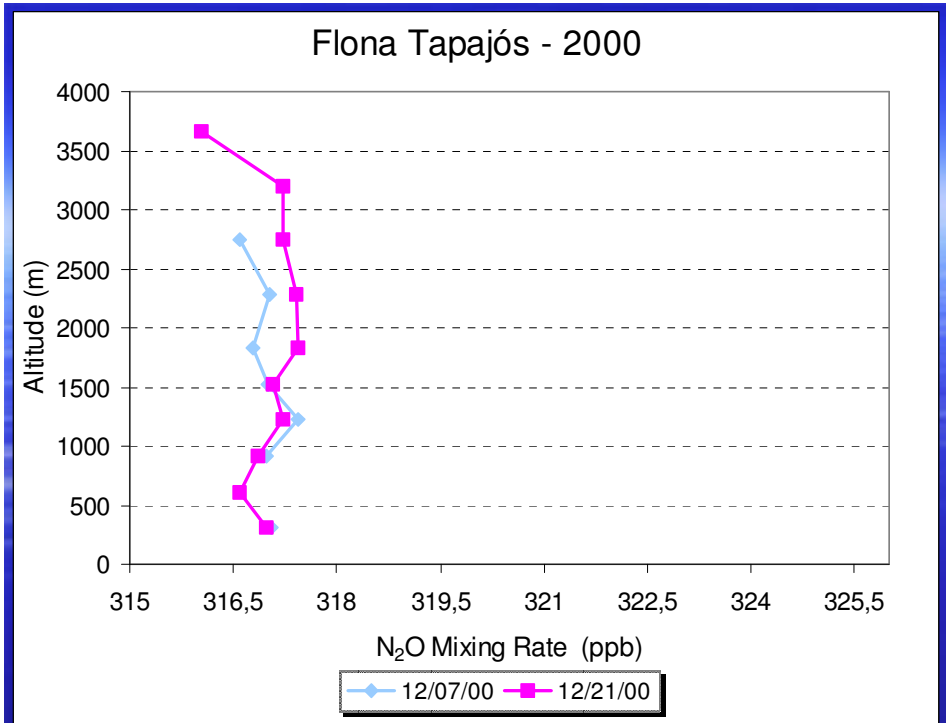

90°N
60°N
30°N
0°
30°S
60°S
90°S
100°E
140°E
180°
140°W
100°W
60°W
20°W
20°E
60°E
100°E
Network
Observatory
Aircraft
Tower

