Minute Progress Update

## LIGO SURF 2020
July 15, 2020

Brina Martinez
University of Texas Rio Grande Valley
Mentor: Dr. Derek Davis
LIGO Laboratory, California Institute of Technology

Data Quality Flags over a Segment

- How long is our segment of time for this investigation?
  - In this investigation we are looking at data from 4/14/17-4/23/17
- Which flags are we looking at?
  - L1 CAT2 Vetoes
    - Flags with physical coupling
  - 4 different flags
    - L1:DCH-EY_MIC_BLRMS_GT_200:1
    - L1:DCH-CS_MIC_BLRMS_GT_250:1
    - L1:DCH-ETMY_SCATTERING_GT_25HZ:1
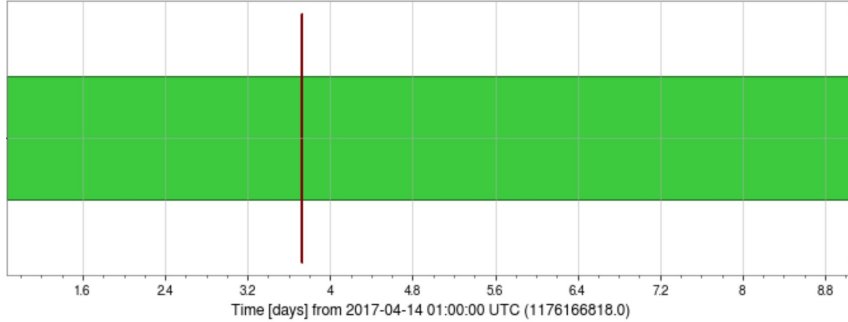   - L1:DCH-GATES_GT_3SEC:1
- How do they compare?
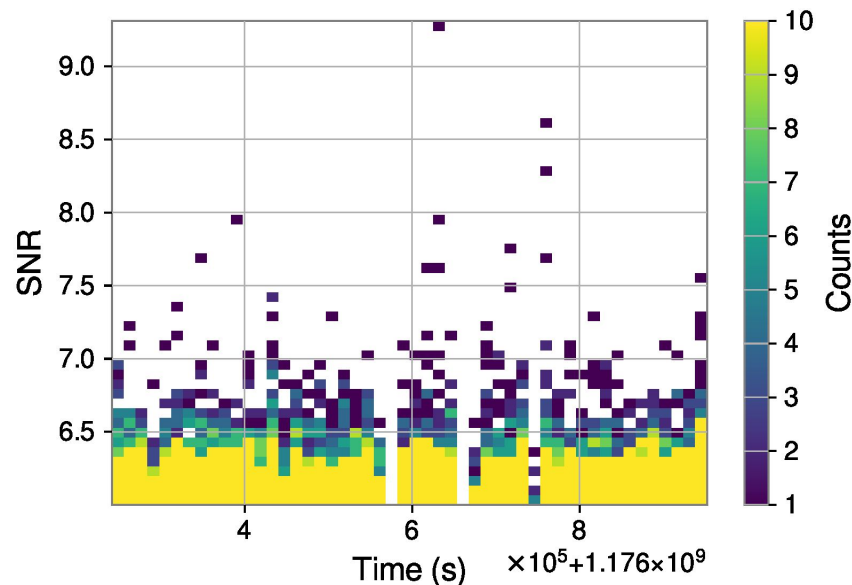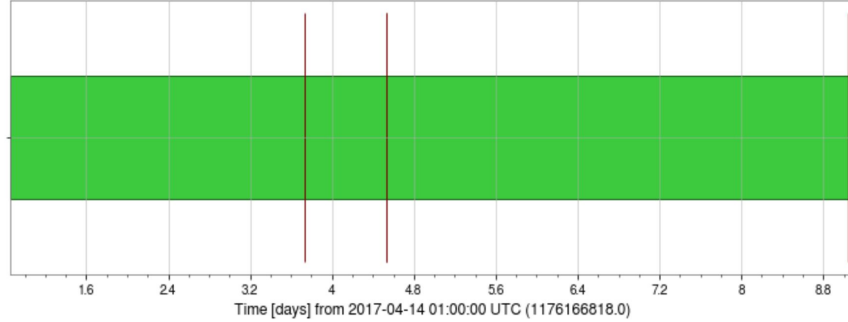
L1:DCH-EY_MIC_BLRMS_GT_200:1
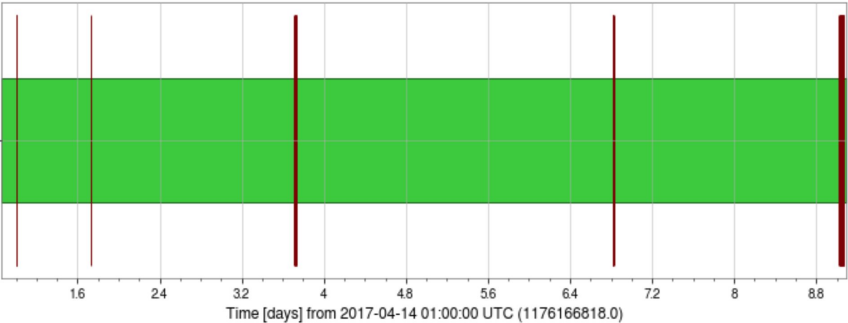
L1:DCH-ETMY_SCATTERING_GT_25HZ:1
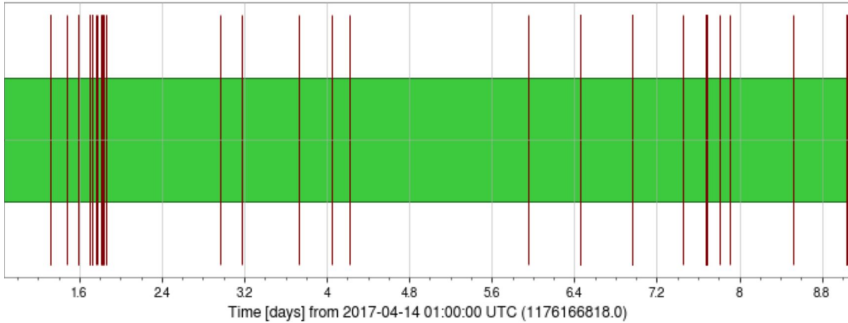
L1:DCH-CS_MIC_BLRMS_GT_250:1

L1:DCH-GATES_GT_3SEC:1

Time [days] from 2017-04-14 01:00:00 UTC (1176166818.0)

Results from flags

Total known time of data (no flags): 710972 (s)

Total number of triggers in data: 10621

Flag Name	Number of flagged triggers	Total flagged time (s)	Likelihood ratio
L1:DCH-EY_MIC_BLRMS_GT_200:1	20	211	6.34257285
L1:DCH-CS_MIC_BLRMS_GT_250:1	31	115	18.038379531
L1:DCH-ETMY_SCATTERING_GT_25HZ:1	21	558	2.518123667
L1:DCH-GATES_GT_3SEC:1	0	18	0

Next steps:
- Gather flag data from H1 detector over the course of the same segment dates
- Use calculated likelihood ratios to calculate a new snr and analyze how triggers are updated by the new ranking statistic
- Use calculations to plot old snr and new snr values to analyze how search has changed and how flags affect search

Thank you! Questions?