

Supplementary Material: Perennial supraglacial lakes in Northeast Greenland observed by polarimetric SAR

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S1 Lake drainage examples

Some examples of automatically detected supraglacial lake drainages. The maps (before and after a drainage) show the classification dimensions (HH, HH-HV and the anomaly), our classification result and corresponding optical images (if available). The red dashed line shows the lake outline of the respectively draining lake. The values at the bottom denote the changes of mean value over the lake outline as described in the main article. One set of these changes (HH of HH-HV) has to be large enough to confirm a typical summer or winter time drainage.

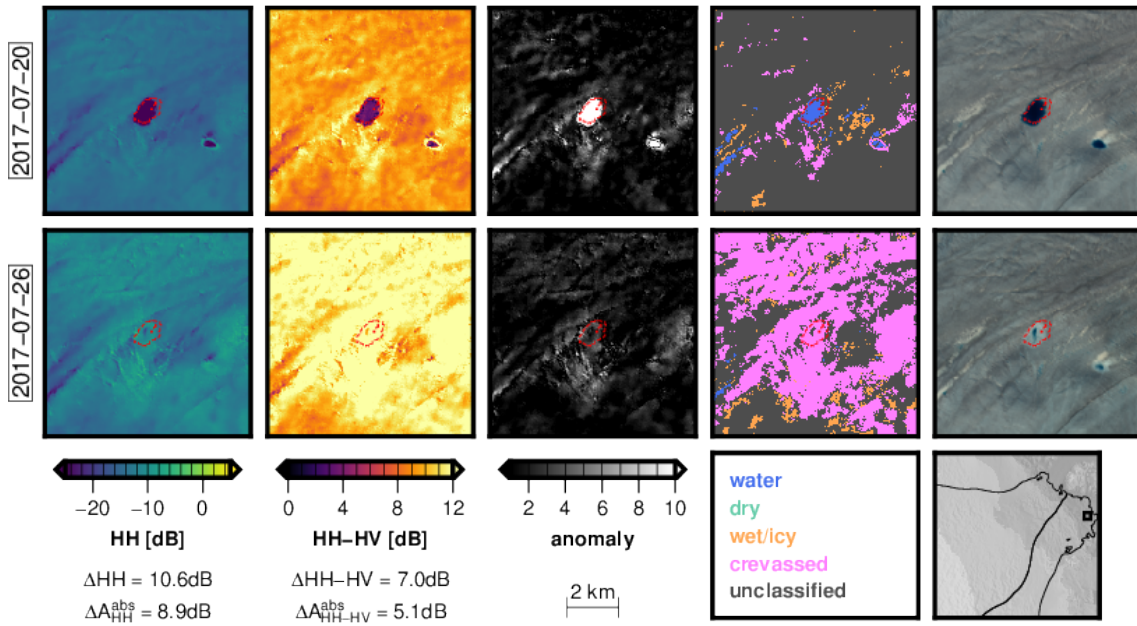


Figure S1: Typical summer time drainage of an open water lake at ZI.

