Supplementary Materials: Complementarity of X-, C- and L-band SAR Backscatter Observations to Retrieve Forest Stem Volume in Boreal Forest. *Remote Sensing* 2019, 7, Article No. remotesensing-525655

Maurizio Santoro [1,*], Oliver Cartus [1], Johan E. S. Fransson [2] and Urs Wegmüller [1]

Figure material cited in the manuscript

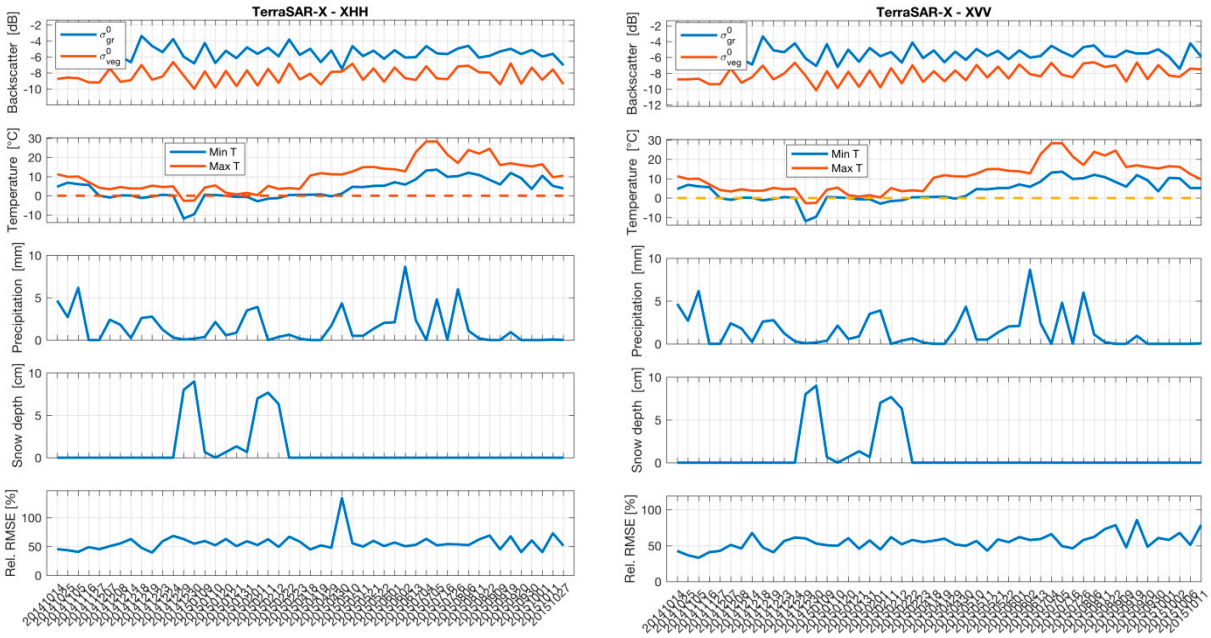

Figure S1. Estimates of σ^0_{gr} and σ^0_{veg} for each X-band co-polarized image over Remningstorp (left: TerraSAR-X HH-polarization; right: TerraSAR-X VV-polarization) together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training.

