Forecast Explanation: pueblo_reservoir_inflow 2023-05-15

The model estimates the following range for naturalized seasonal volume (KAF) of pueblo_reservoir_inflow on 2023-05-15, {10th quantile: 187, median: 253, 90th quantile: 359} (Fig 1). The prediction is similar to historical values for the median and the upper and lower bounds moved towards the median in recent weeks (Fig 2, Fig 5-9). The predictions for each month within the streamflow season are slightly below historical values, as is the observed monthly volume for April (Fig 4). The biggest driver for the change in the current prediction is an increase in the accumulated water estimate (UASWANN), increasing 0.9 std from the previous (Fig 5). The fact that all observed values of the major features are within 0.5 std of the historical average supports a prediction of streamflow volume close to the historical median. (Fig 2,3&6).

Fig 1: Quantile Model Ensemble

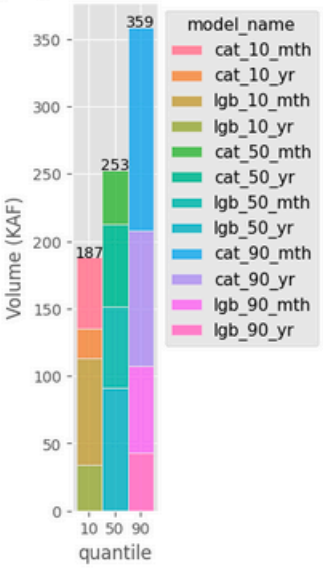

Fig 2: Predicted Volume Quantiles vs Historical Quantiles by Issue Date

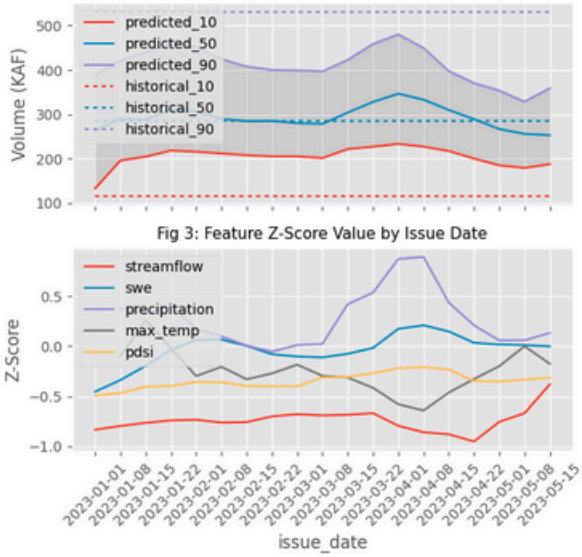

Fig 3: Feature Z-Score Value by Issue Date

Fig 4: Monthly Predicted Quantiles vs. Historical

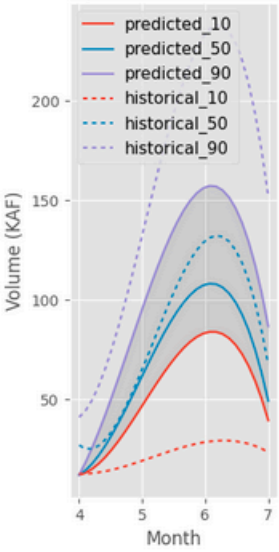

Fig 5: Z-Score Change from Previous Issue Date

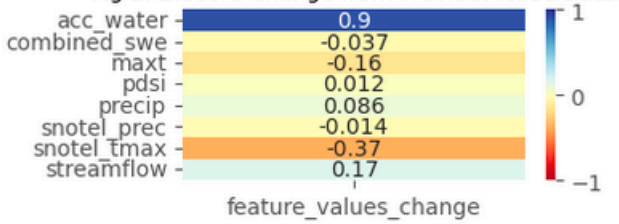

Fig 6: Z-Score Value on Issue Date

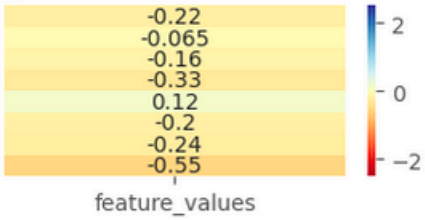

Fig 7: Changes from Previous Issue Date - Monthly Model Ensemble - 10th Quantile

