*Supplementary materials*

**Paleo-trade wind directions over the Yangtze Carbonate Platform during the Cambrian–Ordovician, Southern China**

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**Table S1.** Location and sampling information for the nine study outcrops.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **NO.** | **Outcrop** | **Location** | **Thickness\* (m)** | **No. of analyses for thin section** | **No. analyses for AMS** |
| 1 | LJ  (Liujiachang Outcrop) | 30°03′34″ N  111°28′59″ E | 1130 (SJ-LX formations) | 66 | 274 |
| 2 | FD  (Fandian Outcrop) | 29°33′16″ N  103°47′28″ E | 650 (QZ-XX formations) | 38 | 140 |
| 3 | YK  (Yankong Outcrop) | 27°33′07″ N 106°15′28″ E | 820 (NT-MT formations) | 48 | 149 |
| 4 | YS  (Yangsiqiao Outcrop) | 31°49′02″ N  109°00′08″ E | 270 (SJ-SY formations) | 16 | 133 |
| 5 | YJ  (Yangjiaping Outcrop) | 29°58′42″ N  110°43′13″ E | 2330 (NT-MT formations) | 137 | 137 |
| 6 | HH  (Honghuayuan Outcrop) | 28°04′15″ N  106°50′53″ E | 440 (TZ-WF formations) | 26 | 139 |
| 7 | JF  (Jinfoshan Outcrop) | 29°00′50″ N  107°09′57″ E | 300 (TZ-WF formations) | 18 | 144 |
| 8 | NS  (Nanshanping Outcrop) | 29°19′31″ N  110°54′06″ E | 520 (TZ-BT formations) | 31 | 135 |
| 9 | YH  (Yanhe Outcrop) | 28°33′11″ N  108°28′48″ E | 170 (TZ-WF formations) | 10 | 149 |

\*Total observed and measured thickness in a given outcrop. SJ = Shuijingtuo Formation; LX = Linxiang Formation; QZ = Qiongzhusi Formation; XX = Xixiangchi Formation; NT = Niutitang Formation; MT =Maotianba Formatiom; SY = Sanyoudong Formation; TZ = Tongzi Formation; WF = Wufeng Formation; and BT = Baota Formation.

**Table S2.** Parameters of oolitic grainstone in different sites of Cambrian-Ordovician. The statistical results are based on Table S3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sites** | **Cambrian** | | **Ordovician** | |
| **Bedding thickness (m)** | **Ooid size (mm)** | **Bedding thickness (m)** | **Ooid size (mm)** |
| Northwestern YCP | 1.5 ± 1.1 | 0.8 ± 0.7 | 1.4 ± 0.9 | 0.7 ± 0.5 |
| Central YCP | 0.7 ± 0.5 | 0.6 ± 0.6 | 0.6 ± 0.4 | 0.6 ± 0.5 |
| Southeastern YCP | 2.2 ± 1.1 | 1.0 ± 0.9 | 2.1 ± 1.2 | 0.9 ± 0.8 |

