Part 1: Calibration

Calib 7.1

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Date** | **Min 95% Range** | **Max 95% Range** |
| Int Cal13 | 15552 | 15239 | 15879 |
| MARINE13 | 14897 | 14339 | 15249 |

rClam calibration

|  |  |  |
| --- | --- | --- |
|  | **Min 95% Range** | **Max 95% Range** |
| Int Cal13 | 15239 | 15873 |
| MARINE13 | 14358 | 15250 |
| MARINE13 w/50 yr correction and 30 yr uncertainty | 14267 | 15175 |

The numbers agree pretty closely!

Part 2+3: Clam + Bacon curves

|  |  |  |  |
| --- | --- | --- | --- |
| **Picea Decline (550 cm)** | **Median Date** | **Min 95% Range** | **Max 95% Range** |
| Linear interpolation | 11727.50 | 11282.95 | 12321.30 |
| Linear regression | 11556.09 | 11370.26 | 11714.92 |
| 3rd-order polynomial | 11701.16 | 11647.68 | 11771.24 |
| Cubic spline | 11686.32 | 11287.00 | 12082.25 |
| Smooth default | 11626.61 | 11557.10 | 11679.99 |
| Smooth, 0.1 | 11639.69 | 11482.46 | 11778.67 |
| Smooth, 0.6 | 11668.02 | 11575.09 | 11749.88 |
| Smooth, 1 | 11561.75 | 11375.04 | 11706.38 |
| Bacon, default (5) | 11591.24 | 11337.69 | 11937.52 |
| Bacon, 10 | 11560.71 | 11291.43 | 11997.09 |
| Bacon, 20 | 11576.64 | 11325.03 | 11872.73 |

|  |  |  |  |
| --- | --- | --- | --- |
| **Quercus Increase (490 cm)** | **Date** | **Min 95% Range** | **Max 95% Range** |
| Linear interpolation | 9987.365 | 9921.473 | 10073.499 |
| Linear regression | 10171.27 | 10018.80 | 10309.60 |
| 3rd-order polynomial | 9982.688 | 9914.915 | 10062.538 |
| Cubic spline | 9927.992 | 9753.215 | 10093.344 |
| Smooth default | 9971.691 | 9923.575 | 10039.670 |
| Smooth, 0.1 | 9952.815 | 9879.761 | 10060.474 |
| Smooth, 0.6 | 10056.45 | 10009.85 | 10115.38 |
| Smooth, 1 | 10175.19 | 10043.20 | 10300.45 |
| Bacon, default | 9982.825 | 9724.798 | 10346.905 |
| Bacon, 10 | 9952.152 | 9683.848 | 10462.432 |
| Bacon, 20 | 10001.91 | 9703.78 | 10375.94 |

I thought that it was interesting and made sense that the linear regression and the smooth = 1 had very similar values, because smooth = 1 made the regression essentially a straight line.

For Bacon, I tried 10 cm and 20 cm as thickness. The run for 10 was about four times as fast as the default, while 20 was about twice as fast than the 10. As you increase the thickness of the soil samples, the curves have a lot more uncertainty. There’s a big trade-off for shorter runtime.