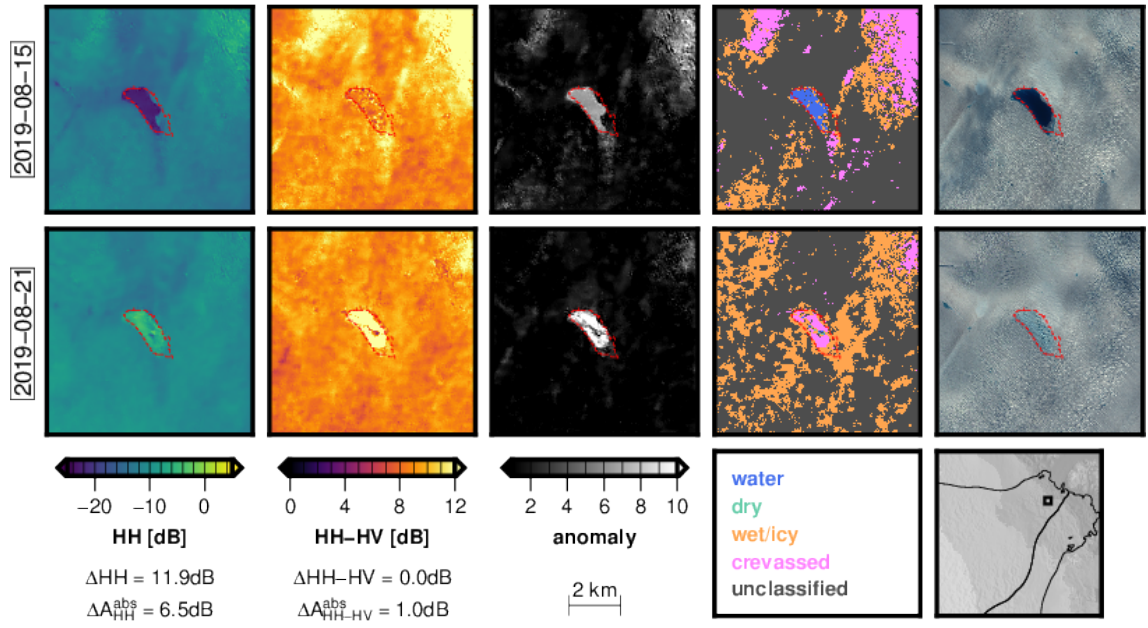


Figure S2: Another summer time drainage at 79NG. In contrast to Fig. S1, the lake (before) cannot be identified from HH-HV, but the classification still works.

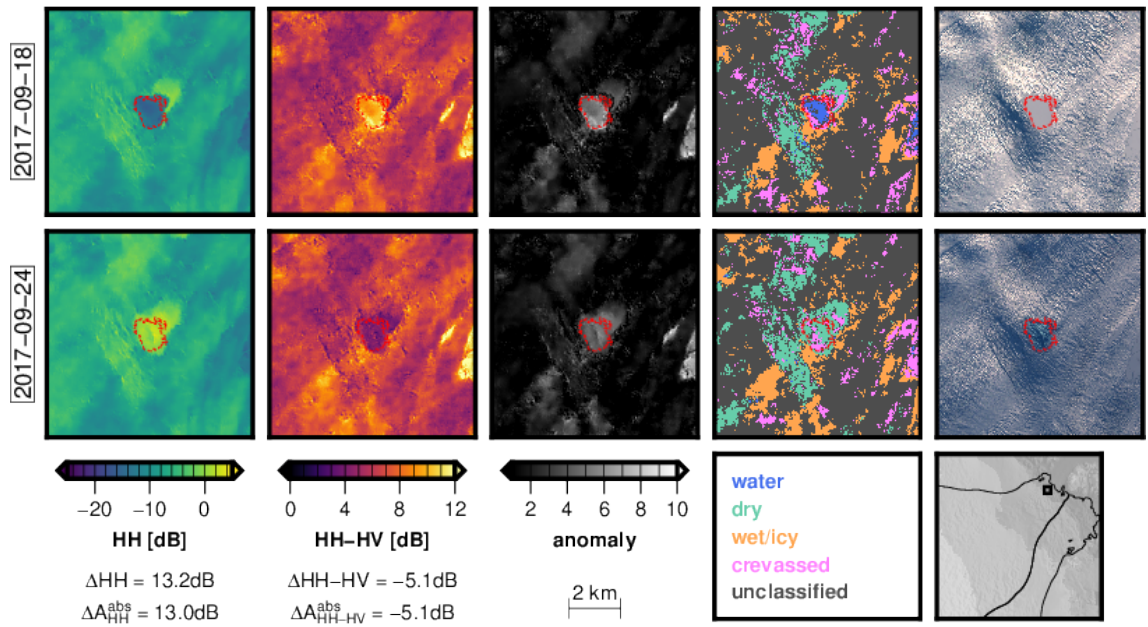


Figure S3: Drainage of an ice covered lake in autumn at 79NG.

