

**A Study in Blue: Secondary Copper-rich Minerals and their Associated Bacterial Diversity in Icelandic Lava Tubes**

**Nina Kopacz<sup>1</sup>, Joleen Csuka<sup>2</sup>, Mickael Baqué<sup>3</sup>, Iaroslav Iakubivskiy<sup>4</sup>, Hrefna Guðlaugardóttir<sup>5</sup>, Ingeborg J. Klarenberg<sup>5,6</sup>, Mahid Ahmed<sup>1</sup>, Alexandra Zetterlind<sup>1</sup>, Abhijeet Singh<sup>7</sup>, Inge Loes ten Kate<sup>1</sup>, Eric Hellebrand<sup>1</sup>, Brent R. Stockwell<sup>2,8</sup>, Árni B. Stefánsson<sup>9</sup>, Oddur Vilhelmsson<sup>5,6,10</sup>, Anna Neubeck<sup>7</sup>, Anna Schnürer<sup>11</sup>, Wolf Geppert<sup>12</sup>**

<sup>1</sup>Department of Earth Science, Utrecht University, the Netherlands, <sup>2</sup>Department of Chemistry, Columbia University, USA, <sup>3</sup>Institute of Planetary Research, German Aerospace Centre (DLR), Germany, <sup>4</sup>Tartu Observatory, University of Tartu, Estonia, <sup>5</sup>University of Akureyri, Iceland, <sup>6</sup>University of Iceland Biomedical Center, Iceland, <sup>7</sup>Department of Earth Sciences, Uppsala University, <sup>8</sup>Department of Biological Sciences, Columbia University, USA, <sup>9</sup>Augnæknastofa ÁBS, Iceland, <sup>10</sup>University of Reading School of Biological Sciences, UK, <sup>11</sup>Swedish University of Agricultural Sciences, Sweden, <sup>12</sup>Stockholm University Astrobiology Centre, Sweden.

