# Supplementary Information for Potentially Bioavailable Iron Delivery by Iceberg-hosted Sediments and Atmospheric Dust to the Polar Oceans.

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**This file contains Tables S1, S2, S3 and S4.**

Table S1. Iceberg and Glacial Ice-hosted Sediment Samples

| **Locality (No of Samples)** | **Literature Reference** |
|---|---|
| **Icebergs** | |
| Narsarsuaq, West Greenland (11) | New Data* |
| Sermilk, East Greenland (8) | New Data* |
| Kongsfjord, Svalbard (14) | New Data |
| Wallensbergfjorden, Svalbard (8) | New Data |
| Liefdenfjorden, Svalbard (1) | Raiswell et al. (2008a) |
| Weddell Sea, Antarctica (3) | Shaw et al. (2011) |
| Seymour and King George Islands, Antarctica (6) | Raiswell et al. (2008a) |

| **Glacial Ice** | |
|---|---|
| Mt. Capley, Antarctica (2) | New Data |
| Charles Peak, Antarctica (2) | New Data |
| Canada Glacier, Antarctica (1) | Raiswell et al. (2008a) |
| Taylor Glacier, Antarctica (3) | Raiswell et al. (2008a) |
| Russell Glacier, Greenland (3) | New Data and Yde et al. (2010) |
| Mittivakkt Glacier, Greenland (1) | Yde et al. (2010) |
| Finsterwalderbreen, Svalbard (2) | New Data |
| Engabreen, Norway (2) | New Data |

*Filtered through 0.4/0.45µm membrane filters, otherwise through 2.7µm Whatman 542 filter

Table S2. Atmospheric Dust Samples

| **Locality (No of Samples)** | **Sample Description or Reference** |
|---|---|
| Crete (1) | New Data, dry deposition sampled from a dust collector |
| Rosh Pina, Israel (1) | New Data, dry deposition sampled from clean glass and surface |
| Beijing, China (1) | New data, dry deposition from a clean surface (Shi et al. 2015) |
| Rio Gallegos, Southern Patagonia (3) | New data, dry deposition from a clean surface |
| Eastern Tropical Atlantic Ocean (6) | New Data (see Baker et al., 2006) |
| Sea of Marmara (1) | New Data (see Baker et al., 2006). |
| Eastern Med. (2) | Raiswell et al. (2008b) and Shi et al. (2009) |

Table S3 Fe contents of Sediments in Icebergs and Land-based Glaciers.

| **ICEBERGS** | **% FeA** | **%FeD** |
|---|---|---|
| **West Greenland** | | |
| 130717 Iceberg A | 0.026 | 0.129 |
| 130717 Iceberg A | 0.032 | 0.190 |
| 130701 Iceberg B3 | 0.051 | 0.537 |
| 130701 Iceberg B2 | 0.058 | 0.227 |
| 130701 Iceberg B1a | 0.020 | 0.298 |
| 130701 Iceberg B1b | 0.051 | 0.520 |
| 130701 Iceberg 2 | 0.041 | 0.310 |
| 130701 Iceberg 2 | 0.058 | 0.178 |
| 130701 Iceberg 1Di | 0.063 | 0.660 |
| 130701 Iceberg 1Di | 0.038 | 0.435 |
| 130619 Iceberg 1b | 0.140 | 0.209 |
| **East Greenland** | | |
| 140727 Iceberg 1a | 0.037 | 0.330 |
| 140727 Iceberg 1b | 0.052 | 0.066 |
| 140727 Iceberg 2a | 0.049 | 0.429 |
| 140727 Iceberg 2b | 0.026 | 0.350 |
| 140727 Iceberg 2c | 0.043 | 0.550 |
| 140727 Iceberg 2d | 0.032 | 0.418 |
| 140727 Iceberg 2e | 0.010 | 0.190 |
| 140727 Iceberg 3 | 0.025 | 0.208 |
| **Antarctica** | | |
| Seymour Island S1 | 0.071 | 0.780 |
| Seymour Island S2 | 0.195 | 0.860 |
| Seymour Island S3 | 0.357 | 1.20 |
| Seymour Island S4 | 0.150 | 0.810 |
| King George Island KG1 | 0.057 | 0.310 |

