

Sediment mobilization deposits from episodic subsurface fluid flow—A new tool to reveal long-term earthquake records?

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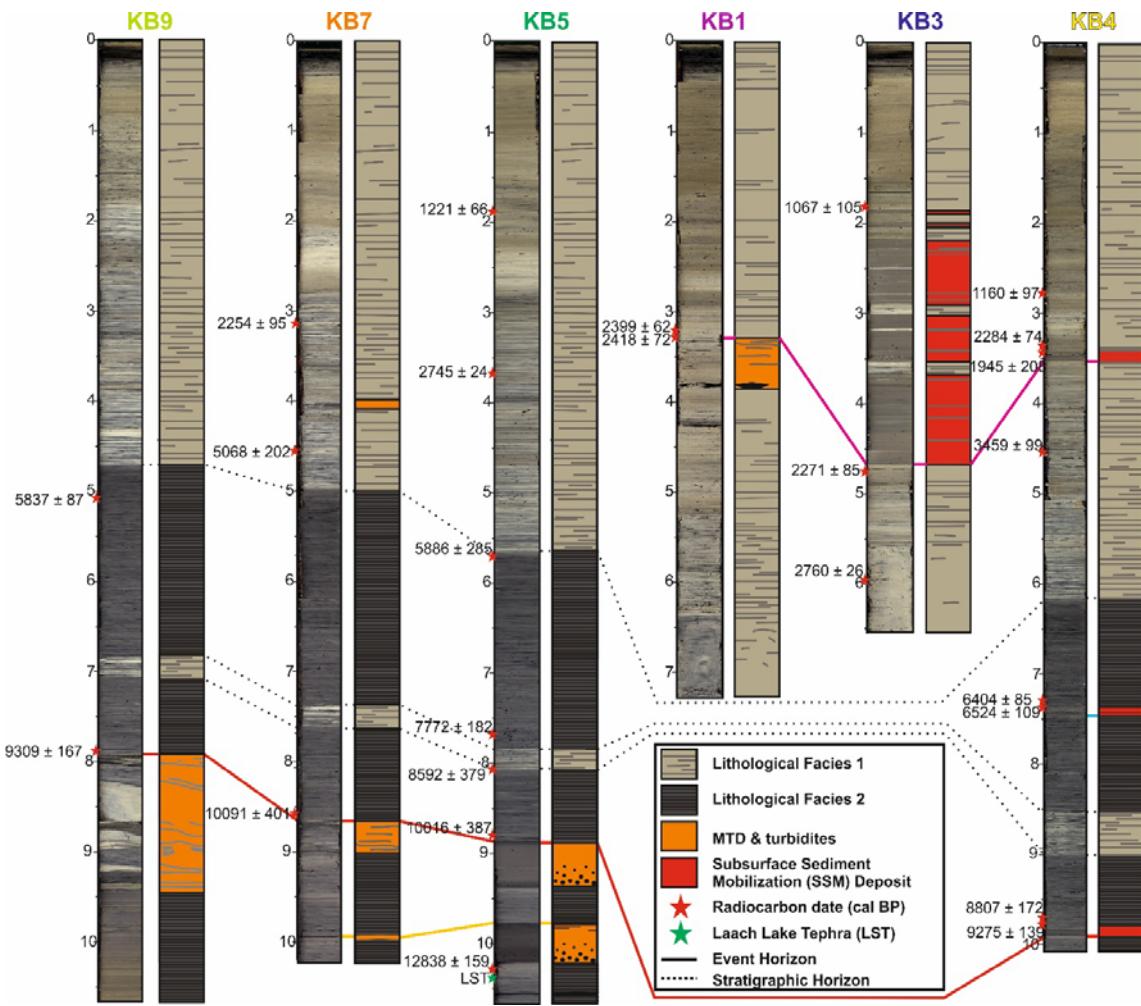
Table DR1: ^{14}C ages and calibration of samples used to date the prehistoric event horizons

