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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Depth below surface (m)** | **Water (%)#** | **Environmental dose rate (Gy/ka)** | | | | **De value (Gy) $** | **Number of grains\*** | **OD (%)&** | **Age (ka)^** |
|  |  |  | **Beta** | **Gamma** | **Cosmic** | **Total** |  |  |  |  |
| NE1 | -0.30 | 2.8 | 0.34 ± 0.02 | 0.29 ± 0.01 | 0.044 | 0.70 ± 0.03 | 0.6 ± 0.1# | 93/400 (93) | 94 ± 6 | 0.89 ± 0.10 |
| NE2 | -0.60 | <1 | 0.28 ± 0.02 | 0.27 ± 0.01 | 0.043 | 0.62 ± 0.03 | 7.6 ± 0.3 | 113/400 (91) | 33 ± 3 | 12.3 ± 0.7 |
| NE3 | -0.90 | <1 | 0.28 ± 0.02 | 0.26 ± 0.01 | 0.041 | 0.62 ± 0.03 | 11.2 ± 0.4 | 174/400 (152) | 42 ± 3 | 18.1 ± 1.1 |
| NE4 | -1.2 | <1 | 0.27 ± 0.02 | 0.26 ± 0.01 | 0.040 | 0.60 ± 0.03 | 20.5 ± 0.5 | 196/400 (173) | 32 ± 2 | 34.4 ± 1.9 |
| NE5 | -1.50 | <1 | 0.20 ± 0.02 | 0.25 ± 0.01 | 0.039 | 0.52 ± 0.03 | 24.9 ± 0.4 | 214/400 (182) | 21 ± 1 | 48.0 ± 2.6 |
| NE6 | -1.80 | 3.0 | 0.25 ± 0.02 | 0.25 ± 0.01 | 0.037 | 0.57 ± 0.03 | 35.2 ± 0.5 | 251/400 (212) | 20 ± 1 | 62.2 ± 3.2 |
| NE7 | -2.10 | <1 | 0.20 ± 0.02 | 0.23 ± 0.01 | 0.036 | 0.50 ± 0.03 | 39.2 ± 1.2 | 92/400 (77) | 24 ± 2 | 77.7 ± 4.9 |
| NE8 | -2.4 | 1.1 | 0.20 ± 0.02 | 0.23 ± 0.01 | 0.035 | 0.50 ± 0.02 | 45.7 ± 1.0 | 106/400 (84) | 16 ± 2 | 91.3 ± 5.2 |

#Represent the current measured water content of the sediment. A water content of 5 ± 2% was used for all samples in calculations of dose rate.

$De values for all samples were obtained using the central age model (CAM), except for Riwi-2 and Riwi-6 where the finite mixture model (FMM) was used. The De values are those for the two components that represent the highest number of grains and the proportions are indicated in brackets.

\*Numbers in brackets represent the number of grains included in the CAM De value after identification and rejection of outlier (nMAD) grains.

&The OD values are for the De distributions that exclude all De values identified as outliers. The OD values for the samples including all De values are provided in Table OSL\_S1 together with the corresponding CAM De values.

