Supplementary materials

Table S1. Radiocarbon dates of the peat core from the Mukhrino peatland.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Lab number** | **Plot** | **Depth, cm** | **Fraction** | **∆14C (‰)** | **err (‰)** | **PMC [%]** | **err PMC [%]** | **C14 BP** | **Calibrated age BP (95 % confidence interval)** | **Calibrated age BP error** |
| 18831 | Plot18 | 49 | <1,6 µm | 148.4 | 1.7 | 115.79 | 0.17 | -1177,7 | -24.79 | 11,8 |
| 18830 | Plot18 | 49 | <36>1,6 µm | 107.1 | 1.8 | 111.62 | 0.18 | -883,1 | -27.325 | 12,9 |
| 18822 | Plot18 | 146 | <36>1,6 µm | -138.2 | 1.4 | 86.89 | 0.14 | 1128,9 | 1018,0 | 12,9 |
| 18823 | Plot18 | 146 | <1,6 µm | -139 | 1.9 | 86.81 | 0.19 | 1136,3 | 1067.5 | 17,6 |
| 18824 | Plot18 | 196 | <36>1,6 µm | -304.3 | 1.2 | 70.14 | 0.12 | 2849,1 | 2965.5 | 13,7 |
| 18825 | Plot18 | 196 | <1,6 µm | -279.9 | 1.3 | 72.6 | 0.13 | 2572,2 | 2732.5 | 14,4 |
| 18999 | Plot18 | 275 | <36>1,6 µm | -334.5 | 1.1 | 67.1 | 0.11 | 3205,1 | 3419.5 | 13,2 |
| 19000 | Plot18 | 275 | <1,6 µm | -311 | 1.2 | 69.46 | 0.12 | 2927,4 | 3079,0 | 13,9 |
| 19001 | Plot18 | 296 | <36>1,6 µm | -428.2 | 1 | 57.66 | 0.1 | 4423,0 | 5046.5 | 13,9 |
| 19002 | Plot18 | 296 | <1,6 µm | -416 | 1.1 | 58.88 | 0.11 | 4254,8 | 4841,0 | 15,0 |
| 18826 | Plot18 | 346 | <36>1,6 µm | -466.2 | 1.2 | 53.82 | 0.12 | 4976,6 | 5674,0 | 17,9 |
| 18827 | Plot18 | 346 | <1,6 µm | -436.6 | 1.4 | 56.81 | 0.14 | 4542,3 | 5184,0 | 19,8 |
| 19004 | Plot18 | 396 | <1,6 µm | -484.2 | 1 | 52 | 0.1 | 5253,0 | 6053,0 | 15,4 |
| 19003 | Plot18 | 396 | <36>1,6 µm | -544 | 0.9 | 45.97 | 0.09 | 6243,1 | 7140.5 | 15,7 |
| 18821 | Plot18 | 446 | <1,6 µm | -618 | 0.9 | 38.52 | 0.09 | 7663,4 | 8458,0 | 18,7 |
| 18820 | Plot18 | 446 | <36>1,6 µm | -662 | 0.8 | 34.08 | 0.08 | 8647,2 | 9609,0 | 18,8 |
| 18828 | Plot18 | 479 | <36>1,6 µm | -673.7 | 0.8 | 32.9 | 0.08 | 8930,3 | 10052.5 | 19,5 |
| 18829 | Plot18 | 479 | <1,6 µm | -621.9 | 1.1 | 38.12 | 0.11 | 7747,3 | 8520,0 | 23,1 |
| 18894 | Plot19 | 46 | <36>1,6 µm | -152.9 | 1.5 | 85.4 | 0.15 | 1267,8 | 1224.5 | 14,1 |