Core Nr.	Location ⁽¹⁾	⁵ Depth in Core (cm)	Sample Nr.	Sample age ⁽²⁾ (^{14}C y BP)	Sample age ⁽³⁾ (cal. y BP)	δ 13C (‰)	material
KB1	547631/189090	315-325	ETH-57240	2361±27	2337-2461	-26.7	macrofossils
KB1	547631/189090	323.5-328.5	ETH-57239	2388±28	2346-2675	-29.8	wood
KB3	551268/193683	176-186	ETH-55715	1130±31	962-1172	-28.1	macrofossils
KB3	551268/193683	469-479	ETH-57253	2303±29	2186-2356	-30.1	macrofossils
KB3	551268/193683	595-596.5	ETH-55088	2631±29	2734-2785	-26.8	beechnut
KB4	552739/195194	274.9-277.9	ETH-53180	1217±30	1063-1256	-29.0	macrofossils
KB4	552739/195194	330-345	ETH-57254	2310±26	2210-2357	-23.1	macrofossils
KB4	552739/195194	334-345	ETH-55710	2000±82	1737-2152	-26.2	macrofossils
KB4	552739/195194	450-455	ETH-57812	3209±43	3360-3557	-25.4	macrofossils
KB4	552739/195194	730-734	ETH-55712	5636±33	6319-6488	-28.6	wood
KB4	552739/195194	730-740	ETH-55711	5722±35	6415-6632	-30.2	macrofossils
KB4	552739/195194	971-974	ETH-55714	7931±36	8635-8978	-29.6	wood
KB4	552739/195194	971-984	ETH-55713	8282±39	9136-9413	-29.4	macrofossils
KB5	552729/194047	186.6-188.6	ETH-55089	1272±28	1155-1286	-29.5	macrofossils
KB5	552729/194047	366.3-368.3	ETH-55091	2607±29	2721-2769	-30.5	macrofossils
KB5	552729/194047	569.5-572	ETH-55094	5084±102	5601-6170	-38.8	macrofossils
KB5	552729/194047	763-773	ETH-57242	6928±111	7590-7953	-27.9	macrofossils
KB5	552729/194047	803.2-809.2	ETH-55097	7700±122	8213-8970	-29.5	macrofossils

KB5	552729/ 194047	875.1-885.1	ETH-57241	8955±136	9629-10402	-33.3	macrofossils
KB5	552729/ 194047	1023.9- 1031.9	ETH-55098	10923±161	12579-13096	-33.1	macrofossils
KB5	552729/ 194047	1037.5	LST ⁽⁴⁾	11230±40	13030-13169	-	tephra
KB7	560438/ 198000	313-317	ETH-57815	2274±31	2159-2349	-29.7	macrofossils
KB7	560438/ 198000	458-463	ETH-57816	4413±35	4866-5269	-29.7	macrofossils
KB7	560438/ 198000	842-859	ETH-57243	8995±136	9690-10491	-29.3	macrofossils
KB9	560561/ 197173	506-508	ETH-55090	5109±32	5750-5923	-27.8	wood
KB9	560561/ 197173	778-791	ETH-57813	8335±53	9142-9476	-25.9	macrofossils

- ⁽¹⁾ Location is given in Swiss Grid (CH1903) Coordinates.
- ⁽²⁾ Dating by AMS (accelerator mass spectrometry) at the Institute of Particle Physics at the Swiss Federal Institute of Technology Zurich (ETH).
- ⁽³⁾ Calibration (2σ range) was carried out applying the IntCal09 calibration curve (Reimer et al., 2009), using the software “R” and the code “clam” (Blaauw, 2010).
- ⁽⁴⁾ Laacher Lake Tephra (LST), radiocarbon dated by (Hajdas et al., 1995).
- ⁽⁵⁾ The age bars in Fig.2 indicate 95% confidence intervals. Age intervals in Fig.2 are calculated using the upper-, middle-, and lower sample depth (middle sample depth is shown by dark grey colors).

Figure DR2: Core-to-core correlation of sediment cores, including core photographs. Detailed sedimentological information can be found in Schwalb et al. (1998) for Lithological Facies 1 and 2 (same lithological division) and in Loher et al. (2015) for the SSM deposits.



Text DR3: Time resolution of the seismic reflection dataset

Vertical seismic reflection is defined as $\frac{1}{4}$ of the wave length of the seismic signal, i.e. ~ 100 mm for the 3.5 kHz source), divided by the sedimentation rate ($\sim 1 - 1.3$ mm/year for Lithostratigraphic Facies 1 and 2 (Fig.3 and Schwalb et al., 1998)). Thus time resolution for seismic-correlation is ~ 75 years ($\sim 71.5 - 83.5$ years when considering a 10% uncertainty on the sedimentation rate) and ~ 100 years ($\sim 90 - 111$ years) within Lithofacies 1 and 2 respectively.

References Supplementary Information

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- Loher, M., Reusch, A., Strasser, M., 2015, Long-term pockmark maintenance by fluid seepage and subsurface sediment mobilization – sedimentological investigations in Lake Neuchâtel: *Sedimentology*, doi:10.1111/sed.12255.
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- Schwalb, A., Hadorn, P., Thew, N., and Straub, F., 1998, Evidence for Late Glacial and Holocene environmental changes from subfossil assemblages in sediments of Lake Neuchâtel, Switzerland: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 140, p. 307–323, doi:10.1016/S0031-0182(98)00025-X.