**Supplementary Materials**

**Table SM-1:** Carbon-14 dates for 17 dated bulk sediment samples from Schurmsee, including uncertainties and δ13C values.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **lab code** | **depth** | **material** | **14C age** | **1 St.Dev.** | **δ13C** | **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 |

**Table SM-2:** Carbon-14 dates for 16 dated bulk sediment samples from Glaswaldsee, including uncertainties and δ13C values. The values in parenthesis indicate one sample which was removed from the age-depth model.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **lab code** | **depth** | **material** | **14C age** | **1 St.Dev.** | **δ13C**  | **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 |



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

 

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