*Water Resources Research*

Supporting Information for

**Regional Base-Flow Index in Arid Landscapes Using Machine Learning and Instrumented Records**

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Figures S1 to S3

**Additional Supporting Information (Files uploaded separately)**

1. Full dataset of USGS streamgages used in analyses for this manuscript. Contains spatial information for each gage and list of years used in this analysis.

**Introduction**

This supporting information contains descriptive datasets, expanded tables referenced in the manuscript, and additional figures to illustrate model performance on subsets of data.

A graph with red and blue squares

AI-generated content may be incorrect.Figure S1. Histogram of BFI trends grouped by long-term instrumented BFI. Significant trends (>0.05) are indicated with bolded borders. More significant negative trends are apparent in low-BFI gauges. Significant positive trends are equally distributed among BFIs.

A graph with red and blue dots

Description automatically generatedFigure S2. Quadrant plot of Kendall's Tau trends in base flow vs. BFI. Significant trends in base flow and BFI indicate that variations in base flow volumes are coincident with trends in BFI. This indicates that trends in BFI typically follow trends in groundwater discharge (base flow) and that trends in BFI aren't typically due to an overall decrease/increase in streamflow. One site (USGS 9471000) indicates a decrease in base flow volumes and an increase in BFI, suggesting that decreases in surface water inputs is of a greater magnitude than the increase of base flow.

A graph with a line and dots

AI-generated content may be incorrect.Figure S3. Plot of residuals of predicted BFI vs. observed BFI.