**Supplementary Information Table S5:** Description of sediment deposits at KAT1, incorporating results of particle size analyses, loss on ignition studies, magnetic susceptibility studies, stable isotope analysis of pedogenic carbonates (paired samples are labelled 1 and 2) and XRF analysis.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Depth  (m) | Mean Particle Size (µm) | LOI (%) | | Mag Susc.  (m3.kg-1) | Carbonate Stable Isotopes (‰) | | | | XRF (%) | | |
| organic | CaCO3 | 13C1 | 18O1 | 13C2 | 18O2 | Fe | Ca | K |
| 0.08 | 81.8 | 1.3 | 1.9 | 7.32E-07 |  |  |  |  | 2.3 | 1.2 | 0.7 |
| 0.18 | 125.4 | 1.1 | 2.8 | 7.46E-07 |  |  |  |  | 2.5 | 1.3 | 0.8 |
| 0.28 | 147.2 | 1.1 | 3.3 | 8.00E-07 |  |  |  |  | 2.7 | 1.5 | 0.8 |
| 0.38 | 137.8 | 1.3 | 3.4 | 7.57E-07 | 0.13 | -5.33 |  |  | 2.7 | 1.6 | 0.8 |
| 0.48 | 148.0 | 1.2 | 3.6 | 7.71E-07 | -0.76 | -4.63 |  |  | 2.9 | 1.5 | 0.9 |
| 0.58 | 142.9 | 1.1 | 3.4 | 7.51E-07 |  |  |  |  | 2.6 | 1.2 | 0.8 |
| 0.68 | 149.3 | 1.0 | 3.6 | 7.07E-07 |  |  |  |  | 2.7 | 1.3 | 0.8 |
| 0.78 | 130.1 | 0.8 | 2.7 | 7.03E-07 |  |  |  |  | 2.8 | 1.2 | 0.9 |
| 0.92 | 142.5 | 0.7 | 3.2 | 6.74E-07 | -1.38 | -5.36 |  |  | 2.8 | 1.2 | 0.9 |
| 1.04 | 125.0 | 0.9 | 2.7 | 6.45E-07 |  |  |  |  | 2.8 | 1.0 | 0.8 |
| 1.15 | 136.4 | 0.8 | 2.9 | 6.52E-07 | -0.98 | -5.35 |  |  | 2.8 | 1.1 | 0.8 |
| 1.26 | 141.1 | 0.8 | 3.9 | 6.53E-07 | 1.03 | -5.32 | -2.92 | -5.93 | 2.6 | 1.6 | 0.8 |
| 1.38 | 172.0 | 0.8 | 10.6 | 6.12E-07 | 1.54 | -0.98 | 1.35 | -2.06 | 2.4 | 3.7 | 0.7 |
| 1.5 | 277.6 | 0.6 | 25.6 | 4.75E-07 | 1.57 | -1.39 | 1.23 | -2.60 | 2.2 | 9.1 | 0.6 |
| 1.6 | 173.8 | 0.9 | 16.4 | 5.33E-07 | 0.87 | -3.15 | 0.18 | -4.09 | 2.4 | 6.0 | 0.7 |
| 1.7 | 196.6 | 0.9 | 12.3 | 5.74E-07 | -0.65 | -4.89 | -1.50 | -5.59 | 2.6 | 5.0 | 0.8 |
| 1.8 | 199.7 | 1.0 | 15.1 | 5.93E-07 | -1.04 | -5.16 | -2.57 | -5.91 | 2.8 | 6.1 | 0.8 |
| 1.9 | 179.4 | 1.2 | 13.6 | 5.71E-07 | -1.94 | -5.50 | -2.33 | -5.76 | 2.5 | 5.2 | 0.7 |
| 2 | 160.1 | 1.3 | 13.6 | 6.05E-07 | -2.42 | -5.71 | -2.62 | -5.85 | 2.6 | 4.8 | 0.8 |
