# Supplementary Material: Upernavik

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**Fig. *S1: Summary of floating ice tongue evidence.*** The evidence of floatation of each outlet, categorized by xx is summarized per year. Observations that show evidence of floatation are in red, observations that show no evidence of floatation are in blue, and grey shows no data.

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| A satellite image of the earth  Description automatically generated with low confidence |
| **Fig. *S2: Tabular icebergs and plume polynyas.*** An example of two tabular icebergs from U2 and U3, along with two plume polynyas at the south terminus of U2 and the north terminus of U3 visible in the Landsat 8 image from August 5, 2014, courtesy of the U.S. Geological Survey. This event was also shared with the drainage event that occurred for U0 around the same time. |
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| **Fig. *S3:******U0 drainage event example.*** An example of a drainage event that occurred for U0, represented as a larger than average plume polynya at the northern terminus as shown in the Landsat 7 image from July 8, 2010, courtesy of the U.S. Geological Survey. This event was also shared with the drainage event that occurred for U2 in Figure 2 around the same time. |

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| **Fig. *S4:******U2 drainage event example.*** An example of a drainage event that occurred for U2, represented as a larger than average plume polynya at the northern terminus as shown in the Landsat 7 image from June 22, 2010, courtesy of the U.S. Geological Survey. This event was also shared with the drainage event that occurred for U0 around the same time. |

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| **Fig. *S5:******U2 lake drainage event.*** An example of a drainage event that occurred for U2 in the upstream lakes. Above: three supraglacial lakes, as shown in the Landsat 7 image from June 17, 2010, courtesy of the U.S. Geological Survey. Below: three supraglacial lakes that have drained, as shown in the Landsat 7 image from July 8, 2010, courtesy of the U.S. Geological Survey. |

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| **Chart, line chart  Description automatically generated** |
| **Fig. *S6: U0 2011 Hydrostatic Profile*.** U0 hydrostatic elevation compared to the actual elevation in 20110516. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |

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| **Fig. *S7: U0 2013 Hydrostatic Profile.*** U0 hydrostatic elevation compared to the actual elevation in 20130418. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |

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| **Fig. *S8: U1 2010 Hydrostatic Profile.*** U1 hydrostatic elevation compared to the actual elevation in 20100519. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |

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| **Fig. *S9: U1 2011 Hydrostatic Profile.*** U1 hydrostatic elevation compared to the actual elevation in 20110516. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |

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| **Fig. *S10: U1 2012 Hydrostatic Profile.*** U1 hydrostatic elevation compared to the actual elevation in 20120516. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |

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| **Fig. *S11: U3 2010 Hydrostatic Profile.*** U3 hydrostatic elevation compared to the actual elevation in 20100519. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |

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| **Fig. *S12: U3 2011 Hydrostatic Profile.*** U3 hydrostatic elevation compared to the actual elevation in 20110513. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |

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| **Fig. *S13: U3 2012 Hydrostatic Profile.*** U3 hydrostatic elevation compared to the actual elevation in 20120515. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |

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| **Fig. *S14: U3 2013 Hydrostatic Profile.*** U3 hydrostatic elevation compared to the actual elevation in 20130418. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |

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| **Fig. *S15: U3 2015 Hydrostatic Profile.*** U3 hydrostatic elevation compared to the actual elevation in 20150411. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |

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| **Chart, line chart  Description automatically generated** |
| **Fig. *S16: U4 2013 Hydrostatic Profile.*** U4 hydrostatic elevation compared to the actual elevation in 20130418. The hydrostatic elevation, calculated using the hydrostatic equilibrium equation with MCoRDS data (Paden and others, 2010, 2014). |
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| **Fig. *S17: U1 2014 modelled velocity and Cside sensitivity.*** This plot displays the U1 2014 measured and modelled velocity using the same drag inputs (*Cbase*, *Cside*) as 2011, and the adjusted *Cside* required to output more realistic velocities. |

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| **Fig. *S18: U2 2015 modelled velocity and Cside sensitivity.*** This plot displays the U2 2015 measured and modelled velocity using the same drag inputs (*Cbase*, *Cside*) as 2013, and the adjusted *Cside* required to output more realistic velocities. |

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| **Fig. *S19: U2 2018 modelled velocity and Cside sensitivity.*** This plot displays the U2 2018 measured and modelled velocity using the same drag inputs (*Cbase*, *Cside*) as 2013, and the adjusted *Cside* required to output more realistic velocities. |