^Numbers in brackets represent the random-only error on the age.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Depth below surface (m)** | **Water (%)#** | **Environmental dose rate (Gy/ka)** | | | | **De value (Gy) $** | **Number of grains\*** | **OD (%)&** | **Age (ka)^** |
|  |  |  | **Beta** | **Gamma** | **Cosmic** | **Total** |  |  |  |  |
| NW1 | -0.19 | 4.4 | 0.32 ± 0.02 | 0.36 ± 0.02 | 0.091 | 0.80 ± 0.03 | 2.4 ± 0.2 | 96/400 (81) | 55 ± 5 | 3.0 ± 0.2 |
| NW2 | -0.33 | 1.6 | 0.32 ± 0.02 | 0.34 ± 0.01 | 0.089 | 0.78 ± 0.03 | 4.4 ± 0.1 | 129/400 (102) | 27 ± 2 | 5.6 ± 0.3 |
| NW3 | -0.54 | 3.0 | 0.24 ± 0.02 | 0.27 ± 0.01 | 0.087 | 0.64 ± 0.03 | 5.6 ± 0.1 | 181/400 (150) | 28 ± 2 | 8.8 ± 0.5 |
| NW4 | -0.74 | 2.9 | 0.22 ± 0.02 | 0.24 ± 0.01 | 0.085 | 0.57 ± 0.03 | 7.0 ± 0.2 | 202/400 (176) | 27 ± 2 | 12.2 ± 0.7 |
| NW5 | -0.95 | 4.5 | 0.24 ± 0.02 | 0.30 ± 0.01 | 0.083 | 0.67 ± 0.03 | 9.2 ± 0.2 | 188/500 (156) | 32 ± 2 | 13.7 ± 0.8 |
| NW6 | -1.16 | <1 | 0.29 ± 0.02 | 0.30 ± 0.01 | 0.081 | 0.72 ± 0.03 | 16.3 ± 0.3 | 249/500 (201) | 23 ± 1 | 22.7 ± 1.1 |
| NW7 | -1.34 | 4.6 | 0.26 ± 0.02 | 0.30 ± 0.01 | 0.079 | 0.67 ± 0.03 | 19.5 ± 0.3 | 221/500 (184) | 23 ± 1 | 29.1 ± 1.5 |
| NW8 | -1.53 | 4.7 | 0.33 ± 0.02 | 0.31 ± 0.01 | 0.078 | 0.75 ± 0.03 | 23.2 ± 0.4 | 225/500 (187) | 21 ± 1 | 31.0 ± 1.6 |
| NW9 | -1.75 | <1 | 0.29 ± 0.02 | 0.30 ± 0.01 | 0.076 | 0.70 ± 0.03 | 27.7 ± 0.5 | 263/500 (214) | 24 ± 1 | 39.4 ± 2.0 |
| NW10 | -1.95 | <1 | 0.30 ± 0.02 | 0.32 ± 0.01 | 0.074 | 0.72 ± 0.03 | 33.5 ± 0.5 | 227/500 (196) | 21 ± 1 | 46.4 ± 2.3 |
| NW15 | -2.07 | <1 | 0.31 ± 0.03 | 0.32 ± 0.01 | 0.071 | 0.73 ± 0.03 | 36.8 ± 0.6 | 213/500 (175) | 20 ± 1 | 50.3 ± 2.6 |
| NW11 | -2.20 | <1 | 0.29 ± 0.02 | 0.32 ± 0.01 | 0.072 | 0.72 ± 0.03 | 38.8 ± 0.8 | 126/500 (101) | 17 ± 2 | 54.2 ± 2.8 |
| NW12 | -2.29 | <1 | 0.27 ± 0.02 | 0.31 ± 0.01 | 0.069 | 0.68 ± 0.03 | 38.7 ± 0.7 | 152/400 (128) | 20 ± 2 | 56.9 ± 3.0 |
| NW13 | -2.37 | 4.0 | 0.26 ± 0.02 | 0.30 ± 0.01 | 0.068 | 0.67 ± 0.03 | 40.2 ± 0.9 | 183/500 (163) | 25 ± 2 | 60.3 ± 3.2 |
| NW14 | -2.50 | 2.7 | 0.23 ± 0.02 | 0.27 ±0.01 | 0.064 | 0.59 ± 0.03 | 40.3 ± 1.0 | 131/400 (108) | 22 ± 2 | 67.8 ± 3.9 |

#Represent the current measured water content of the sediment. A water content of 5 ± 2% was used for all samples in calculations of dose rate.

$De values for all samples were obtained using the central age model (CAM), except for Riwi-2 and Riwi-6 where the finite mixture model (FMM) was used. The De values are those for the two components that represent the highest number of grains and the proportions are indicated in brackets.

\*Numbers in brackets represent the number of grains included in the CAM De value after identification and rejection of outlier (nMAD) grains.

&The OD values are for the De distributions that exclude all De values identified as outliers. The OD values for the samples including all De values are provided in Table OSL\_S1 together with the corresponding CAM De values.