**Table S3.** Oolitic grainstone (a total of 120 samples) showing different parameters on bedding thickness, ooid size, sorting, and cement types.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sites** | **Sample ID** | **System** | **Thickness (m)** | **Size (mm)** | **Sorting** |
| Northwestern YCP | 1 | [Cambrian](javascript:;) | 1.1 | 0.5 | Well |
| 2 | [Cambrian](javascript:;) | 1.4 | 0.1 | Well |
| 3 | [Cambrian](javascript:;) | 0.9 | 0.6 | Moderate |
| 4 | [Cambrian](javascript:;) | 0.6 | 0.2 | Well |
| 5 | [Cambrian](javascript:;) | 1.9 | 0.9 | Moderate |
| 6 | [Cambrian](javascript:;) | 2.1 | 1.2 | Well |
| 7 | [Cambrian](javascript:;) | 1.6 | 1.0 | Moderate |
| 8 | [Cambrian](javascript:;) | 1.5 | 0.9 | Moderate |
| 9 | [Cambrian](javascript:;) | 1.8 | 0.5 | Well |
| 10 | [Cambrian](javascript:;) | 1.7 | 0.7 | Moderate |
| 11 | [Cambrian](javascript:;) | 2.2 | 0.9 | Well |
| 12 | [Cambrian](javascript:;) | 1.2 | 0.5 | Well |
| 13 | [Cambrian](javascript:;) | 1.5 | 0.3 | Moderate |
| 14 | [Cambrian](javascript:;) | 1.5 | 1.3 | Well |
| 15 | [Cambrian](javascript:;) | 2.6 | 0.6 | Well |
| 16 | [Cambrian](javascript:;) | 1.0 | 0.8 | Moderate |
| 17 | [Cambrian](javascript:;) | 1.8 | 1.5 | Well |
| 18 | [Cambrian](javascript:;) | 0.4 | 1.2 | Poorly |
| 19 | [Cambrian](javascript:;) | 0.9 | 0.3 | Moderate |
| 20 | [Cambrian](javascript:;) | 2.1 | 1.2 | Well |
| 21 | [Ordovician](javascript:;) | 2.0 | 1.1 | Well |
| 22 | [Ordovician](javascript:;) | 1.0 | 0.6 | Well |
| 23 | [Ordovician](javascript:;) | 1.2 | 0.3 | Moderate |
| 24 | [Ordovician](javascript:;) | 1.4 | 1.2 | Well |
| 25 | [Ordovician](javascript:;) | 0.9 | 0.3 | Well |
| 26 | [Ordovician](javascript:;) | 0.9 | 0.4 | Moderate |
| 27 | [Ordovician](javascript:;) | 1.8 | 0.2 | Well |
| 28 | [Ordovician](javascript:;) | 0.6 | 0.8 | Well |
| 29 | [Ordovician](javascript:;) | 1.9 | 0.8 | Well |
| 30 | [Ordovician](javascript:;) | 1.0 | 1.0 | Moderate |
| 31 | [Ordovician](javascript:;) | 1.5 | 0.8 | Well |
| 32 | [Ordovician](javascript:;) | 2.1 | 0.7 | Moderate |
| 33 | [Ordovician](javascript:;) | 1.7 | 0.9 | Well |
| 34 | [Ordovician](javascript:;) | 1.3 | 0.5 | Moderate |
| 35 | [Ordovician](javascript:;) | 2.2 | 1.1 | Well |
| 36 | [Ordovician](javascript:;) | 1.1 | 1.1 | Well |
| 37 | [Ordovician](javascript:;) | 2.3 | 0.4 | Poorly |
| 38 | [Ordovician](javascript:;) | 1.9 | 0.7 | Moderate |
| 39 | [Ordovician](javascript:;) | 1.2 | 1.1 | Well |
| 40 | [Ordovician](javascript:;) | 0.5 | 0.6 | Well |
| Central YCP | 41 | [Cambrian](javascript:;) | 0.3 | 0.5 | Poorly |
| 42 | [Cambrian](javascript:;) | 0.9 | 0.5 | Moderate |
| 43 | [Cambrian](javascript:;) | 0.5 | 1.0 | Poorly |
| 44 | [Cambrian](javascript:;) | 0.7 | 1.2 | Moderate |
| 45 | [Cambrian](javascript:;) | 1.2 | 1.0 | Well |
| 46 | [Cambrian](javascript:;) | 0.5 | 0.5 | Poorly |
| 47 | [Cambrian](javascript:;) | 1.1 | 1.1 | Poorly |
| 48 | [Cambrian](javascript:;) | 0.3 | 0.2 | Moderate |
| 49 | [Cambrian](javascript:;) | 0.8 | 0.1 | Poorly |
| 50 | [Cambrian](javascript:;) | 1.1 | 0.2 | Poorly |
| 51 | [Cambrian](javascript:;) | 0.7 | 0.3 | Moderate |
| 52 | [Cambrian](javascript:;) | 1.0 | 0.9 | Poorly |
| 53 | [Cambrian](javascript:;) | 0.6 | 0.4 | Moderate |
| 54 | [Cambrian](javascript:;) | 0.3 | 0.3 | Poorly |
| 55 | [Cambrian](javascript:;) | 0.8 | 1.0 | Poorly |
| 56 | [Cambrian](javascript:;) | 0.6 | 0.7 | Moderate |
| 57 | [Cambrian](javascript:;) | 0.8 | 0.4 | Poorly |
| 58 | [Cambrian](javascript:;) | 1.2 | 0.2 | Moderate |
| 59 | [Cambrian](javascript:;) | 0.2 | 0.4 | Poorly |
| 60 | [Cambrian](javascript:;) | 0.3 | 0.6 | Moderate |
| 61 | [Ordovician](javascript:;) | 0.5 | 0.3 | Poorly |
| 62 | [Ordovician](javascript:;) | 0.6 | 1.1 | Poorly |
| 63 | [Ordovician](javascript:;) | 0.9 | 0.8 | Moderate |
| 64 | [Ordovician](javascript:;) | 0.7 | 0.9 | Poorly |
| 65 | [Ordovician](javascript:;) | 0.5 | 0.1 | Moderate |
| 66 | [Ordovician](javascript:;) | 0.6 | 0.5 | Poorly |
| 67 | [Ordovician](javascript:;) | 1.0 | 0.3 | Well |
| 68 | [Ordovician](javascript:;) | 0.5 | 0.4 | Poorly |
| 69 | [Ordovician](javascript:;) | 0.5 | 1.1 | Moderate |
| 70 | [Ordovician](javascript:;) | 0.5 | 0.4 | Poorly |
| 71 | [Ordovician](javascript:;) | 0.2 | 0.2 | Poorly |
| 72 | [Ordovician](javascript:;) | 0.8 | 0.4 | Moderate |
| 73 | [Ordovician](javascript:;) | 0.5 | 0.8 | Poorly |
| 74 | [Ordovician](javascript:;) | 0.3 | 0.4 | Poorly |
| 75 | [Ordovician](javascript:;) | 0.6 | 0.2 | Poorly |
| 76 | [Ordovician](javascript:;) | 0.4 | 0.4 | Poorly |
| 77 | [Ordovician](javascript:;) | 0.6 | 0.6 | Poorly |
| 78 | [Ordovician](javascript:;) | 0.6 | 0.9 | Moderate |
| 79 | [Ordovician](javascript:;) | 0.3 | 1.0 | Poorly |
| 80 | [Ordovician](javascript:;) | 0.4 | 0.2 | Poorly |
| Southeastern YCP | 81 | [Cambrian](javascript:;) | 2.6 | 1.3 | Moderate |
| 82 | [Cambrian](javascript:;) | 1.9 | 1.7 | Moderate |
| 83 | [Cambrian](javascript:;) | 2.4 | 0.8 | Moderate |
| 84 | [Cambrian](javascript:;) | 2.2 | 1.2 | Moderate |
| 85 | [Cambrian](javascript:;) | 3.3 | 0.1 | Well |
| 86 | [Cambrian](javascript:;) | 1.6 | 0.5 | Poorly |
| 87 | [Cambrian](javascript:;) | 2.0 | 1.2 | Moderate |
| 88 | [Cambrian](javascript:;) | 2.0 | 1.7 | Moderate |
| 89 | [Cambrian](javascript:;) | 1.7 | 0.5 | Poorly |
| 90 | [Cambrian](javascript:;) | 2.7 | 1.9 | Moderate |
| 91 | [Cambrian](javascript:;) | 1.9 | 1.3 | Moderate |
| 92 | [Cambrian](javascript:;) | 2.6 | 0.7 | Moderate |
| 93 | [Cambrian](javascript:;) | 2.9 | 0.6 | Moderate |
| 94 | [Cambrian](javascript:;) | 1.1 | 0.4 | Poorly |
| 95 | [Cambrian](javascript:;) | 2.5 | 0.8 | Moderate |
| 96 | [Cambrian](javascript:;) | 2.4 | 0.8 | Moderate |
| 97 | [Cambrian](javascript:;) | 2.4 | 0.6 | Moderate |
| 98 | [Cambrian](javascript:;) | 2.8 | 1.7 | Well |
| 99 | [Cambrian](javascript:;) | 2.7 | 1.4 | Well |
| 100 | [Cambrian](javascript:;) | 1.2 | 1.0 | Moderate |
| 101 | [Ordovician](javascript:;) | 1.9 | 1.4 | Moderate |
| 102 | [Ordovician](javascript:;) | 1.7 | 0.5 | Moderate |
| 103 | [Ordovician](javascript:;) | 3.0 | 0.6 | Moderate |
| 104 | [Ordovician](javascript:;) | 1.6 | 0.1 | Poorly |
| 105 | [Ordovician](javascript:;) | 3.0 | 0.5 | Moderate |
| 106 | [Ordovician](javascript:;) | 1.2 | 1.0 | Moderate |
| 107 | [Ordovician](javascript:;) | 3.1 | 1.2 | Moderate |
| 108 | [Ordovician](javascript:;) | 2.0 | 0.3 | Moderate |
| 109 | [Ordovician](javascript:;) | 2.4 | 0.9 | Moderate |
| 110 | [Ordovician](javascript:;) | 3.1 | 0.5 | Moderate |
| 111 | [Ordovician](javascript:;) | 1.2 | 1.2 | Poorly |
| 112 | [Ordovician](javascript:;) | 1.6 | 0.9 | Moderate |
| 113 | [Ordovician](javascript:;) | 2.3 | 1.5 | Moderate |
| 114 | [Ordovician](javascript:;) | 1.3 | 1.7 | Moderate |
| 115 | [Ordovician](javascript:;) | 1.2 | 1.1 | Moderate |
| 116 | [Ordovician](javascript:;) | 3.3 | 1.3 | Well |
| 117 | [Ordovician](javascript:;) | 0.9 | 0.9 | Poorly |
| 118 | [Ordovician](javascript:;) | 1.4 | 1.6 | Moderate |
| 119 | [Ordovician](javascript:;) | 2.7 | 0.4 | Well |
| 120 | [Ordovician](javascript:;) | 2.3 | 1.3 | Moderate |