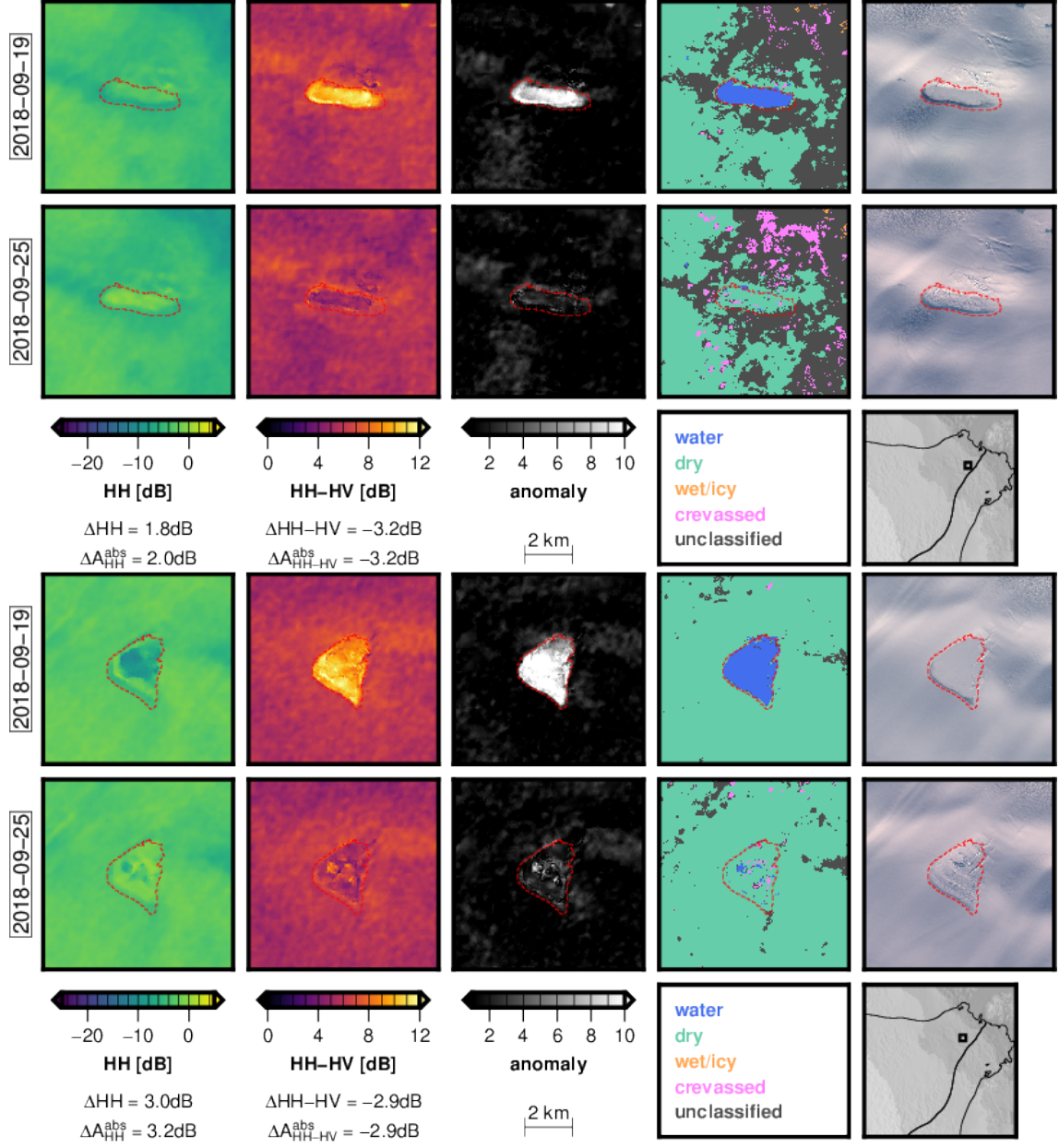


Figure S4: Two adjacent lakes at 79NG draining simultaneously (within the 6 days between the two scenes).

