

Supplementary information for

Temperature-mediated plasticity of floral and fitness traits in *Arabidopsis thaliana*

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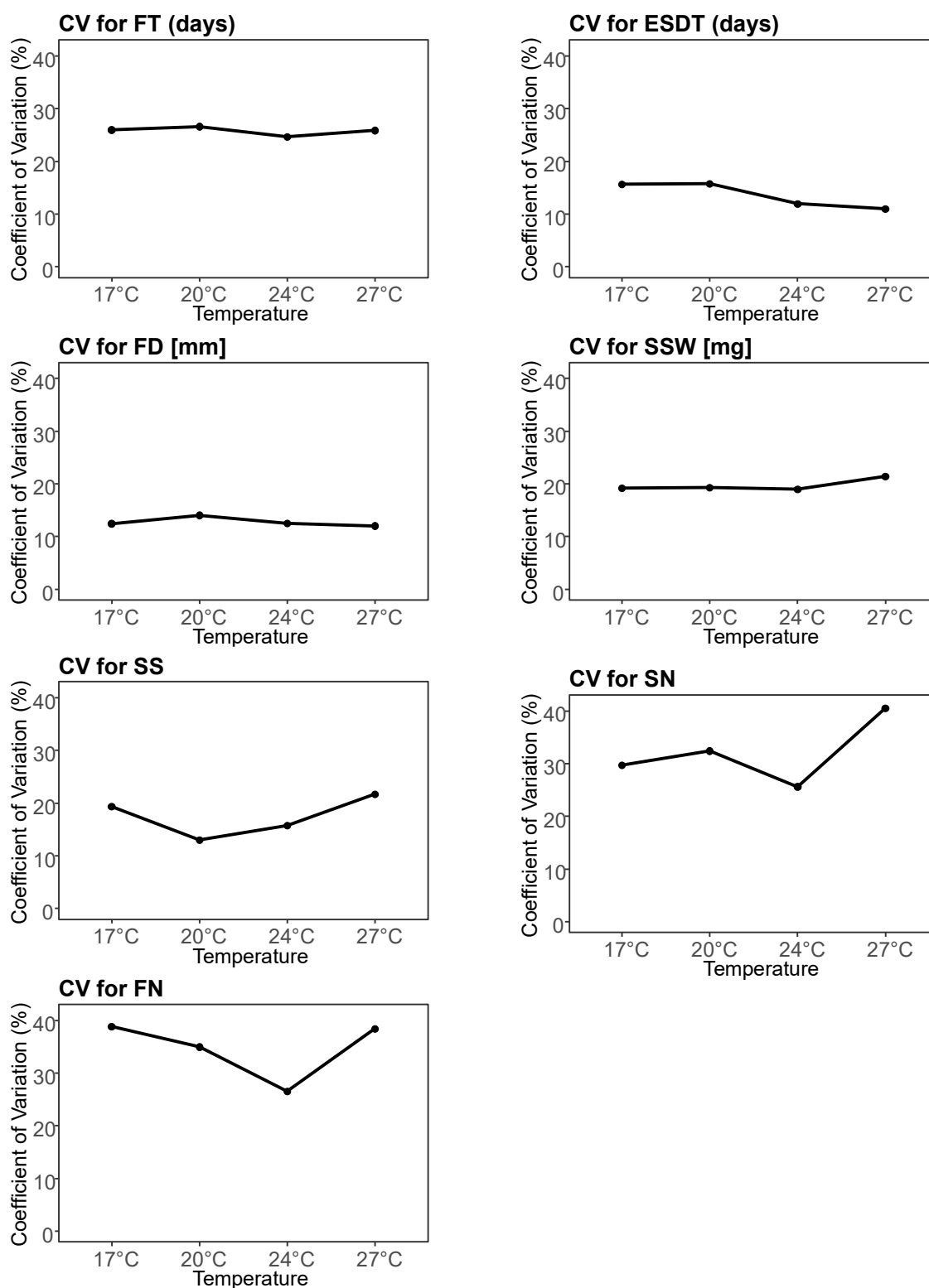
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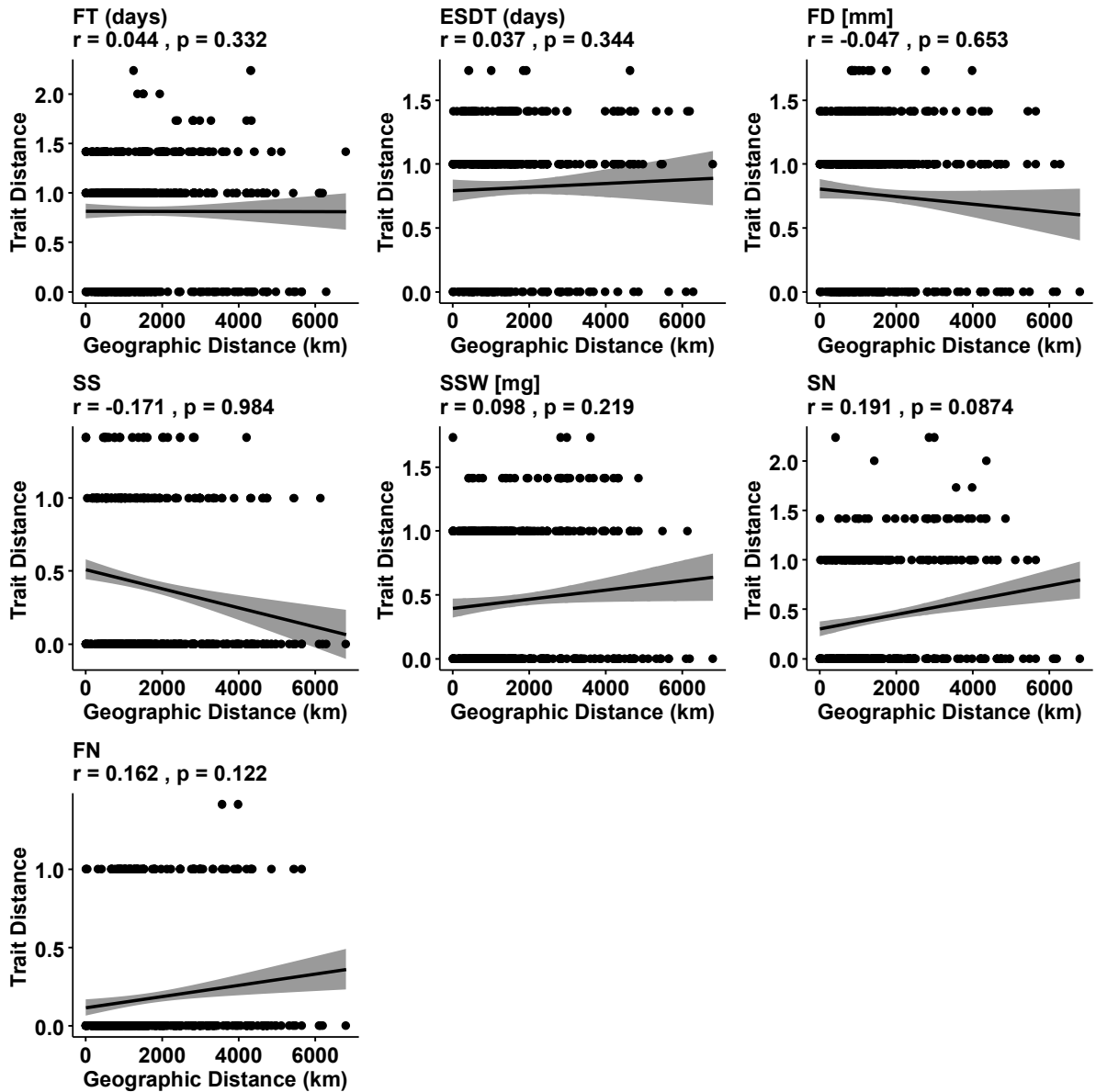
File includes:

