

Supplemental Material

Figure S1. Single Date SAR parameters for L-band for Flooded and Non-flooded classes (top) and mean difference between Flooded and Non-flooded classes (bottom) for: (a) σ_{VV}^0 and (b) σ_{VH}^0 normalized σ^0 at 28° of incidence angle, (c) $GLCM\ Variance_{VV}$ (d) $GLCM\ Variance_{VH}$. Error bars represent mean ± 1 standard deviation. Date and time are given in Qikiqtarjuaq local time.

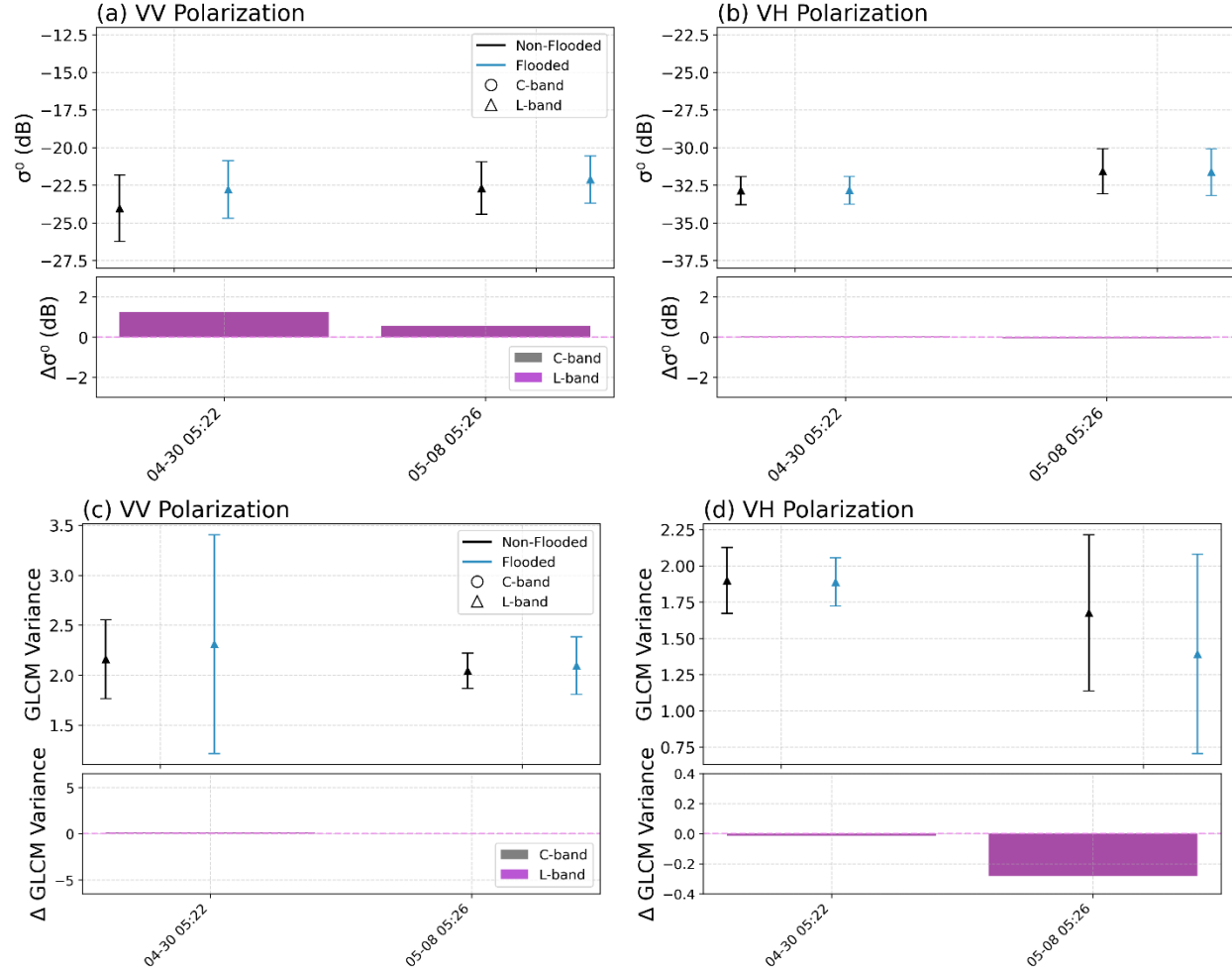
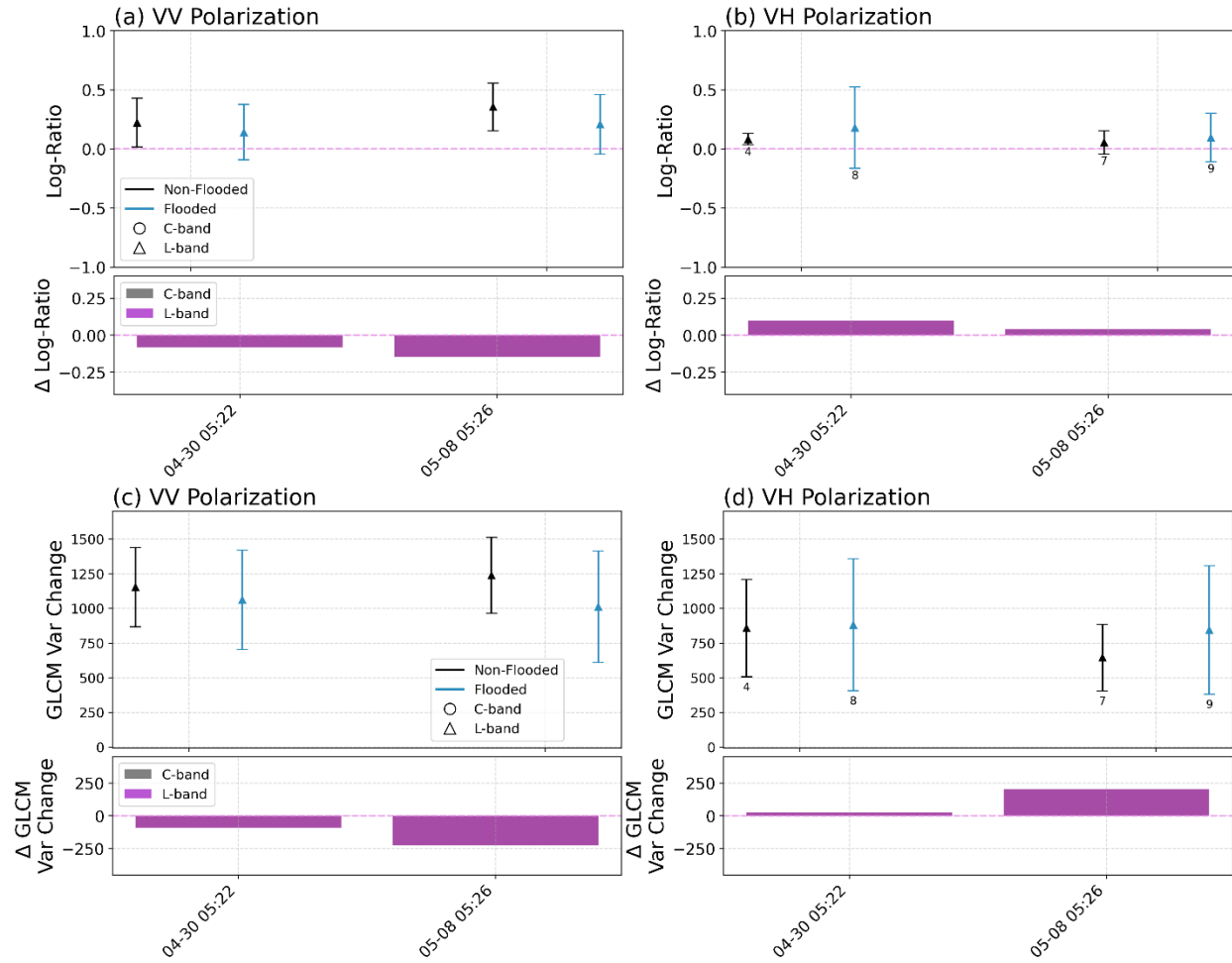


Figure S2. Change detection SAR parameters for L-band for Flooded and Non-flooded classes (top) and mean difference between Flooded and Non-flooded classes (bottom) for: Logarithm ratio (a) VV and (b) VH polarizations, GLCM Variance Change (c) VV and (d) VH polarizations. Error bars represent mean ± 1 standard deviation. Number labels in the plot indicate the number of records plotted for the L-band. Date and time are given in Qikiqtarjuaq local time, and the x-axis shows the t2 acquisition date of the image pair



Timelapse S1. *TimelapseS1.gif* shows the evolution of the landfast ice at the moment of the break-up in the location of Figure 12. SAR images are Sentinel-1 HH polarization Extra-Wide mode from June 3 to July 11, 2024. Modified Copernicus Sentinel data 2024/Sentinel Hub.