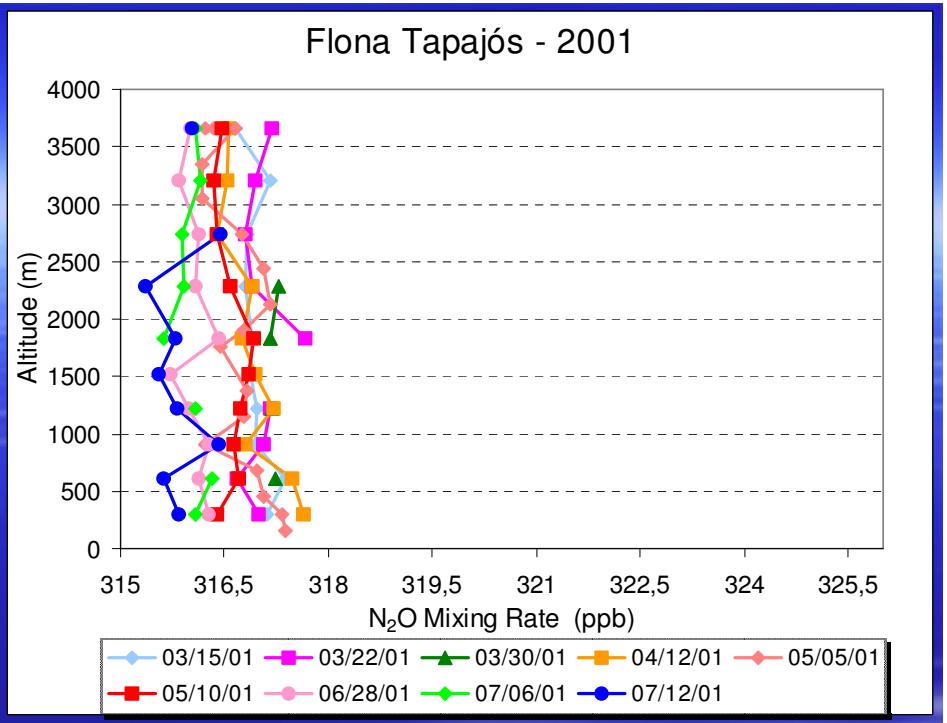
RESULTS

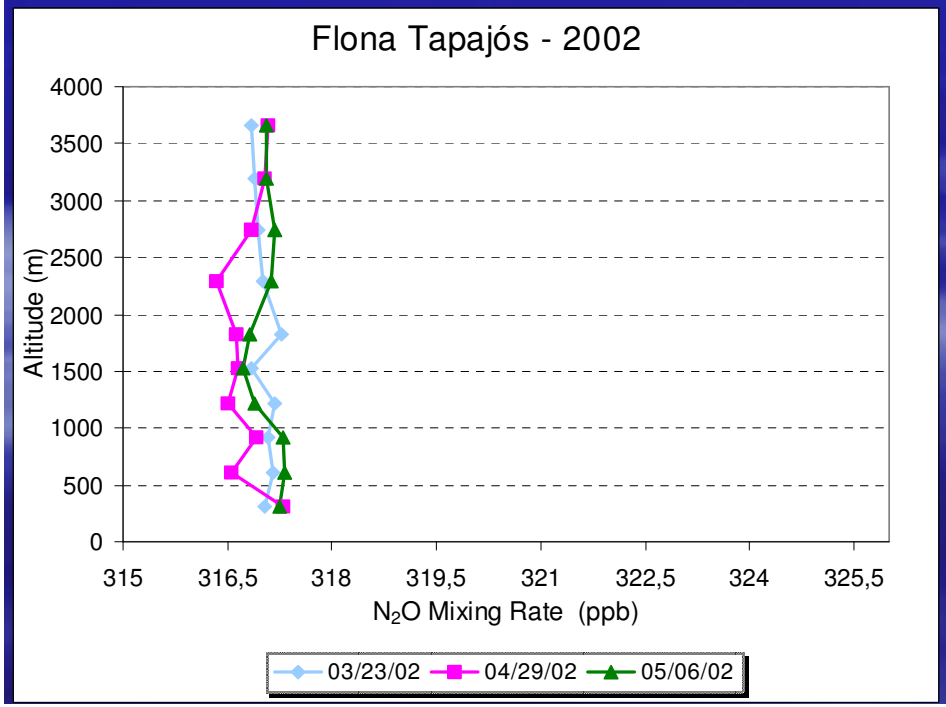
Time Serie – Flona Tapajós

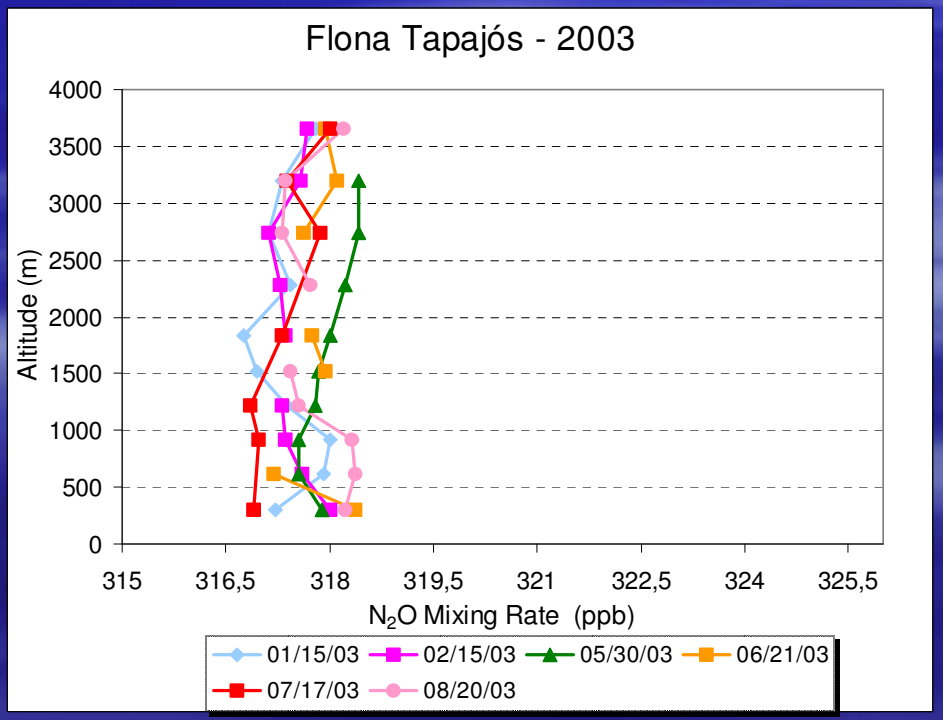


