

1 Supplementary Materials

2 **Table SM-1:** Carbon-14 dates for 17 dated bulk sediment samples from Schurmsee, including
 3 uncertainties and $\delta^{13}\text{C}$ values.

lab code	depth	material	^{14}C age	1 St.Dev.	$\delta^{13}\text{C}$	cal age
[-]	[cm]	[-]	[yr BP]	[yr]	[‰]	[cal yr BP]
Hd-27165	50	bulk	824	±20	-28.4	814
Hd-28112	80	bulk	1435	±20	-30.5	1477
Hd-28114	95	bulk	1975	±20	-30.4	1934
Hd-28036	125	bulk	2767	±25	-31.3	2782
Hd-28115	166	bulk	3868	±30	-31.1	4035
Hd-28089	170	bulk	4433	±38	-30.9	4162
Hd-28111	188	bulk	4582	±29	-32.8	4650
Hd-27975	207	bulk	5226	±26	-31.7	5233
Hd-28088	222	bulk	5770	±28	-31.4	5747
Hd-28078	232	bulk	6078	±35	-32.0	6068
Hd-27973	247	bulk	6535	±26	-31.6	6583
Hd-28035	280	bulk	7917	±38	-30.7	7872
Hd-28087	292	bulk	8349	±34	-30.0	8252
Hd-27998	315	bulk	8807	±43	-28.5	8782
Hd-27601	340	bulk	9075	±34	-29.2	9086
Hd-27605	355	bulk	9204	±44	-28.9	9205
Hd-28156	400	bulk	9465	±56	-29.6	9468

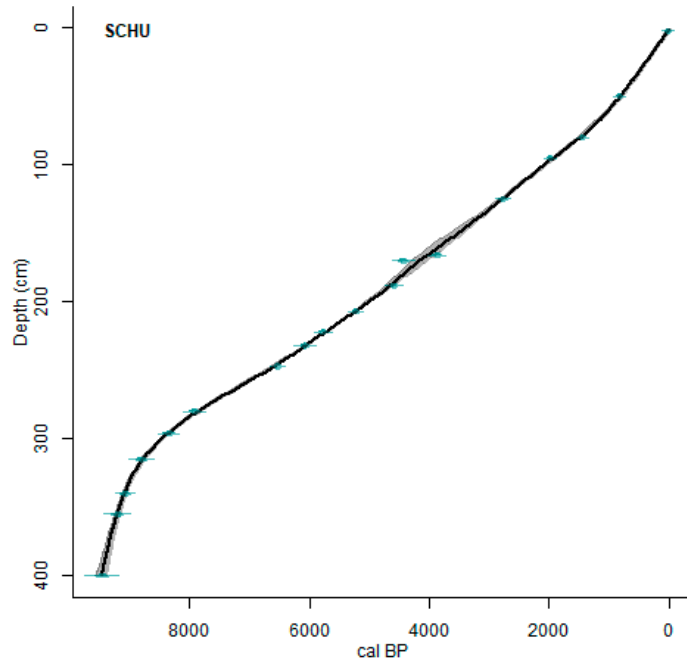
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5 **Table SM-2:** Carbon-14 dates for 16 dated bulk sediment samples from Glaswaldsee, including
 6 uncertainties and $\delta^{13}\text{C}$ values. The values in parenthesis indicate one sample which was removed
 7 from the age-depth model.

lab code	depth	material	^{14}C age	1 St.Dev.	$\delta^{13}\text{C}$	cal age
[-]	[cm]	[-]	[yr BP]	[yrs]	[‰]	[cal yr BP]
Hd-26951	8	bulk	586	±31	-30.8	558
Hd-27051	30	bulk	1344	±30	-32.2	1285
Hd-26823	40	bulk	1737	±25	-33.1	1701
Hd-26950	48	bulk	2205	±33	-32.4	2093
(Hd-27050)	(-55)	(bulk)	(-2273)	(±22)	(-32.7)	(-2349)
Hd-27049	70	bulk	2838	±26	-32.9	3230
Hd-27360	75	bulk	3720	±34	-33.4	3799
Hd-26751	80	bulk	3933	±58	-31.0	4337
Hd-27015a	93	bulk	4685	±25	-21.2	5314
Hd-26850	97	bulk	4713	±30	-33.2	5511
Hd-27361	105	bulk	5133	±30	-32.4	5900
Hd-26785	113	bulk	5613	±31	-32.5	6363
Hd-27362	126	bulk	6290	±29	-32.3	7249
Hd-26842	138	bulk	7379	±29	-32.1	8153
Hd-27054	160	bulk	8120	±44	-30.3	9090
Hd-27033	172	bulk	8940	±61	-29.5	9489

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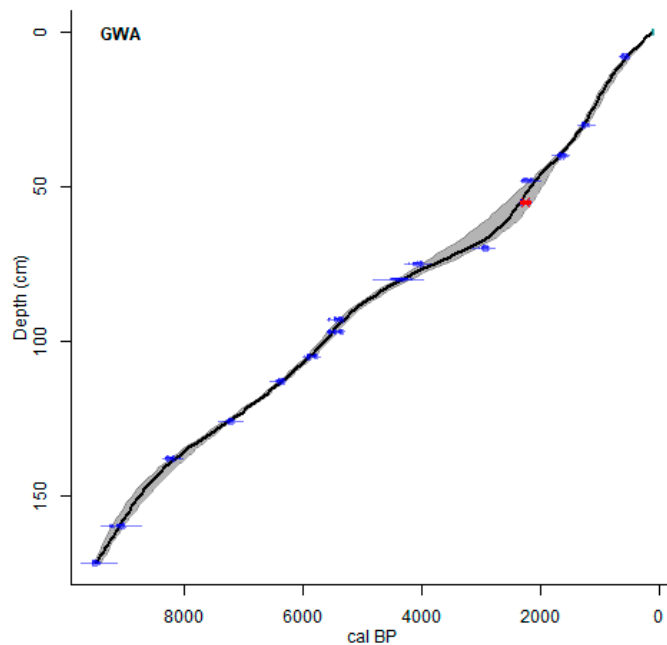
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11 **Figure SM-1:** Age-depth model of Schurmsee, developed using CLAM 2.2. The grey shaded area
 12 represents the confidence interval of the model. The age calendar age distribution of each sample
 13 included in the model is marked in green.

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16 **Figure SM-2:** Age-depth model of Glaswaldsee, developed using CLAM 2.2. The grey shaded area
 17 represents the confidence interval of the model. The age calendar age distribution of each sample
 18 included in the model is marked in blue, while one sample that was excluded from the model is
 19 marked in red.