**Table S4.** Parameters of intraclastic grainstone in different sites of Cambrian-Ordovician. The statistical results are based on Table S5.

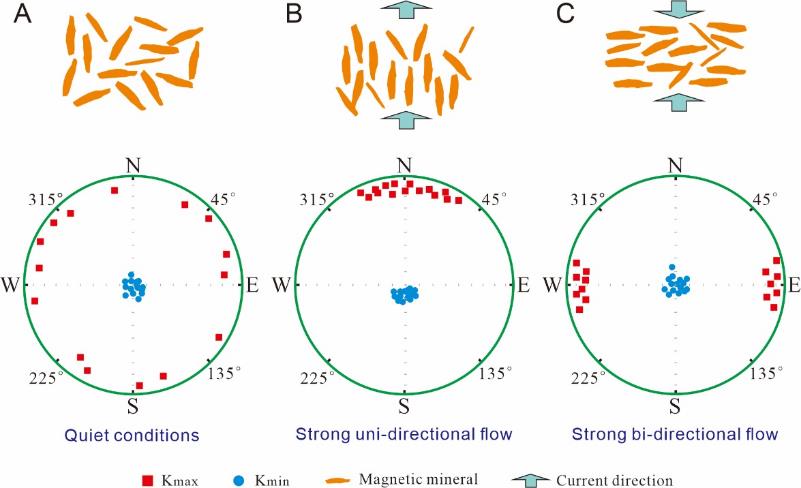
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sites** | **Cambrian** | | **Ordovician** | |
| **Bedding thickness (m)** | **Intraclast size (cm)** | **Bedding thickness (m)** | **Intraclast size (cm)** |
| Northwestern YCP | 1.7 ± 1.3 | 2.5 ± 1.7 | 1.8 ± 1.4 | 2.4 ± 1.5 |
| Central YCP | 1.2 ± 0.9 | 1.7 ± 1.1 | 1.3 ± 0.8 | 1.5 ± 0.9 |
| Southeastern YCP | 0.6 ± 0.5 | 0.8 ± 0.7 | 0.7 ± 0.5 | 0.7 ± 0.6 |

