***Table S2. 26Al data and 26Al/10Be ratios***

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Sample ID*** | ***26Al/27Al ratioa*** | ***26Al/27Al ratio uncertaintya*** | ***Total 27Al (mg)b*** | ***26Al concentration***  ***(atoms g-1)*** | ***26Al concentration***  ***uncertainty***  ***(atoms g-1)*** | ***10Be concentration***  ***(atoms g-1)*** | ***10Be concentration uncertainty***  ***(atoms g-1)*** | ***26Al/10Be ratio*** | ***26Al/10Be uncertainty*** |
| ***EASTERN TRANSECT*** | | | | | | | | | |
| *Coastal site (~100 m asl)* | | | | | | | | | |
| 22GRO-01 | 1.79E-13 | 9.57E-15 | 2.65 | 1051094 | 56220 | 125026 | 9993 | 8.41 | 0.81 |
| *Inland sites* | | | | | | | | | |
| 22GRO-03 | 1.62E-13 | 9.86E-15 | 1.60 | 1106245 | 67299 | 506086 | 21208 | 2.19 | 0.16 |
| 22GRO-05 | 5.62E-14 | 4.87E-15 | 18.17 | 4632031 | 401234 | 1275601 | 41412 | 3.63 | 0.34 |
| 22GRO-08 | 2.20E-13 | 1.33E-14 | 11.68 | 4502114 | 271900 | 1162619 | 18588 | 3.87 | 0.24 |
| *Ice margin site* | | | | | | | | | |
| 22GRD-CR01-SURF | 5.76E-13 | 2.49E-14 | 1.68 | 1787025 | 77390 | 323285 | 6110 | 5.53 | 0.26 |
| 22GRO-  11 | 5.93E-13 | 1.94E-14 | 4.57 | 2053403 | 67223 | 376444 | 6957 | 5.45 | 0.21 |
| 22GRO-14 | 1.05E-12 | 3.74E-14 | 2.51 | 2093072 | 74796 | 409731 | 7655 | 5.11 | 0.21 |
| ***WESTERN TRANSECT*** | | | | | | | | | |
| *Coastal site (~100 m asl)* | | | | | | | | | |
| 22GRD-CR04-SURF | 1.73E-13 | 8.95E-15 | 2.26 | 861474 | 44977 | 113633 | 2136 | 7.58 | 0.42 |
| 22GRO-48 | 2.12E-13 | 1.074E-14 | 2.22 | 1044639 | 52967 | 163842 | 7746 | 6.38 | 0.44 |
| *Coastal site (255 m asl)* | | | | | | | | | |
| 22GRO-22 | 2.98E-13 | 1.35E-14 | 2.85 | 1865952 | 84840 | 328726 | 9134 | 5.68 | 0.30 |
| *Inland sites* | | | | | | | | | |
| 22GRO-16 | 4.86E-13 | 1.99E-14 | 4.99 | 4210656 | 172086 | 919877 | 17150 | 4.58 | 0.21 |
| 22GRO-19 | 2.70E-13 | 1.38E-14 | 6.81 | 3476058 | 177829 | 657797 | 15529 | 5.28 | 0.30 |
| 22GRO-20 | 6.12E-13 | 2.30E-14 | 5.32 | 4806314 | 180828 | 1270807 | 19863 | 3.78 | 0.15 |
| *Ice margin site* | | | | | | | | | |
| 22GRD-CR02-SURF | 8.33E-13 | 3.51E-14 | 2.08 | 3805146 | 160703 | 951606 | 17615 | 4.00 | 0.18 |
| 22GRO-25 | 7.27E-13 | 2.61E-14 | 1.81 | 2942081 | 105685 | 609501 | 14808 | 4.83 | 0.21 |
| 22GRO-32c | 5.04E-13 | 1.80E-14 | 1.71 | 1901909 | 68266 | 369046 | 6861 | 5.15 | 0.21 |
| ***PROCESS BLANKS*** | | | | ***Blank atoms*** | ***Blank atoms uncertainty*** | ***Samples applied to*** | | | |
| BLK1-2023Feb10 | 1.45E-15 | 8.04E-16 | 1.60 | 51922 | 28716 | 22GRD-CR01-SURF, 22GRD-CR-02-SURF, 22GRO-32, 22GRD-CR04-SURF, 22GRD-CR05-SURF | | | |
| 119-Blank-Al | 1.59E-15 | 7.97E-16 | 2.17 | 77099 | 38698 | 22GRO-03, 22GRO-08, 22GRO-11, 22GRO-14, 22GRO-16, 22GRO-19, 22GRO-20 | | | |
| 120-Blank-Al | 1.53E-15 | 1.20E-15 | 2.00 | 68494 | 53810 | 22GRO-01, 22GRO-05, 22GRO-22, 22GRO-25, 22GRO-48 | | | |

***a****All samples measured at PRIME lab relative to the KNSTD standard.* ***b****Total Al load determined by ICP-OES.* ***c****boulder sample.*