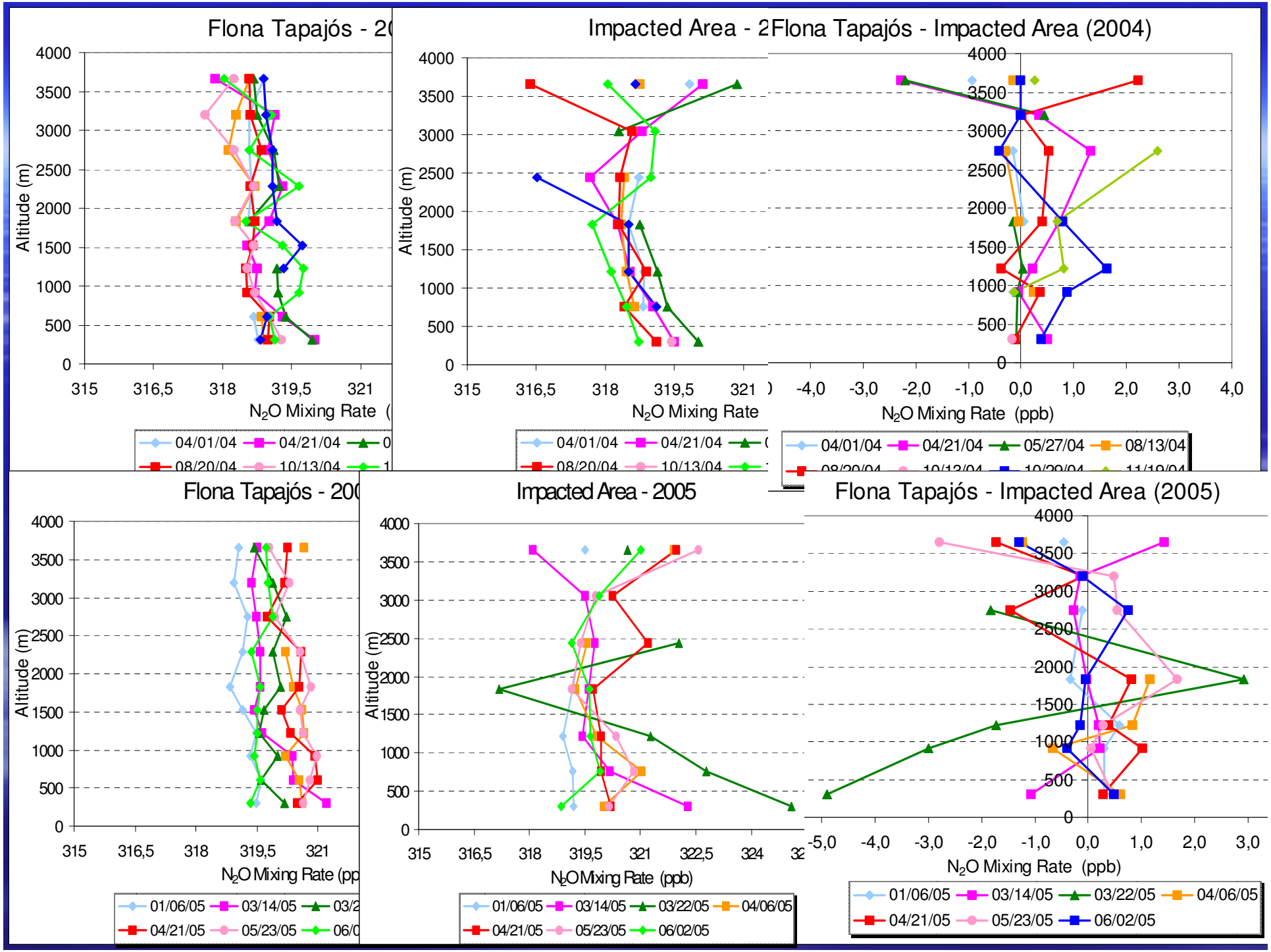



Flona Tapajós - 2000
Altitude (m)
4000
3500
3000
2500
2000
1500
1000
500
0
315
316,5
318
319,5
321
322,5
324
325,5
N2O Mixing Rate (ppb)
12/07/00
12/21/00