^Numbers in brackets represent the random-only error on the age.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Depth below surface (m)** | **Water (%)#** | **Environmental dose rate (Gy/ka)** | | | | **De value (Gy) $** | **Number of grains\*** | **OD (%)&** | **Age (ka)^** |
|  |  |  | **Beta** | **Gamma** | **Cosmic** | **Total** |  |  |  |  |
| SW2A | -0.66 | 1.1 | 0.23 ± 0.02 | 0.26 ± 0.01 | 0.076 | 0.60 ± 0.03 | 6.5 ± 0.1 | 165/400 (133) | 22 ± 2 | 10.8 ± 0.6 |
| SW3A | -0.85 | 1.1 | 0.23 ± 0.02 | 0.27 ± 0.01 | 0.075 | 0.61 ± 0.03 | 7.6 ± 0.2 | 113/300 (86) | 20 ± 2 | 12.3 ± 0.7 |
| SW4A | -1.04 | <1 | 0.22 ± 0.02 | 0.26 ± 0.01 | 0.073 | 0.58 ± 0.03 | 8.7 ± 0.2 | 177/400 (151) | 29 ± 2 | 14.9 ± 0.9 |
| SW5A | -1.22 | 2.5 | 0.31 ± 0.02 | 0.37 ± 0.01 | 0.072 | 0.78 ± 0.03 | 17.4 ± 0.4 | 163/400 (134) | 23 ± 2 | 22.3 ± 1.1 |
| SW6A | -1.41 | 1.3 | 0.29 ± 0.02 | 0.37 ± 0.01 | 0.070 | 0.76 ± 0.03 | 20.8 ± 0.4 | 140/300 (113) | 21 ± 2 | 27.3 ± 1.4 |
| SW7A | -1.61 | <1 | 0.32 ± 0.02 | 0.33 ± 0.01 | 0.069 | 0.75 ± 0.03 | 25.1 ± 0.5 | 196/400 (165) | 26 ± 1 | 33.5 ± 1.6 |
| SW8A | -1.81 | <1 | 0.28 ± 0.02 | 0.37 ± 0.01 | 0.067 | 0.75 ± 0.03 | 30.4 ± 0.6 | 194/500 (166) | 23 ± 1 | 40.8 ± 2.0 |
| SW9A | -2.03 | <1 | 0.30 ± 0.02 | 0.33 ± 0.01 | 0.066 | 0.73 ± 0.03 | 37.9 ± 0.7 | 195/500 (164) | 21 ± 1 | 51.9 ± 2.6 |
| SW10A | -2.16 | <1 | 0.32 ± 0.02 | 0.31 ± 0.01 | 0.065 | 0.72 ± 0.03 | 40.3 ± 0.6 | 191/500 (160) | 18 ± 1 | 55.7 ± 2.6 |
| SW11A | -2.28 | <1 | 0.28 ± 0.02 | 0.35 ± 0.01 | 0.064 | 0.73 ± 0.03 | 46.4 ± 1.0 | 99/400 (77) | 16 ± 2 | 63.8 ± 3.3 |
| SW13A | -2.45 | <1 | 0.25 ± 0.02 | 0.28 ± 0.01 | 0.063 | 0.62 ± 0.03 | 39.8 ± 0.9 | 136/500 (114) | 21 ± 2 | 64.5 ± 3.5 |
| SW14A | -2.75 | <1 | 0.22 ± 0.02 | 0.26 ± 0.01 | 0.061 | 0.57 ± 0.03 | 46.8 ± 0.9 | 166/500 (150) | 21 ± 2 | 81.6 ± 4.6 |

#Represent the current measured water content of the sediment. A water content of 5 ± 2% was used for all samples in calculations of dose rate.

$De values for all samples were obtained using the central age model (CAM), except for Riwi-2 and Riwi-6 where the finite mixture model (FMM) was used. The De values are those for the two components that represent the highest number of grains and the proportions are indicated in brackets.

\*Numbers in brackets represent the number of grains included in the CAM De value after identification and rejection of outlier (nMAD) grains.

&The OD values are for the De distributions that exclude all De values identified as outliers. The OD values for the samples including all De values are provided in Table OSL\_S1 together with the corresponding CAM De values.