**Table S5.** Intraclastic grainstone (a total of 120 samples) showing different parameters on bedding thickness, intraclast size, roundness, sorting, and cement types.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sites** | **Sample ID** | **System** | **Thickness (m)** | **Size (cm)** | **Roundness** | **Sorting** |
| Northwestern YCP | 1 | [Cambrian](javascript:;) | 2.0 | 0.8 | Rounded | Moderate |
| 2 | [Cambrian](javascript:;) | 0.4 | 2.2 | Angular | Poorly |
| 3 | [Cambrian](javascript:;) | 0.9 | 3.3 | Sub-rounded | Moderate |
| 4 | [Cambrian](javascript:;) | 2.7 | 2.6 | Rounded | Well |
| 5 | [Cambrian](javascript:;) | 2.9 | 3.4 | Rounded | Well |
| 6 | [Cambrian](javascript:;) | 1.3 | 2.1 | Sub-rounded | Moderate |
| 7 | [Cambrian](javascript:;) | 2.1 | 2.4 | Sub-angular | Moderate |
| 8 | [Cambrian](javascript:;) | 1.4 | 3.1 | Sub-rounded | Moderate |
| 9 | [Cambrian](javascript:;) | 2.7 | 1.0 | Sub-angular | Moderate |
| 10 | [Cambrian](javascript:;) | 1.0 | 2.9 | Sub-rounded | Moderate |
| 11 | [Cambrian](javascript:;) | 1.6 | 3.0 | Sub-angular | Moderate |
| 12 | [Cambrian](javascript:;) | 0.6 | 4.1 | Sub-rounded | Poorly |
| 13 | [Cambrian](javascript:;) | 1.1 | 1.1 | Sub-rounded | Moderate |
| 14 | [Cambrian](javascript:;) | 2.9 | 3.6 | Rounded | Well |
| 15 | [Cambrian](javascript:;) | 0.9 | 1.1 | Sub-rounded | Moderate |
| 16 | [Cambrian](javascript:;) | 3.0 | 2.3 | Rounded | Well |
| 17 | [Cambrian](javascript:;) | 2.7 | 1.9 | Sub-rounded | Well |
| 18 | [Cambrian](javascript:;) | 1.2 | 1.4 | Sub-rounded | Moderate |
| 19 | [Cambrian](javascript:;) | 1.8 | 4.2 | Sub-angular | Moderate |
| 20 | [Cambrian](javascript:;) | 1.3 | 3.0 | Sub-rounded | Moderate |
| 21 | [Ordovician](javascript:;) | 0.9 | 1.2 | Sub-rounded | Moderate |
| 22 | [Ordovician](javascript:;) | 0.4 | 2.8 | Sub-angular | Poorly |
| 23 | [Ordovician](javascript:;) | 1.4 | 2.1 | Sub-rounded | Moderate |
| 24 | [Ordovician](javascript:;) | 2.6 | 1.7 | Rounded | Well |
| 25 | [Ordovician](javascript:;) | 2.2 | 2.2 | Rounded | Moderate |
| 26 | [Ordovician](javascript:;) | 2.1 | 0.9 | Sub-rounded | Moderate |
| 27 | [Ordovician](javascript:;) | 2.1 | 1.4 | Sub-rounded | Moderate |
| 28 | [Ordovician](javascript:;) | 2.2 | 2.0 | Sub-rounded | Moderate |
| 29 | [Ordovician](javascript:;) | 2.1 | 2.8 | Sub-rounded | Moderate |
| 30 | [Ordovician](javascript:;) | 1.1 | 3.9 | Sub-angular | Moderate |
| 31 | [Ordovician](javascript:;) | 0.4 | 1.6 | Angular | Poorly |
| 32 | [Ordovician](javascript:;) | 3.2 | 3.7 | Rounded | Well |
| 33 | [Ordovician](javascript:;) | 3.0 | 3.3 | Sub-rounded | Well |
| 34 | [Ordovician](javascript:;) | 1.5 | 3.4 | Sub-rounded | Moderate |
| 35 | [Ordovician](javascript:;) | 3.0 | 2.6 | Rounded | Well |
| 36 | [Ordovician](javascript:;) | 2.1 | 2.4 | Rounded | Well |
| 37 | [Ordovician](javascript:;) | 1.7 | 3.8 | Sub-rounded | Moderate |
| 38 | [Ordovician](javascript:;) | 0.5 | 3.0 | Sub-angular | Moderate |
| 39 | [Ordovician](javascript:;) | 1.2 | 1.4 | Sub-rounded | Moderate |
| 40 | [Ordovician](javascript:;) | 2.2 | 1.5 | Rounded | Well |
| Central YCP | 41 | [Cambrian](javascript:;) | 1.3 | 1.5 | Sub-angular | Moderate |
| 42 | [Cambrian](javascript:;) | 1.2 | 2.7 | Sub-angular | Moderate |
| 43 | [Cambrian](javascript:;) | 1.4 | 0.6 | Sub-angular | Moderate |
| 44 | [Cambrian](javascript:;) | 1.3 | 2.1 | Sub-angular | Moderate |
| 45 | [Cambrian](javascript:;) | 0.5 | 1.5 | Sub-angular | Poorly |
| 46 | [Cambrian](javascript:;) | 0.9 | 1.3 | Sub-angular | Moderate |
| 47 | [Cambrian](javascript:;) | 0.4 | 1.6 | Angular | Poorly |
| 48 | [Cambrian](javascript:;) | 0.3 | 1.9 | Sub-angular | Poorly |
| 49 | [Cambrian](javascript:;) | 1.2 | 1.0 | Sub-rounded | Moderate |
| 50 | [Cambrian](javascript:;) | 0.7 | 0.7 | Sub-angular | Moderate |
| 51 | [Cambrian](javascript:;) | 1.5 | 2.7 | Sub-rounded | Moderate |
| 52 | [Cambrian](javascript:;) | 0.7 | 2.5 | Sub-angular | Moderate |
| 53 | [Cambrian](javascript:;) | 2.0 | 1.7 | Sub-rounded | Well |
| 54 | [Cambrian](javascript:;) | 1.9 | 1.3 | Sub-rounded | Well |
| 55 | [Cambrian](javascript:;) | 0.5 | 1.4 | Angular | Poorly |
| 56 | [Cambrian](javascript:;) | 1.9 | 1.1 | Sub-rounded | Well |
| 57 | [Cambrian](javascript:;) | 1.8 | 2.8 | Sub-rounded | Moderate |
| 58 | [Cambrian](javascript:;) | 0.8 | 2.1 | Sub-angular | Moderate |
