# Appendix



**Fig. A1.** Distribution and IDs of blue ice in candidate 5 and blue firn in the other five candidate areas.

**Table A1.** Locations and type of field expedition data (see Fig. 3)

|  |  |  |
| --- | --- | --- |
| **Point ID** | **Coordinates** | **Measurements used in this study** |
| A1 | S69°44'57.54" | E76°13'47.34" | Ice core, blue firn |
| A2 | S69°45'00.00" | E76°04'00.00" | Crevasses position by airborne inspection |
| A3 | S69°44'32.59" | E75°54'17.09" | Ice core, blue ice, landing position |
| G1 | S69°45'06.00" | E76°29'58.30" | turning point from CHINARE route |
| G2 | S69°43'39.22" | E76°14'50.72" | Starting point of Line 2 |
| G3 | S69°44'27.26" | E76°14'11.17" | Ice core, blue firn |
| G4 | S69°45'27.79" | E76°13'07.93" | Ice core, blue firn |
| G5 | S69°47'24.57" | E76°10'33.92" | End point of Line 3 |
| Line 1 | - | Airborne survey, blue ice |
| Line 2 | From G2 to A1 | Ground survey, blue firn |
| Line 3 | From A1 to G5 | Ground survey, blue firn |

**Table A2**. Large blue ice and blue firn areas with their geometric parameters (see Fig. A1)

|  |  |  |  |
| --- | --- | --- | --- |
| **Area ID** | **Length (m)** | **Width (m)** | **Area (m2)** |
| 1-1 | 3250 | 550 | 1702760 |
| 2-1 | 2700 | 390 | 1207150 |
| 3-1 | 7250 | 370 | 2797200 |
| 3-2 | 2680 | 560 | 1840510 |
| 4-1 | 5130 | 1000 | 4855340 |
| 4-2 | 3970 | 370 | 1821160 |
| 4-3 | 3820 | 810 | 3042180 |
| 5-1 | 12510 | 3380 | 34253720 |
| 5-2 | 10720 | 1380 | 14790480 |
| 6-1 | 4240 | 3060 | 11482860 |
| 6-2 | 2290 | 1170 | 2953230 |

**Table A3.** Statistics of four recent ice flow speeds from 2013 to 2017 in 5 candidate areas from the LISA maps

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Time** | **Candidate** | **Max (m a-1)** | **Min (m a-1)** | **Mean (m a-1)** | **Std (m a-1)** |
| 2013-2014 | 1 | 74 | 21 | 44 | 10 |
| 2 | 62 | 9 | 36 | 12 |
| 3 | 46 | 6 | 21 | 9 |
| 5 | 379 | 1 | 60 | 73 |
| 6 | 157 | 1 | 27 | 39 |
| 2014-2015 | 1 | 70 | 11 | 39 | 14 |
| 2 | 57 | 14 | 33 | 11 |
| 3 | 48 | 3 | 22 | 10 |
| 5 | 369 | 4 | 61 | 70 |
| 6 | 167 | 5 | 36 | 43 |
| 2015-2016 | 1 | 66 | 1 | 24 | 15 |
| 2 | 51 | 8 | 24 | 9 |
| 3 | 49 | 1 | 16 | 11 |
| 5 | 374 | 1 | 57 | 75 |
| 6 | 166 | 1 | 36 | 42 |
| 2016-2017 | 1 | 76 | 10 | 45 | 13 |
| 2 | 68 | 7 | 34 | 14 |
| 3 | 43 | 3 | 20 | 9 |
| 5 | 361 | 3 | 54 | 71 |
| 6 | 175 | 3 | 37 | 43 |

**Table A4**. Average sizes and depths of crevasses inside boundaries (green) in Fig. 8 and their distances to potential runways

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Crevasse ID** | **Avg. length (m)** | **Avg. width (m)** | **Avg. depth (m)** | **Distance to runway (m)** |
| 2-1A | 1094 | 8 | 2.9 | 2524 |
| 2-1B | 1090 | 4 | 3.5 | 956 |
| 3-1A | 430 | 3 | 2.8 | 436 |
| 3-1B | 769 | 4 | 3 | 204 |
| 3-1C | 893 | 10 | 1 | 2045 |
| 5-1A | 327 | 7 | 3.8 | 0 |
| 5-1B | 1368 | 44 | 10 | 867 |
| 5-1C | 169 | 4 | 2.3 | 2884 |
| 5-1D | 341 | 14 | 4.2 | 2287 |
| 5-1E | 219 | 5 | 2.3 | 680 |