^Numbers in brackets represent the random-only error on the age.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Depth below surface (m)** | **Water (%)#** | **Environmental dose rate (Gy/ka)** | | | | **De value (Gy) $** | **Number of grains\*** | **OD (%)&** | **Age (ka)^** |
|  |  |  | **Beta** | **Gamma** | **Cosmic** | **Total** |  |  |  |  |
| SW1B | -0.49 | <1 | 0.30 ± 0.02 | 0.36 ± 0.02 | 0.090 | 0.78 ± 0.03 | 5.0 ± 0.1 | 178/400 (144) | 33 ± 2 | 6.4 ± 0.3 |
| SW2B | -0.68 | <1 | 0.28 ± 0.02 | 0.33 ± 0.01 | 0.088 | 0.73 ± 0.03 | 7.2 ± 0.2 | 191/400 (145) | 35 ± 2 | 9.9 ± 0.5 |
| SW3B | -0.85 | <1 | 0.28 ± 0.02 | 0.31 ± 0.01 | 0.087 | 0.70 ± 0.03 | 8.2 ± 0.2 | 150/400 (121) | 21 ± 2 | 11.7 ± 0.7 |
| SW4B | -1.04 | <1 | 0.25 ± 0.02 | 0.28 ± 0.01 | 0.085 | 0.64 ± 0.03 | 10.5 ± 0.3 | 144/300 (122) | 28 ± 2 | 16.4 ± 0.9 |
| SW5B | -1.25 | <1 | 0.27 ± 0.02 | 0.30 ± 0.01 | 0.083 | 0.68 ± 0.03 | 17.3 ± 0.6 | 182/400 (166) | 42 ± 2 | 25.5 ± 1.5 |
| SW6B | -1.47 | <1 | 0.29 ± 0.03 | 0.37 ± 0.02 | 0.080 | 0.77 ± 0.04 | 23.4 ± 0.5 | 206/500 (171) | 24 ± 2 | 30.4 ± 1.7 |
| SW7B | -1.69 | <1 | 0.24 ± 0.02 | 0.34 ± 0.02 | 0.079 | 0.70 ± 0.03 | 27.4 ± 0.5 | 252/500 (208) | 26 ± 1 | 39.3 ± 2.1 |
| NW8B | -1.94 | <1 | 0.29 ± 0.02 | 0.34 ± 0.02 | 0.076 | 0.74 ± 0.03 | 34.3 ± 0.6 | 226/500 (194) | 22 ± 1 | 46.3 ± 2.3 |
| NE1C | -2.02 | 1.1 | 0.26 ± 0.02 | 0.36 ± 0.02 | 0.085 | 0.73 ± 0.03 | 38.7 ± 0.8 | 206/500 (176) | 24 ± 2 | 53.0 ± 2.6 |
| NW9B | -2.10 | <1 | 0.25 ± 0.02 | 0.35 ± 0.02 | 0.075 | 0.71 ± 0.03 | 40.0 ± 0.7 | 182/500 (151) | 29 ± 1 | 56.7 ± 3.0 |
| SW2C | -2.39 | <1 | 0.30 ± 0.02 | 0.28 ± 0.02 | 0.073 | 0.68 ± 0.03 | 47.0 ± 0.9 | 169/500 (145) | 20 ± 2 | 68.8 ± 3.6 |
| SW3C | -2.50 | <1 | 0.34 ± 0.02 | 0.35 ± 0.02 | 0.072 | 0.79 ± 0.03 | 47.1 ± 1.0 | 142/500 (116) | 19 ± 2 | 60.0 ± 3.2 |
| SW4C | -2.54 | <1 | 0.31 ± 0.02 | 0.34 ± 0.02 | 0.071 | 0.75 ± 0.03 | 44.1 ± 1.2 | 112/500 (100) | 25 ± 2 | 59.2 ± 3.3 |
| SW5C | -2.62 | <1 | 0.26 ± 0.02 | 0.31 ± 0.02 | 0.071 | 0.67 ± 0.03 | 48.5 ± 1.1 | 149/500 (130) | 24 ± 2 | 72.7 ± 4.1 |
| SW8C | -2.71 | <1 | 0.39 ± 0.02 | 0.39 ± 0.02 | 0.079 | 0.90 ± 0.04 | 63.2 ± 1.7 | 92/500 (78) | 19 ± 2 | 70.4 ± 3.7 |
| SW6C | -2.74 | <1 | 0.27 ± 0.02 | 0.27 ± 0.02 | 0.070 | 0.64 ± 0.03 | 49.8 ± 1.3 | 136/500 (116) | 24 ± 2 | 77.6 ± 4.5 |
| SW7C | -2.89 | 1.2 | 0.23 ± 0.02 | 0.27 ± 0.02 | 0.069 | 0.61 ± 0.03 | 55.4 ± 1.2 | 116/500 (99) | 23 ± 2 | 91.2 ± 5.3 |

#Represent the current measured water content of the sediment. A water content of 5 ± 2% was used for all samples in calculations of dose rate.

$De values for all samples were obtained using the central age model (CAM), except for Riwi-2 and Riwi-6 where the finite mixture model (FMM) was used. The De values are those for the two components that represent the highest number of grains and the proportions are indicated in brackets.

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