| 59 | [Cambrian](javascript:;) | 1.3 | 2.4 | Sub-rounded | Moderate |
| 60 | [Cambrian](javascript:;) | 2.1 | 1.1 | Rounded | Well |
| 61 | [Ordovician](javascript:;) | 1.2 | 1.7 | Sub-angular | Moderate |
| 62 | [Ordovician](javascript:;) | 1.4 | 1.8 | Sub-angular | Moderate |
| 63 | [Ordovician](javascript:;) | 1.1 | 2.0 | Sub-angular | Moderate |
| 64 | [Ordovician](javascript:;) | 1.2 | 2.1 | Sub-angular | Moderate |
| 65 | [Ordovician](javascript:;) | 1.3 | 2.1 | Sub-angular | Moderate |
| 66 | [Ordovician](javascript:;) | 1.0 | 0.7 | Sub-angular | Moderate |
| 67 | [Ordovician](javascript:;) | 1.7 | 0.8 | Sub-rounded | Moderate |
| 68 | [Ordovician](javascript:;) | 1.3 | 1.0 | Sub-angular | Moderate |
| 69 | [Ordovician](javascript:;) | 0.7 | 2.1 | Angular | Poorly |
| 70 | [Ordovician](javascript:;) | 1.9 | 0.8 | Sub-rounded | Well |
| 71 | [Ordovician](javascript:;) | 0.8 | 0.6 | Sub-angular | Moderate |
| 72 | [Ordovician](javascript:;) | 1.7 | 1.7 | Sub-rounded | Well |
| 73 | [Ordovician](javascript:;) | 1.7 | 0.7 | Sub-rounded | Well |
| 74 | [Ordovician](javascript:;) | 0.5 | 0.7 | Angular | Poorly |
| 75 | [Ordovician](javascript:;) | 0.7 | 1.1 | Angular | Poorly |
| 76 | [Ordovician](javascript:;) | 1.8 | 1.2 | Sub-rounded | Moderate |
| 77 | [Ordovician](javascript:;) | 1.9 | 1.5 | Sub-rounded | Well |
| 78 | [Ordovician](javascript:;) | 0.8 | 2.0 | Sub-angular | Moderate |
| 79 | [Ordovician](javascript:;) | 2.1 | 2.4 | Rounded | Well |
| 80 | [Ordovician](javascript:;) | 1.7 | 2.2 | Sub-angular | Moderate |
| Southeastern YCP | 81 | [Cambrian](javascript:;) | 0.6 | 0.8 | Sub-angular | Poorly |
| 82 | [Cambrian](javascript:;) | 0.4 | 0.3 | Sub-angular | Poorly |
| 83 | [Cambrian](javascript:;) | 0.7 | 1.4 | Sub-angular | Poorly |
| 84 | [Cambrian](javascript:;) | 0.5 | 1.2 | Sub-angular | Poorly |
| 85 | [Cambrian](javascript:;) | 0.2 | 1.3 | Angular | Poorly |
| 86 | [Cambrian](javascript:;) | 0.5 | 0.4 | Sub-angular | Poorly |
| 87 | [Cambrian](javascript:;) | 0.6 | 1.5 | Sub-angular | Moderate |
| 88 | [Cambrian](javascript:;) | 0.4 | 0.6 | Sub-angular | Poorly |
| 89 | [Cambrian](javascript:;) | 0.7 | 0.9 | Sub-angular | Moderate |
| 90 | [Cambrian](javascript:;) | 1.1 | 1.1 | Rounded | Well |
| 91 | [Cambrian](javascript:;) | 0.3 | 0.2 | Angular | Poorly |
| 92 | [Cambrian](javascript:;) | 0.6 | 0.5 | Sub-angular | Moderate |
| 93 | [Cambrian](javascript:;) | 0.5 | 1.5 | Sub-angular | Poorly |
| 94 | [Cambrian](javascript:;) | 0.8 | 0.4 | Sub-rounded | Moderate |
| 95 | [Cambrian](javascript:;) | 0.5 | 0.1 | Angular | Poorly |
| 96 | [Cambrian](javascript:;) | 0.6 | 0.8 | Sub-rounded | Moderate |
| 97 | [Cambrian](javascript:;) | 0.1 | 1.1 | Angular | Poorly |
| 98 | [Cambrian](javascript:;) | 0.4 | 0.9 | Angular | Moderate |
| 99 | [Cambrian](javascript:;) | 0.9 | 0.3 | Sub-rounded | Moderate |
| 100 | [Cambrian](javascript:;) | 0.3 | 0.8 | Angular | Moderate |
| 101 | [Ordovician](javascript:;) | 0.9 | 0.9 | Sub-angular | Moderate |
| 102 | [Ordovician](javascript:;) | 0.8 | 1.0 | Sub-angular | Moderate |
| 103 | [Ordovician](javascript:;) | 0.6 | 1.3 | Sub-angular | Poorly |
| 104 | [Ordovician](javascript:;) | 0.5 | 0.2 | Sub-angular | Poorly |
| 105 | [Ordovician](javascript:;) | 0.8 | 1.0 | Sub-angular | Poorly |
| 106 | [Ordovician](javascript:;) | 1.1 | 1.2 | Sub-rounded | Moderate |
| 107 | [Ordovician](javascript:;) | 1.1 | 0.6 | Sub-rounded | Moderate |
| 108 | [Ordovician](javascript:;) | 0.3 | 0.6 | Angular | Poorly |
| 109 | [Ordovician](javascript:;) | 0.5 | 0.8 | Sub-angular | Poorly |
| 110 | [Ordovician](javascript:;) | 0.3 | 0.1 | Angular | Poorly |
| 111 | [Ordovician](javascript:;) | 0.2 | 0.2 | Angular | Poorly |
| 112 | [Ordovician](javascript:;) | 1.1 | 0.4 | Sub-rounded | Moderate |
| 113 | [Ordovician](javascript:;) | 0.9 | 0.5 | Sub-angular | Poorly |
| 114 | [Ordovician](javascript:;) | 0.6 | 0.5 | Sub-angular | Poorly |
| 115 | [Ordovician](javascript:;) | 0.9 | 0.6 | Sub-angular | Poorly |
| 116 | [Ordovician](javascript:;) | 0.3 | 0.5 | Angular | Poorly |
| 117 | [Ordovician](javascript:;) | 1.2 | 0.6 | Rounded | Well |
| 118 | [Ordovician](javascript:;) | 0.9 | 0.6 | Sub-angular | Moderate |
| 119 | [Ordovician](javascript:;) | 1.1 | 0.9 | Sub-rounded | Moderate |
| 120 | [Ordovician](javascript:;) | 0.3 | 0.5 | Angular | Poorly |

