1 Supporting material

1.1 Pseudomonas Chlororaphis

1.1.1 Figures of $\delta^{15}N^{\alpha}$

Figures of the continuous measurements of the evolution of $\delta^{15}N^{\alpha}$ versus the concentration of N_2O. The blue profile is the raw production part. The black profile is the five minutes running mean of the raw measurements. The red is the fitted Rayleigh distillation for the production part.

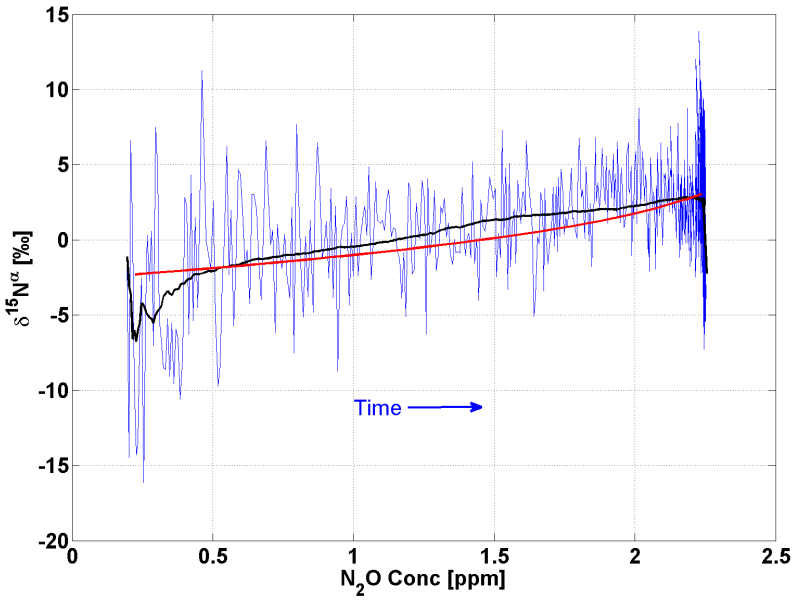

Figure S1. *Replica # 1*

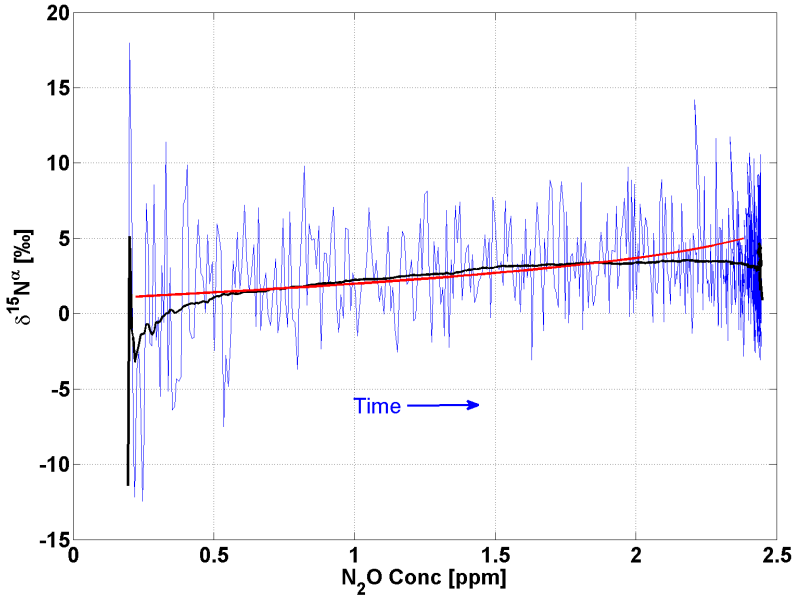

Figure S2. *Replica # 2*

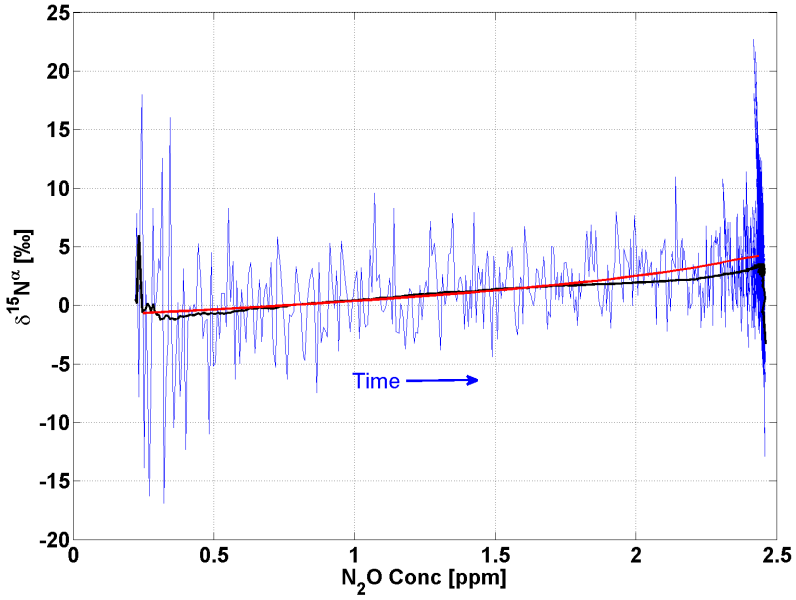

Figure S3. *Replica # 3*

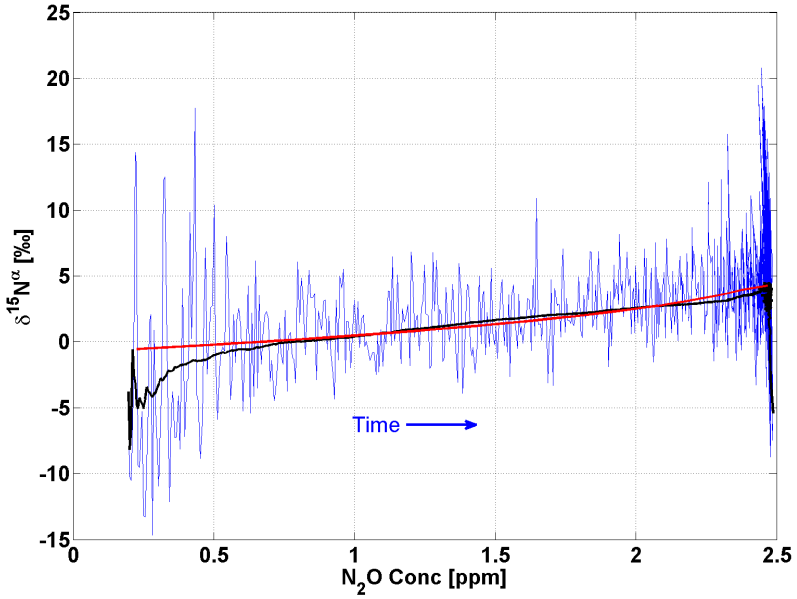

Figure S4. *Replica # 4*

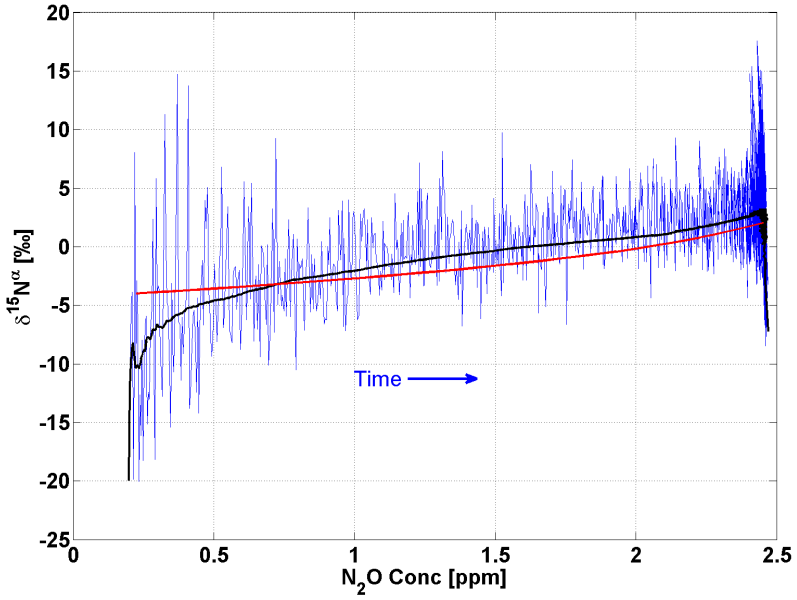

Figure S5. *Replica # 5*

1.1.2 Figures of $\delta^{15}N^{\beta}$

Figures of the continuous measurements of the evolution of $\delta^{15}N^{\beta}$ versus the concentration of N_2O. The blue profile is the raw production part. The black profile is the five minutes running mean of the raw measurements. The red is the fitted Rayleigh distillation for the production part.