Supplementary Figures 1-7

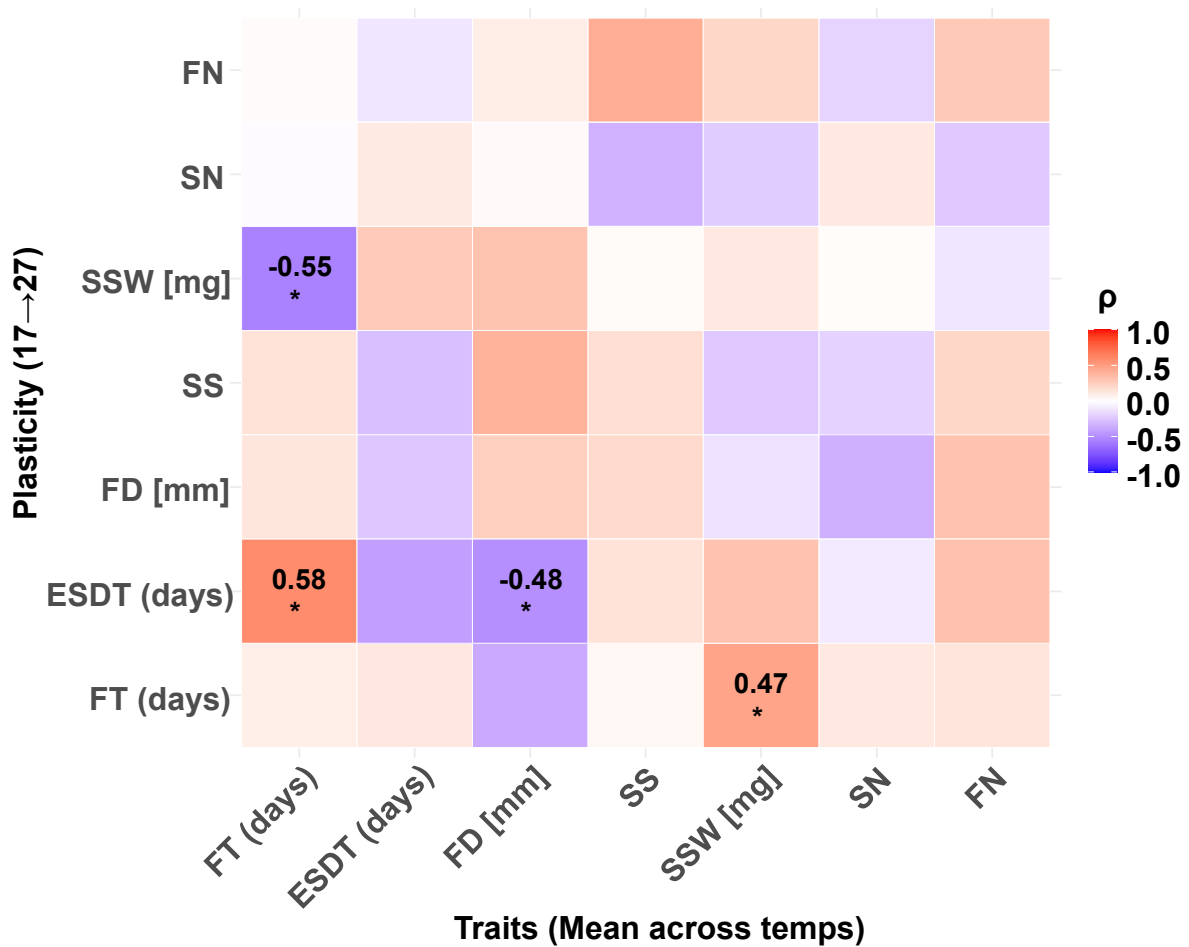


Supplementary figure 1. Trait variation across 34 accessions at each of the temperatures.