**Table S6.** Mean orientations and uncertainty values of the AMS during each series of Cambrian-Ordovician.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NO.** | **Series** | **Outcrops** | **D-Kmax** | **I-Kmax** | **D-Kint** | **I-Kint** | **D-Kmin** | **I-Kmin** | **Uncertainty values of D-Kmax** |
| 1 | Upper Ordovician | LJ, HH, JF, NS, and YH | 90.5° | 17.3° | 182.8° | 18.4° | 272.4° | 78.2° | ± 67.5° |
| 2 | Middle Ordovician | 139.1° | 9.3° | 229.3° | 29.9° | 324.0° | 79.3° | ± 72.6° |
| 3 | Lower Ordovician | 168.8° | 19.2° | 264.4° | 9.3° | 352.6° | 75.8° | ± 70.2° |
| 4 | Upper Cambrian | LJ, FD, YK, YS, and YJ | 158.9° | 9.8° | 247.9° | 13.6° | 337.8° | 85.2° | ± 62.3° |
| 5 | Middle Cambrian | 145.3° | 8.7° | 235.7° | 10.7° | 320.2° | 76.4° | ± 56.7° |
| 6 | Lower Cambrian | 115.7° | 7.1° | 201.5° | 18.3° | 291.7° | 87.8° | ± 51.8° |



