New section for the revised version of the manuscript.

2.6 Quantitative analysis of palsa loss rates

To quantify changes in palsa extent, we calculated the average annual rate of reduction of the areas of intact palsa from one year to the next (e.g., Olvmo et al., 2020; Verdonen et al., 2023; **eq. 5**). This method assumes that the palsa area decreases annually by a constant percentage applied to the remaining area, analogous to an exponential decay model.

$$\text{average annual rate of reduction } (\% \ a^{-1}) = \left(\left(\frac{A_{\text{start}}}{A_{\text{end}}} \right)^{\frac{1}{Y_{\text{end}} - Y_{\text{start}}}} - 1 \right) (5)$$

where A_{start} and A_{end} are the total area of palsas at the start year Y_{start} of the respective period and at the end of it (Y_{end}). This formulation allows comparison across sites and time intervals of varying length, since the value is normalized to an annual percentage rate.

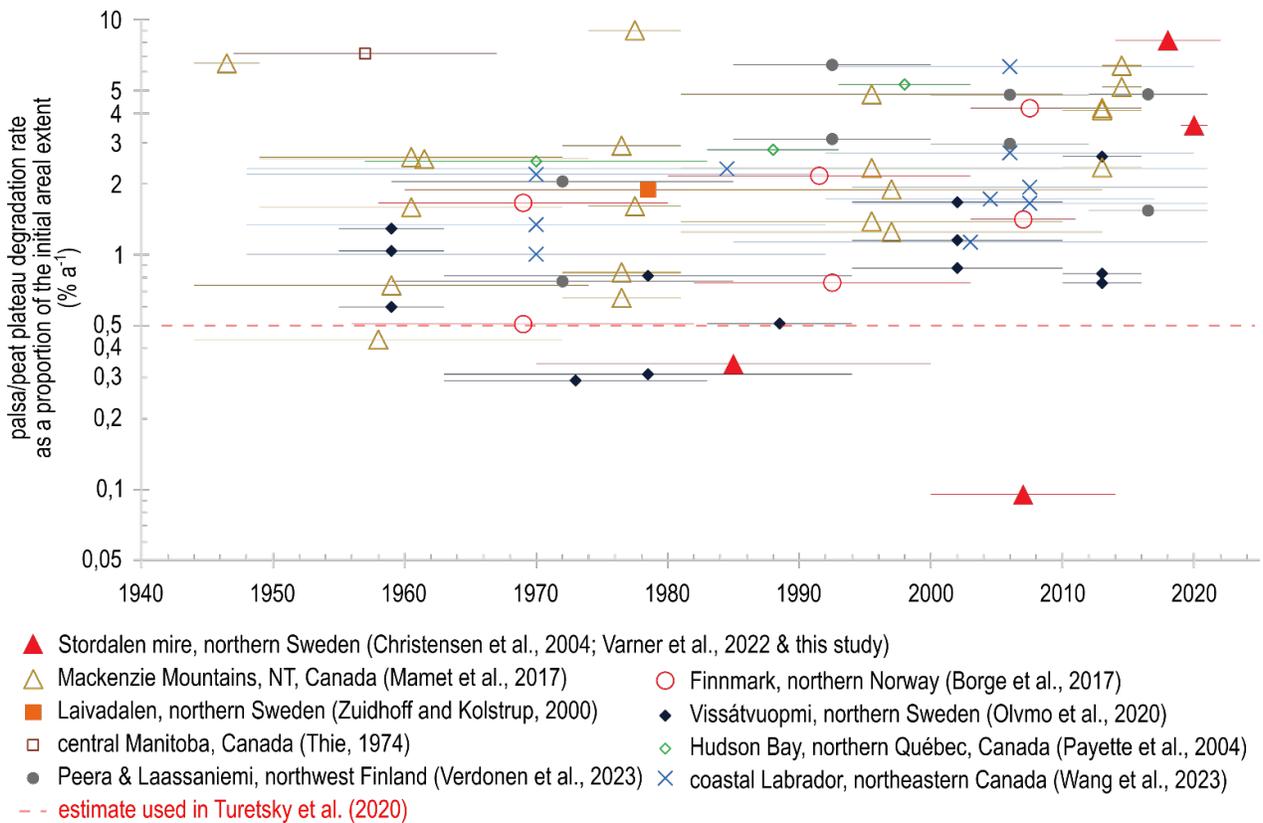**New figures for the revised version of the manuscript.**