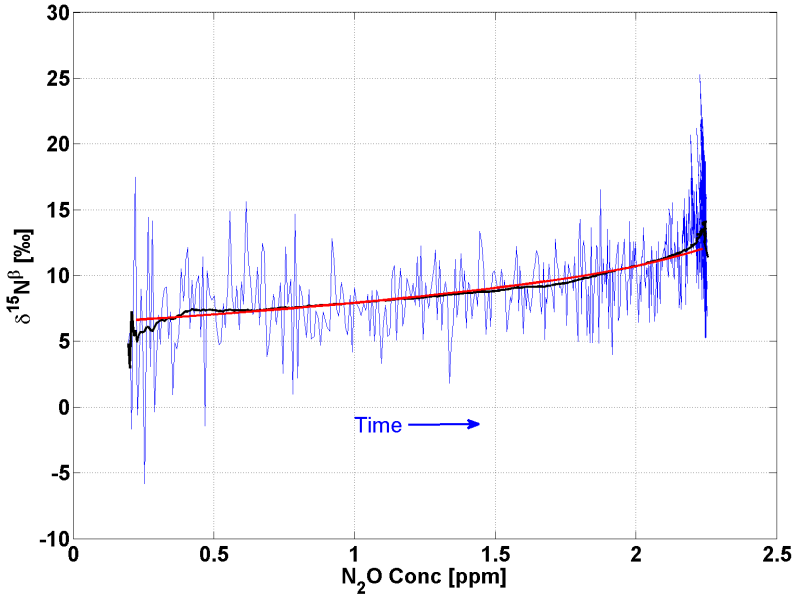

Figure S6. *Replica # 1*

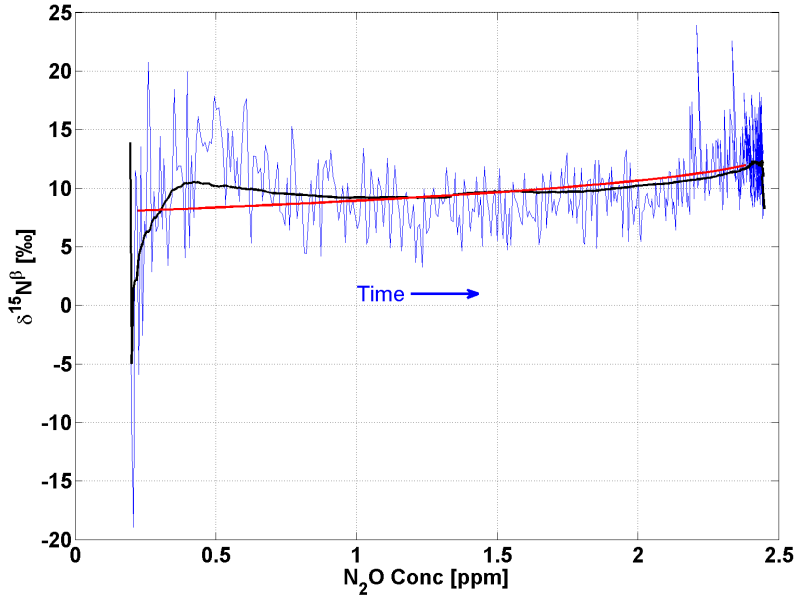

Figure S7. *Replica # 2*

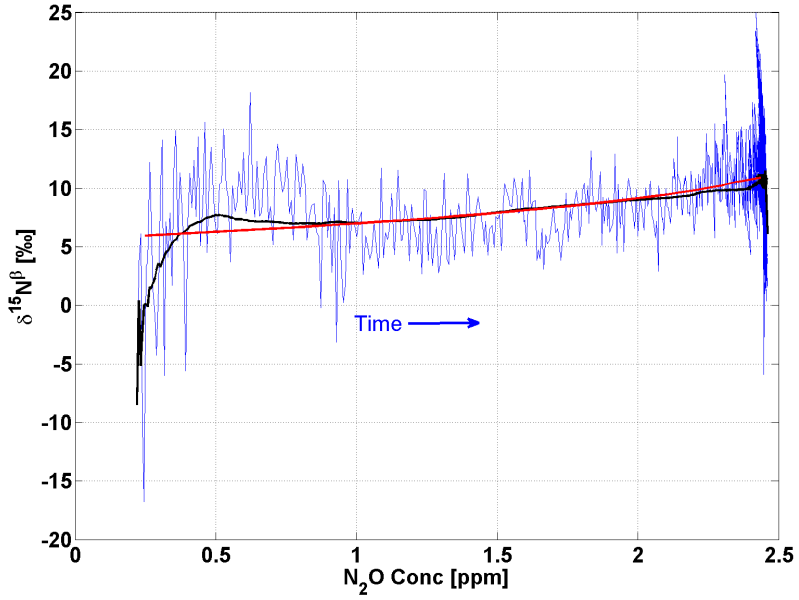

Figure S8. *Replica # 3*

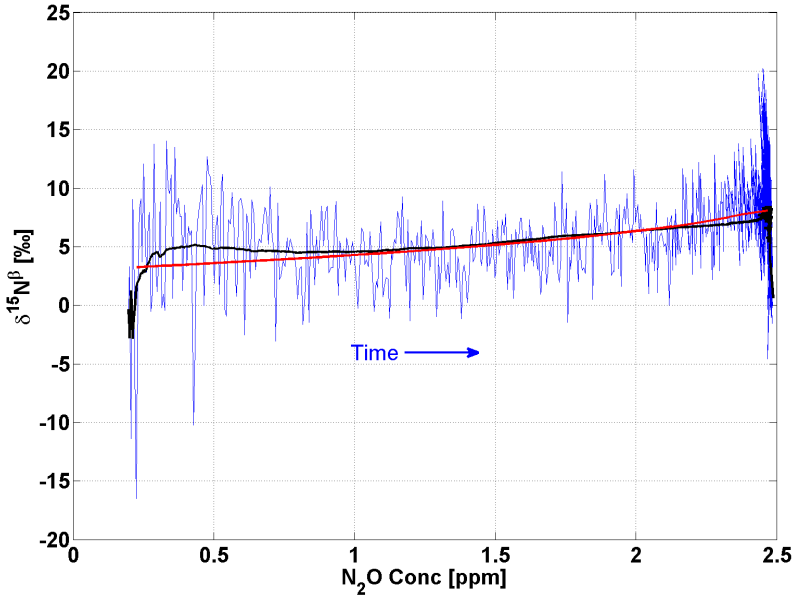

Figure S9. *Replica # 4*

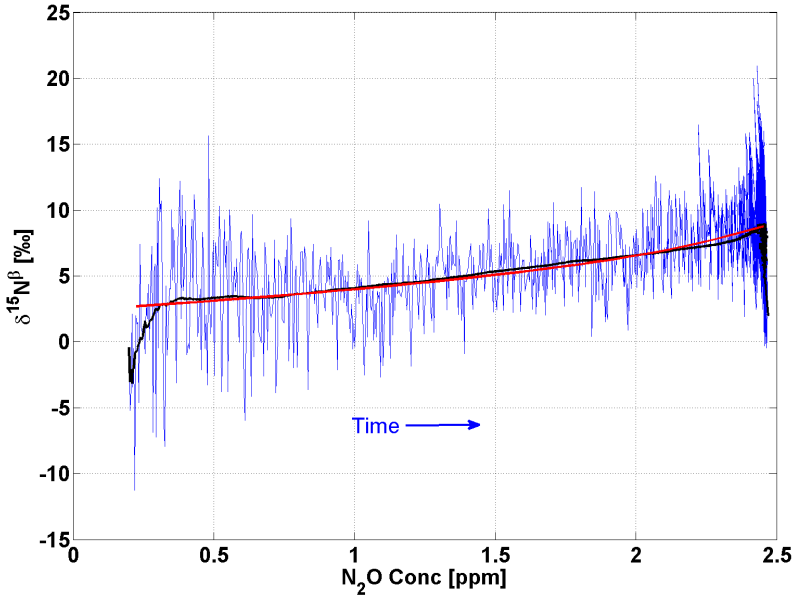

Figure S10. *Replica # 5*

1.1.3 Figures of $\delta^{15}N^{bulk}$

Figures of the continuous measurements of the evolution of $\delta^{15}N^{bulk}$ versus the concentration of N_2O. The blue profile is the raw production part. The black profile is the five minutes running mean of the raw measurements. The red is the fitted Rayleigh distillation for the production part.

