Description of Calibration and Validation Statistics reported on TreeFlow reconstruction pages

Statistic	Calibration	Validation
Explained variance (R2)	0.58	
Reduction of Error (RE)		0.51
Standard Error of the Estimate	14,232 AF	
Root Mean Square Error (RMSE)		15,396 AF

The **Calibration Statistics** include the Explained Variance (R^2) and the Standard Error of the Estimate (SEE).

> **Explained Variance (R^2)**: A measure of the proportion of total variation about the mean in the predictand (observed flow or climate record) that is explained by the tree-ring regression model.

> **Standard Error of the Estimate (SEE)**: The square root of the mean square of the calibration errors (observed flow minus estimated flow). In other words SEE is a measure of the spread of the calibration errors, and is indicative of the typical size of error in the units of the predicted variable.

The **Validation Statistics** include the Reduction of Error (RE) and the Root Mean Square Error (RMSE).

> **Reduction of error (RE)**: A measure of the skill of the reconstruction model, or the ability of the model to predict observations of the predictand (precipitation or streamflow) not used in calibration of the model. RE measures skill relative to a "no knowledge" reconstruction consisting of the calibration-period mean of the observed predictand substituted as the reconstruction in each year (a constant reconstruction). RE is as the validation equivalent of the explained variance of calibration (R^2). A model with RE>0 is considered to have "some" skill, while a model with RE nearly as high as R^2 is considered to be strongly validated.

> **Root Mean Square Error (RMSE)**: A measure of the spread of the validation errors (observed flow minus estimated flow). RMSE is the validation equivalent of the calibration statistic SEE. RMSE is always greater than SEE, but for a robust model, RMSE should be similar in magnitude to SEE. This indicates that the typical error of validation is not much larger than the typical error of calibration.