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Measuring Impacts of Glitch Removal on Gravitational Wave Parameter Estimation[1] LILAH MERCADANTE, Smith College, JONAH KANNER , ALAN WEINSTEIN , LIGO, LIGO SCIENTIFIC COLLABORATION — No scientific endeavor ever runs flawlessly. There are always malfunctions and interference that cause the data to be less than perfect. In the case of gravitational wave data, one of the defects often found in the signals are noise transients, called glitches. These glitches are often difficult to model due to their non-Gaussian nature. It is not currently routine practice to remove them, although sometimes glitch subtraction must be done when the glitch strongly interferes with the signal. Each glitch is unique. The process of glitch subtraction is time consuming and has not yet been tested and documented in a systematic way. We hope to add to the documentation on the effects of glitch removal on parameter estimation by running parameter estimation on a data set of simulated signals with glitches injected at varying distances from the signal. We will then remove the glitch from the data and run parameter estimation on the clean waveform. This will allow us to study how the distance between the glitch and the signal plays a role in the accuracy of the parameter estimation. While we discovered that the presence of the glitch has a recognizable effect on recovering the parameters, we have yet to draw conclusions on how the distance of the glitch affects these results.

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