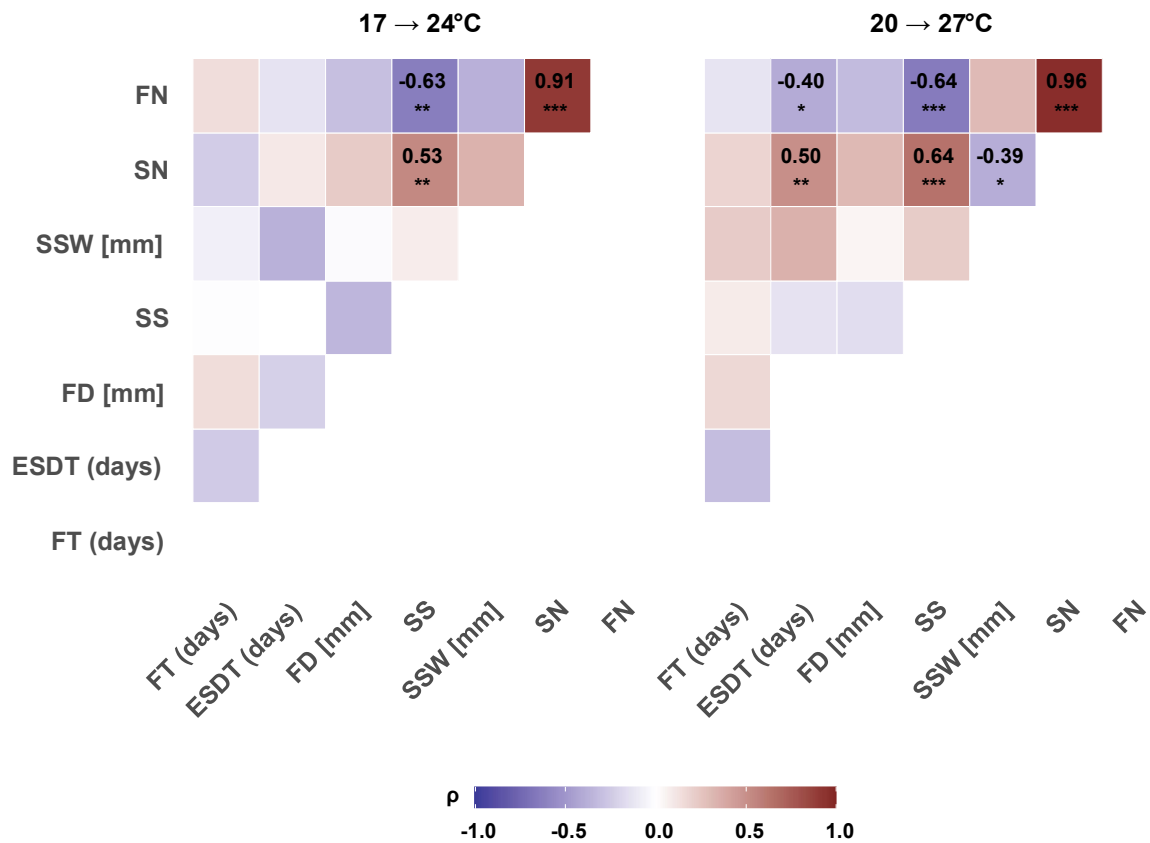
Graphs showing the coefficient of variation (CV) calculated across the average trait values of the accessions per trait for each temperature. Flowering time (FT; days), early seed developmental time (ESDT; days), flower diameter (FD; mm), seeds per silique (SS), single seed weight (SSW; mg), seed number (SN) and flower number (FN)