Figure 5: Meta-analysis showing the rates of degradation of palsas/peat plateaus relative to the initial palsa areal extent. Where required, rates were recalculated using **eq. 5** for inter-study comparability.
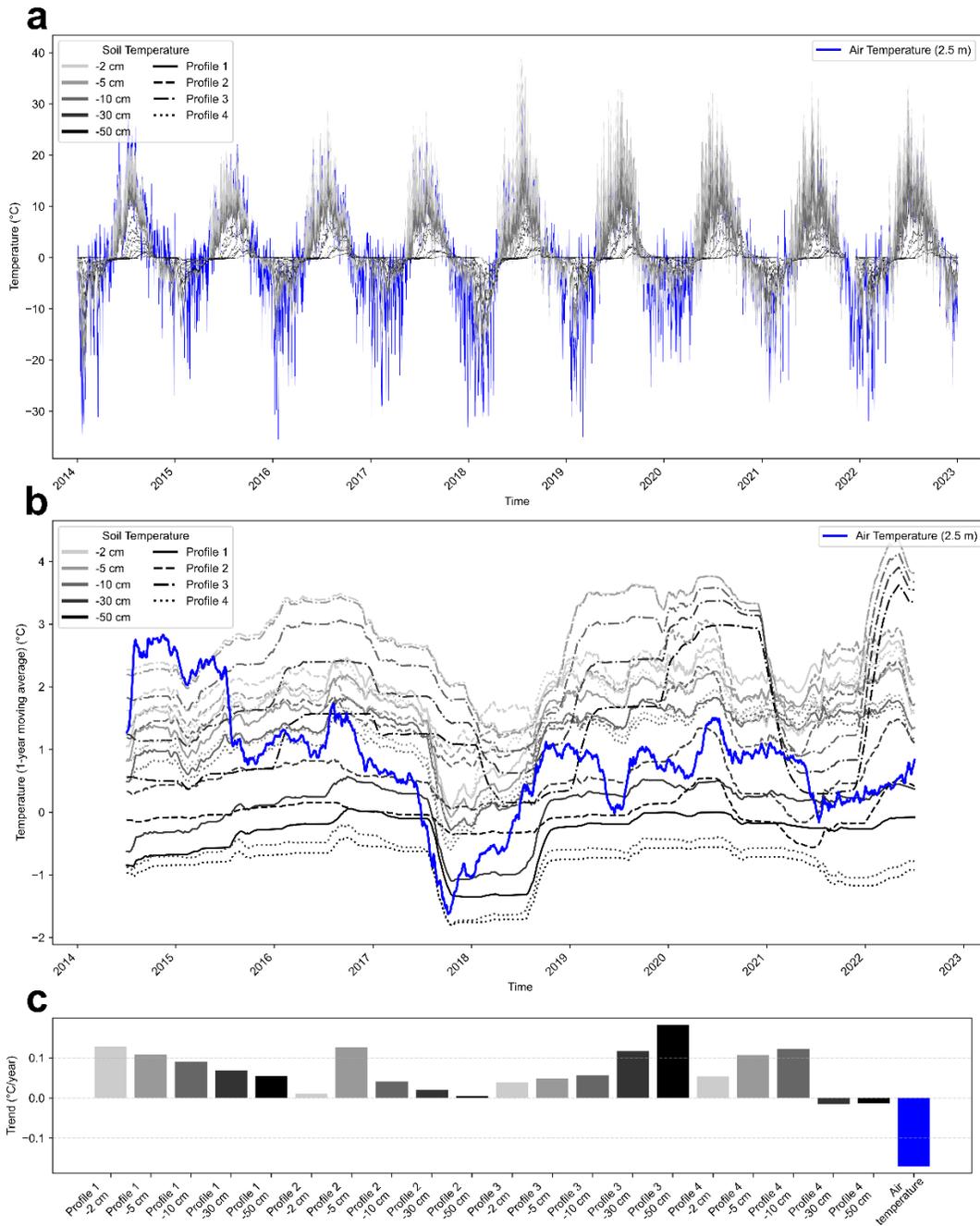
Figure A. 1: Air and ground temperatures at Stordalen between 2014 and 2022. (a) half-hourly air temperature at 2.5 m and soil temperatures from 4 profiles at 2, 5, 10, 30, and 50 cm depth (ICOS Sweden, 2023); (b) annual moving averages calculated on these same data; (c) significant trends in temperature changes calculated from moving averages (p-values < 10⁻³).