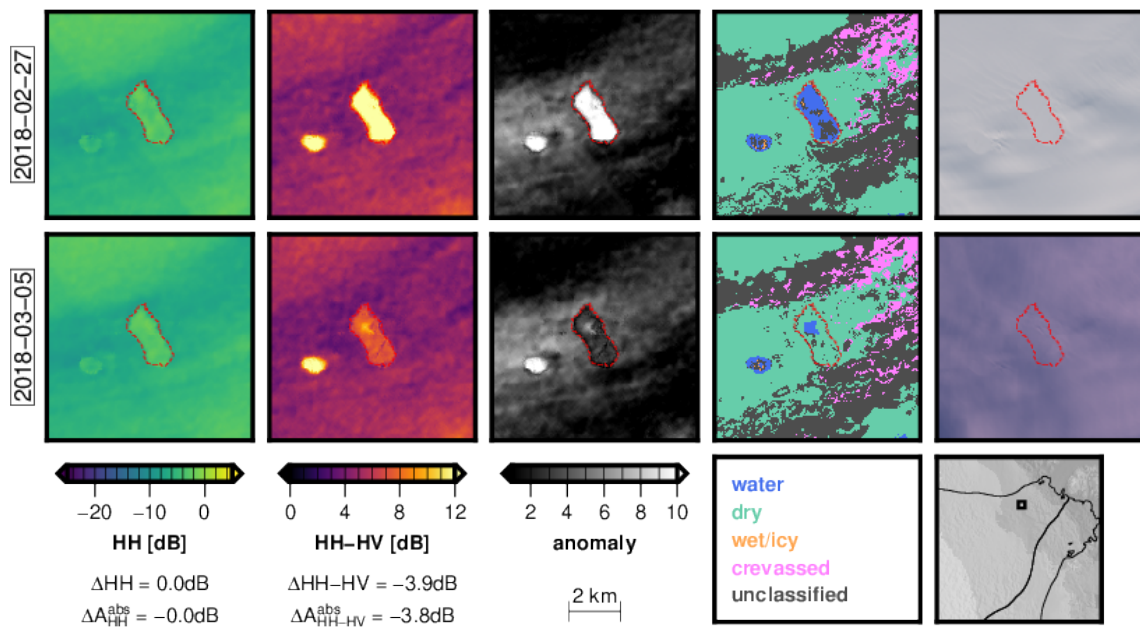