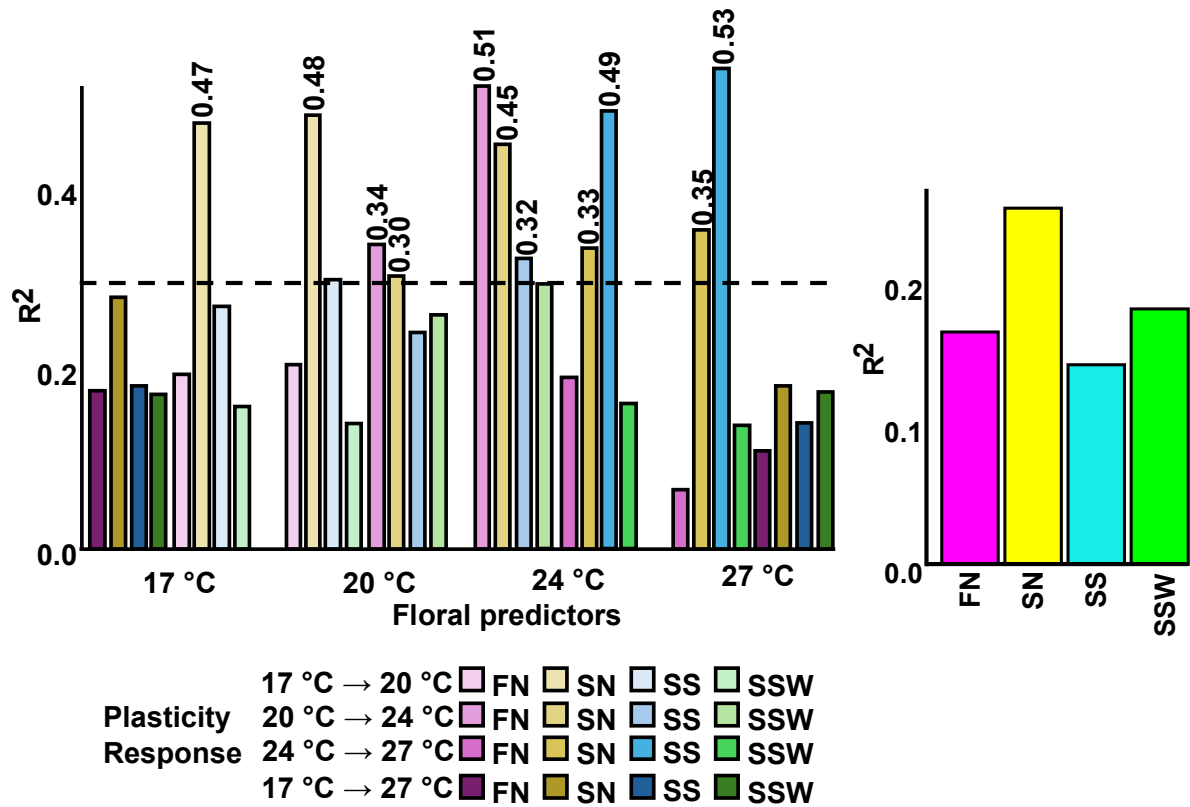
Supplementary figure 2. Correlations between geographic and trait distances. Graphs showing distance correlations, distance between reaction norms calculated as Euclidean distances from our custom matrix and geographic distance calculated as haversine distance between accession origin coordinates. Flowering time (FT; days), early seed developmental time (ESDT; days), flower diameter (FD; mm), seeds per silique (SS), single seed weight (SSW; mg), seed number (SN) and flower number (FN)