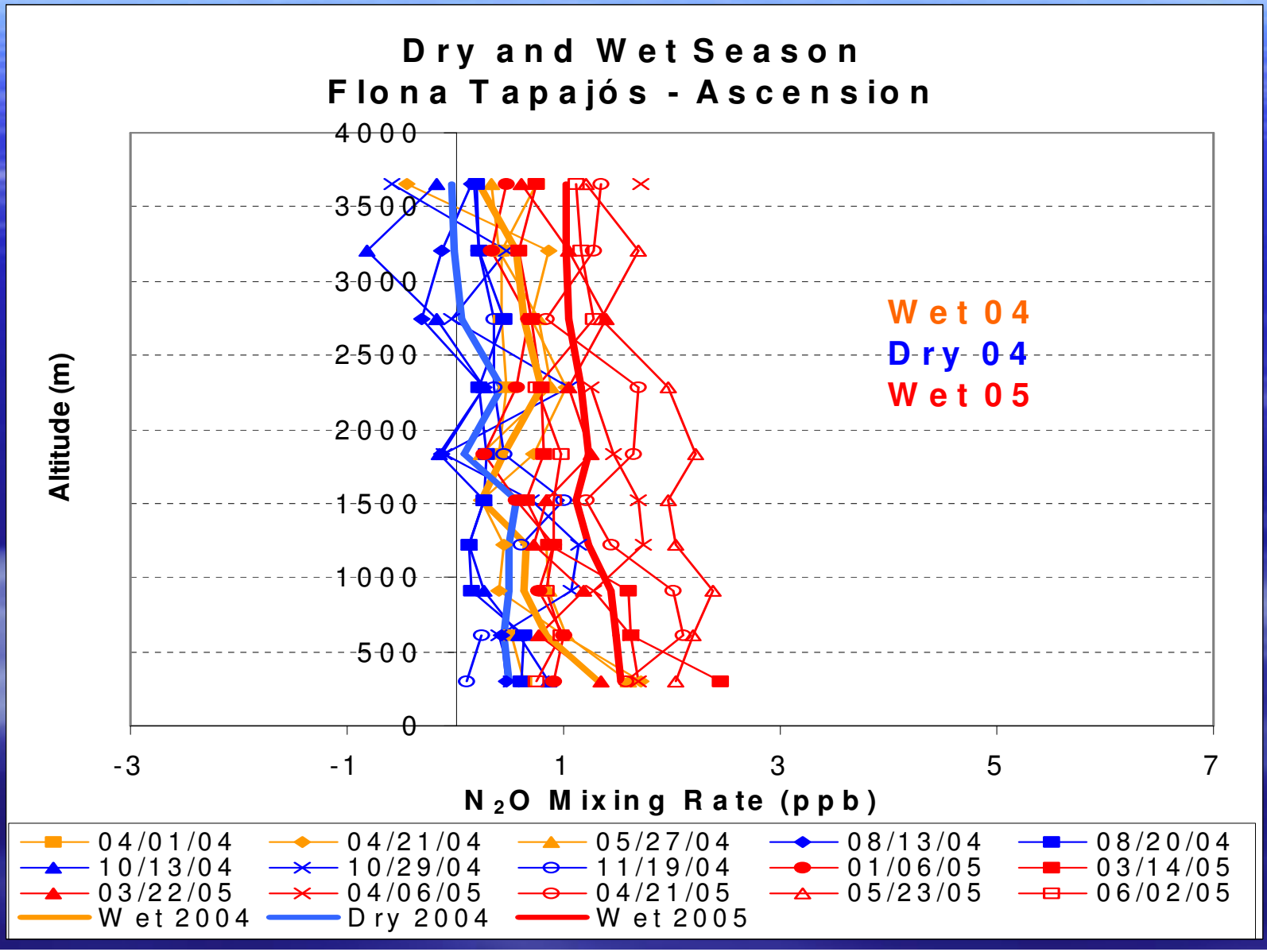

Flona Tapajós - 2001
Altitude (m)
4000
3500
3000
2500
2000
1500
1000
500
0
315
316,5
318
319,5
321
322,5
324
325,5
N2O Mixing Rate (ppb)
03/15/01
03/22/01
03/30/01
04/12/01
05/05/01
05/10/01
06/28/01
07/06/01
07/12/01


Flona Tapajós - 2002
Altitude (m)
4000
3500
3000
2500
2000
1500
1000
500
0
315
316,5
318
319,5
321
322,5
324
325,5
N2O Mixing Rate (ppb)
03/23/02
04/29/02
05/06/02


Flona Tapajós - 2003
Altitude (m)
4000
3500
3000
2500
2000
1500
1000
500
0
315
316,5
318
319,5
321
322,5
324
325,5
N2O Mixing Rate (ppb)
01/15/03
02/15/03
05/30/03
06/21/03
07/17/03
08/20/03