**Fig. S1.** Theoretical depositional fabric in the presence of wind or water currents (after Tarling and Hrouda, 1993; Zhu et al., 2004; Zhang et al., 2010). The orange grains illustrate the preferred alignment of most magnetic particles.

图示, 日历

描述已自动生成

**Fig. S2.** Relationships between the AMS parameters of P and T. **(A)** Samples from Cambrian units at LJ Outcrop (n = 136). **(B)** Samples from Cambrian units at FD Outcrop (n = 140). **(C)** Samples from Cambrian units at YK Outcrop (n = 149). **(D)** Samples from Cambrian units at YS Outcrop (n = 133). **(E)** Samples from Cambrian units at YJ Outcrop (n = 137). **(F)** Samples from Ordovician units at LJ Outcrop (n = 138). **(G)** Samples from Ordovician units at HH Outcrop (n = 139). **(H)** Samples from Ordovician units at JF Outcrop (n = 144). **(I)** Samples from Ordovician units at NS Outcrop (n = 135).

散点图

描述已自动生成

**Fig. S3.** Relationships between the AMS parameters of F and L. **(A)** Samples from Cambrian units at LJ Outcrop (n = 136). **(B)** Samples from Cambrian units at FD Outcrop (n = 140). **(C)** Samples from Cambrian units at YK Outcrop (n = 149). **(D)** Samples from Cambrian units at YS Outcrop (n = 133). **(E)** Samples from Cambrian units at YJ Outcrop (n = 137). **(F)** Samples from Ordovician units at LJ Outcrop (n = 138). **(G)** Samples from Ordovician units at HH Outcrop (n = 139). **(H)** Samples from Ordovician units at JF Outcrop (n = 144). **(I)** Samples from Ordovician units at NS Outcrop (n = 135).

图表, 散点图

描述已自动生成

**Fig. S4.** Relationships between the AMS parameters of P and F. **(A)** Samples from Cambrian units at LJ Outcrop (n = 136). **(B)** Samples from Cambrian units at FD Outcrop (n = 140). **(C)** Samples from Cambrian units at YK Outcrop (n = 149). **(D)** Samples from Cambrian units at YS Outcrop (n = 133). **(E)** Samples from Cambrian units at YJ Outcrop (n = 137). **(F)** Samples from Ordovician units at LJ Outcrop (n = 138). **(G)** Samples from Ordovician units at HH Outcrop (n = 139). **(H)** Samples from Ordovician units at JF Outcrop (n = 144). **(I)** Samples from Ordovician units at NS Outcrop (n = 135).

散点图

中度可信度描述已自动生成

**Fig. S5.** Relationships between the AMS parameters of L and ε12. **(A)** Samples from Cambrian units at LJ Outcrop (n = 136). **(B)** Samples from Cambrian units at FD Outcrop (n = 140). **(C)** Samples from Cambrian units at YK Outcrop (n = 149). **(D)** Samples from Cambrian units at YS Outcrop (n = 133). **(E)** Samples from Cambrian units at YJ Outcrop (n = 137). **(F)** Samples from Ordovician units at LJ Outcrop (n = 138). **(G)** Samples from Ordovician units at HH Outcrop (n = 139). **(H)** Samples from Ordovician units at JF Outcrop (n = 144). **(I)** Samples from Ordovician units at NS Outcrop (n = 135).