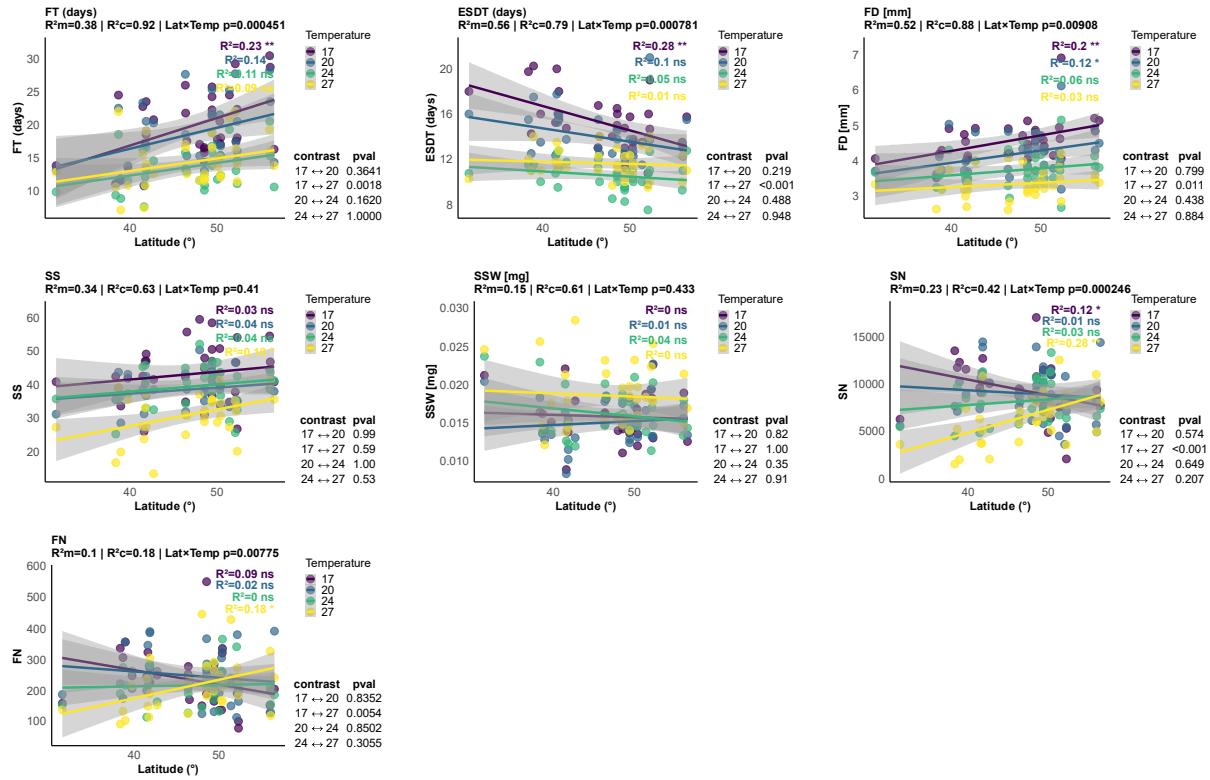
Supplementary figure 3. Correlation matrix for the traits and overall plasticity. Partial correlations of traits (averaged across all four temperatures) and overall plasticity (17 → 27). Correlations were adjusted for all remaining traits other than the ones compared, (* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$, permutations = 10000, adjusted with Benjamini Hochberg). Flowering time (FT; days), early seed developmental time (ESDT; days), flower diameter (FD; mm), seeds per silique (SS), single seed weight (SSW; mg), seed number (SN) and flower number (FN)