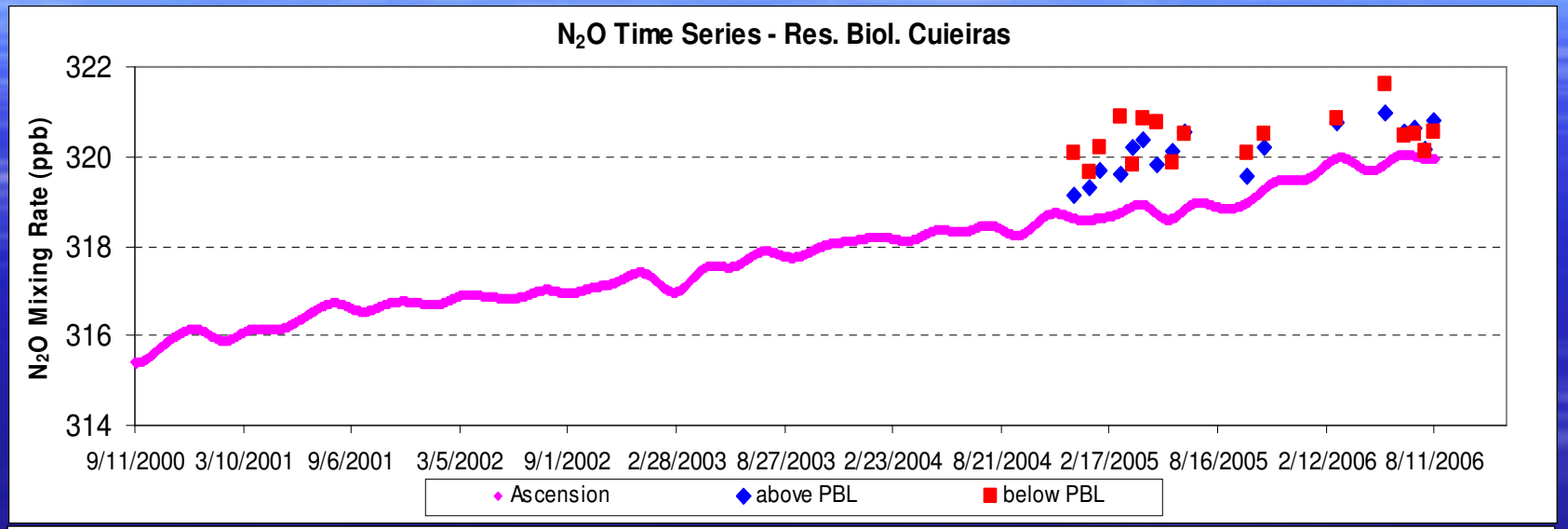

Flona Tapajós - 2
Impacted Area - 2
Flona Tapajós - Impacted Area (2004)
Altitude (m)
N2O Mixing Rate (
N2O Mixing Rate
N2O Mixing Rate (ppb)
04/01/04
04/21/04
08/20/04
10/13/04
05/27/04
08/13/04
Flona Tapajós - 200
Impacted Area - 2005
Flona Tapajós - Impacted Area (2005)
N2O Mixing Rate (pp
01/06/05
03/14/05
03/22/05
04/06/05
04/21/05
05/23/05
06/02/05

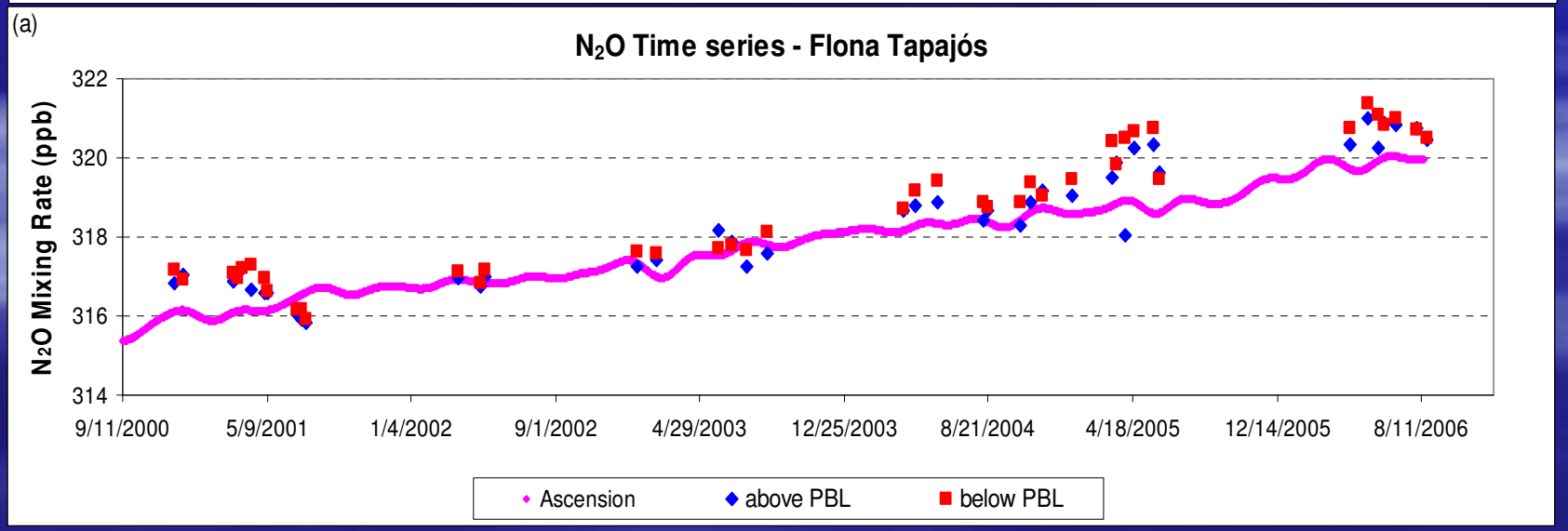
Comparing Dry and Wet Season removing Global influence



