

## Supplementary material 1: Field data

**Table S1** Field locations (Easting and Northing UTM 9N) and measured tephra thickness

| Easting 9N | Northing 9N | Thickness (cm) |
|------------|-------------|----------------|
| 505695     | 6107575     | 4.9            |
| 506138     | 6107639     | 41.0           |
| 505586     | 6107472     | 0.5            |
| 505803     | 6106846     | 10.0           |
| 507230     | 6108123     | 64.0           |
| 506003     | 6107713     | 20.0           |
| 505680     | 6107720     | 7.0            |
| 505658     | 6107760     | 4.0            |
| 505631     | 6107811     | 0.5            |
| 505714     | 6107831     | 0.5            |
| 505751     | 6107855     | 1.0            |
| 505789     | 6107870     | 2.0            |
| 505857     | 6107968     | 6.0            |
| 505835     | 6108012     | 0.5            |
| 505463     | 6107024     | 0.0            |
| 505510     | 6107069     | 0.5            |
| 505541     | 6107108     | 0.5            |
| 505552     | 6107196     | 0.5            |
| 505617     | 6107254     | 0.5            |
| 505618     | 6107334     | 0.5            |
| 505644     | 6107373     | 2.0            |
| 505653     | 6107398     | 3.0            |
| 505611     | 6107429     | 0.5            |
| 505644     | 6107373     | 2.0            |
| 505653     | 6107398     | 3.0            |
| 505611     | 6107429     | 0.5            |
| 505713     | 6107550     | 7.0            |
| 505659     | 6107557     | 3.0            |
| 505643     | 6107517     | 6.0            |
| 505618     | 6107493     | 6.0            |
| 505595     | 6107459     | 4.0            |
| 505580     | 6107453     | 1.0            |

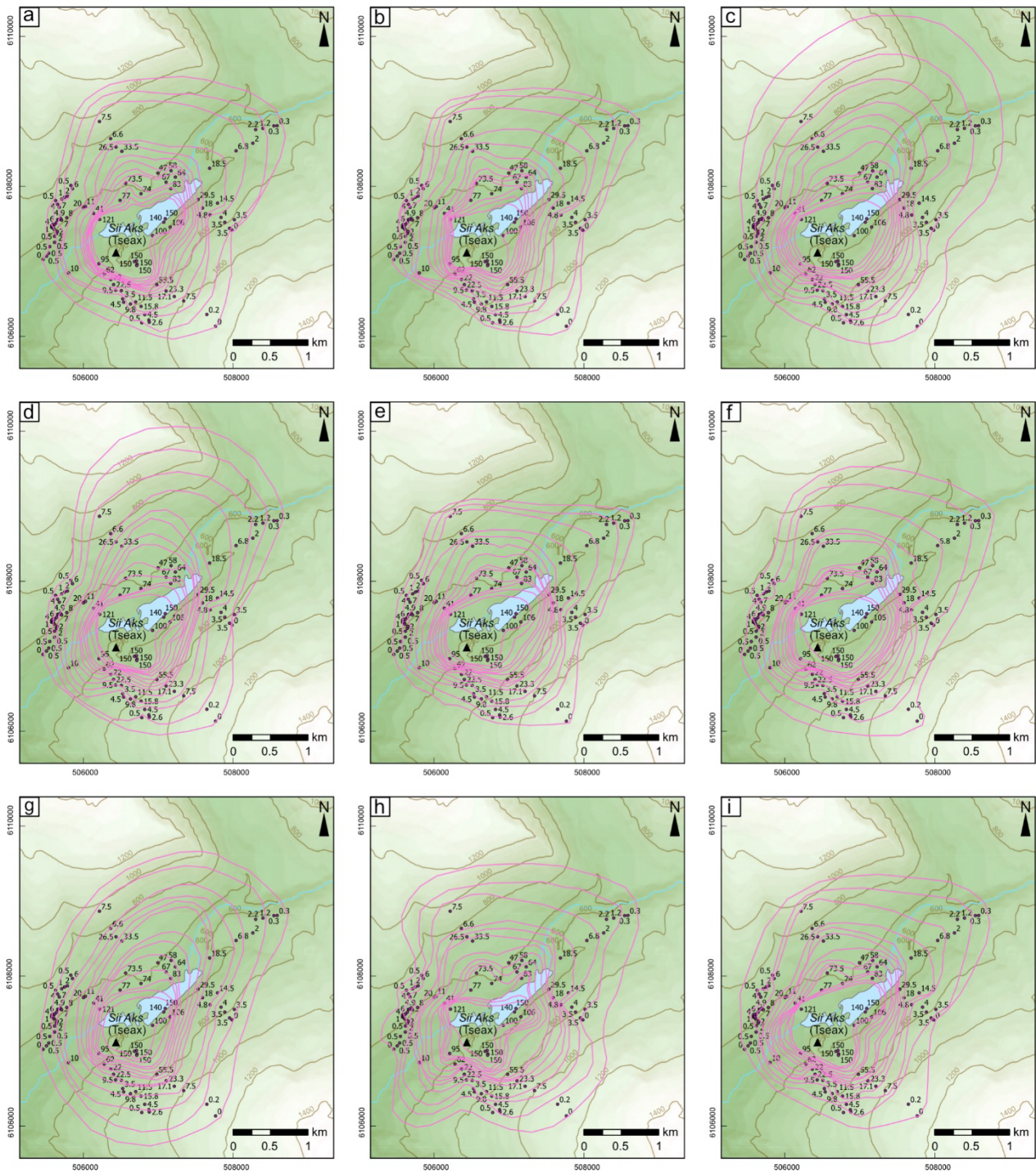
*Osman et al. (2026): The volume of explosive products erupted during the ~ 1700 CE eruption of Sii Aks (Tseax), Canada*