| 18895 | Plot19 | 46 | <1,6 µm | -124.5 | 1.6 | 88.27 | 0.16 | 1002,3 | 894.5 | 14,5 |
| 18896 | Plot19 | 96 | <36>1,6 µm | -272 | 1.4 | 73.4 | 0.14 | 2484,2 | 2601,0 | 15,3 |
| 18897 | Plot19 | 96 | <1,6 µm | -241.9 | 1.5 | 76.44 | 0.15 | 2158,2 | 2180,0 | 15,7 |
| 18898 | Plot19 | 146 | <36>1,6 µm | -353 | 1.2 | 65.23 | 0.12 | 3432,1 | 3706.5 | 14,8 |
| 18899 | Plot19 | 146 | <1,6 µm | -322.3 | 1.4 | 68.33 | 0.14 | 3059,1 | 3279.5 | 16,4 |
| 18901 | Plot19 | 196 | <1,6 µm | -427.9 | 1.3 | 57.68 | 0.13 | 4420,2 | 5053,0 | 18,1 |
| 18900 | Plot19 | 196 | <36>1,6 µm | -459.3 | 1.3 | 54.51 | 0.13 | 4874,3 | 5617.5 | 19,1 |
| 18903 | Plot19 | 246 | <1,6 µm | -500.4 | 1.1 | 50.38 | 0.11 | 5507,2 | 6334,0 | 17,5 |
| 18902 | Plot19 | 246 | <36>1,6 µm | -525.6 | 1.1 | 47.83 | 0.11 | 5924,5 | 6732,0 | 18,5 |
| 18905 | Plot19 | 296 | <1,6 µm | -556.6 | 1 | 44.7 | 0.1 | 6468,1 | 7377,0 | 18,0 |
| 18904 | Plot19 | 296 | <36>1,6 µm | -611.8 | 1 | 39.14 | 0.1 | 7535,2 | 8309.5 | 20,5 |
| 18907 | Plot19 | 346 | <1,6 µm | -601.8 | 1 | 40.15 | 0.1 | 7330,5 | 8108.5 | 20,0 |
| 18906 | Plot19 | 346 | <36>1,6 µm | -663 | 1 | 33.98 | 0.1 | 8670,8 | 9613.5 | 23,6 |
| 18909 | Plot19 | 396 | <1,6 µm | -476.3 | 1.2 | 52.8 | 0.12 | 5130,3 | 5845.5 | 18,2 |
| 18908 | Plot19 | 396 | <36>1,6 µm | -634.2 | 1 | 36.88 | 0.1 | 8012,9 | 8889,0 | 21,8 |
| 18911 | Plot19 | 430 | <1,6 µm | -597.8 | 1 | 40.56 | 0.1 | 7248,9 | 8076.5 | 19,8 |
| 18910 | Plot19 | 430 | <36>1,6 µm | -685.5 | 0.9 | 31.71 | 0.09 | 9226,2 | 10386.5 | 22,8 |
| 18815 | Plot2 | 46 | <1,6 µm | 24.6 | 1.6 | 103.31 | 0.16 | -261,6 | -6.5 | 12,4 |
| 18814 | Plot2 | 46 | <36>1,6 µm | 61.5 | 1.8 | 107.03 | 0.18 | -545,8 | -33.185 | 13,5 |
| 18801 | Plot2 | 96 | <1,6 µm | -217.4 | 1.2 | 78.91 | 0.12 | 1902,7 | 1805,0 | 12,2 |
| 18800 | Plot2 | 96 | <36>1,6 µm | -232.7 | 1.3 | 77.36 | 0.13 | 2062,1 | 2022,0 | 13,5 |
| 18796 | Plot2 | 146 | <36>1,6 µm | -475.1 | 1.1 | 52.93 | 0.11 | 5110,6 | 5837,0 | 16,7 |
| 18797 | Plot2 | 146 | <1,6 µm | -437.9 | 1.2 | 56.67 | 0.12 | 4562,1 | 5195,0 | 17,0 |