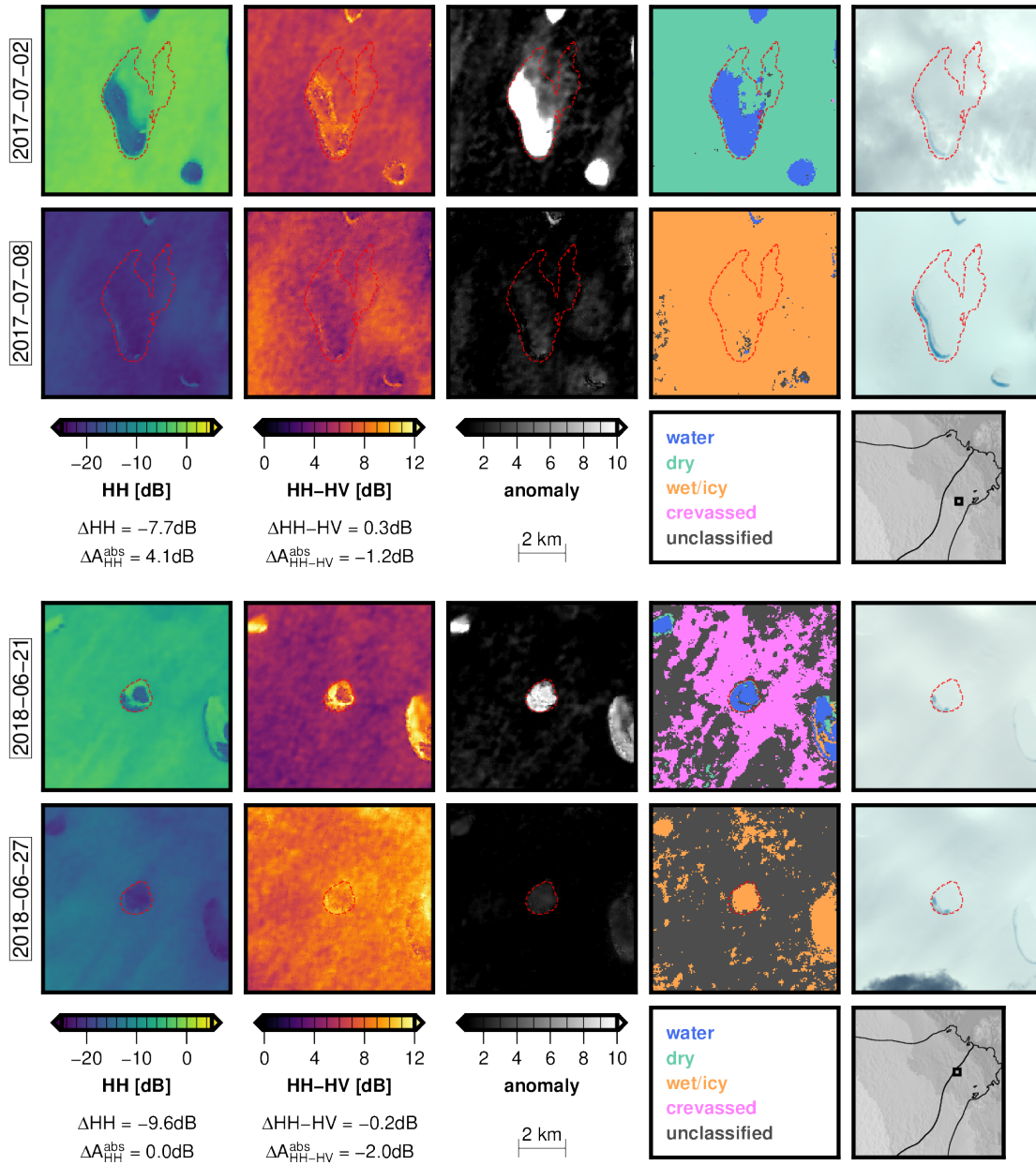


