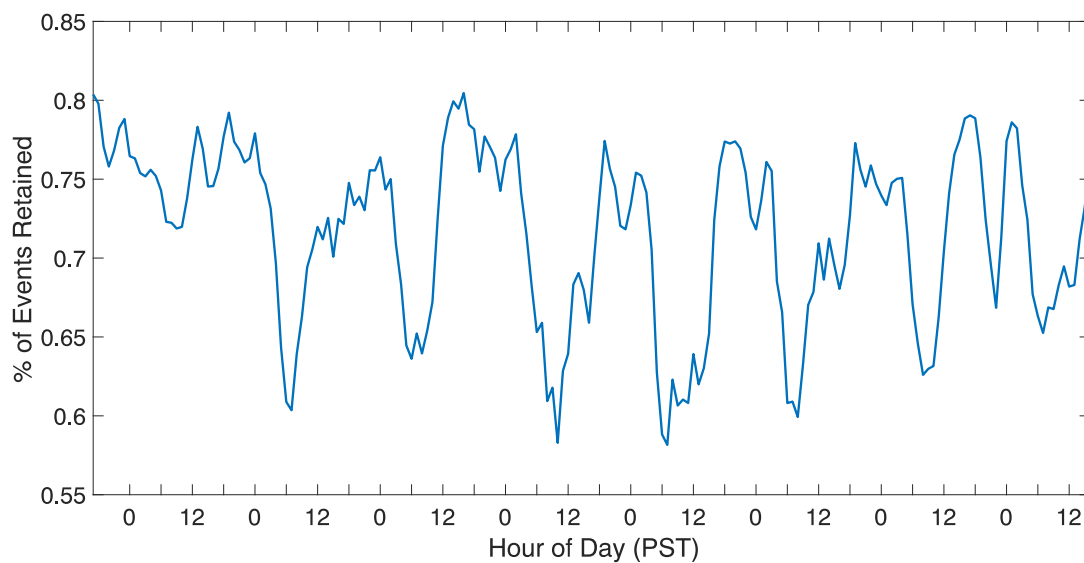
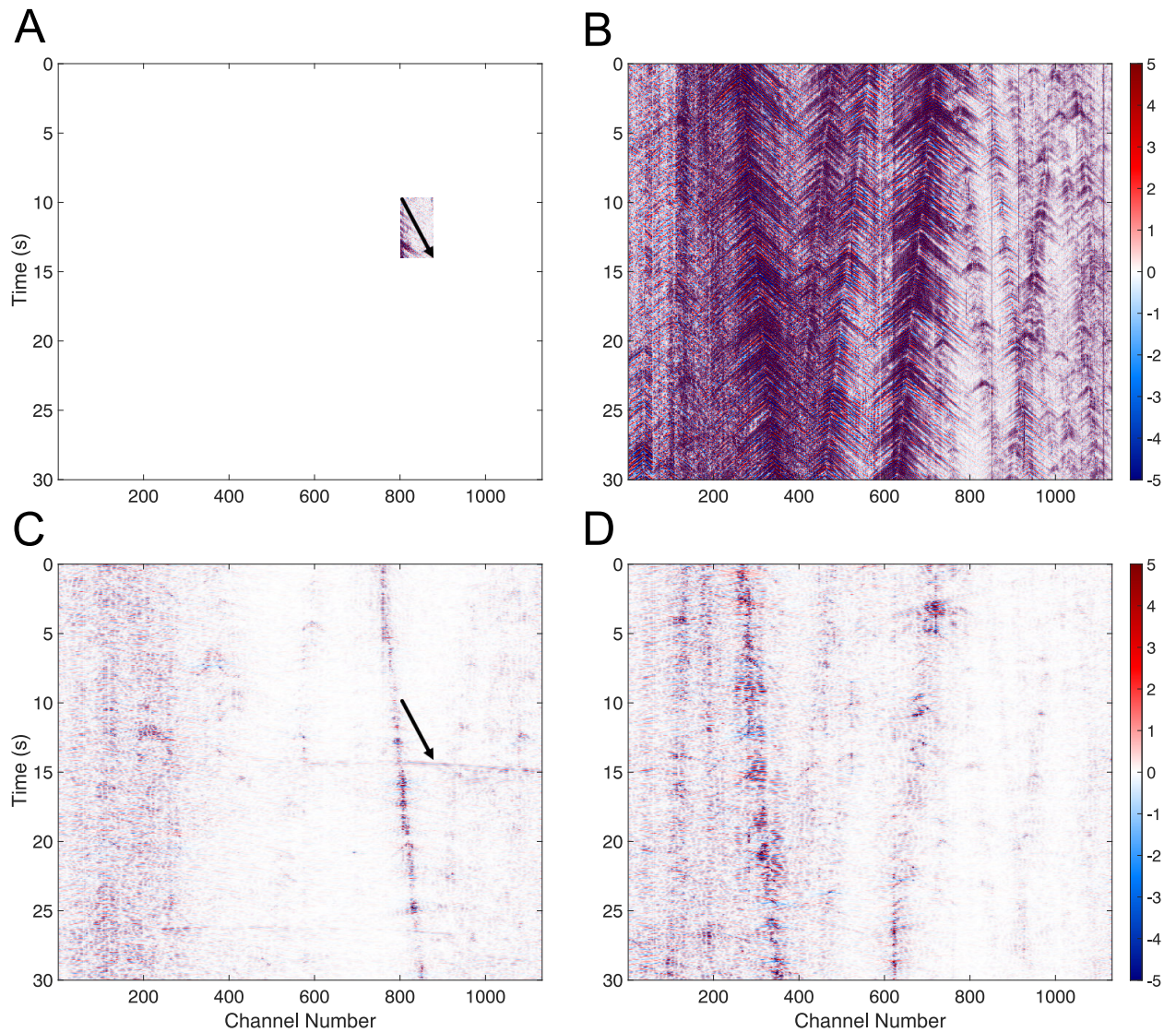


**Figure S1.** Hourly (PST) event counts of the catalogs created using template matching. A 3-hour moving average filter was applied to each of the time series. The yellow line shows the hourly counts for the catalog of templates made using the SCSN catalog. The red line shows the hourly counts for the catalog created using the unfiltered data. The green line shows the hourly counts for the catalog created using data filtered using only the coherent noise filter. The purple line shows the hourly counts for the catalog created using data filtered using only the stochastic noise filter. The blue line shows the hourly counts for the catalog created using data filtered with both the coherent noise and stochastic noise filters.



**Figure S2.** Hourly (PST) measure of the percentage of events from the catalog produced using unfiltered data retained in the catalog produced using data filtered for both stochastic and coherent noise. Events are considered retained if there exists a corresponding event in the catalog produced using filtered data that has an origin time within 2.5 seconds of the event. A 3-hour moving average filter was applied to this time series.



**Figure S3.** Example of a detection made in the original catalog but not made in the new catalog. A. Template event taken from the unfiltered data. B. Wavefield of the detection made using the template in A. C. Same template as in A but taken from the filtered data. D. Same wavefield as in B but taken from the filtered data. Black arrows point to the earthquake-generated body waves of the template event.