| 18809 | Plot2 | 196 | <1,6 µm | -496.7 | 1 | 50.75 | 0.1 | 5448,5 | 6249.5 | 15,8 |
| 18808 | Plot2 | 196 | <36>1,6 µm | -549.4 | 1 | 45.43 | 0.1 | 6338,0 | 7242,0 | 17,7 |
| 18803 | Plot2 | 246 | <1,6 µm | -560.7 | 0.9 | 44.29 | 0.09 | 6542,2 | 7459.5 | 16,3 |
| 18802 | Plot2 | 246 | <36>1,6 µm | -591.4 | 0.9 | 41.2 | 0.09 | 7123,1 | 7940,0 | 17,5 |
| 18798 | Plot2 | 296 | <36>1,6 µm | -629 | 0.8 | 37.4 | 0.08 | 7900,5 | 8763.5 | 17,2 |
| 18799 | Plot2 | 296 | <1,6 µm | -597.5 | 0.9 | 40.58 | 0.09 | 7244,9 | 8073.5 | 17,8 |
| 18810 | Plot2 | 346 | <36>1,6 µm | -667.9 | 0.7 | 33.49 | 0.07 | 8787,5 | 9797,0 | 16,8 |
| 18811 | Plot2 | 346 | <1,6 µm | -637 | 1 | 36.6 | 0.1 | 8074,1 | 8938,0 | 21,9 |
| 18817 | Plot2 | 396 | <1,6 µm | -638.6 | 1 | 36.44 | 0.1 | 8109,3 | 9058.5 | 22,0 |
| 18816 | Plot2 | 396 | <36>1,6 µm | -674.9 | 1.7 | 32.78 | 0.17 | 8959,6 | 10070.5 | 41,6 |
| 18813 | Plot2 | 446 | <1,6 µm | -658.6 | 0.8 | 34.42 | 0.08 | 8567,5 | 9521.5 | 18,6 |
| 18812 | Plot2 | 446 | <36>1,6 µm | -692.7 | 0.8 | 30.98 | 0.08 | 9413,3 | 10640,0 | 20,7 |
| 18807 | Plot2 | 496 | <1,6 µm | -660.1 | 0.8 | 34.27 | 0.08 | 8602,5 | 9563.5 | 18,7 |
| 18806 | Plot2 | 496 | <36>1,6 µm | -695.7 | 0.8 | 30.68 | 0.08 | 9491,5 | 10833,0 | 20,9 |
| 18805 | Plot2 | 523 | <1,6 µm | -606.8 | 0.8 | 39.64 | 0.08 | 7433,2 | 8257.5 | 16,2 |
| 18804 | Plot2 | 523 | <36>1,6 µm | -680.9 | 0.9 | 32.17 | 0.09 | 9110,5 | 10289.5 | 22,4 |
| 18818 | Plot2 | 524 | <36>1,6 µm | -701.1 | 0.8 | 30.13 | 0.08 | 9636,8 | 10989,0 | 21,3 |
| 18819 | Plot2 | 524 | <1,6 µm | -630.1 | 1 | 37.3 | 0.1 | 7922,0 | 8791.5 | 21,5 |
| 18873 | Plot27 | 46 | <1,6 µm | 38.6 | 1.6 | 104.72 | 0.16 | -370,5 | -33.09 | 12,3 |
| 18872 | Plot27 | 46 | <36>1,6 µm | 16.3 | 1.8 | 102.47 | 0.18 | -196,0 | -6.105 | 14,1 |
| 18874 | Plot27 | 90 | <36>1,6 µm | -86.6 | 1.5 | 92.1 | 0.15 | 661,1 | 614,0 | 13,1 |
| 18875 | Plot27 | 90 | <1,6 µm | -83.8 | 1.6 | 92.38 | 0.16 | 636,7 | 605,0 | 13,9 |
| 18876 | Plot27 | 140 | <36>1,6 µm | -197.9 | 1.3 | 80.88 | 0.13 | 1704,6 | 1617,0 | 12,9 |