RESULTS

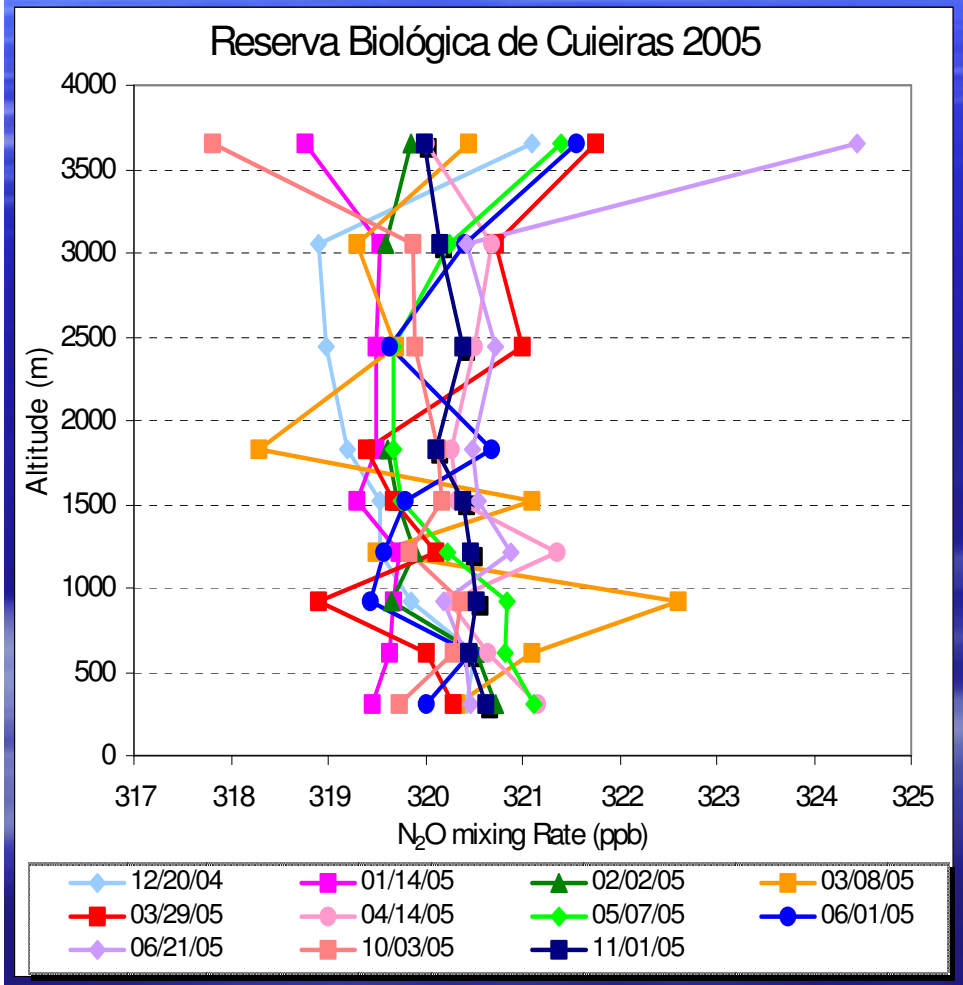
Comparing Cuierias and Tapajós

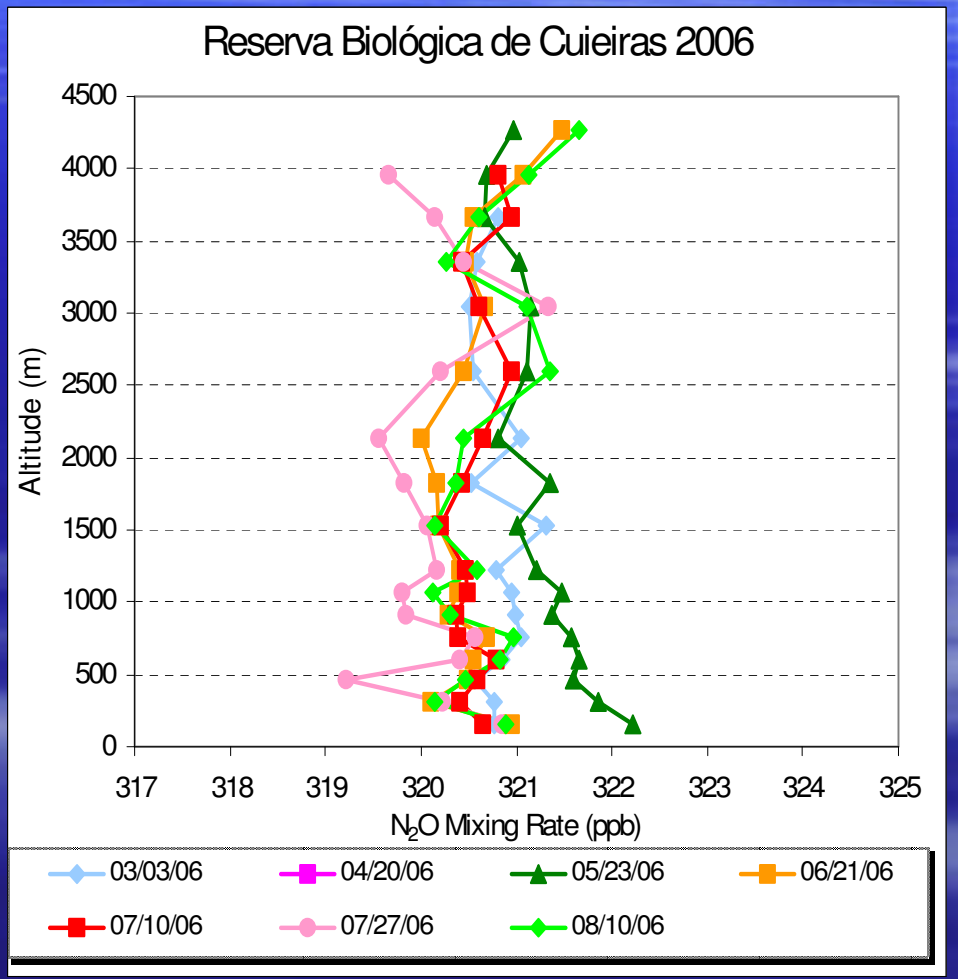




RESULTS

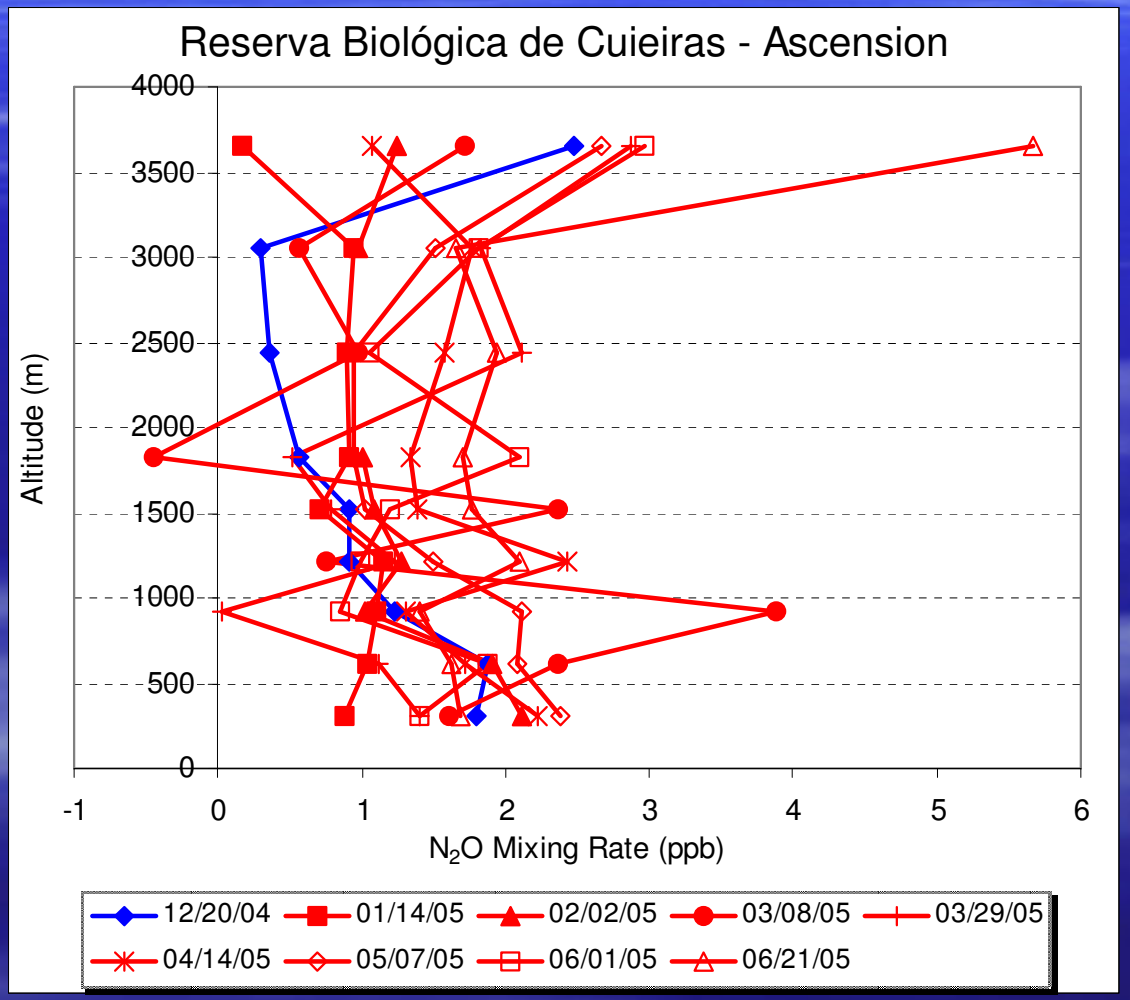
Vertical Profile - Cuieiras





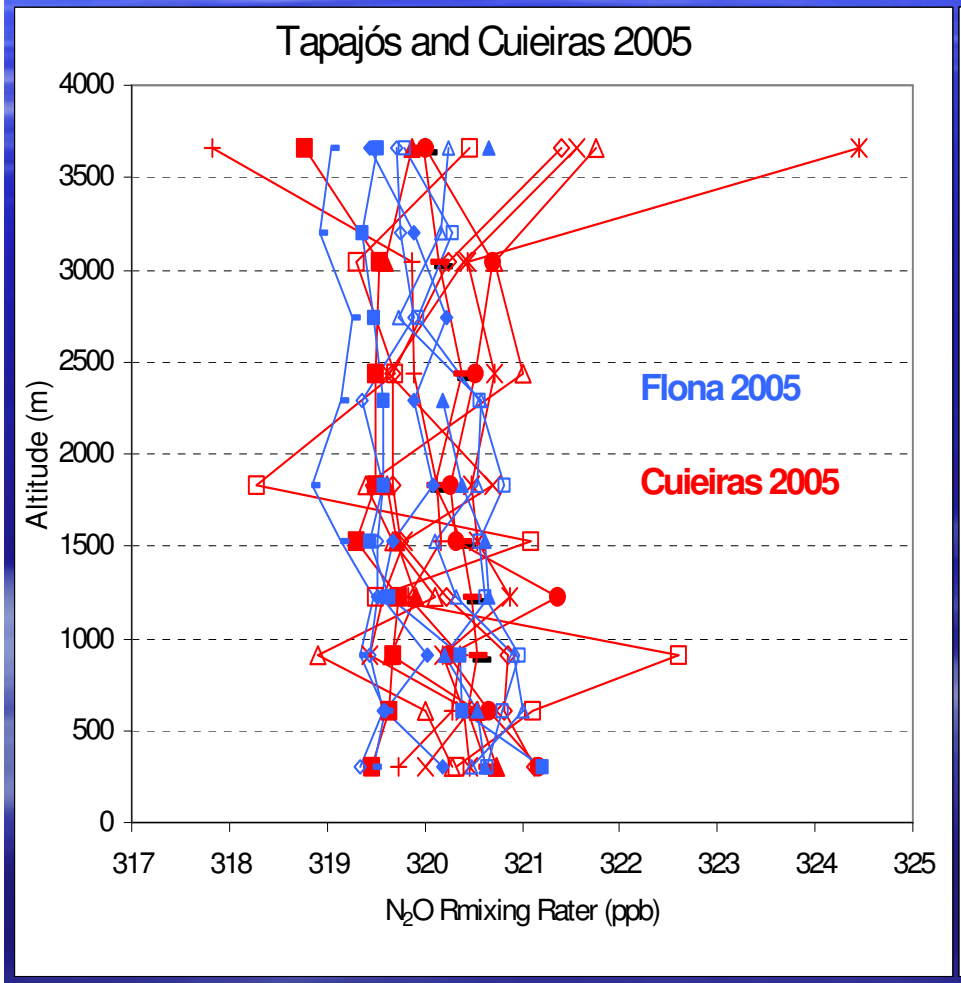