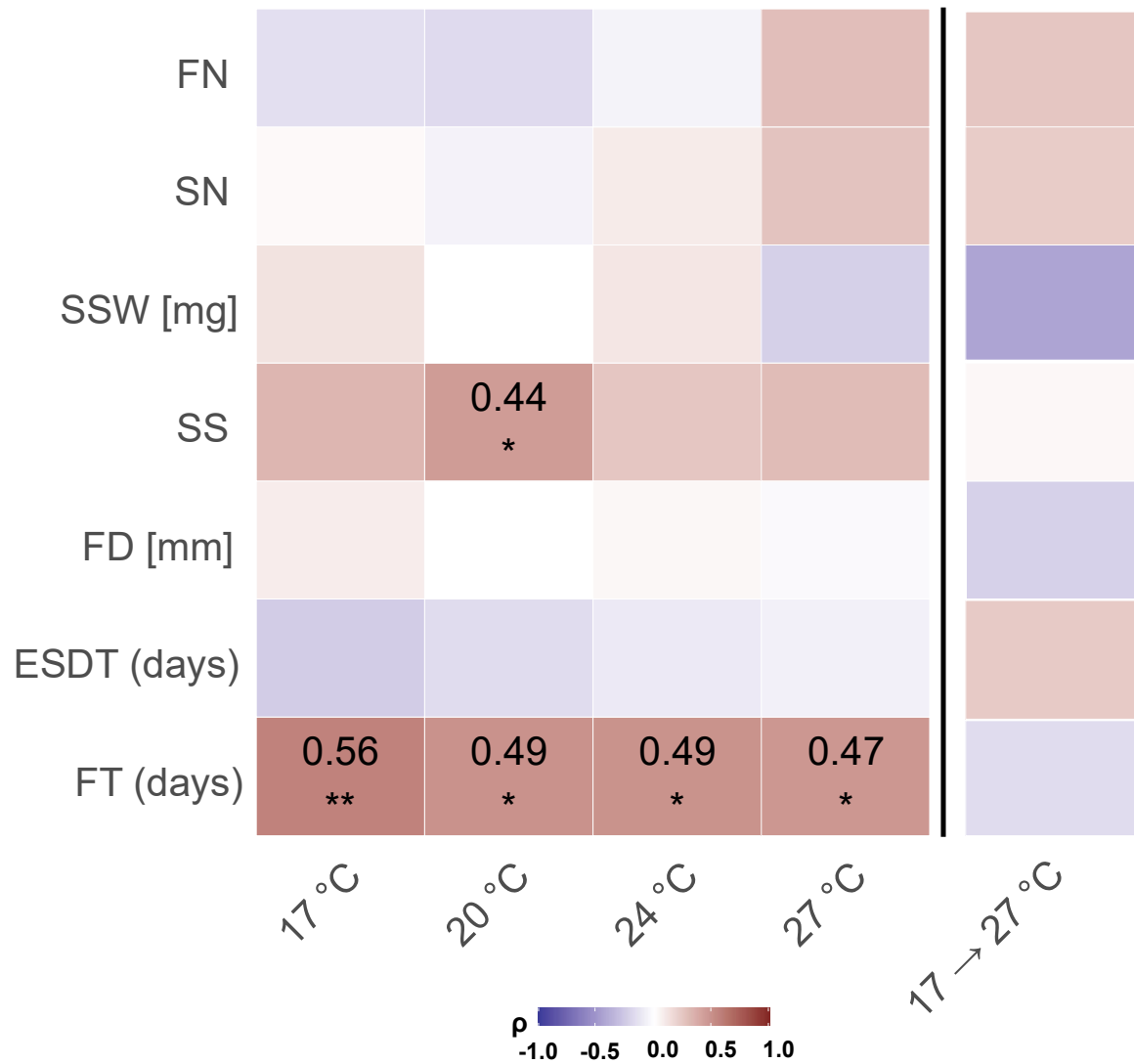
Supplementary figure 4. Correlation matrix for the non-consecutive plasticities. Partial correlations of plasticities of the two non-consecutive temperature changes. Correlations were adjusted for all remaining traits other than the ones compared, (* $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$, permutations = 10000, adjusted with Benjamini Hochberg). Flowering time (FT; days), early seed developmental time (ESDT; days), flower diameter (FD; mm), seeds per silique (SS), single seed weight (SSW; mg), seed number (SN) and flower number (FN)



Supplementary figure 5. The dependence of floral and fitness traits. Linear Mixed model showing predictive power of all floral traits combined as one predictor at each temperature (left) and all floral traits combined across all temperatures as one predictor (right), for fitness trait plasticity. R² value specified above bars for predictions with $R^2 \geq 0.3$. Floral traits: Flowering time (FT; days), early seed developmental time (ESDT; days), flower diameter (FD; mm). Fitness traits: seeds per silique (SS), single seed weight (SSW; mg), seed number (SN) and flower number (FN)



Supplementary figure 6. The relationship between traits and latitude dependent on temperature. We used a linear mixed model ($\text{lmer}(\text{trait} \sim \text{Latitude} * \text{Temperature} + (1|\text{Accession}))$) to investigate the effect of temperature on trait latitude relationships. We then used $\text{r.squaredGLMM}()$ to extract marginal (R^2_{m}) and conditional (R^2_{c}) R values and $\text{anova}()$ was used to test the Latitude $\times$ Temperature interaction. To investigate at which temperature contrasts latitude trait relationships differed we did pairwise comparisons using $\text{emtrends}()$. For visualisation we fitted separate linear models for trait latitude relationship at each temperature (colored R^2 reports the predictive power with asterisks indicating p values: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$). Flowering time (FT; days), early seed developmental time (ESDT; days), flower diameter (FD; mm), seeds per silique (SS), single seed weight (SSW; mg), seed number (SN) and flower number (FN).



Supplementary figure 7. The relationship between traits and longitude in the context of temperature. Spearman correlation of traits and longitude at the four temperatures and overall plasticity. p values calculated by permutation ($n = 10000$, BH adjusted). Flowering time (FT; days), early seed developmental time (ESDT; days), flower diameter (FD; mm), seeds per silique (SS), single seed weight (SSW; mg), seed number (SN) and flower number (FN).