| 18877 | Plot27 | 140 | <1,6 µm | -180.6 | 1.4 | 82.62 | 0.14 | 1533,6 | 1413.5 | 13,6 |
| 18879 | Plot27 | 196 | <1,6 µm | -359.6 | 1.2 | 64.57 | 0.12 | 3513,8 | 3772,0 | 14,9 |
| 18878 | Plot27 | 196 | <36>1,6 µm | -370.6 | 1.2 | 63.46 | 0.12 | 3653,1 | 3990.5 | 15,2 |
| 18880 | Plot27 | 246 | <36>1,6 µm | -503.2 | 1 | 50.09 | 0.1 | 5553,6 | 6346,0 | 16,0 |
| 18881 | Plot27 | 246 | <1,6 µm | -468.5 | 1.1 | 53.59 | 0.11 | 5011,0 | 5772,0 | 16,5 |
| 18883 | Plot27 | 296 | <1,6 µm | -547.4 | 1.2 | 45.64 | 0.12 | 6301,0 | 7214.5 | 21,1 |
| 18882 | Plot27 | 296 | <36>1,6 µm | -594.3 | 1.1 | 40.91 | 0.11 | 7179,9 | 7983.5 | 21,6 |
| 18885 | Plot27 | 346 | <1,6 µm | -592.8 | 1 | 41.06 | 0.1 | 7150,5 | 7975,0 | 19,5 |
| 18884 | Plot27 | 346 | <36>1,6 µm | -634.3 | 1 | 36.87 | 0.1 | 8015,1 | 8889.5 | 21,8 |
| 18887 | Plot27 | 396 | <1,6 µm | -631.6 | 0.9 | 37.14 | 0.09 | 7956,5 | 8817,0 | 19,4 |
| 18886 | Plot27 | 396 | <36>1,6 µm | -676.6 | 1 | 32.6 | 0.1 | 9003,9 | 10199,0 | 24,6 |
| 18888 | Plot27 | 405 | <36>1,6 µm | -665.6 | 0.8 | 33.72 | 0.08 | 8732,5 | 9718.5 | 19,0 |
| 18889 | Plot27 | 405 | <1,6 µm | -626.3 | 1 | 37.68 | 0.1 | 7840,5 | 8620,0 | 21,3 |
| 18891 | Plot27 | 412 | <1,6 µm | -587.6 | 0.9 | 41.58 | 0.09 | 7049,4 | 7869,0 | 17,4 |
| 18890 | Plot27 | 412 | <36>1,6 µm | -659.3 | 0.8 | 34.35 | 0.08 | 8583,8 | 9540,0 | 18,7 |
| 18854 | Plot31 | 46 | <36>1,6 µm | -96.2 | 1.4 | 91.13 | 0.14 | 746,1 | 676,0 | 12,3 |
| 18855 | Plot31 | 46 | <1,6 µm | -80.8 | 1.5 | 92.68 | 0.15 | 610,6 | 599.5 | 13,0 |
| 18857 | Plot31 | 96 | <1,6 µm | -193.7 | 1.4 | 81.3 | 0.14 | 1663,0 | 1605,0 | 13,8 |
| 18856 | Plot31 | 96 | <36>1,6 µm | -208 | 1.4 | 79.86 | 0.14 | 1806,6 | 1684.5 | 14,1 |
| 18858 | Plot31 | 146 | <36>1,6 µm | -299.3 | 1.3 | 70.64 | 0.13 | 2792,1 | 2901.5 | 14,8 |
| 18859 | Plot31 | 146 | <1,6 µm | -291.2 | 1.6 | 71.47 | 0.16 | 2698,2 | 2803,0 | 18,0 |
| 18861 | Plot31 | 196 | <1,6 µm | -408.6 | 1.1 | 59.63 | 0.11 | 4153,2 | 4702,0 | 14,8 |
| 18860 | Plot31 | 196 | <36>1,6 µm | -428.6 | 1.2 | 57.61 | 0.12 | 4430,0 | 5072.5 | 16,7 |