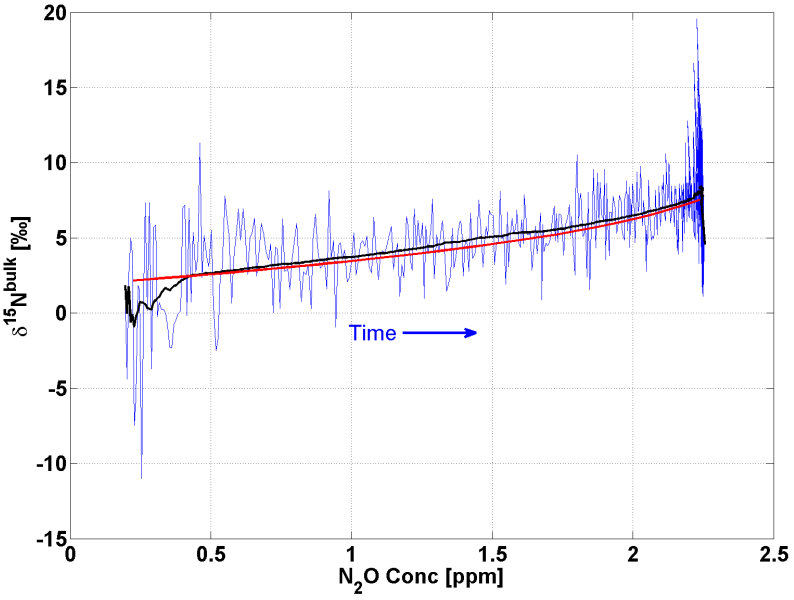

Figure S11. *Replica # 1*

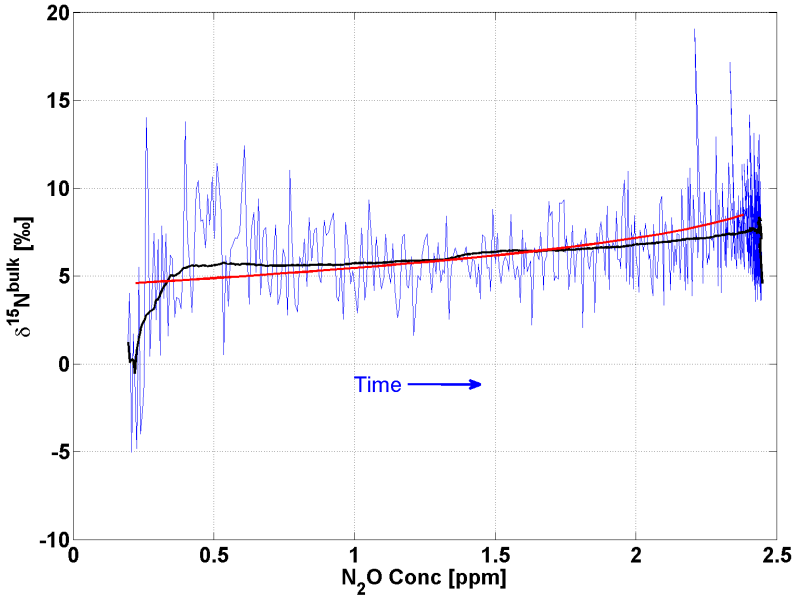

Figure S12. *Replica # 2*

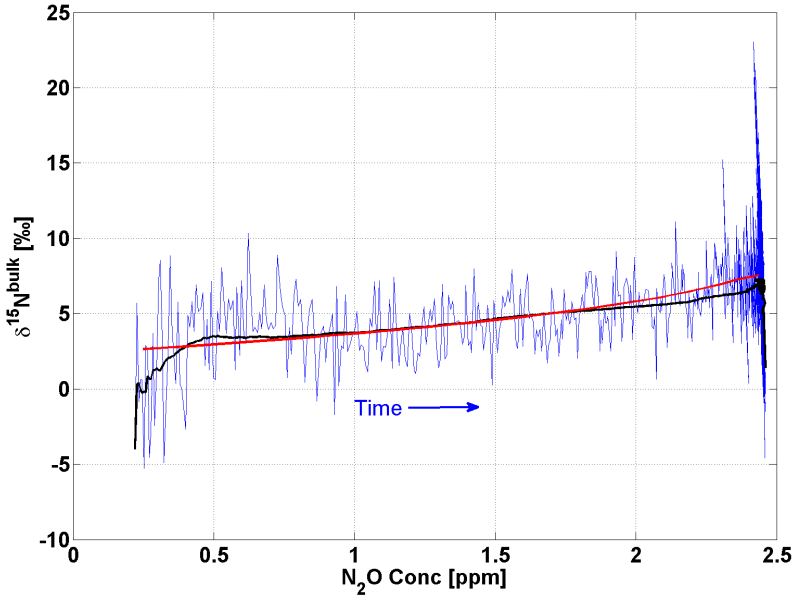

Figure S13. *Replica # 3*

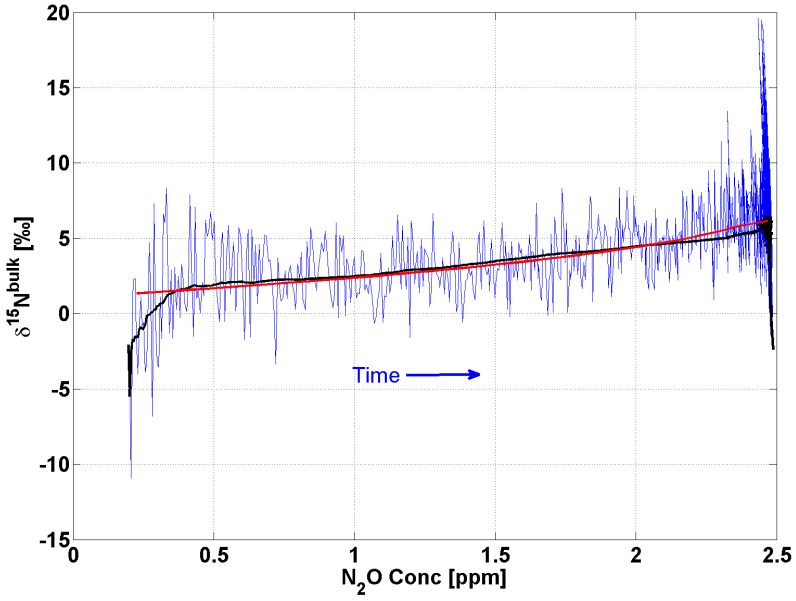

Figure S14. *Replica # 4*

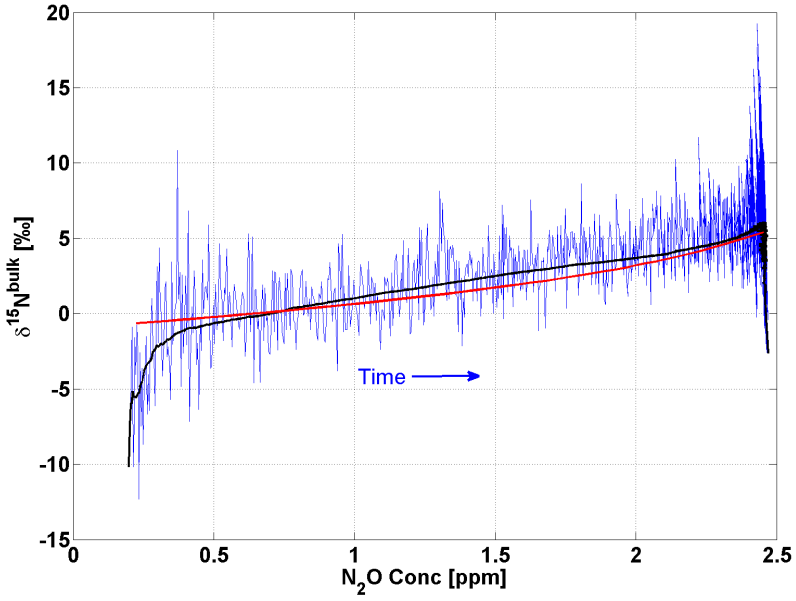

Figure S15. *Replica # 5*

1.2 Pseudomonas Fluorescens

1.2.1 Figures of $\delta^{15}N^{\alpha}$

Figures of the continuous measurements of the evolution of $\delta^{15}N^{\alpha}$ versus the concentration of N_2O. The blue profile is the raw production part. The green profile is the raw consumption part. The black profile is the 5 minutes running mean of the raw measurements. The red is the fitted Rayleigh distillation for the production part. The magenta is the fitted Rayleigh distillation for the consumption part.