| <b>Easting 9N</b> | <b>Northing 9N</b> | <b>Thickness (cm)</b> |
|-------------------|--------------------|-----------------------|
| 505580            | 6107478            | 4.0                   |
| 505591            | 6107456            | 1.0                   |
| 505600            | 6107459            | 4.0                   |
| 505590            | 6107493            | 1.0                   |
| 505780            | 6107582            | 8.0                   |
| 506281            | 6106828            | 62.0                  |
| 506367            | 6106758            | 22.0                  |
| 506404            | 6106690            | 22.5                  |
| 506432            | 6106616            | 9.5                   |
| 506527            | 6106500            | 3.5                   |
| 506631            | 6106431            | 9.8                   |
| 506700            | 6106459            | 11.5                  |
| 506771            | 6106400            | 15.8                  |
| 506821            | 6106290            | 4.5                   |
| 506875            | 6106218            | 4.5                   |
| 506881            | 6106188            | 2.6                   |
| 506782            | 6106181            | 0.5                   |
| 507533            | 6107824            | 29.5                  |
| 507693            | 6107618            | 4.8                   |
| 507838            | 6107585            | 4.0                   |
| 507888            | 6107520            | 3.5                   |
| 507952            | 6107441            | 3.5                   |
| 507986            | 6107415            | 0.0                   |
| 508016            | 6107556            | 3.5                   |
| 507792            | 6107776            | 14.5                  |
| 507686            | 6108242            | 18.5                  |
| 508039            | 6108475            | 6.8                   |
| 508301            | 6108757            | 2.2                   |
| 508397            | 6108774            | 1.2                   |
| 508543            | 6108806            | 0.3                   |
| 508587            | 6108808            | 0.3                   |
| 506982            | 6106690            | 55.5                  |
| 507106            | 6106604            | 23.3                  |
| 507215            | 6106531            | 17.1                  |

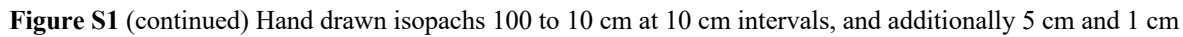
| Easting 9N | Northing 9N | Thickness (cm) |
|------------|-------------|----------------|
| 507341     | 6106472     | 7.5            |
| 507649     | 6106292     | 0.2            |
| 507766     | 6106135     | 0.0            |
| 505671     | 6107557     | 5.0            |
| 506491     | 6107814     | 77.0           |
| 506566     | 6108040     | 73.5           |
| 506515     | 6108467     | 33.5           |
| 506438     | 6108524     | 26.5           |
| 506365     | 6108636     | 6.6            |
| 506216     | 6108865     | 7.5            |
| 507168     | 6107970     | 83.0           |
| 507106     | 6108055     | 67.0           |
| 506996     | 6108178     | 47.0           |
| 507159     | 6107457     | 106.0          |
| 506030     | 6107731     | 11.0           |
| 506925     | 6107344     | 100 min        |
| 506770     | 6107902     | 74 min         |
| 507172     | 6108208     | 58 min         |
| 506209     | 6106968     | 95 min         |
| 506220     | 6107559     | 121 min        |
| 507074     | 6107522     | 140 min        |
| 506710     | 6107007     | 150 min        |
| 506718     | 6106961     | 150 min        |
| 506715     | 6106944     | 150 min        |
| 506682     | 6106997     | 150 min        |
| 507069     | 6107586     | 150 min        |
| 506509     | 6106610     | 7 – 11.5 var   |
| 506539     | 6106455     | 4-4.5 var      |
| 507591     | 6107711     | 18-23.5 var    |
| 508263     | 6108575     | 2-3 var        |

min = minimum thickness as base of deposit was not reached.  
var = variable thickness