| 18863 | Plot31 | 246 | <1,6 µm | -494.6 | 1.1 | 50.95 | 0.11 | 5416,9 | 6240,0 | 17,3 |
| 18862 | Plot31 | 246 | <36>1,6 µm | -510.4 | 1.1 | 49.37 | 0.11 | 5669,9 | 6446.5 | 17,9 |
| 18865 | Plot31 | 296 | <1,6 µm | -558.9 | 1.1 | 44.47 | 0.11 | 6509,6 | 7403,0 | 19,8 |
| 18864 | Plot31 | 296 | <36>1,6 µm | -620.6 | 1 | 38.26 | 0.1 | 7717,8 | 8484,0 | 21,0 |
| 18867 | Plot31 | 346 | <1,6 µm | -610.4 | 0.9 | 39.28 | 0.09 | 7506,5 | 8296.5 | 18,4 |
| 18866 | Plot31 | 346 | <36>1,6 µm | -667.4 | 0.9 | 33.54 | 0.09 | 8775,5 | 9789.5 | 21,5 |
| 18869 | Plot31 | 363 | <1,6 µm | -617 | 0.9 | 38.62 | 0.09 | 7642,6 | 8448.5 | 18,7 |
| 18868 | Plot31 | 363 | <36>1,6 µm | -674.4 | 0.8 | 32.83 | 0.08 | 8947,4 | 10059.5 | 19,6 |
| 18871 | Plot31 | 376 | <1,6 µm | -639.2 | 1 | 36.38 | 0.1 | 8122,6 | 9062,0 | 22,1 |
| 18870 | Plot31 | 376 | <36>1,6 µm | -691 | 0.9 | 31.16 | 0.09 | 9366,8 | 10591.5 | 23,2 |
| 19006 | Plot5\_5 | 46 | <1,6 µm | 3.6 | 1.3 | 101.18 | 0.13 | -94,2 | -5.82 | 10,3 |
| 19005 | Plot5\_5 | 46 | <36>1,6 µm | -20.7 | 1.4 | 98.73 | 0.14 | 102,7 | 144.5 | 11,4 |
| 19008 | Plot5\_5 | 96 | <1,6 µm | -123.4 | 1.2 | 88.39 | 0.12 | 991,4 | 879,0 | 10,9 |
| 19007 | Plot5\_5 | 96 | <36>1,6 µm | -147.2 | 1.3 | 85.99 | 0.13 | 1212,5 | 1123.5 | 12,1 |
| 19010 | Plot5\_5 | 146 | <1,6 µm | -274 | 1.1 | 73.2 | 0.11 | 2506,1 | 2608.5 | 12,1 |
| 19009 | Plot5\_5 | 146 | <36>1,6 µm | -300 | 1.1 | 70.58 | 0.11 | 2798,9 | 2904.5 | 12,5 |
| 19012 | Plot5\_5 | 196 | <1,6 µm | -429.5 | 1 | 57.52 | 0.1 | 4442,6 | 5119,0 | 14,0 |
| 19011 | Plot5\_5 | 196 | <36>1,6 µm | -468.6 | 1 | 53.58 | 0.1 | 5012,5 | 5772.5 | 15,0 |
| 19013 | Plot5\_5 | 246 | <36>1,6 µm | -597 | 0.8 | 40.63 | 0.08 | 7235,0 | 8070,0 | 15,8 |
| 19014 | Plot5\_5 | 246 | <1,6 µm | -552.2 | 0.9 | 45.15 | 0.09 | 6387,7 | 7339.5 | 16,0 |
| 19015 | Plot5\_5 | 296 | <36>1,6 µm | -642.1 | 0.9 | 36.09 | 0.09 | 8186,9 | 9145,0 | 20,0 |
| 19016 | Plot5\_5 | 296 | <1,6 µm | -579.9 | 1.1 | 42.36 | 0.11 | 6900,1 | 7729.5 | 20,8 |
| 18850 | Plot5\_5 | 313 | <36>1,6 µm | -680.4 | 0.8 | 32.22 | 0.08 | 9098,0 | 10243.5 | 19,9 |