| | | |
|---|---|---|
| King George Island KG2 | 0.058 | 0.630 |
| Weddell Sea LMG-05[3] | 0.046 | 0.426 |
| Weddell Sea NBP-09 IRD1 | 0.165 | 0.625 |
| Weddell Sea NBP-09 IRD4 | 0.496 | 0.089 |
| **Svalbard** | | |
| Kongsfjord1 | 0.034 | 0.375 |
| Kongsfjord 2 | 0.016 | 0.930 |
| Kongsfjord 3 | 0.057 | 0.252 |
| Kongsfjord 4 | 0.187 | 0.378 |
| Kongsfjord 5 | 0.037 | 0.252 |
| Kongsfjord 6 | 0.263 | 0.566 |
| Kongsfjord 7 | 0.250 | 0.293 |
| Kongsfjord 8 | 0.073 | 0.208 |
| Kongsfjord 9 | 0.256 | 0.486 |
| Kongsfjord K1 | 0.374 | 0.810 |
| Kongsfjord K2 | 0.094 | 1.185 |
| Kongsfjord K3 | 0.044 | 0.623 |
| Kongsfjord K4 | 0.129 | 0.485 |
| Kongsfjord K5 | 0.089 | 0.592 |
| Liefdenfjorden | 0.050 | 0.210 |
| Wallensbergfjorden IMS1 | 0.254 | No data |
| IMS2 | 0.289 | No data |
| IMS3 | 0.172 | 0.380 |
| IMS3/2 | 0.236 | No data |
| IMS4 | 0.068 | 0.200 |
| IMS5 | 0.047 | 0.44 |
| IMS6 | 0.076 | 0.250 |
| IMS7 | 0.481 | 0.840 |
| **Mean[1]** | **0.076** | **0.377** |
| **Low[2]** | **0.030** | **0.200** |
| **High[2]** | **0.194** | **0.715** |
| **GLACIAL ICE** | | |
| **Antarctica** | | |

| | | |
|---|---|---|
| Mt. Capley | 0.170 | 0.170 |
| Mt. Capley | 0.090 | 0.170 |
| Charles Peak 6 | 0.030 | 0.460 |
| Charles Peak 7 | 0.010 | 0.060 |
| Taylor T1 | 0.029 | 0.140 |
| Taylor T2 | 0.020 | 0.100 |
| Taylor T3 | 0.029 | 0.100 |
| Canada C1 | 0.023 | 0.027 |
| **Greenland** | | |
| Russell R0 | 0.032 | 0.000 |
| Mittivakkt | 0.016 | 0.093 |
| Russell R1 | 0.014 | 0.024 |
| Russell R2 | 0.035 | 0.046 |
| **Norway** | | |
| Engabreen E1 | 0.026 | 0.050 |
| Engabreen E2 | 0.033 | 0.085 |
| **Svalbard** | | |
| Finsterwalderbreen F1 | 0.045 | 0.096 |
| Finsterwalderbreen F2 | 0.030 | 0.179 |
| **Mean[1]** | **0.030** | **0.091** |
| **Low[2]** | **0.015** | **0.042** |
| **High[2]** | **0.060** | **0.196** |

[1]Logarithmic Mean for FeA and FeD

[2]Low and high values for FeA and FeD derived from the logarithmic standard deviation.

[3]Mean of size fractions 63-125 μm and 125-250μm.

Table S4. Fe Contents of Aeolian Dust Samples

| **Sample Location** | **%FeA** | **%FeD** | **% FeT** | **(FeA+FeD)/FeT** |
|---|---|---|---|---|
| Crete. | 0.009 | 0.71 | No data | No data |
| Rosh Pina, Israel. | 0.011 | 1.13 | No data | No data |
| Eastern Med. | 0.03 | 0.82 | No data | No data |
| Eastern Med. | 0.025 | 0.975 | 2.81 | 0.36 |
| Beijing, China | 0.06 | 0.78 | 3.50 | 0.24 |
| Atlantic M03<br>18.0$^{o}$N 20.7$^{o}$W to 18$^{o}$N 19$^{o}$W | 0.058 | 1.58 | 3.88 | 0.42 |
| Atlantic M04<br>31.95$^{o}$N 21.46$^{o}$W to 30.0$^{o}$N 20.0$^{o}$W | 0.106 | 1.46 | 3.01 | 0.52 |
| Atlantic M01<br>17.1$^{o}$N 24.8$^{o}$W to 18.0$^{o}$N 22.5$^{o}$W | 0.033 | 1.58 | 4.15 | 0.41 |
| Atlantic M05<br>18.0$^{o}$N 17.5$^{o}$W to 18.5$^{o}$N 16.5$^{o}$W | 0.030 | 1.42 | 4.42 | 0.33 |
| Atlantic M06<br>18.5$^{o}$N 16.5$^{o}$W to 18.8$^{o}$N 18.0$^{o}$W | 0.044 | 1.60 | 4.50 | 0.37 |
| Atlantic M07<br>18.8$^{o}$N 18.0$^{o}$W to 19.1$^{o}$N 16.5$^{o}$W | 0.033 | 1.49 | 4.10 | 0.37 |
| Sea of Marmara 18<br>40.66$^{o}$N 27.46$^{o}$W to 40.98$^{o}$N 28.95W | 0.022 | 0.11 | No data | No data |
| Southern Patagonia P1 | 0.07 | 0.722 | No data | No data |
| Southern Patagonia P2 | 0.086 | 0.520 | No data | No data |
| Southern Patagonia P3 | 0.099 | 0.4468 | No data | No data |
| **Mean**[1] | 0.038 | 0.868 | | |
| **Low**[2] | 0.018 | 0.426 | | |
| **High**[2] | 0.081 | 1.76 | | |

[1]Logarithmic Mean for FeA and FeD,

[2]Low and high values for FeA and FeD derived from the logarithmic standard deviation.

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