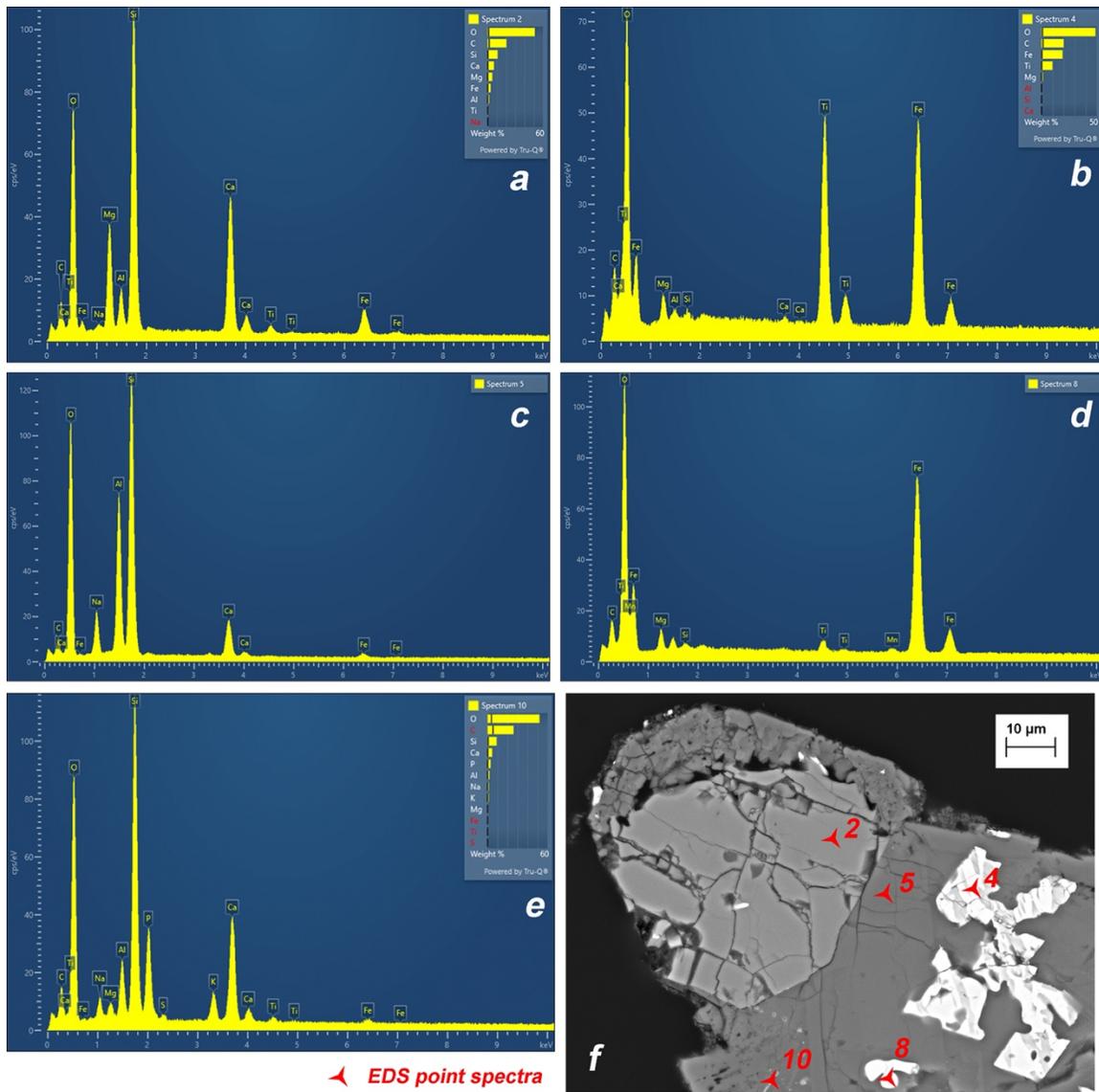
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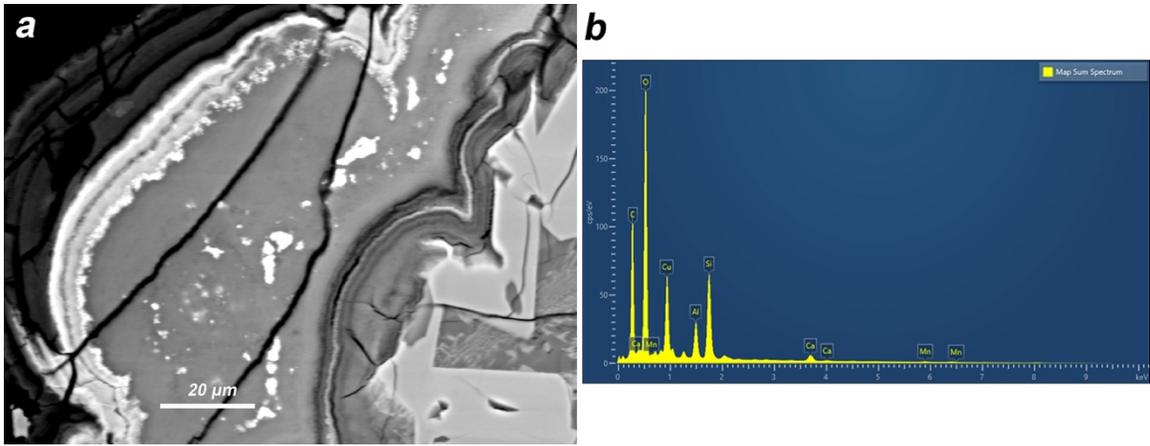
**Introduction**

Additional EDS spectra of the geological thin sections analyzed with SEM/EDS are shown here. Figure S1 shows additional EDS spectra of the thin section in Figure 7 of the manuscript. Figure S2 shows additional spectra of the thin section in Figure 9 of the manuscript.

EDS spectra were obtained with a windowless Oxford Instruments Ultim-Extreme EDS detector. Point ID measurements (30 s counting time) were acquired at voltage of 20 keV and 1 nA, using Oxford Instruments Aztec software v5.1. For improved spatial chemical resolution in finely zoned domains, an accelerating voltage of 10 keV was used, acquiring the L-alpha intensity of Cu.



**Figure S1.** Igneous mineralogy. **(f)** Backscattered electron (BSE) image of sample H7 thin section. **(a-e)** EDS point spectra taken of marked spots in **(f)**, revealing typical basaltic mineralogy: augitic clinopyroxene **(a)**, dendritic titanomagnetite, (oxy-) exsolved into a fine intergrowth of Ti-poor magnetite (white) and ilmenite (slightly less bright) **(b)**, plagioclase **(c)**, magnetite **(d)**, and apatite growth, indicating a highly evolved interstitial melt pocket **(e)**.



**Figure S2.** Complex secondary mineral precipitate. **(a)** BSE image of a secondary mineral crust deposited on the edge of the igneous rock in sample B5 thin section. **(b)** EDS sum spectrum of **(a)** showing carbon, copper, and manganese enrichment.