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| **Table S12**. Model selection for greenhouse gas concentrations – carbon dioxide (CO2 μM) and methane (CH4 μM) – with candidate GAM models\* assessed in before and 3 time point after the addition of burned or unburned plant material to experimental mesocosms. | | | | | | |
| *Metric* | *Time* | *Model* | | *df* | *AIC* | *ΔAIC* | |
| CO2 | Day-0 | | Treatment +s(plant material, by=Treatment) | 8.9 | **161.3** | -20.3 | |
|  |  | | Treatment + s(plant material) | 4.0 | 176.0 |  | |
|  |  | | s(plant material) | 3.0 | 181.6 |  | |
|  | Day-10 | | Treatment +s(plant material, by=Treatment) | 9.2 | **271.2** | -8.1 | |
|  |  | | Treatment + s(plant material) | 6.6 | 272.9 |  | |
|  |  | | s(plant material) | 5.4 | 279.3 |  | |
|  | Day-31 | | Treatment +s(plant material, by=Treatment) | 10.2 | **269.6** | -14.1 | |
|  |  | | Treatment + s(plant material) | 4.0 | 285.4 |  | |
|  |  | | s(plant material) | 3.0 | 283.7 |  | |
|  | Day-59 | | Treatment +s(plant material, by=Treatment) | 7.2 | **268.0** | -8.8 | |
|  |  | | Treatment + s(plant material) | 5.4 | 277.1 |  | |
|  |  | | s(plant material) | 4.3 | 276.8 |  | |
|  |  | |  |  |  |  | |
| CH4 | Day-0 | | Treatment +s(plant material, by=Treatment) | 5.0 | 132.5 | -0.2 | |
|  |  | | Treatment + s(plant material) | 4.0 | **131.1** |  | |
|  |  | | s(plant material) | 3.0 | 131.3 |  | |
|  | Day-10 | | Treatment +s(plant material, by=Treatment) | 9.3 | **159.3** | -5.3 | |
|  |  | | Treatment + s(plant material) | 6.0 | 166.3 |  | |
|  |  | | s(plant material) | 5.1 | 164.6 |  | |
|  | Day-31 | | Treatment +s(plant material, by=Treatment) | 5.9 | 197.8 |  | |
|  |  | | Treatment + s(plant material) | 4.0 | 196.3 |  | |
|  |  | | s(plant material) | 3.0 | **194.9** | 0.0 | |
|  | Day-59 | | Treatment +s(plant material, by=Treatment) | 5.0 | 227.5 |  | |
|  |  | | Treatment + s(plant material) | 7.1 | **223.5** | -2.3 | |
|  |  | | s(plant material) | 5.9 | 225.8 |  | |
| *\*Treatment +* *s(plant material, by= Treatment)* GAM has parametric terms (*Treatment*) and separate smoothers for each treatment. *Treatment + s(plant material)* GAM has a global smoother allowing for off-set intercepts according to treatments. The *s(plant material)* GAM fits a global smoother to all data. *Bold* represents the selected models. Delta AIC (*ΔAIC*) is the difference between the selected model and the global smoother model | | | | | | |
|  | | | | | | |