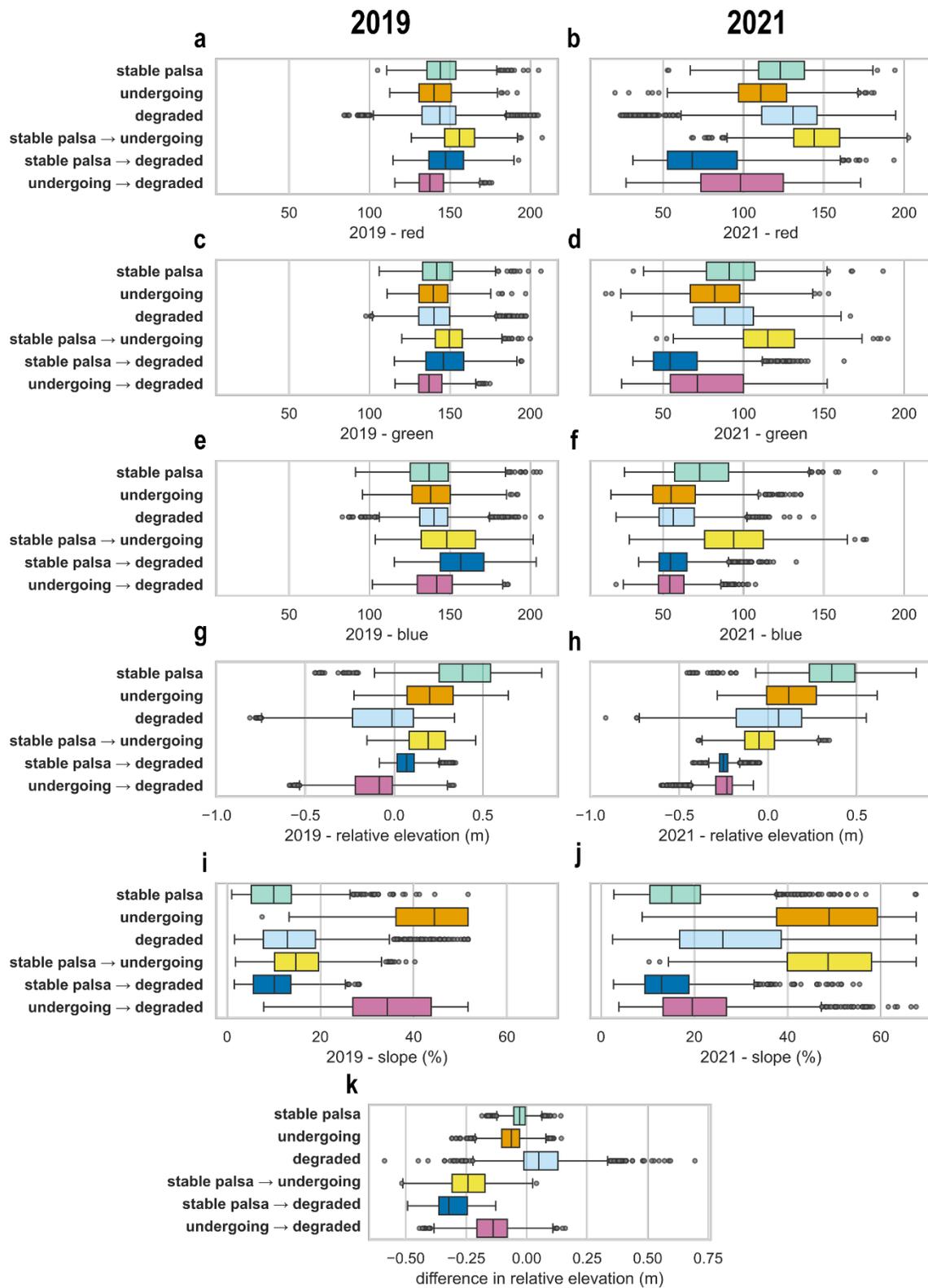
Figure A. 4: Distribution of the selected input data values across the training areas of the classification model, namely (a-b) red color, (c-d) green color, (e-f) blue color, (g-h) relative elevation data corrected by removal of the bowl-shape effect, (i-j) slope values derived from the original DSM and (k) the difference in relative between 2019 and 2021. DSM = digital surface model. Color code as in **Fig. 4**.
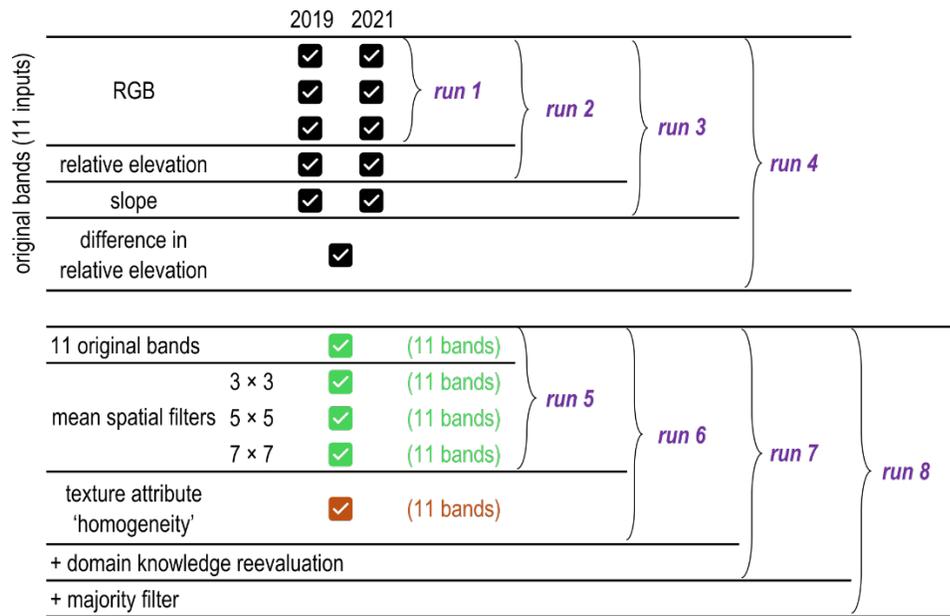
Figure A. 5: Workflow of the different runs of the model with successive additional data inputs and post-processing steps.