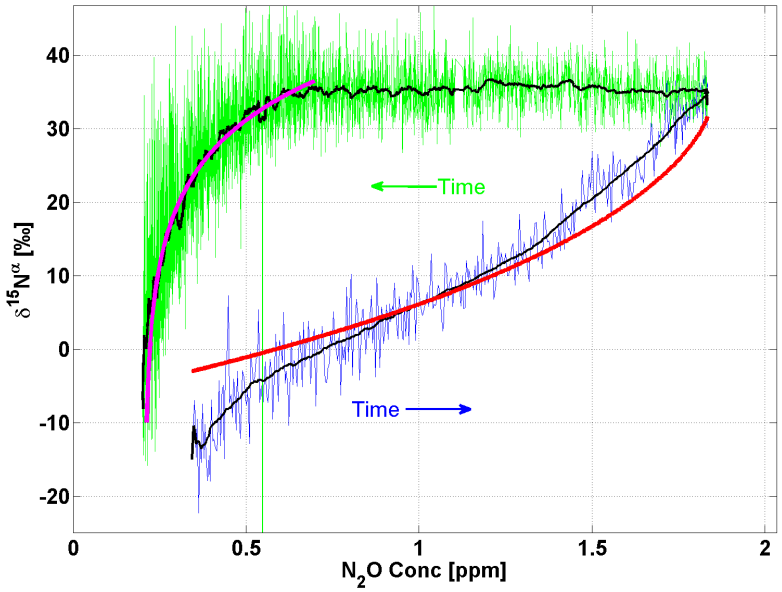

Figure S16. *Replica # 1*

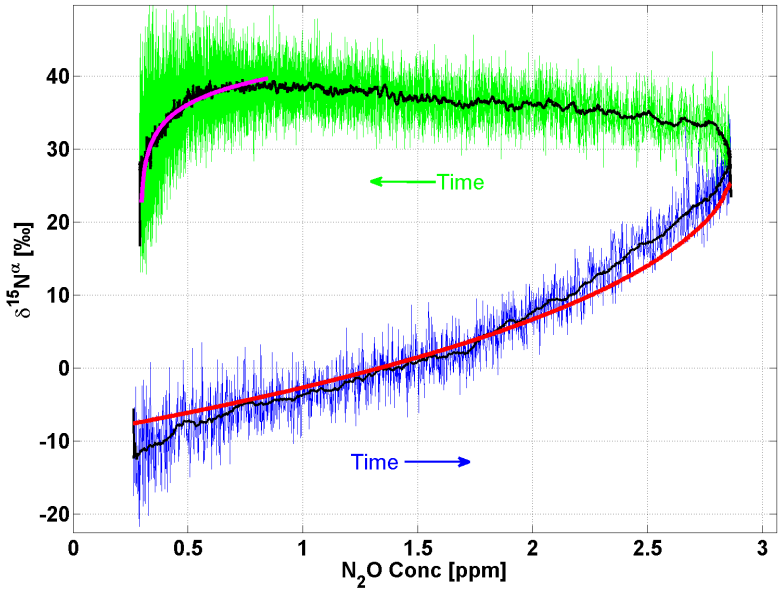

Figure S17. *Replica # 2*

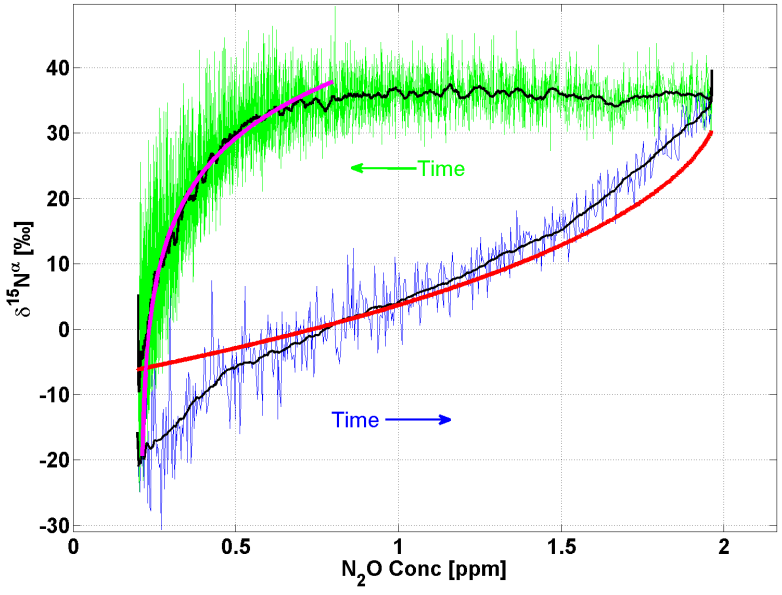

Figure S18. *Replica # 3*

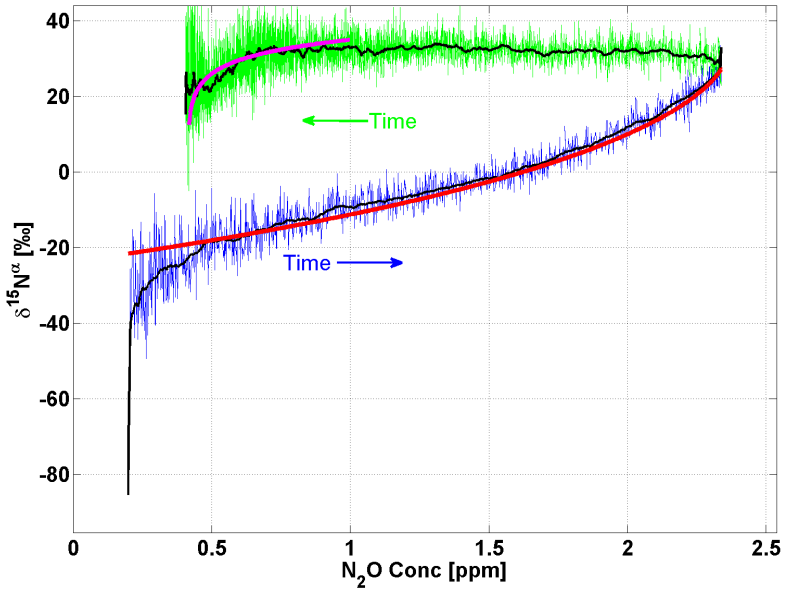

Figure S19. *Replica # 4*

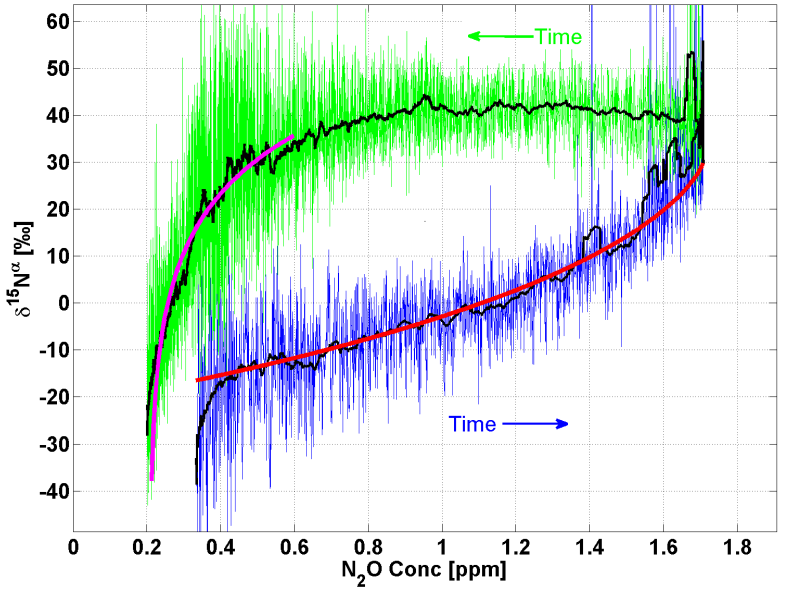

Figure S20. *Replica # 5*

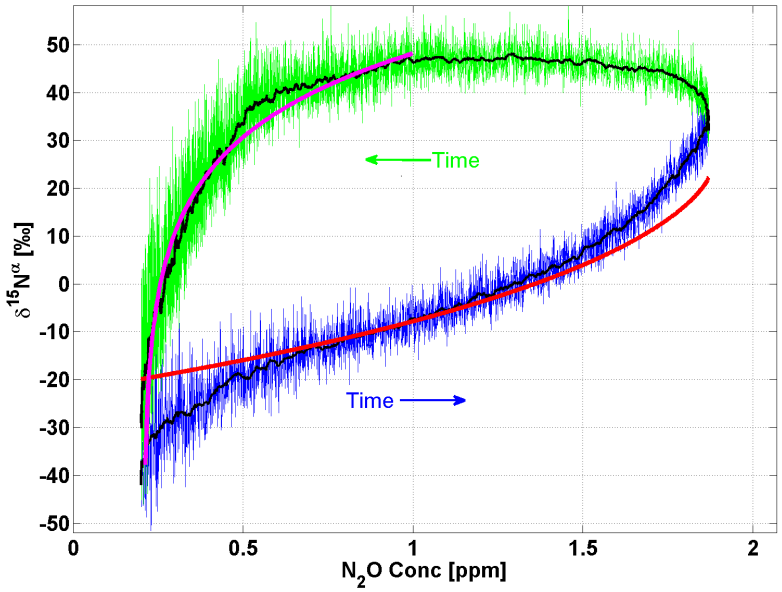

Figure S21. *Replica # 6*

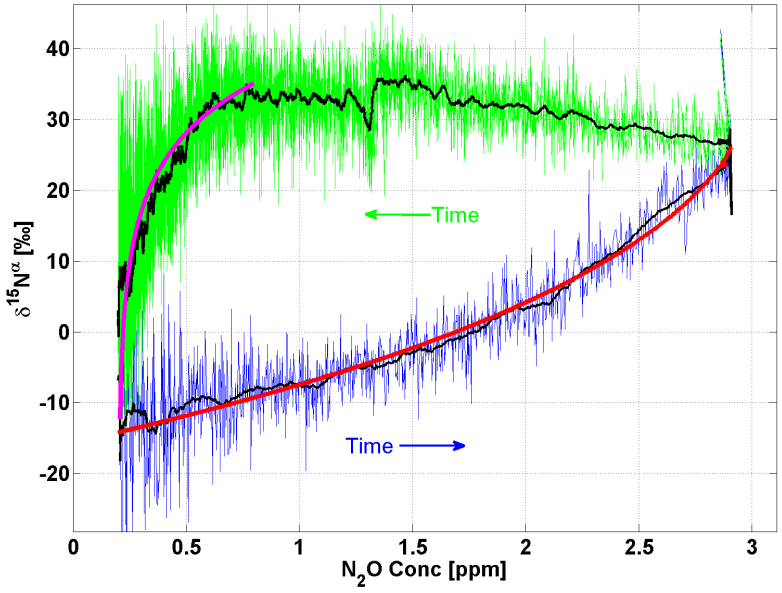

Figure S22. *Replica # 7*

1.2.2 Figures of $\delta^{15}N^{\beta}$

Figures of the continuous measurements of the evolution of $\delta^{15}N^{\beta}$ versus the concentration of N_2O. The blue profile is the raw production part. The green profile is the raw consumption part. The black profile is the five minutes running mean of the raw measurements. The red is the fitted Rayleigh distillation for the production part. The magenta is the fitted Rayleigh distillation for the consumption part.