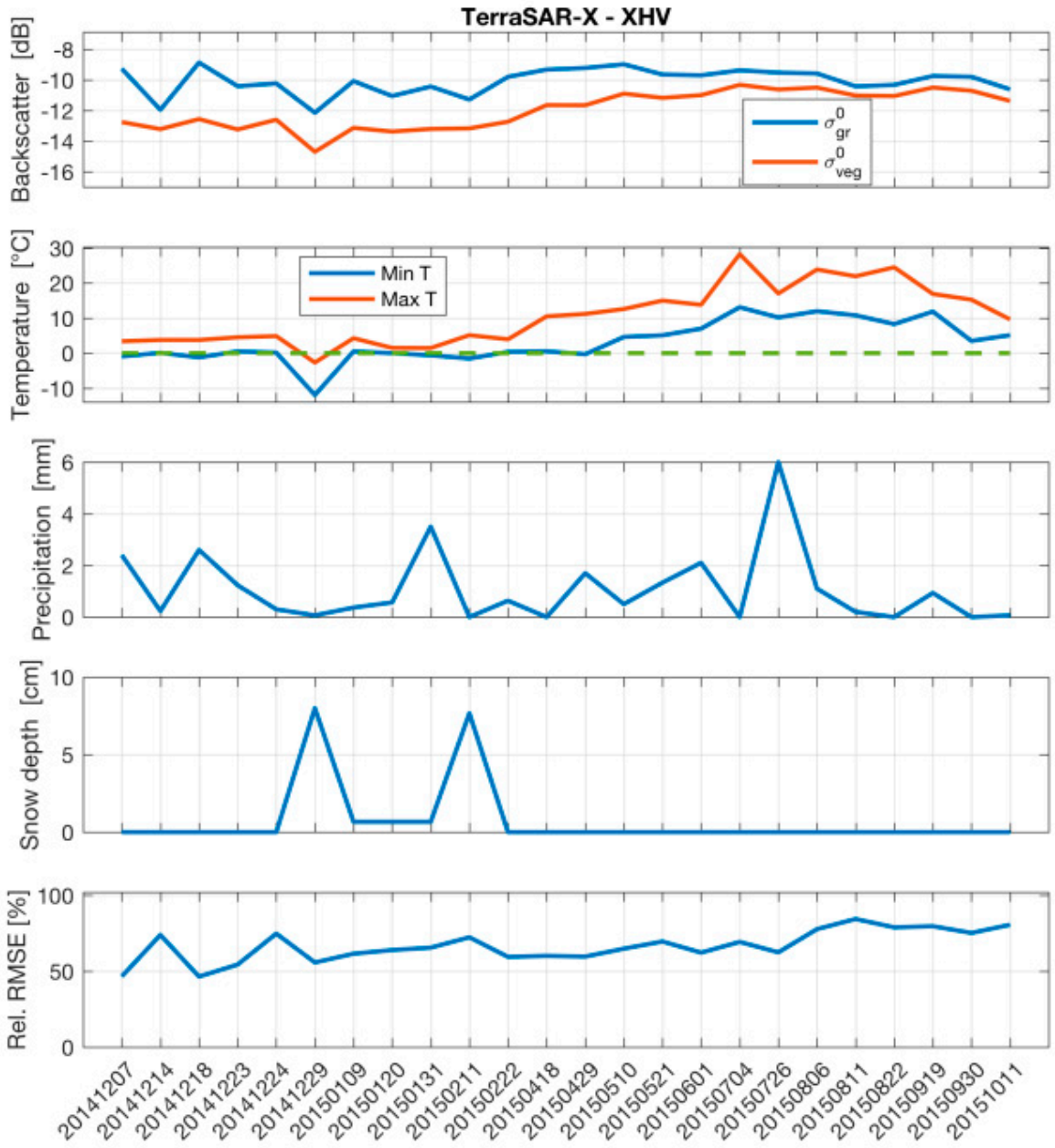

Figure S2. Estimates of σ^0_{gr} and σ^0_{veg} for each X-band HV-polarized image over Remningstorp (TerraSAR-X) together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training.

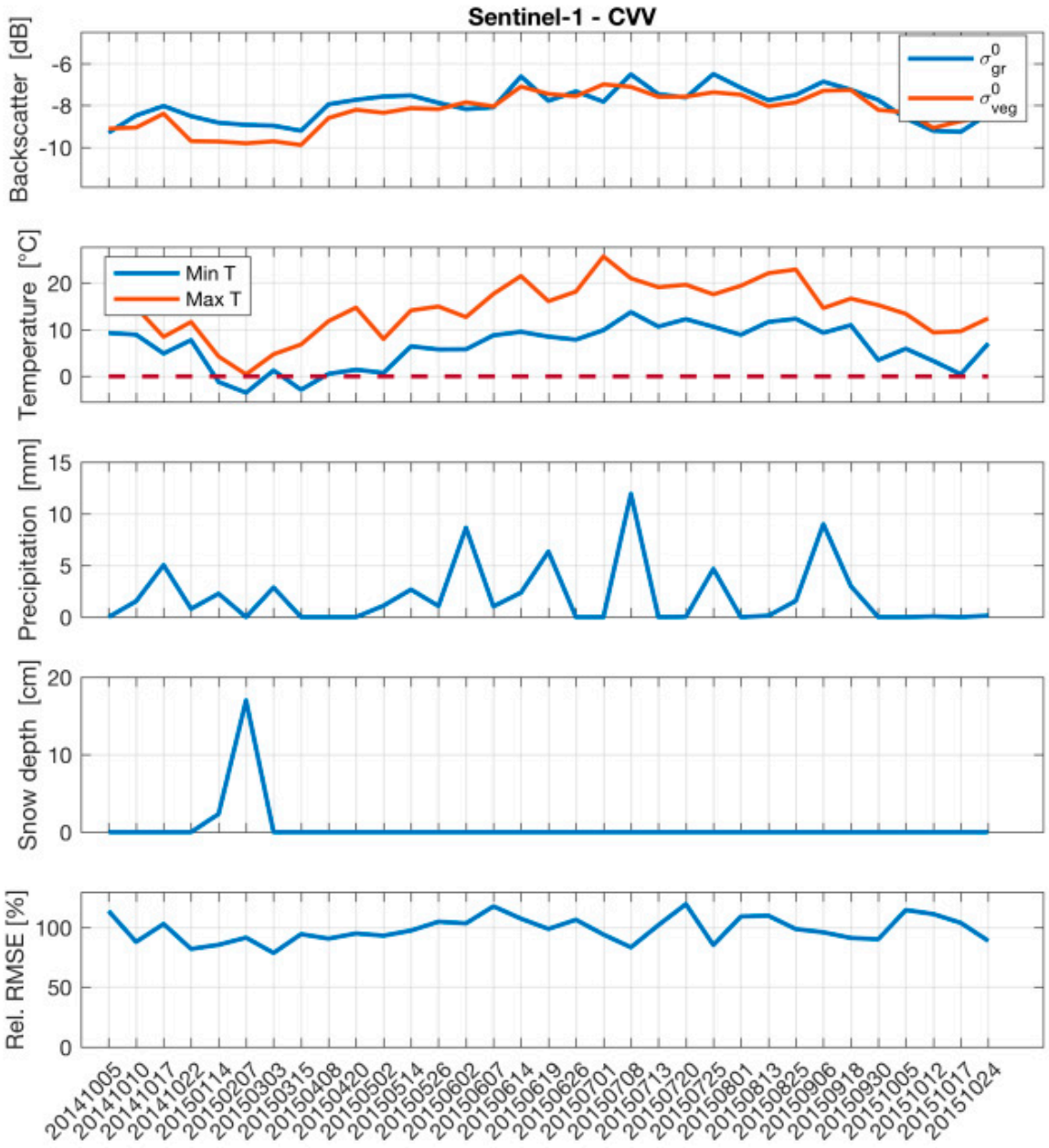

Figure S3. Estimates of σ^0_{gr} and σ^0_{veg} for each C-band VV-polarized image over Remningstorp together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training.

