Supplemental material for manuscript “Carbon and oxygen isotope composition in soil carbon dioxide and free oxygen within deep Ultisols at the Calhoun CZO, South Carolina, USA” by Cherkinsky A., Brecheisen Z., Richter D.

The original data of the core locations, soil gas components concentration and its isotopic composition.

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| **UGAMS#** | **Sample ID** | **δ13C,‰** | | **δ18O,‰** | | **pMC** | **±** | **∆14C,‰** | **±** |
| **Cultivated sites** | | | | | | | | | |
| Latitude 34.61017; longitude -81.72698; elevation 151.5m a.s.l. | | | | | | | | | |
| 26292 | R1C1 - 0.5m | -17.12 | | 27.16 | | 104.43 | 0.34 | 44.3 | 3.4 |
| 26293 | R1C1 - 1.5m | -16.42 | | 27.62 | | 108.18 | 0.31 | 81.8 | 3.1 |
| 26294 | R1C1 - 3.0m | -18.24 | | 27.13 | | 113.38 | 0.32 | 133.8 | 3.2 |
| 26295 | R1C1 - 5.0m | -18.90 | | 27.94 | | 113.22 | 0.31 | 132.2 | 3.1 |
| Latitude 34.61147; longitude -81.72786; elevation 154.4m a.s.l. | | | | | | | | | |
| 26450 | R1C2 Sunflower | -27.21 | | n/a | | 101.62 | 0.34 | 16.2 | 3.4 |
| 26451 | R1C2 0.5m | -18.95 | | 27.16 | | 105.23 | 0.29 | 52.3 | 2.9 |
| 26452 | R1C2 1.5m | -20.98 | | 26.72 | | 108.87 | 0.29 | 88.7 | 2.9 |
| 26453 | R1C2 3.0m | -22.35 | | 28.00 | | 114.68 | 0.31 | 146.8 | 3.1 |
| 26454 | R1C2 5.0m | -23.21 | | 28.53 | | 115.05 | 0.31 | 150.5 | 3.1 |
| Latitude 34.60925; longitude -81.72804; elevation 168.2m a.s.l. | | | | | | | | | |
| 26455 | R1C3 Legume | -30.12 | | n/a | | 102.17 | 0.28 | 21.7 | 2.8 |
| 26456 | R1C3 Sorghum | -13.27 | | n/a | | 102.27 | 0.28 | 22.7 | 2.8 |
| 26457 | R1C3 0.5m | -17.25 | | 26.81 | | 103.07 | 0.30 | 30.7 | 3 |
| 26458 | R1C3 1.5m | -17.64 | | 29.09 | | 105.00 | 0.28 | 50.0 | 2.8 |
| 26459 | R1C3 3.0m | -19.76 | | 28.58 | | 113.52 | 0.30 | 135.2 | 3 |
| 26460 | R1C3 5.0m | -20.49 | | 28.47 | | 113.85 | 0.31 | 138.5 | 3.1 |
| **Hardwood sites** | | | | | | | | | |
| Latitude 34.60642; longitude -81.72332; elevation 153.3m a.s.l. | | | | | | | | | |
| 26296 | R1H1 - 0.5m | -21.95 | | 28.16 | | 104.54 | 0.30 | 45.4 | 3 |
| 26297 | R1H1 - 1.5m | -21.39 | | 27.84 | | 105.72 | 0.30 | 57.2 | 3 |
| 26298 | R1H1 - 3.0m | -24.30 | | 27.48 | | 107.07 | 0.31 | 70.7 | 3.1 |
| 26299 | R1H1 - 5.0m | -24.25 | | 27.82 | | 107.33 | 0.32 | 73.3 | 3.2 |
| Latitude 34.59824; longitude -81.67581; elevation 128.0m a.s.l. | | | | | | | | | |
| 26467 | R4H1 - 0.5m | -21.02 | | 30.00 | | 106.14 | 0.30 | 61.4 | 3.0 |
| 26468 | R4H1 - 1.5m | -22.74 | | 26.79 | | 107.20 | 0.29 | 72.0 | 2.9 |
| 26469 | R4H1 - 3.0m | -24.76 | | 28.17 | | 107.01 | 0.29 | 70.1 | 2.9 |
| 26470 | R4H1 5.0m | -24.78 | | 28.47 | | 107.92 | 0.29 | 79.2 | 2.9 |
| Latitude 34.54215; longitude -81.75428; elevation 134.5m a.s.l. | | | | | | | | | |
| 26476 | R7H1 0.5m | -21.59 | | 30.11 | | 104.98 | 0.29 | 49.8 | 2.9 |
| 26477 | R7H1 1.5m | -24.38 | | 29.04 | | 106.56 | 0.28 | 65.6 | 2.8 |
| 26478 | R7H1 3.0m | -24.30 | | 29.55 | | 106.70 | 0.28 | 67.0 | 2.8 |
| 26479 | R7H1 5.0m | -24.76 | | 30.00 | | 107.86 | 0.29 | 78.6 | 2.9 |
| **Long term pine sites** | | | | | | | | | |
| Latitude 34.60739; longitude -81.72284; elevation 156.4m a.s.l. | | | | | | | | | |
| 26300 | R1P1 - 0.5m | -22.00 | | 30.11 | | 107.66 | 0.31 | 76.6 | 3.1 |
| 26301 | R1P1 - 1.5m | -23.46 | | 27.50 | | 109.64 | 0.33 | 96.4 | 3.3 |
| 26302 | R1P1 - 3.0m | -23.43 | | 28.15 | | 112.05 | 0.32 | 120.5 | 3.2 |
| 26303 | R1P1 - 5.0m | -23.16 | | 28.60 | | 112.36 | 0.33 | 123.6 | 3.3 |
| Latitude 34.59877; longitude -81.67581; elevation 135.722m a.s.l. | | | | | | | | | |
| 26471 | R4P1 0.5m | -23.92 | | 28.38 | | 104.88 | 0.29 | 48.8 | 2.9 |
| 26472 | R4P1 1.5m | -24.92 | | 28.04 | | 105.86 | 0.29 | 58.6 | 2.9 |
| 26473 | R4P1 3.0m | -25.01 | | 28.72 | | 106.06 | 0.29 | 60.6 | 2.9 |
| 26474 | R4P1 5.0m | -25.54 | | 28.49 | | 107.41 | 0.30 | 74.1 | 3.0 |
| Latitude 34.60925; longitude -81.72804; elevation 168.2m a.s.l. | | | | | | | | | |
| 26480 | R7P1 0.5m | | -21.00 | | 29.97 | 105.83 | 0.30 | 58.3 | 3.0 |
| 26481 | R7P1 1.5m | | -24.30 | | 29.86 | 108.06 | 0.29 | 80.6 | 2.9 |
| 26482 | R7P1 3.0m | | -25.12 | | 29.32 | 109.86 | 0.29 | 98.6 | 2.9 |
| 26483 | R7P1 5.0m | | -24.97 | | 30.42 | 110.71 | 0.29 | 107.1 | 2.9 |
| 26463 | R1T2 new 8.5m | | -24.60 | | 28.86 | 110.78 | 0.30 | 107.8 | 3.0 |