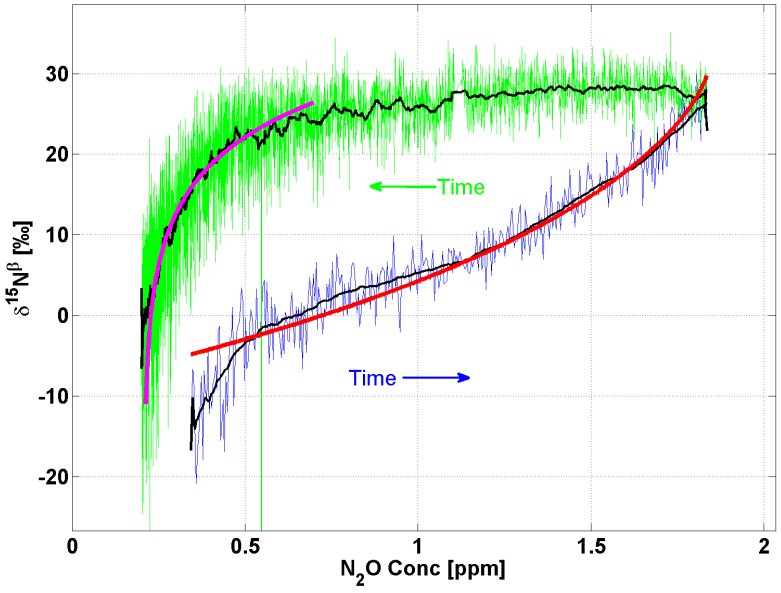

Figure S23. *Replica # 1*

5

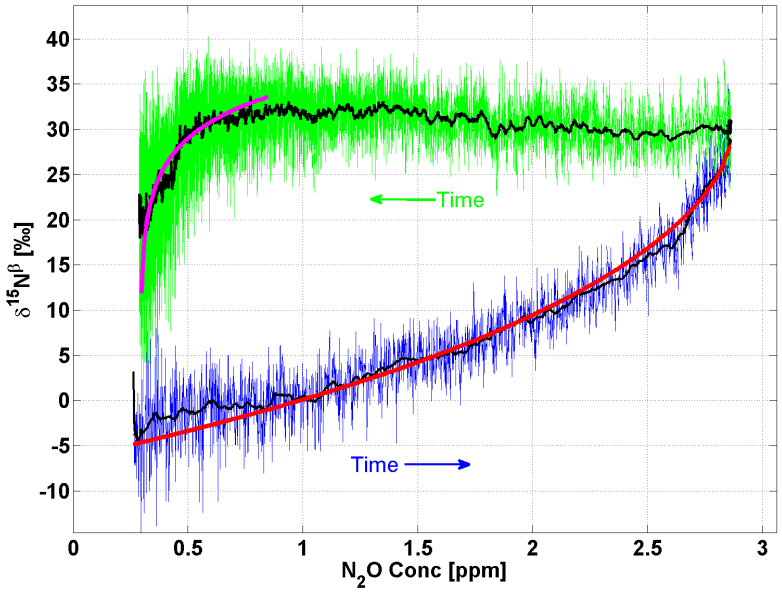

Figure S24. *Replica # 2*

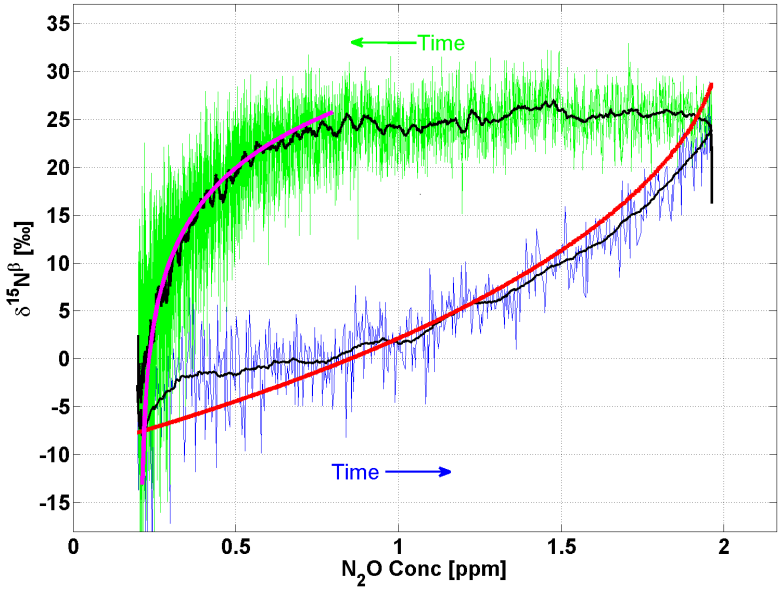

Figure S25. *Replica # 3*

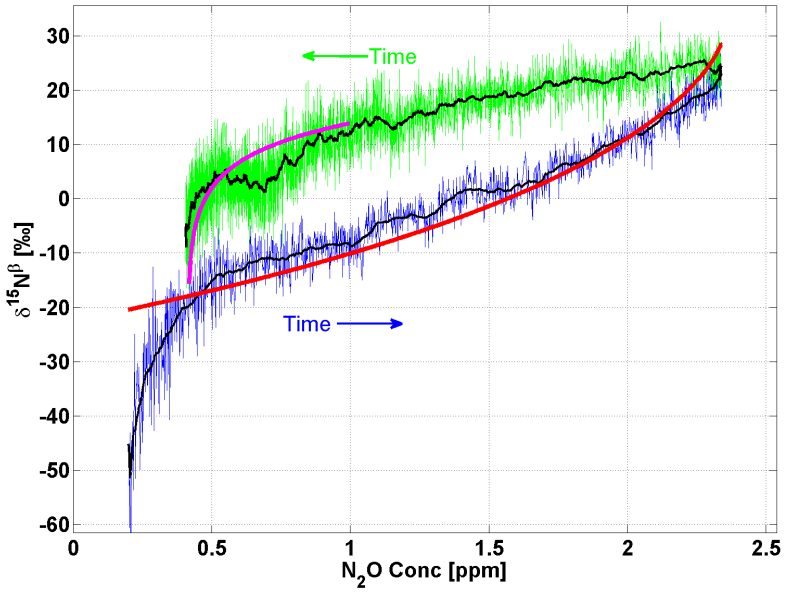

Figure S26. *Replica # 4*

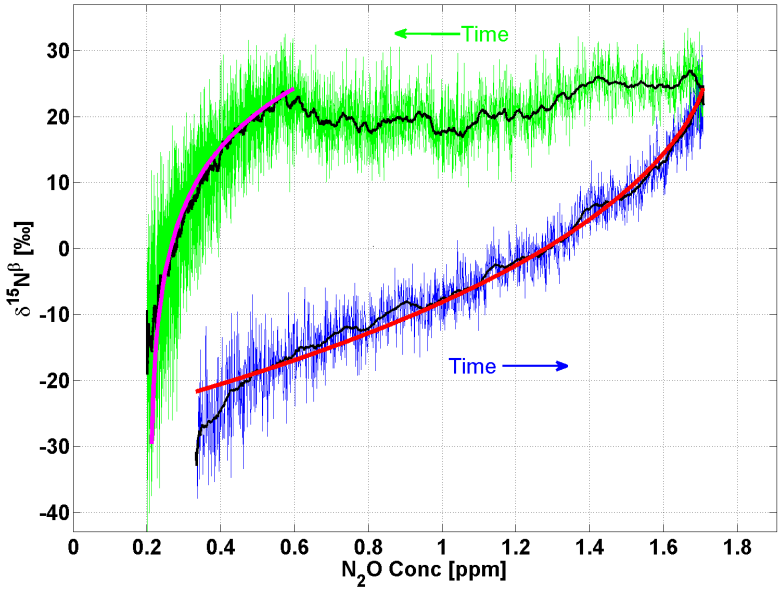

Figure S27. *Replica # 5*

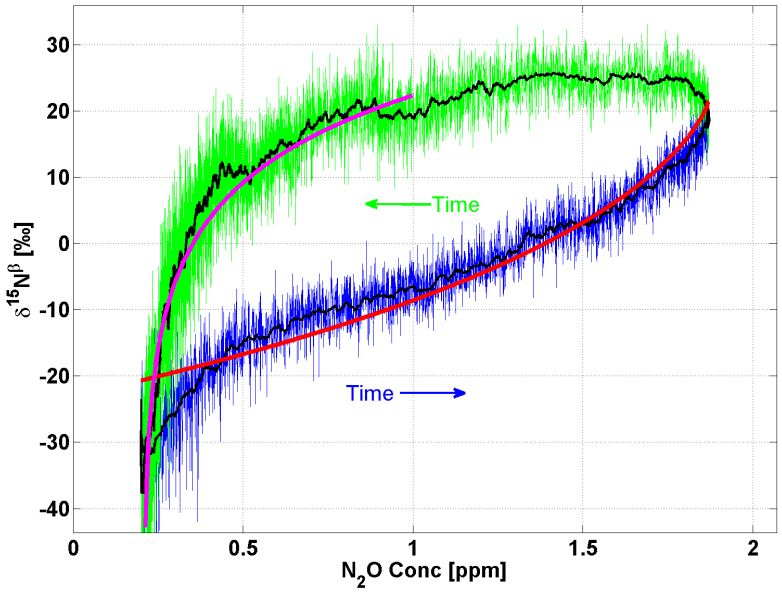

Figure S28. *Replica # 6*

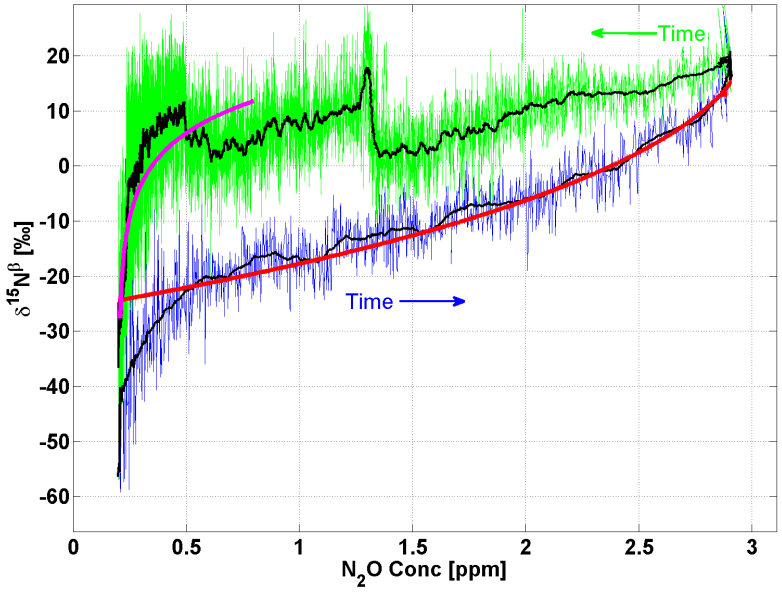

Figure S29. *Replica # 7*

1.2.3 Figures of $\delta^{15}N^{bulk}$

Figures of the continuous measurements of the evolution of $\delta^{15}N^{bulk}$ versus the concentration of N_2O. The blue profile is the raw production part. The green profile is the raw consumption part. The black profile is the five minutes running mean of the raw measurements. The red is the fitted Rayleigh distillation for the production part. The magenta is the fitted Rayleigh distillation for the consumption part.