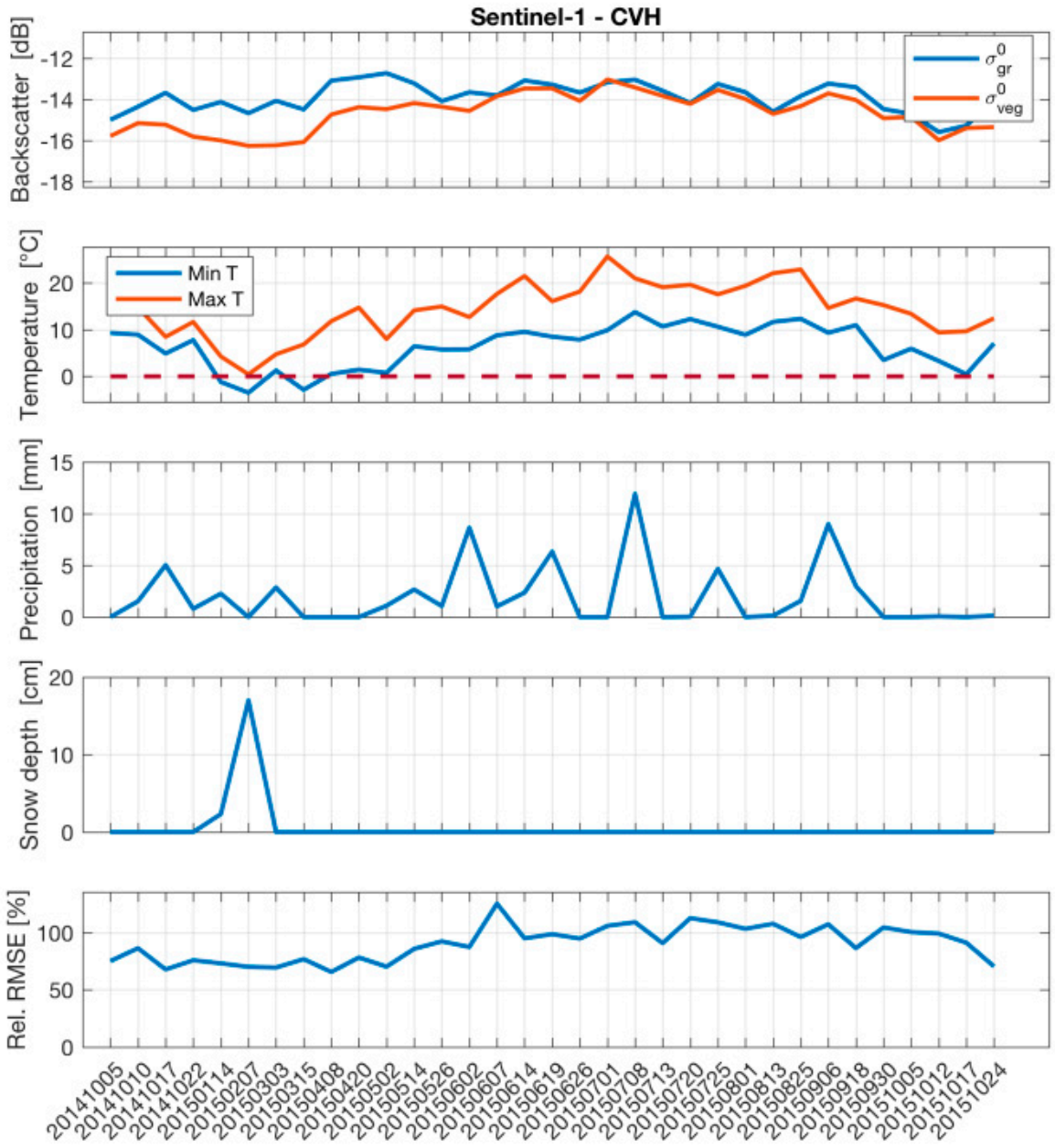

Figure S4. Estimates of σ^0_{gr} and σ^0_{veg} for each C-band cross-pol image over Remningstorp together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training.

