Supplementary file for: Andrews, J.A., Kristjánsdóttir, G.B., Eberl, D.D. & Jennings, A.E. 2013. A quantitative x-ray diffraction inventory of volcaniclastic inputs into the marine sediment archives off Iceland: a contribution to Volcanoes in the Arctic System. Correspondence: John T. Andrews, Institute of Arctic and Alpine Research and Department of Geological Sciences, University of Colorado, P.O. Box 450, Boulder, CO 80309, USA. E-mail: andrewsj@colorado.edu.

Supplementary File 2

Modified from Andrews et al. 2002.

Samples of tephra from B997-317 and 319 (Kristjánsdóttir 1999) were hand picked in the > 106 μm fraction and submitted for elemental analysis to the Nordic Volcanological Institute in Reykjavík, Iceland. The grains were individually mounted in epoxy and polished to expose fresh glass surfaces. The analyses were performed with a seven-channel (four fixed and three scanners) wavelength dispersive spectrometer (WDS) microprobe (a recently updated ARL-SEMQ). The composition was obtained using natural glass standards and special care was taken with Na analysis both by defocusing the electron beam and monitoring for declines in Na count rate.

Samples from B997-338PC were analysed at the University of Colorado with a Jeol (Tokyo, Japan) 8600 electron microprobe at 15 Kv accelerating voltage, 20 nanoAmp cup current and a 5 μm beam. The results were standardized to a Smithsonian National Museum of Natural History basaltic glass standard A99 (#113498). Data were reduced using the Bence Albee 1968 reduction procedure. We have undertaken several tests of the University of Colorado microprobe system. For example, we have run an international standard (Hunt et al. 1998) and reproduced statistically identifical means for the major elements but with larger standard deviations. Our comparisons with replicate samples run at the University of Colorado and the Nordic Volcanology Institute also gave comparable results within reasonable analytical errors except in one case (Andrews et al. 2002).

References

Andrews J.T., Geirsdóttir A., Hardardóttir J., Principato S., Grönvold K., Kristjansdóttir G.B., Helgadóttir G., Drexler J. & Sveinbjörnsdóttir A. 2002. Distribution, sediment magnetism, and geochemistry of the Saksunarvatn (10180 60 ± cal. yr BP) tephra in marine, lake, and terrestrial sediments, NW Iceland. *Journal of Quaternary Science 17*, 731-745.

Hunt J.B., Clift P.D., Lacasse C., Vallier T.L. & Werner R. 1998. Interlaboratory comparison of electron probe microanalysis of glass geochemistry. In A.D. Saunders et al. (eds.): *Proceedings of the Ocean Drilling Program, Scientific Results. Vol. 152*. Pp. 85-91. College Station, TX: Ocean Drilling Program, Texas A & M University.