| 18851 | Plot5\_5 | 313 | <1,6 µm | -600.9 | 1 | 40.24 | 0.1 | 7312,5 | 8105,0 | 19,9 |
| 18853 | Plot5\_5 | 314 | <1,6 µm | -583.3 | 1 | 42.01 | 0.1 | 6966,7 | 7809.5 | 19,1 |
| 18852 | Plot5\_5 | 314 | <36>1,6 µm | -680.5 | 0.8 | 32.21 | 0.08 | 9100,5 | 10247.5 | 19,9 |
| 18915 | Plot5 | 46 | <1,6 µm | -158.2 | 1.5 | 84.88 | 0.15 | 1316,9 | 1234,0 | 14,2 |
| 18914 | Plot5 | 46 | <36>1,6 µm | -183.4 | 1.7 | 82.34 | 0.17 | 1560,9 | 1451,0 | 16,6 |
| 18917 | Plot5 | 96 | <1,6 µm | -240 | 1.5 | 76.63 | 0.15 | 2138,2 | 2149.5 | 15,7 |
| 18916 | Plot5 | 96 | <36>1,6 µm | -243.9 | 1.5 | 76.24 | 0.15 | 2179,2 | 2211,0 | 15,8 |
| 18919 | Plot5 | 146 | <1,6 µm | -356.3 | 1.4 | 64.9 | 0.14 | 3472,8 | 3738.5 | 17,3 |
| 18918 | Plot5 | 146 | <36>1,6 µm | -376.5 | 1.4 | 62.87 | 0.14 | 3728,1 | 4068,0 | 17,9 |
| 18921 | Plot5 | 196 | <1,6 µm | -465.5 | 1.1 | 53.89 | 0.11 | 4966,2 | 5669,0 | 16,4 |
| 18920 | Plot5 | 196 | <36>1,6 µm | -473.8 | 1.1 | 53.06 | 0.11 | 5090,9 | 5830,0 | 16,6 |
| 18922 | Plot5 | 246 | <36>1,6 µm | -544.2 | 0.9 | 45.96 | 0.09 | 6244,8 | 7141.5 | 15,7 |
| 18923 | Plot5 | 246 | <1,6 µm | -511 | 1 | 49.31 | 0.1 | 5679,7 | 6449,0 | 16,3 |
| 18925 | Plot5 | 296 | <1,6 µm | -569.2 | 0.9 | 43.43 | 0.09 | 6699,7 | 7560,0 | 16,6 |
| 18924 | Plot5 | 296 | <36>1,6 µm | -592.6 | 0.9 | 41.07 | 0.09 | 7148,5 | 7974.5 | 17,6 |
| 18927 | Plot5 | 346 | <1,6 µm | -519.4 | 1 | 48.45 | 0.1 | 5821,0 | 6639.5 | 16,6 |
| 18926 | Plot5 | 346 | <36>1,6 µm | -623 | 0.8 | 38.01 | 0.08 | 7770,5 | 8529,0 | 16,9 |
| 18929 | Plot5 | 396 | <1,6 µm | -606.4 | 0.8 | 39.69 | 0.08 | 7423,1 | 8254,0 | 16,2 |
| 18928 | Plot5 | 396 | <36>1,6 µm | -645.7 | 0.9 | 35.73 | 0.09 | 8267,4 | 9268.5 | 20,2 |
| 18931 | Plot5 | 405 | <1,6 µm | -623.3 | 0.8 | 37.98 | 0.08 | 7776,8 | 8535.5 | 16,9 |
| 18930 | Plot5 | 405 | <36>1,6 µm | -668.3 | 0.8 | 33.45 | 0.08 | 8797,1 | 9898.5 | 19,2 |
| 18912 | Plot5 | 433 | <36>1,6 µm | -110.4 | 1.5 | 89.69 | 0.15 | 874,1 | 759.5 | 13,4 |
| 18913 | Plot5 | 433 | <1,6 µm | -104.5 | 1.6 | 90.29 | 0.16 | 820,5 | 709,0 | 14,2 |