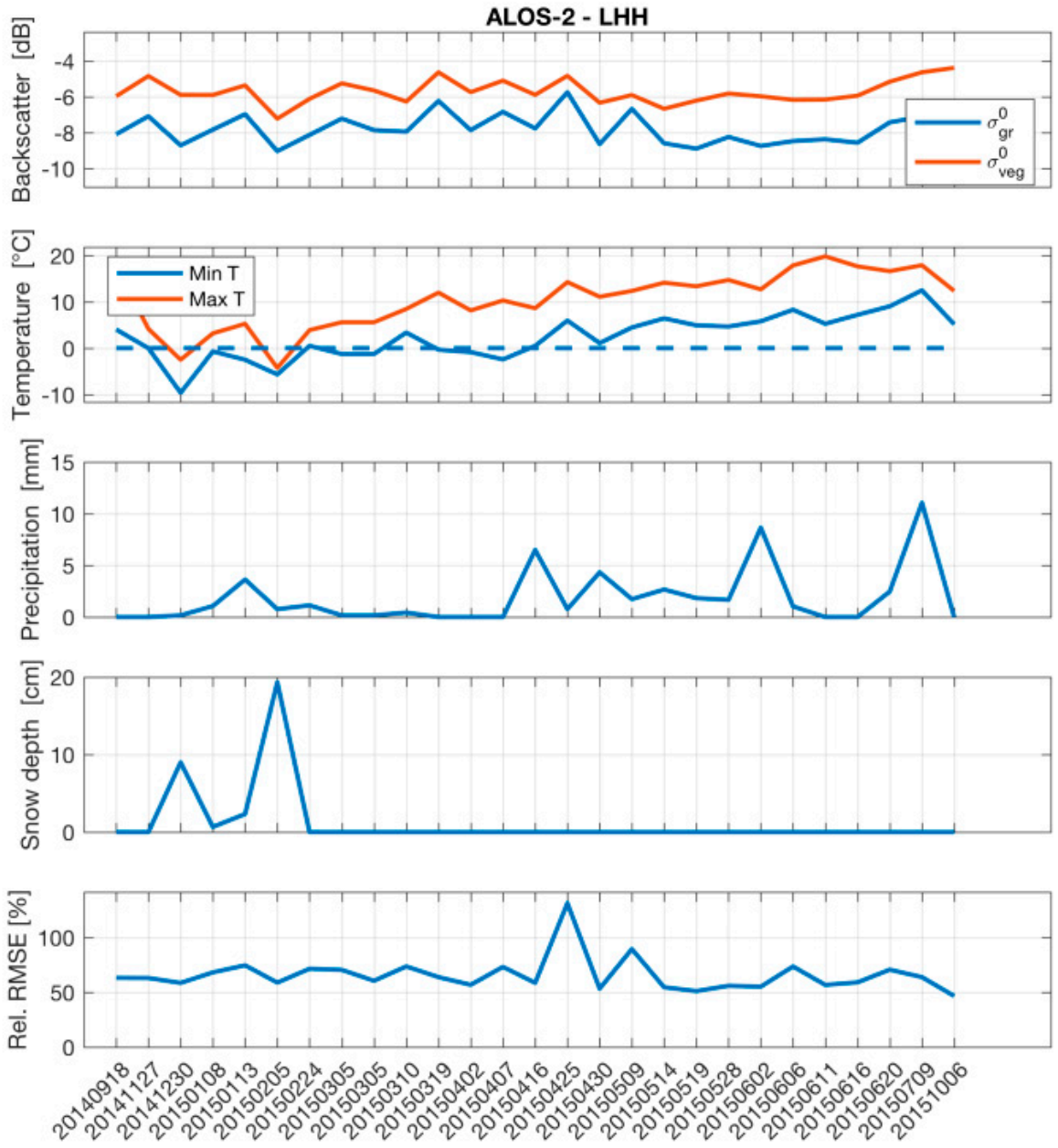

Figure S5. Estimates of σ^0_{gr} and σ^0_{veg} for each L-band HH-polarized image over Remningstorp together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training.

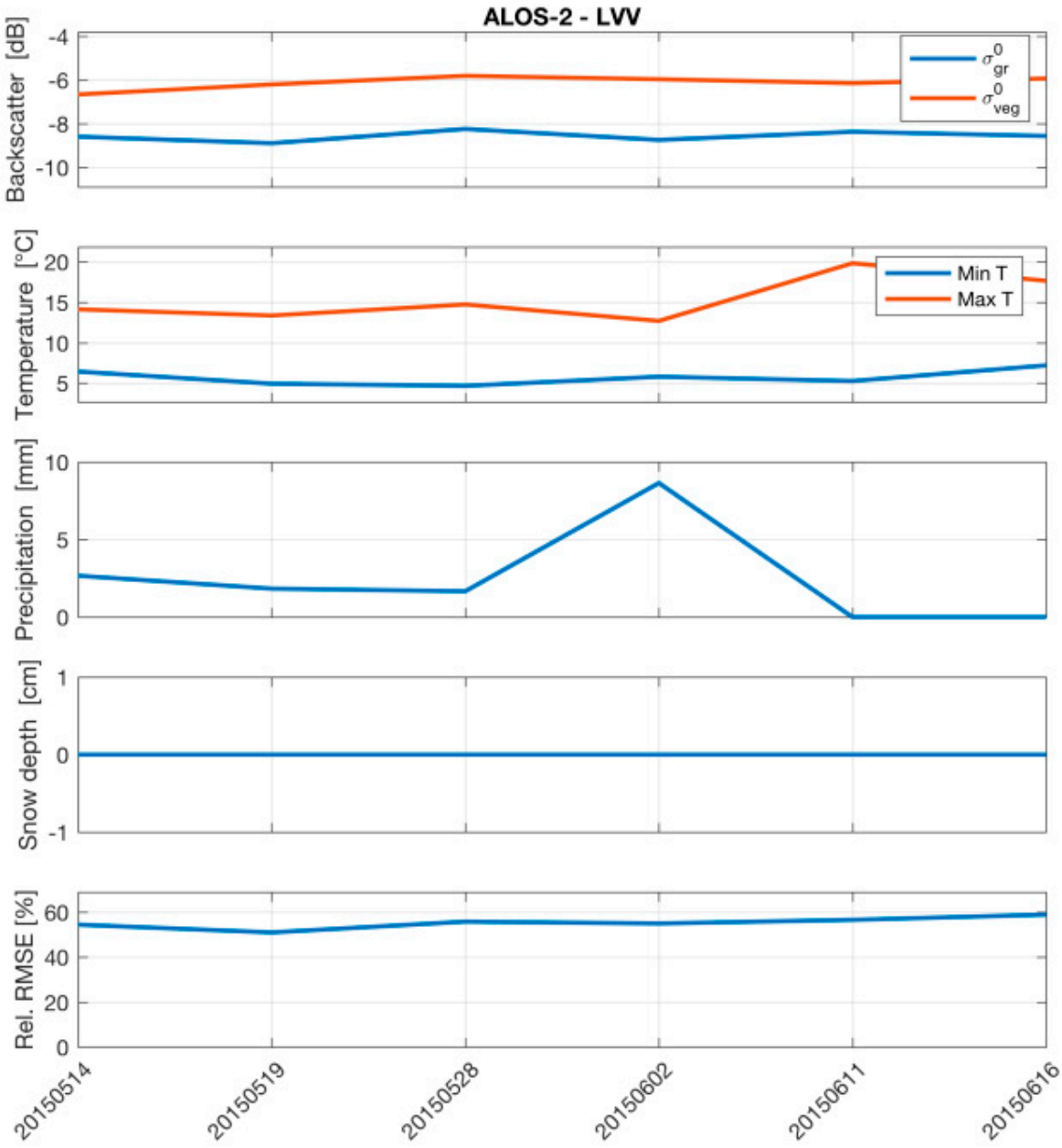

Figure S6. Estimates of σ^0_{gr} and σ^0_{veg} for each L-band VV-polarized image over Remningstorp together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training.