RESULTS

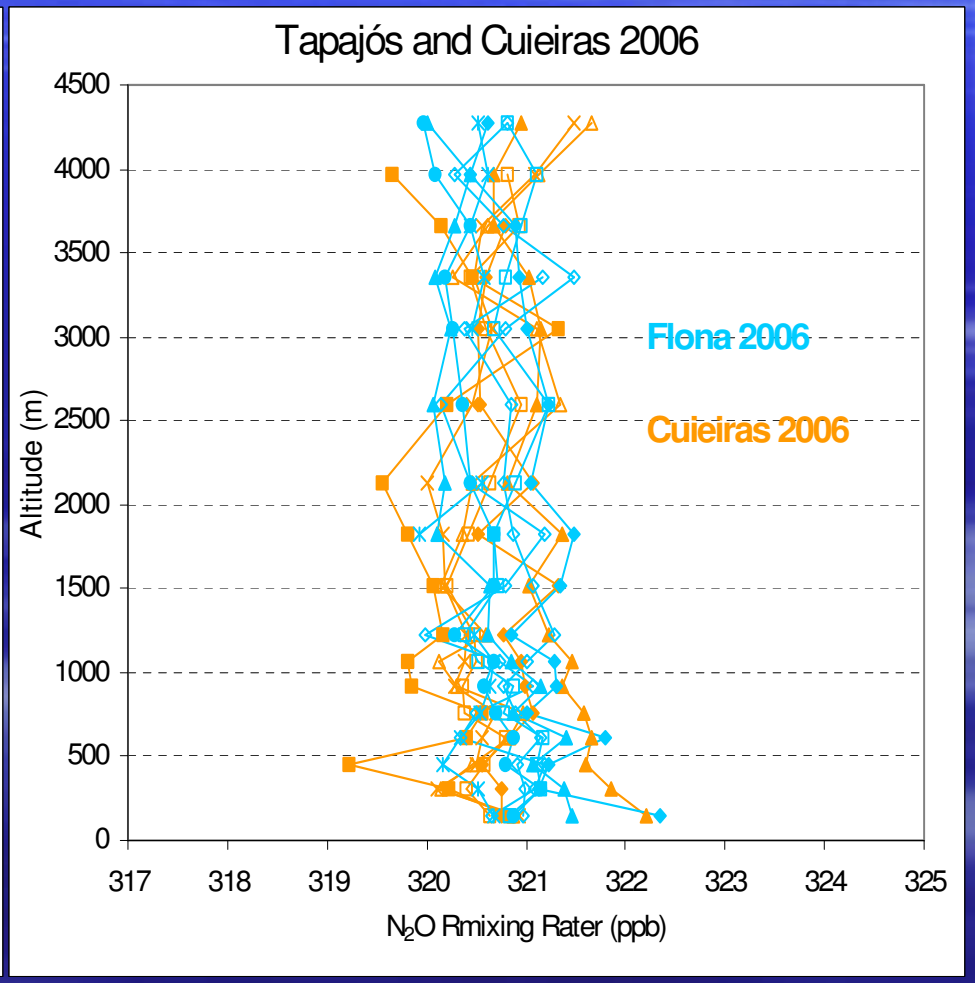
Comparing Dry and Wet Season removing Global influence



RESULTS

Tapajós vs. Cuieiras 2005 and 2006





Conclusion

- Both Cuieiras (Am) and Flona Tapajós (Pará) show enhancement relative to background
  →N_2O Flux
- At Flona Tapajós (Pará), enhancement is growing with time since 2003
- Cuieiras (Am) and Flona Tapajós (Pará) shows very similar enhancement
  →Most flux is from east of Santarem?