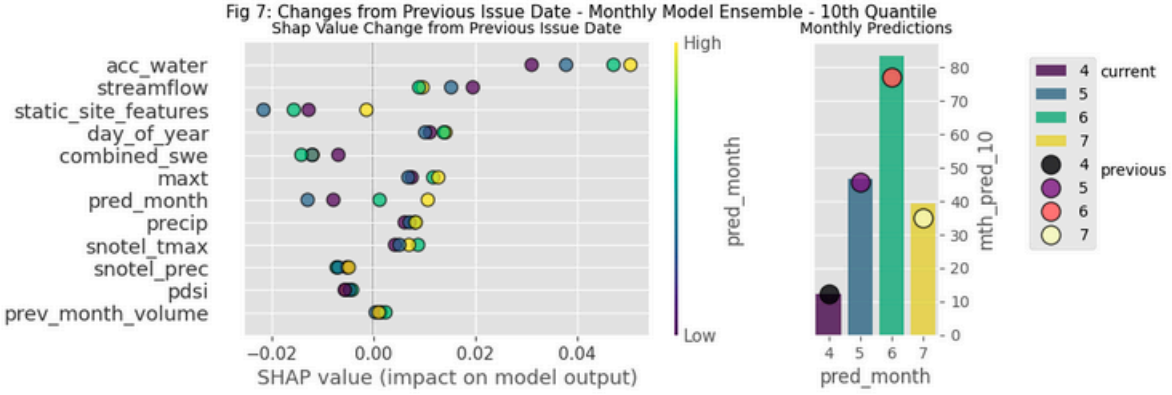

Fig 8: Changes from Previous Issue Date - Monthly Model Ensemble - 50th Quantile

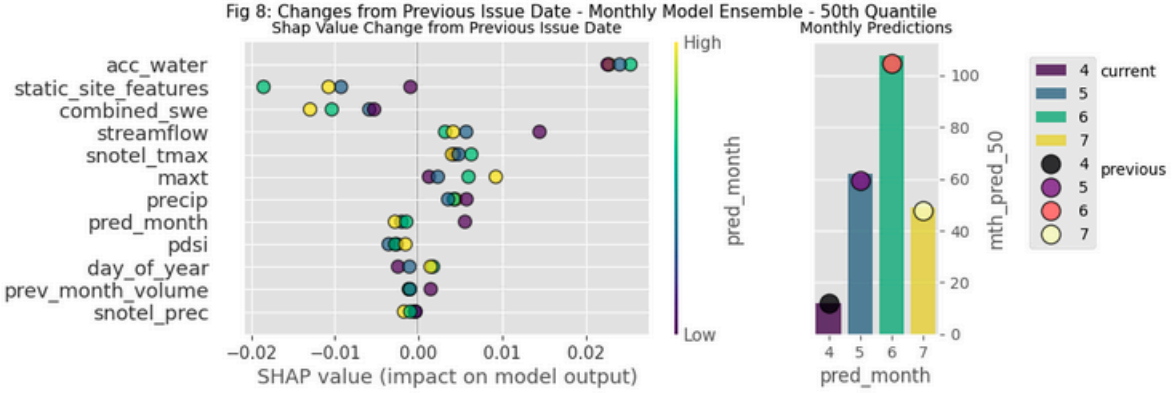

Fig 9: Changes from Previous Issue Date - Monthly Model Ensemble - 90th Quantile

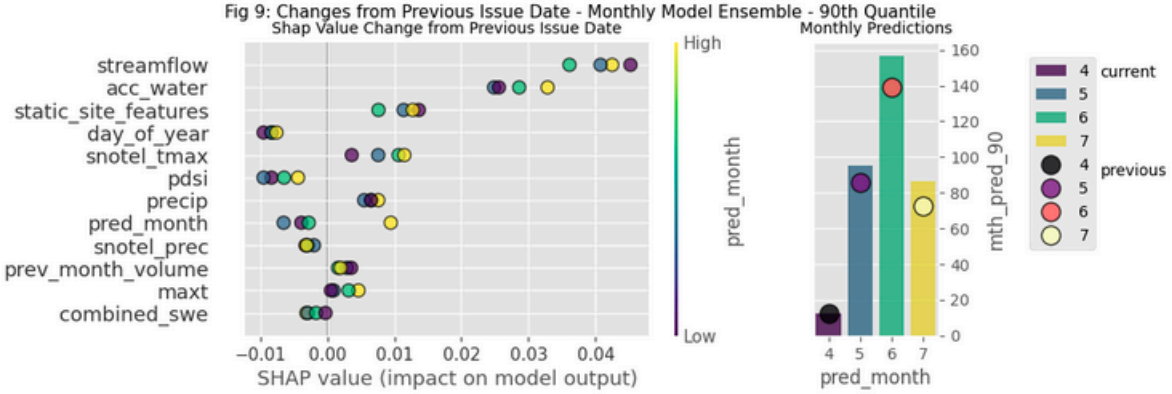

Fig 10: Yearly Model Shap Values - 10th Quantile (log Volume KAF)

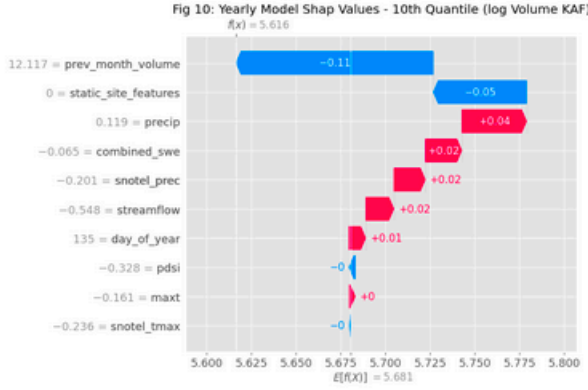

Fig 11: Yearly Model Shap Values - 50th Quantile (log Volume KAF)

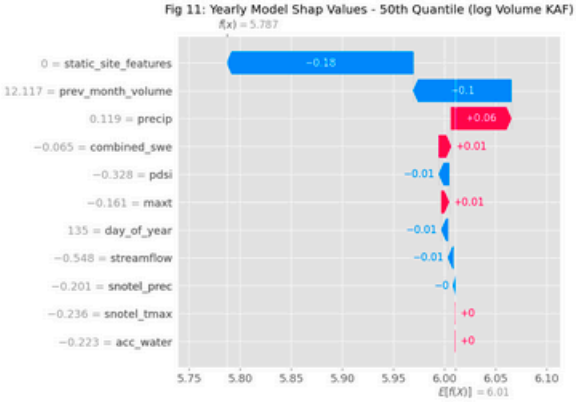

Fig 12: Yearly Model Shap Values - 90th Quantile (log Volume KAF)

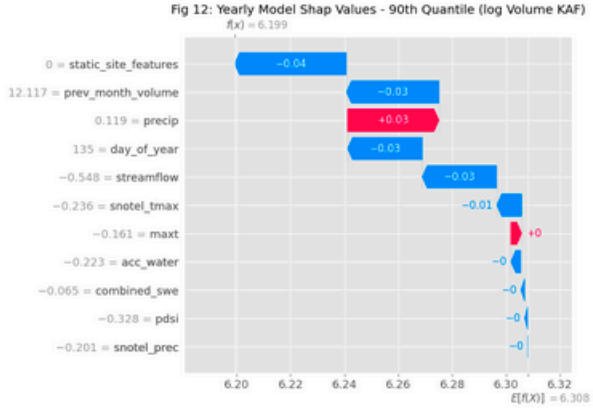

Fig 13: Snotel SWE Deviation (Correlated Stations) on 2023-05-15