| 2.1 | 165.4 | 1.2 | 12.6 | 5.90E-07 | -2.52 | -5.68 | -2.80 | -5.83 | 2.7 | 4.5 | 0.7 |
| 2.2 | 174.7 | 1.2 | 14.4 | 5.79E-07 | -1.69 | -4.93 | -1.82 | -5.17 | 2.7 | 5.6 | 0.8 |
| 2.3 | 154.8 | 1.1 | 14.1 | 5.67E-07 | -2.41 | -5.71 | -2.93 | -5.91 | 2.8 | 4.7 | 0.7 |
| 2.4 | 186.7 | 1.0 | 14.3 | 5.82E-07 | -2.07 | -5.22 | -2.30 | -5.69 | 2.6 | 5.1 | 0.7 |
| 2.5 | 297.6 | 1.0 | 13.1 | 6.27E-07 | -2.32 | -5.42 | -3.12 | -5.98 | 3.0 | 5.1 | 0.8 |
| 2.6 | 253.1 | 1.2 | 13.1 | 5.69E-07 | -2.02 | -5.21 | -3.20 | -5.96 | 2.8 | 4.9 | 0.7 |
| 2.75 | 277.6 | 1.2 | 17.3 | 5.53E-07 | -2.47 | -5.44 | -2.48 | -5.86 | 2.6 | 6.8 | 0.7 |
| 2.85 | 272.6 | 1.2 | 17.7 | 5.53E-07 | -1.23 | -4.59 | -3.02 | -5.80 | 2.7 | 6.7 | 0.7 |
| 2.95 | 339.3 | 1.3 | 19.4 | 4.89E-07 | -2.99 | -5.76 | -3.07 | -5.93 | 2.5 | 7.5 | 0.6 |
| 3.05 | 354.6 | 1.2 | 18.6 | 5.26E-07 | 0.00 | -5.90 | -3.04 | -5.91 | 2.5 | 6.7 | 0.6 |
| 3.15 | 343.5 | 1.2 | 19.6 | 5.09E-07 | 0.70 | -3.67 | -3.11 | -5.86 | 2.6 | 7.6 | 0.7 |
| 3.25 | 349.2 | 1.2 | 20.2 | 5.23E-07 | -0.34 | -5.51 | -1.47 | -5.56 | 2.7 | 8.2 | 0.6 |
| 3.4 | 339.8 | 1.1 | 22.6 | 4.67E-07 | -0.58 | -4.50 | -0.73 | -4.76 | 2.2 | 8.4 | 0.6 |
| 3.5 | 213.0 | 1.0 | 24.9 | 4.48E-07 | 0.10 | -5.03 | -0.35 | -5.47 | 2.2 | 9.4 | 0.6 |
| 3.6 | 409.1 | 1.1 | 23.5 | 4.22E-07 | 0.08 | -4.69 | -0.44 | -5.38 | 2.3 | 8.5 | 0.6 |
| 3.7 | 391.4 | 1.0 | 24.2 | 4.40E-07 | 0.19 | -4.84 | 0.18 | -4.95 | 2.2 | 9.3 | 0.6 |
| 3.8 | 354.7 | 1.1 | 25.3 | 4.17E-07 | -0.59 | -5.47 | -0.72 | -5.96 | 2.5 | 9.4 | 0.6 |
| 3.9 | 370.7 | 1.1 | 22.7 | 4.46E-07 | 0.55 | -5.26 | -0.52 | -5.27 | 2.0 | 8.4 | 0.6 |
| 4 | 397.8 | 1.0 | 23.3 | 3.96E-07 | 0.35 | -4.88 | -0.32 | -5.69 | 2.1 | 8.5 | 0.6 |
| 4.1 | 538.4 | 1.2 | 22.8 | 4.14E-07 | 0.79 | -5.23 | 0.01 | -5.85 | 2.6 | 8.8 | 0.6 |
| 4.2 | 382.2 | 1.1 | 24.8 | 4.12E-07 | 0.30 | -4.48 | -0.52 | -5.29 | 2.1 | 8.3 | 0.5 |
| 4.3 | 401.7 | 1.2 | 34.2 | 3.46E-07 | -0.34 | -5.15 | -1.35 | -5.85 | 2.2 | 13.0 | 0.5 |
| 4.4 | 550.4 | 1.1 | 40.8 | 2.67E-07 | 0.95 | -5.32 | 0.68 | -5.57 | 1.7 | 15.1 | 0.5 |