## 8 Supplementary material 2: Hand drawn isopachs



**Fig. S1** Hand drawn isopachs 100 to 10 cm at 10 cm intervals, and additionally 5 cm and 1 cm (continued on next page)

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**Table S2** Area of hand drawn and ArcGIS isopachs used for volume calculations. Letters A through M refer to 13 different volcanologists that performed the hand-drawn isopachs.

| Isopach<br>thickness<br>(cm) | Area of hand drawn isopach (km <sup>2</sup> ) (Fig. S1) |       |       |       |       |       |       |       |       |       |       |       |       | Median<br>area (km <sup>2</sup> ) | ArcGIS<br>area (km <sup>2</sup> ) |
|------------------------------|---------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----------------------------------|-----------------------------------|
|                              | A                                                       | B     | C     | D     | E     | F     | G     | H     | I     | J     | K     | L     | M     |                                   |                                   |
| 100                          | 0.786                                                   | 0.617 | 0.830 | 0.736 | 0.711 | 0.743 | 0.503 | 0.489 | 0.846 | 0.783 | 0.747 | 0.728 | 0.518 | 0.736                             | 0.823                             |
| 90                           | 0.929                                                   | 0.779 | 1.018 | 0.919 | 0.957 | 0.998 | 0.734 | 0.706 | 0.956 | 1.018 | 0.896 | 0.937 | 0.681 | 0.929                             | 0.962                             |
| 80                           | 1.088                                                   | 0.917 | 1.206 | 1.089 | 1.161 | 1.195 | 0.924 | 0.893 | 1.098 | 1.282 | 1.092 | 1.113 | 0.966 | 1.092                             | 1.113                             |
| 70                           | 1.252                                                   | 1.123 | 1.405 | 1.343 | 1.350 | 1.437 | 1.136 | 1.185 | 1.353 | 1.615 | 1.326 | 1.410 | 1.173 | 1.343                             | 1.295                             |
| 60                           | 1.459                                                   | 1.296 | 1.605 | 1.624 | 1.586 | 1.591 | 1.429 | 1.487 | 1.555 | 1.892 | 1.542 | 1.654 | 1.401 | 1.555                             | 1.511                             |
| 50                           | 1.645                                                   | 1.485 | 1.861 | 1.932 | 1.796 | 1.768 | 1.771 | 1.952 | 1.839 | 2.154 | 1.762 | 1.863 | 1.582 | 1.796                             | 1.768                             |
| 40                           | 1.882                                                   | 1.773 | 2.302 | 2.212 | 2.088 | 1.997 | 2.103 | 2.366 | 2.151 | 2.468 | 2.134 | 2.044 | 1.820 | 2.103                             | 2.084                             |
| 30                           | 2.161                                                   | 2.116 | 2.855 | 2.606 | 2.444 | 2.499 | 2.763 | 2.883 | 2.529 | 2.878 | 2.495 | 2.361 | 2.263 | 2.499                             | 2.504                             |
| 20                           | 2.660                                                   | 2.710 | 3.381 | 3.107 | 2.975 | 2.815 | 3.178 | 3.288 | 2.850 | 3.314 | 2.882 | 2.847 | 2.779 | 2.882                             | 3.237                             |
| 10                           | 3.557                                                   | 3.716 | 4.226 | 4.300 | 3.732 | 3.341 | 4.254 | 4.003 | 3.551 | 4.272 | 3.679 | 3.715 | 3.719 | 3.719                             | 4.606                             |
| 5                            | 5.201                                                   | 4.915 | 5.600 | 5.690 | 4.857 | 4.659 | 5.230 | 5.523 | 4.755 | 5.325 | 5.358 | 4.787 | 4.595 | 5.201                             | 6.217                             |
| 1                            | 6.744                                                   | 6.423 | 7.650 | 7.543 | 6.002 | 6.567 | 7.205 | 7.117 | 6.195 | 6.973 | 6.916 | 6.160 | n/a   | 6.830                             | 7.859                             |