图表, 散点图

描述已自动生成

**Fig. S6.** Relationships between the AMS parameters of F and ε23. **(A)** Samples from Cambrian units at LJ Outcrop (n = 136). **(B)** Samples from Cambrian units at FD Outcrop (n = 140). **(C)** Samples from Cambrian units at YK Outcrop (n = 149). **(D)** Samples from Cambrian units at YS Outcrop (n = 133). **(E)** Samples from Cambrian units at YJ Outcrop (n = 137). **(F)** Samples from Ordovician units at LJ Outcrop (n = 138). **(G)** Samples from Ordovician units at HH Outcrop (n = 139). **(H)** Samples from Ordovician units at JF Outcrop (n = 144). **(I)** Samples from Ordovician units at NS Outcrop (n = 135).

图表, 散点图

描述已自动生成

**Fig. S7.** Relationships between the AMS parameters of F and ε12. **(A)** Samples from Cambrian units at LJ Outcrop (n = 136). **(B)** Samples from Cambrian units at FD Outcrop (n = 140). **(C)** Samples from Cambrian units at YK Outcrop (n = 149). **(D)** Samples from Cambrian units at YS Outcrop (n = 133). **(E)** Samples from Cambrian units at YJ Outcrop (n = 137). **(F)** Samples from Ordovician units at LJ Outcrop (n = 138). **(G)** Samples from Ordovician units at HH Outcrop (n = 139). **(H)** Samples from Ordovician units at JF Outcrop (n = 144). **(I)** Samples from Ordovician units at NS Outcrop (n = 135).

图示

描述已自动生成

**Fig. S8.** Relationships between the AMS parameters of ε12 and F12. **(A)** Samples from Cambrian units at LJ Outcrop (n = 136). **(B)** Samples from Cambrian units at FD Outcrop (n = 140). **(C)** Samples from Cambrian units at YK Outcrop (n = 149). **(D)** Samples from Cambrian units at YS Outcrop (n = 133). **(E)** Samples from Cambrian units at YJ Outcrop (n = 137). **(F)** Samples from Ordovician units at LJ Outcrop (n = 138). **(G)** Samples from Ordovician units at HH Outcrop (n = 139). **(H)** Samples from Ordovician units at JF Outcrop (n = 144). **(I)** Samples from Ordovician units at NS Outcrop (n = 135).

背景图案

描述已自动生成

**Fig. S9.** Equal-area projections (modern coordinates) of AMS principal axes of all samples for each series of Cambrian from the five outcrops. (**A**) Lower Cambrian at the LJ Outcrop (n = 42). (**B**) Lower Cambrian at the FD Outcrop (n = 49). (**C**) Lower Cambrian at the YK Outcrop (n = 53). (**D**) Lower Cambrian at the YS Outcrop (n = 48). (**E**) Lower Cambrian at the YJ Outcrop (n = 49). (**F**) Middle Cambrian at the LJ Outcrop (n = 48). (**G**) Middle Cambrian at the FD Outcrop (n = 45). (**H**) Middle Cambrian at the YK Outcrop (n = 51). (**I**) Middle Cambrian at the YS Outcrop (n = 43). (**J**) Middle Cambrian at the YJ Outcrop (n = 45). (**K**) Upper Cambrian at the LJ Outcrop (n = 46). (**L**) Upper Cambrian at the FD Outcrop (n = 46). (**M**) Upper Cambrian at the YK Outcrop (n = 45). (**N**) Upper Cambrian at the YS Outcrop (n = 42). (**O**) Upper Cambrian at the YJ Outcrop (n = 43). Kmax = maximum principal axes of the 3D AMS ellipsoid and Kmin = minimum principal axes of the 3D AMS ellipsoid.

背景图案

描述已自动生成

**Fig. S10.** Equal-area projections (modern coordinates) of AMS principal axes of all samples for each series of Ordovician from the five outcrops. (**A**) Lower Ordovician at the LJ Outcrop (n = 48). (**B**) Lower Ordovician at the HH Outcrop (n = 51). (**C**) Lower Ordovician at the JF Outcrop (n = 53). (**D**) Lower Ordovician at the NS Outcrop (n = 49). (**E**) Lower Ordovician at the YH Outcrop (n = 55). (**F**) Middle Ordovician at the LJ Outcrop (n = 43). (**G**) Middle Ordovician at the HH Outcrop (n = 50). (**H**) Middle Ordovician at the JF Outcrop (n = 51). (**I**) Middle Ordovician at the NS Outcrop (n = 45). (**J**) Middle Ordovician at the YH Outcrop (n = 52). (**K**) Upper Ordovician at the LJ Outcrop (n = 47). (**L**) Upper Ordovician at the HH Outcrop (n = 38). (**M**) Upper Ordovician at the JF Outcrop (n = 40). (**N**) Upper Ordovician at the NS Outcrop (n = 41). (**O**) Upper Ordovician at the YH Outcrop (n = 41). Kmax = maximum principal axes of the 3D AMS ellipsoid and Kmin = minimum principal axes of the 3D AMS ellipsoid.

**Supplemental references**

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