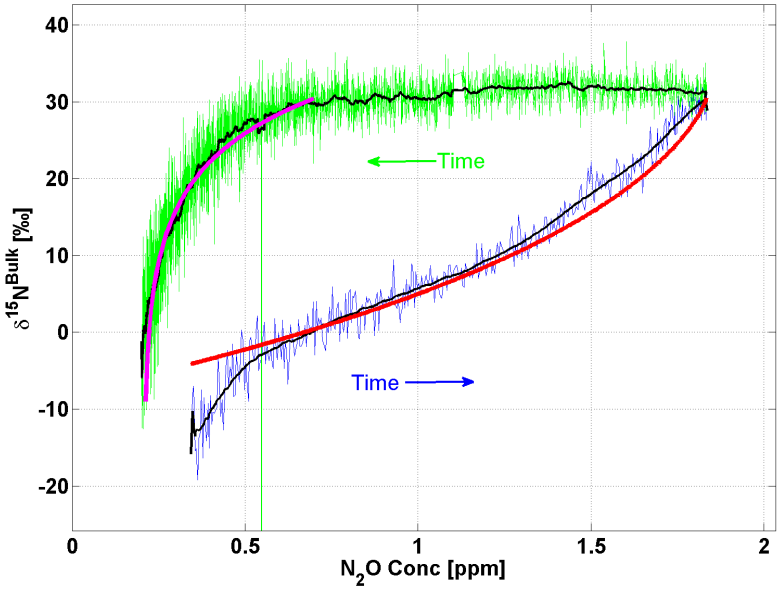

Figure S30. *Replica # 1*

5

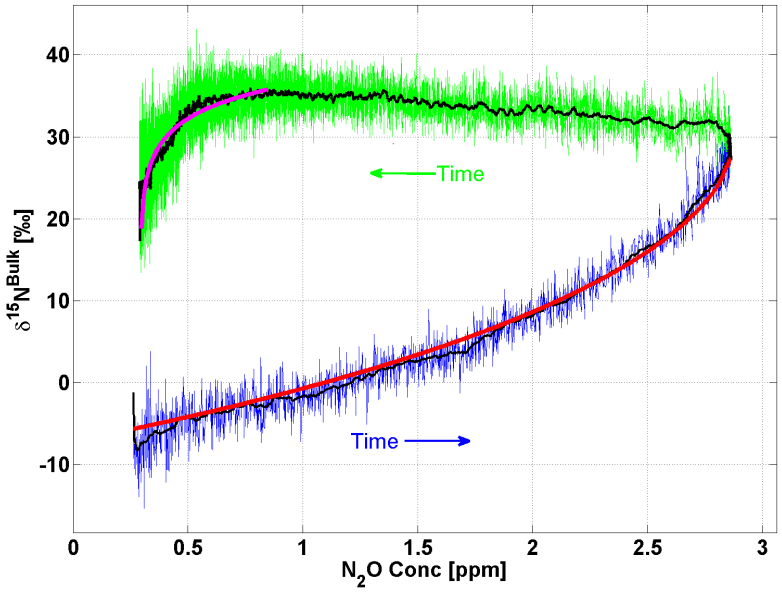

Figure S31. *Replica # 2*

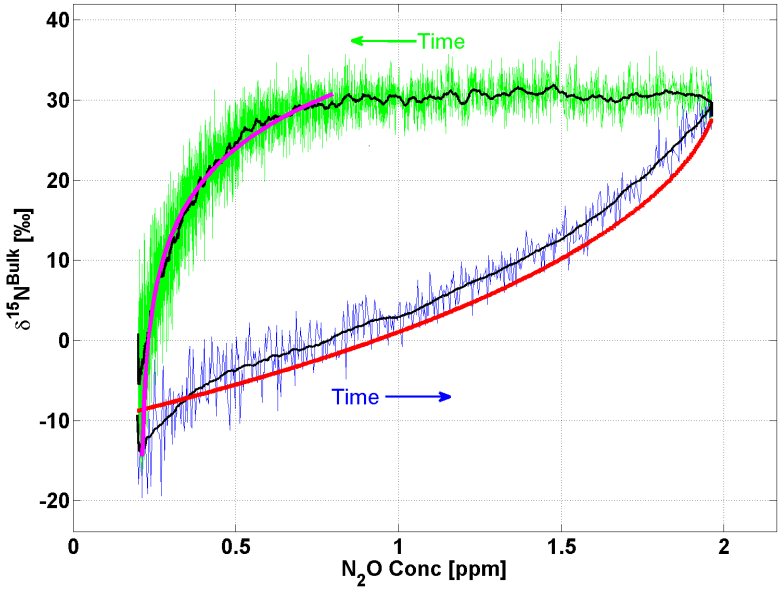

Figure S32. *Replica # 3*

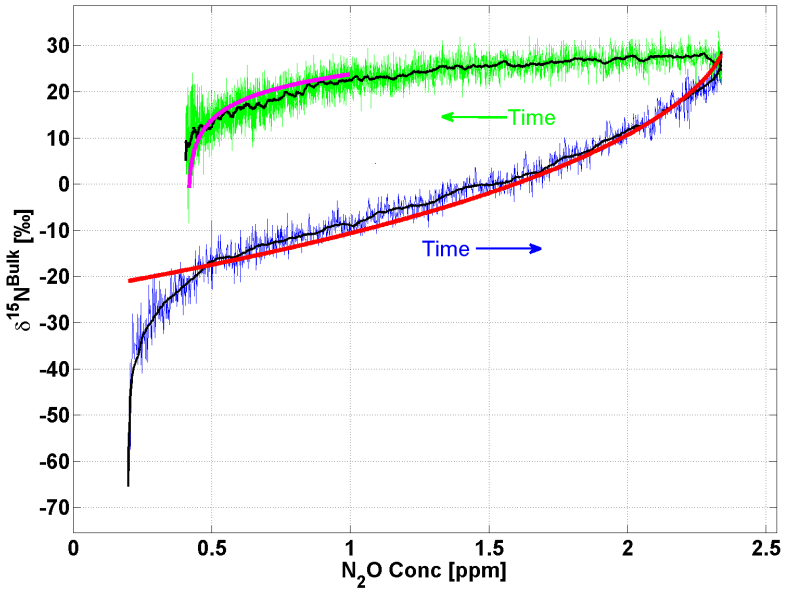

Figure S33. *Replica # 4*

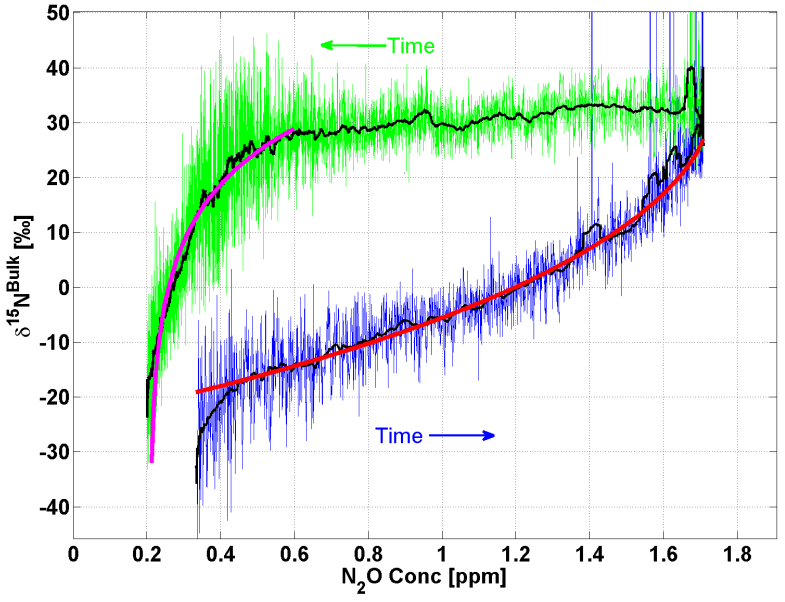

Figure S34. *Replica # 5*

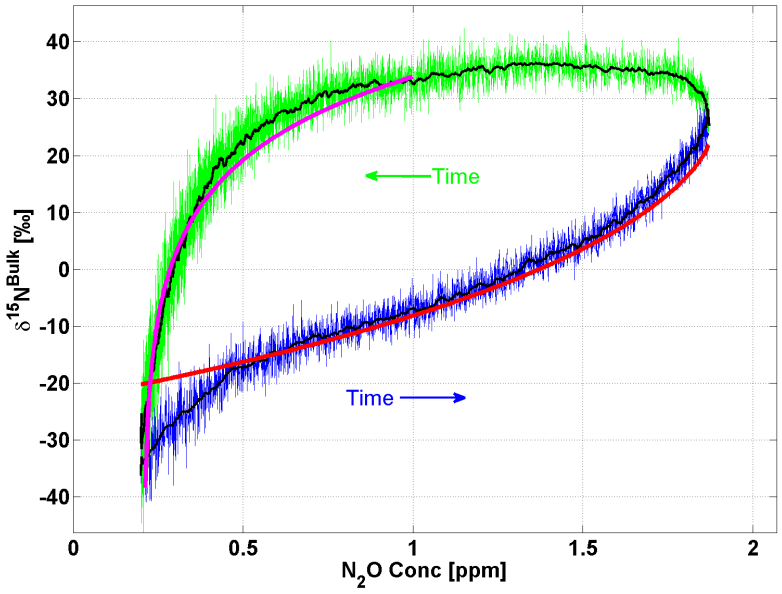

Figure S35. *Replica # 6*

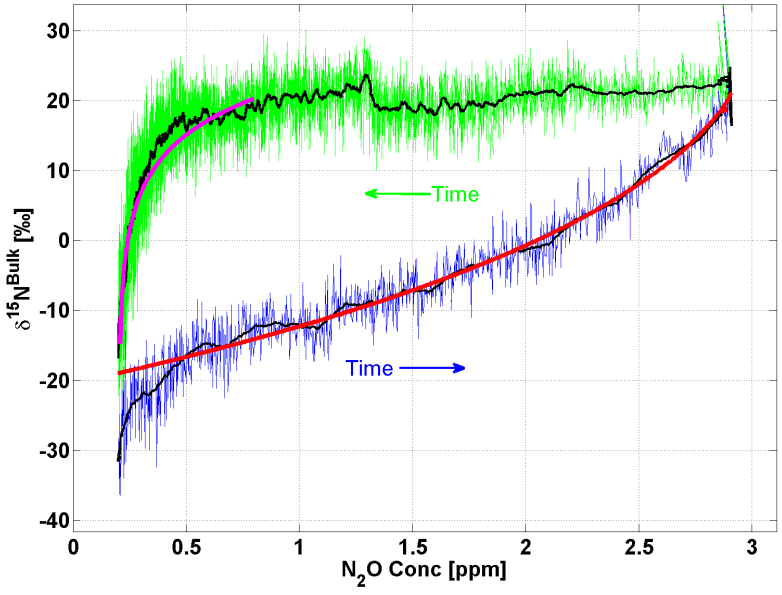

Figure S36. *Replica # 7*