



*Supplement of*

## **Mid-Atlantic US observations of radiocarbon in CO<sub>2</sub>: fossil and biogenic source partitioning and model evaluation**

**Bianca C. Baier et al.**

*Correspondence to:* Bianca C. Baier ([bianca.baier@noaa.gov](mailto:bianca.baier@noaa.gov))

The copyright of individual parts of the supplement might differ from the article licence.

Table S1. Pair-wise seasonal regression slopes during each ACT campaign between  $\text{CO}_{2\text{tot}}$  and  $\text{CO}_{2\text{ff}}$  and  $\text{CO}_{2\text{bio}}$ , and between  $\text{CO}_{2\text{bio}}$  and OCS ABL-FT differences ( $\text{OCS}_{\text{xs}}$ ). Regression slopes were derived using a Model II linear least squares geometric mean regression. Slope uncertainties and coefficient of determination ( $R^2$ ) are reported for each ACT seasonal campaign, along with the fraction of total samples,  $F(\text{[ ]})$ , with negative derived  $\text{CO}_{2\text{bio}}$  and  $\text{CO}_{2\text{tot}}$ .

	Winter (slope $\pm 1\sigma$ , $R^2_{(p<0.05)}$ )	Spring (slope $\pm 1\sigma$ , $R^2_{(p<0.05)}$ )	Summer (slope $\pm 1\sigma$ , $R^2_{(p<0.05)}$ )	Fall (slope $\pm 1\sigma$ , $R^2_{(p<0.05)}$ )
$\text{CO}_{2\text{tot}}:\text{CO}_{2\text{ff}}$	$0.81\pm 0.10$ , 0.20	$0.45\pm 0.06$ , 0.18	$0.26\pm 0.04$ , 0.18	$0.38\pm 0.05$ , 0.26
$\text{CO}_{2\text{tot}}:\text{CO}_{2\text{bio}}$	$0.86\pm 0.10$ , 0.31	$0.88\pm 0.05$ , 0.73	$0.92\pm 0.04$ , 0.93	$0.81\pm 0.05$ , 0.92
$\text{CO}_{2\text{bio}}:\text{OCS}$	$-0.09\pm 0.14$ , 0.20	$0.13\pm 0.02$ , --	$0.12\pm 0.02$ , 0.11	$-0.25\pm 0.05$ , --
	Winter (Fraction)	Spring (Fraction)	Summer (Fraction)	Fall (Fraction)
$F(\text{CO}_{2\text{bio}}<0)$	0.09	0.57	0.82	0.08
$F(\text{CO}_{2\text{tot}}<0)$	0.00	0.28	0.62	0.04

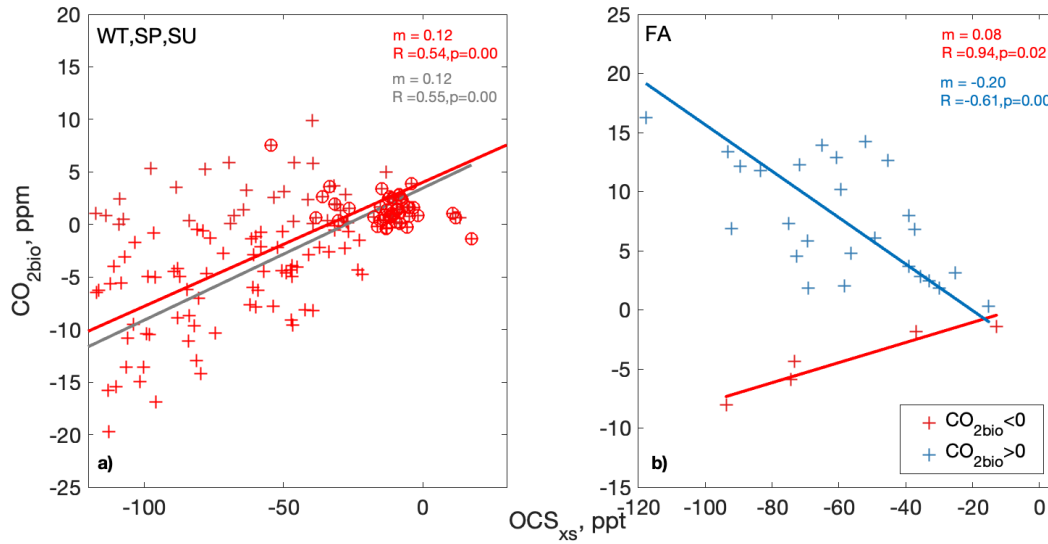


Figure S1. Correlations of  $\text{CO}_{2\text{bio}}$  and OCS ABL-FT differences ( $\text{OCS}_{\text{xs}}$ ) during seasonal ACT campaigns shown in a) for winter (WT, circled), spring (SP) and summer (SU) seasons (red crosses). The correlation for data points in a) where  $\text{CO}_{2\text{bio}}$  indicates uptake only ( $\text{CO}_{2\text{bio}} < 0$ ) is shown in grey, providing a similar  $R$  value. Slopes for  $\text{CO}_{2\text{bio}}:\text{OCS}_{\text{xs}}$  for each season are shown separately in Table S1. b) Fall (FA) deployment correlations with OCS distinguished between when  $\text{CO}_{2\text{bio}}$  indicated biogenic respiration ( $\text{CO}_{2\text{bio}} > 0$ ) and uptake ( $\text{CO}_{2\text{bio}} < 0$ ).