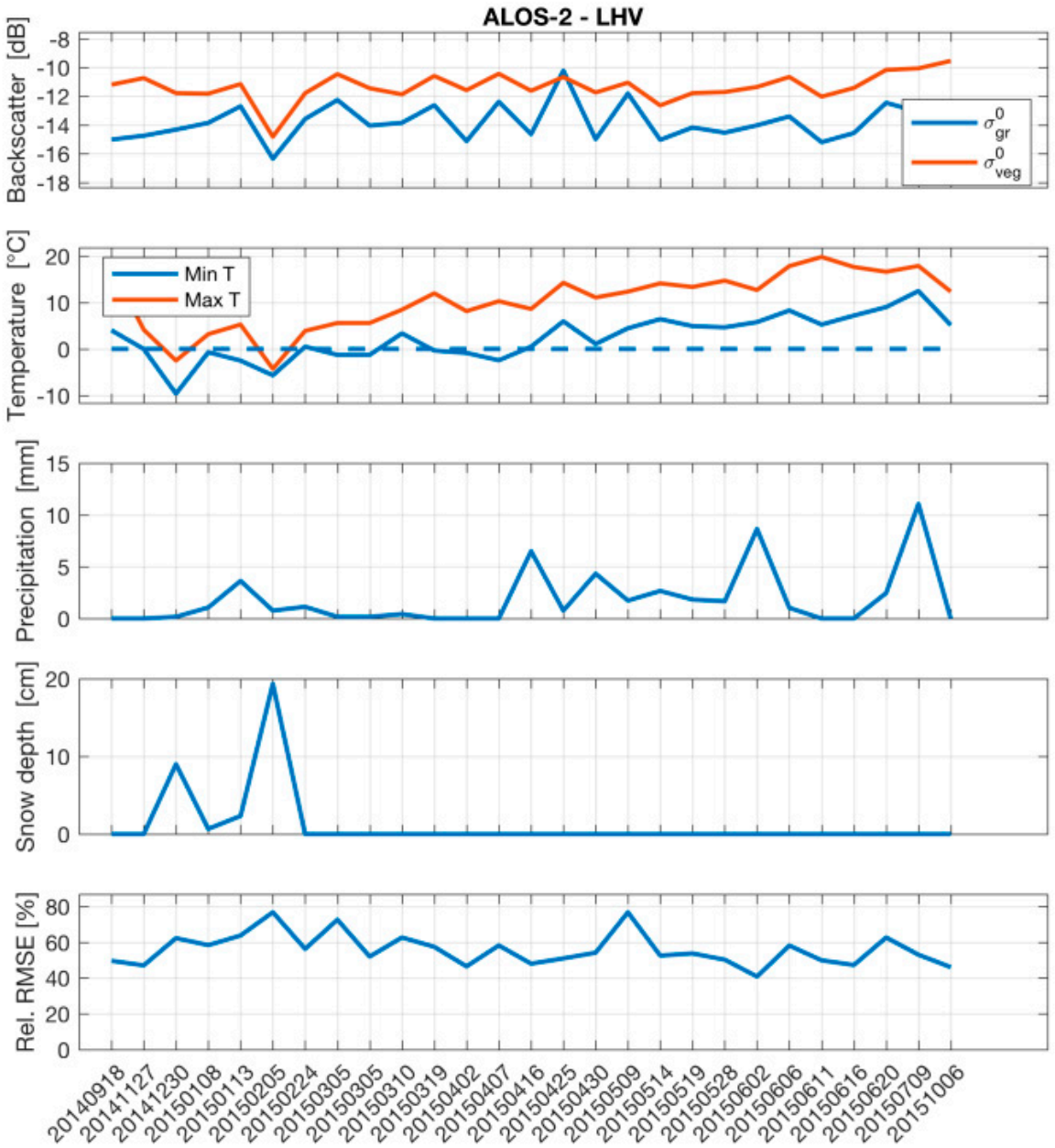

Figure S7. Estimates of σ^0_{gr} and σ^0_{veg} for each L-band HV-polarized image over Remningstorp together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training.

