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\textsubscript{2}O 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).
Dry and Wet Classification
Flona Tapajós

Wet Season: January to July
Dry Season: August to December

We considered delay and anticipation.
Dry and Wet Classification
Reserva Biológica de Cuieiras

RESULTS

Wet Season: November to May
Dry Season: June to October

We considered delay and anticipation
RESULTS
RESULTS

Time Series – Flona Tapajós

(a) N₂O Time series - Flona Tapajós

(b) N₂O Time series - Impacted Area

- Ascension
- above PBL
- below PBL

- Ascension
- média acima CLP
- média abaixo CLP
Comparing Dry and Wet Season removing Global influence

### Dry and Wet Season

**Flona Tapajós - Ascension**

| Altitude (m) | 04/01/04 | 04/21/04 | 05/27/04 | 08/13/04 | 08/20/04 | 10/13/04 | 10/29/04 | 11/19/04 | 01/06/05 | 03/14/05 | 03/22/05 | 04/06/05 | 04/21/05 | 05/23/05 | 06/02/05 |
|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|             | Wet 04   | Wet 04   | Wet 04   | Wet 04   | Wet 04   | Dry 04   | Dry 04   | Dry 04   | Wet 05   | Wet 05   | Wet 05   | Wet 05   | Wet 05   | Wet 05   | Wet 05   | Wet 05   |

**N₂O Mixing Rate (ppb)**

- **Wet 04**
- **Dry 04**
- **Wet 05**
Comparing Cuierias and Tapajós

RESULTS

N₂O Time Series - Flona Tapajós

N₂O Time Series - Res. Biol. Cuieiras

(a)

N₂O Time series - Fiona Tapajós
VERTICAL PROFILE - CUIEIRAS

RESULTS

RESERVA BÍOLÓGICA DE CUIEIRAS 2005

RESERVA BÍOLÓGICA DE CUIEIRAS 2006

N2O MIXING RATE (ppb)

ALTITUDE (m)

12/20/04  01/14/05  02/02/05  03/08/05
03/29/05  04/14/05  05/07/05  06/01/05
06/21/05  10/03/05  11/01/05

03/03/06  04/20/06  05/23/06  06/21/06
07/10/06  07/27/06  08/10/06
Comparing Dry and Wet Season
removing Global influence

RESULTS
RESULTS

Tapajós vs. Cuieiras 2005 and 2006

Tapajós and Cuieiras 2005

Tapajós and Cuieiras 2006
Both Cuieiras (Am) and Flona Tapajós (Pará) show enhancement relative to background
→ N₂O Flux

At Flona Tapajós (Pará), enhancement is growing with time since 2003

Cuieiras (Am) and Flona Tapajós (Pará) show very similar enhancement
→ Most flux is from east of Santarem?