Figure S5: Typical winter time drainage further upstream of 79NG. The optical images show epochs before and after the polar night (2017-09-18 and 2018-03-17)

S2 Examples for false lake drainages



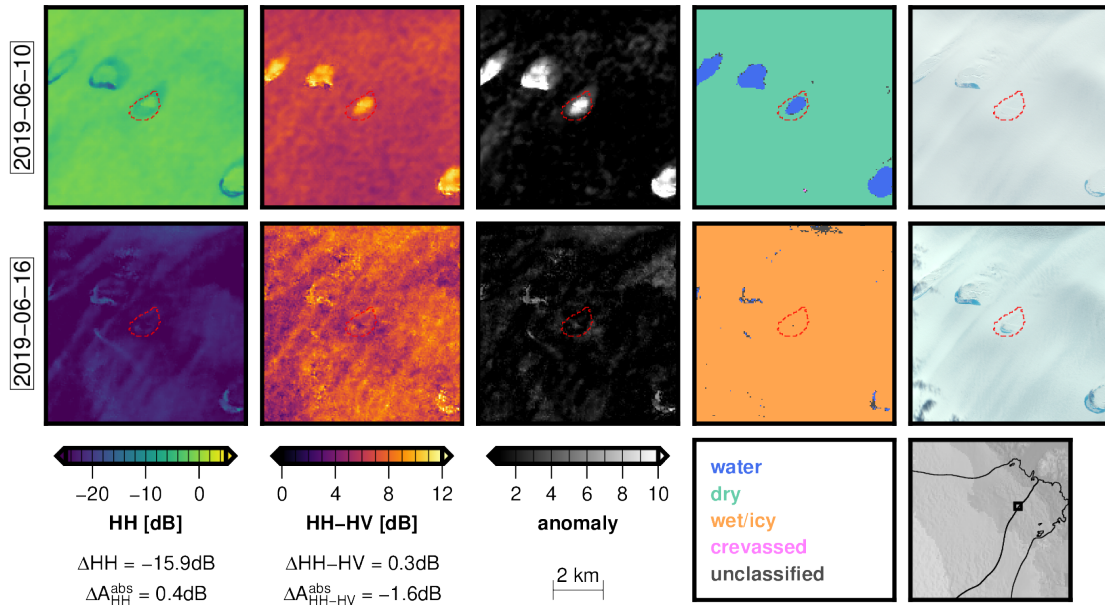


Figure S6: Some examples for false lake drainages due to the onset of surface melt. These events are identified and excluded with the help of additional criteria on backscatter change.

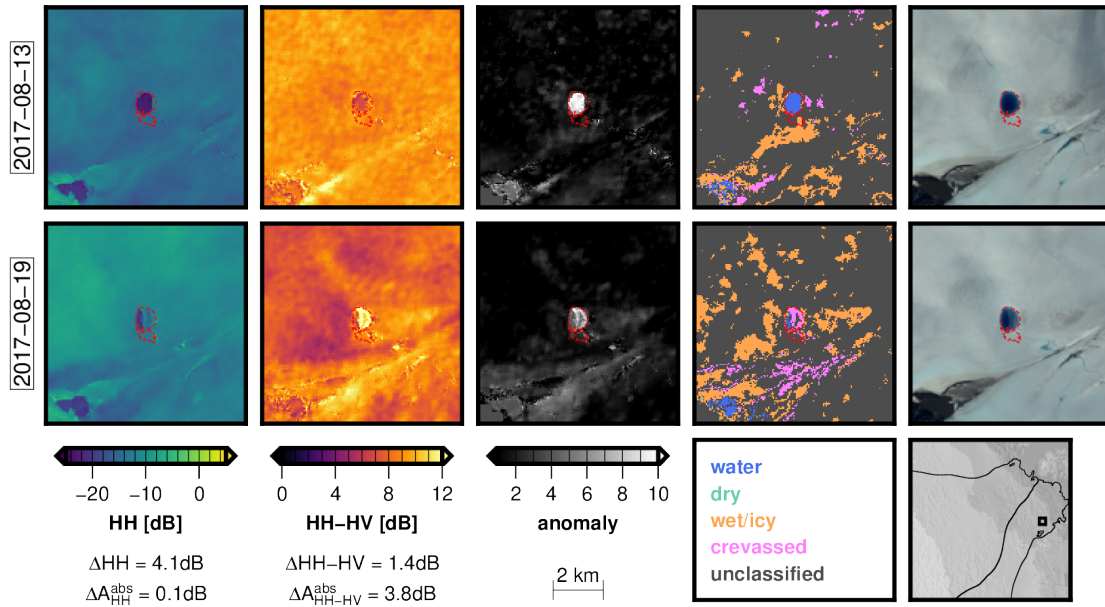


Figure S7: Also variations in other surface conditions can influence the classification and cause an apparent lake drainage in the classification result. However, also here, the backscatter change does not agree with a typical change for a summer or winter time drainage and the drainage is identified as "false".