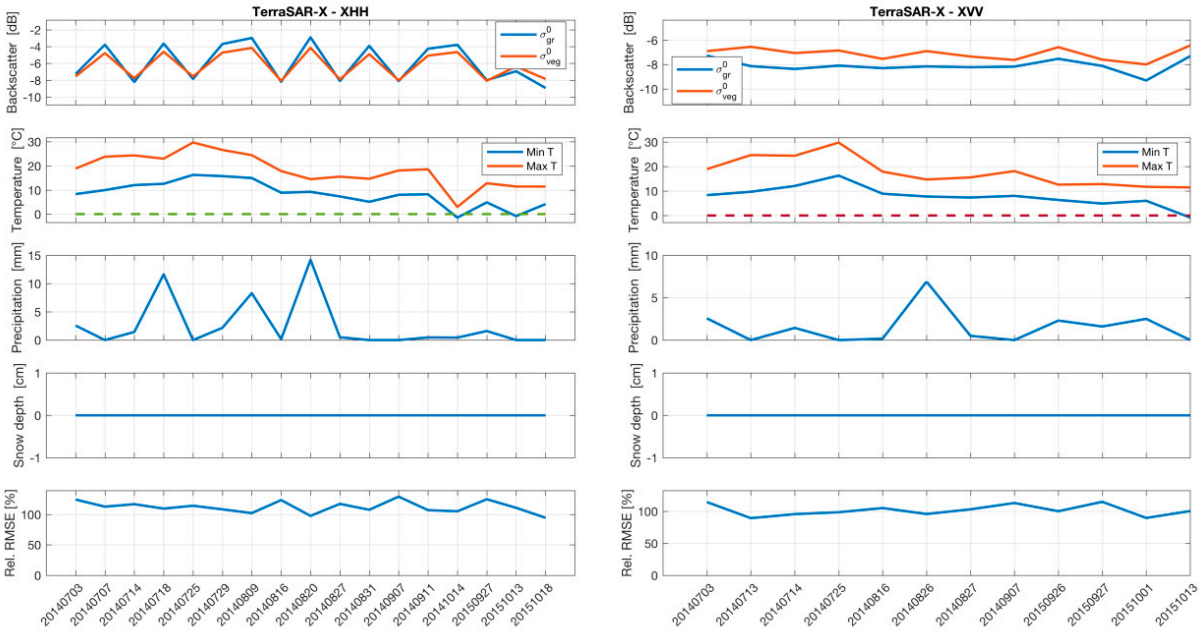

Figure S8. Estimates of σ^0_{gr} and σ^0_{veg} for each X-band co-polarized image over Krycklan (left: TerraSAR-X HH-polarization; right: TerraSAR-X VV-polarization) together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training.

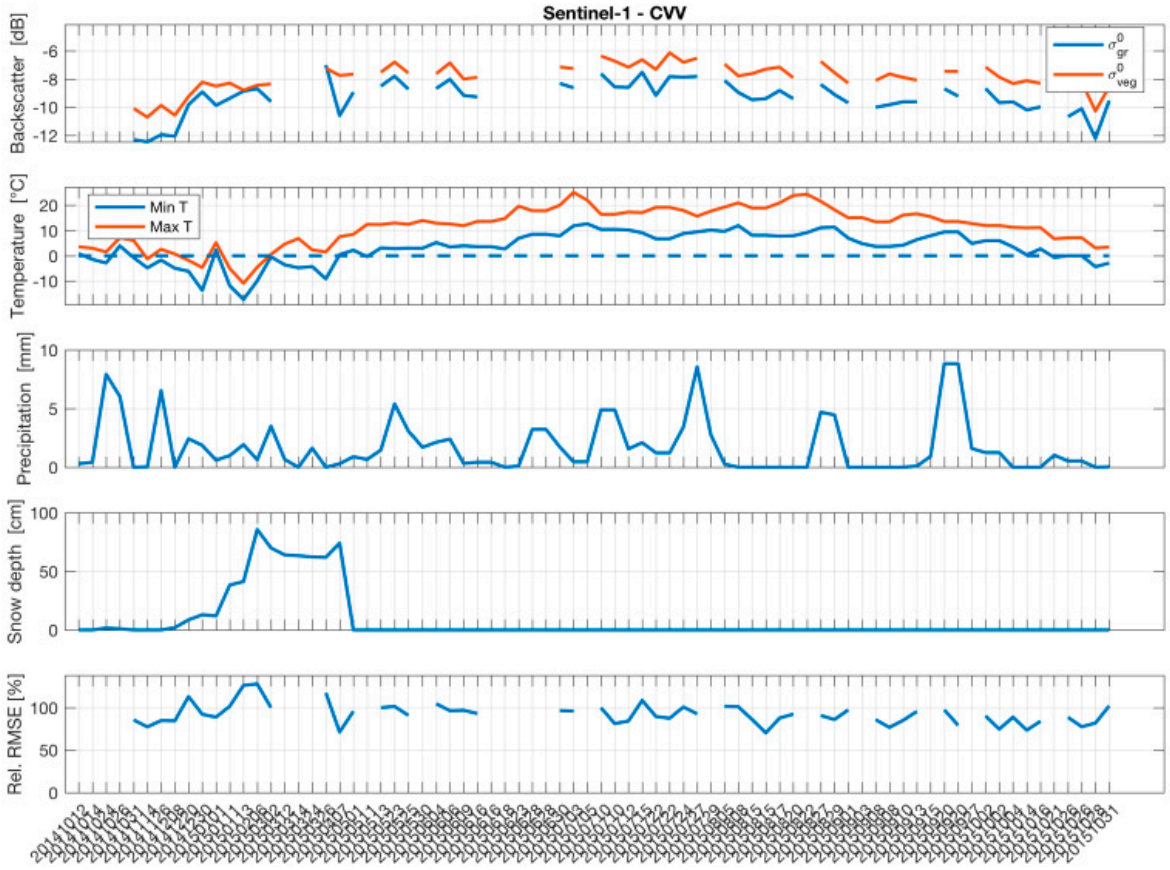

Figure S9. Estimates of σ^0_{gr} and σ^0_{veg} for each C-band VV-polarized image over Krycklan together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training. Voids in the temporal profiles represent image acquisition dates with only partial coverage of the test site.

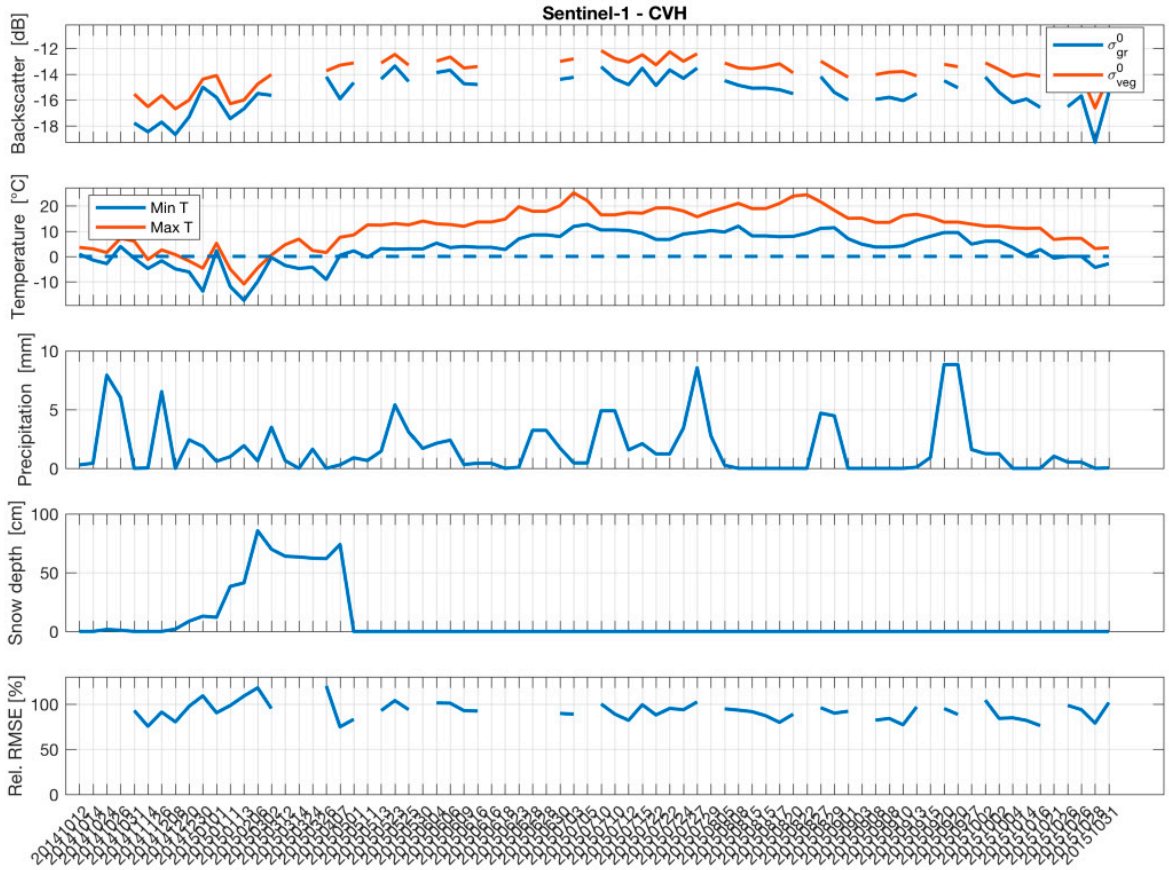

Figure S10. Estimates of σ^0_{gr} and σ^0_{veg} for each C-band VH-polarized image over Krycklan together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training. Voids in the temporal profiles represent image acquisition dates with only partial coverage of the test site.

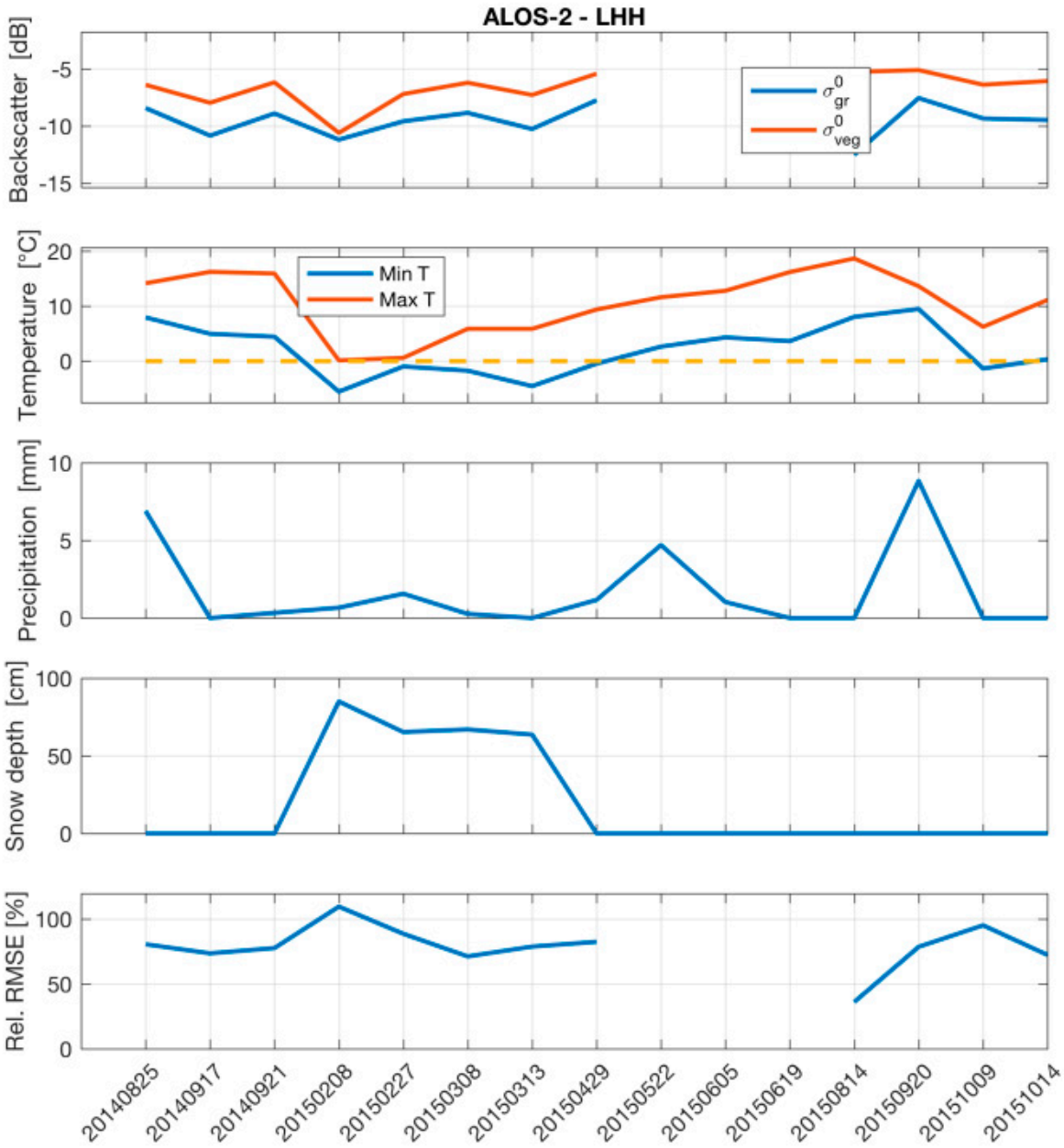

Figure S11. Estimates of σ^0_{gr} and σ^0_{veg} for each L-band HH-polarized image over Krycklan together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training. Voids in the temporal profiles represent image acquisition dates with only partial coverage of the test site.

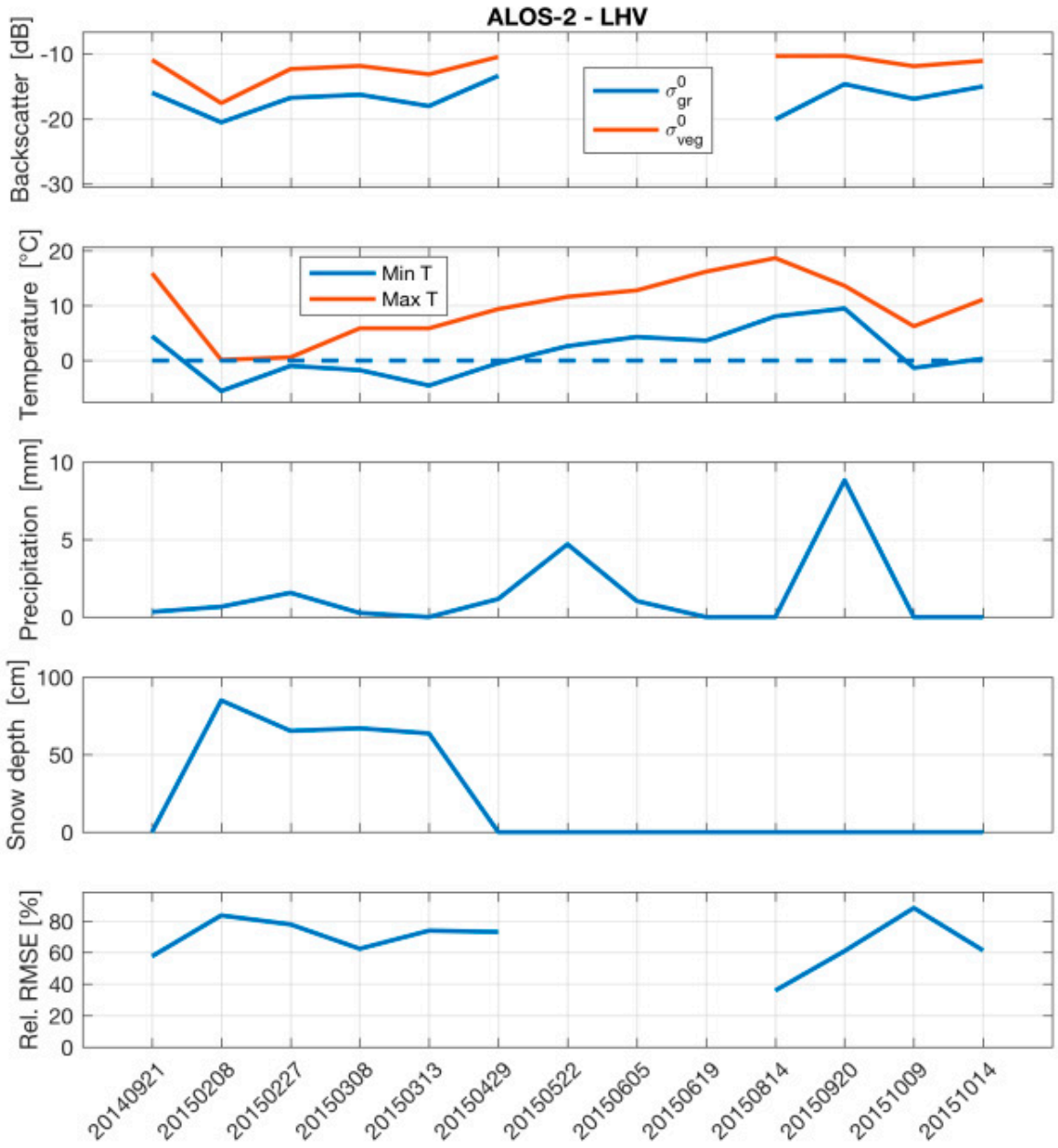

Figure S12. Estimates of σ^0_{gr} and σ^0_{veg} for each L-band HV-polarized image over Krycklan (left: ALOS-1; right: ALOS-2) together with profiles of daily temperature extremes, precipitation and snow depth. The panel at the bottom illustrates the retrieval error for the model tested with the same samples used for the training. Voids in the temporal profiles represent image acquisition dates with only partial coverage of the test site.