
Analysis of L1 WaveMon S2 veto triggers

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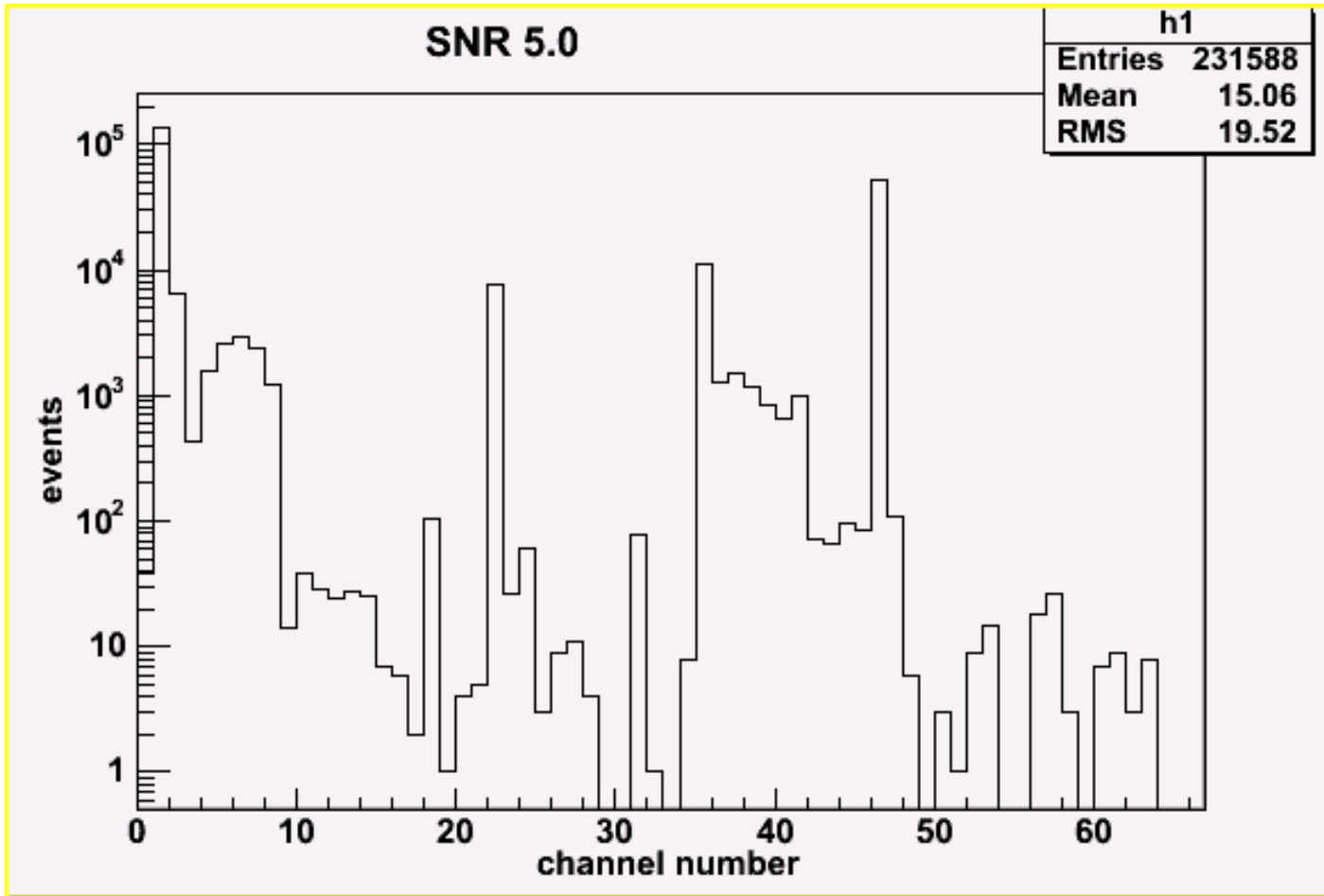
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Outline:

- » Introduction
- » Data processing status
- » Produced veto triggers
- » Veto of Waveburst triggers
- » Summary and plans

- WaveMon: Time frequency analysis in the wavelet domain
- www.phys.ufl.edu/LIGO/bursts for documentation
- Producing off-line veto triggers from 65 channels (control, ACC, MIC, MAG, V, RADIO, QPD, WFS, AS_DC, SEIS, OPLEV)

- Using LLO machine alvar (2 x 1 GHz PC)
- So far 50 % of L1 S2 locked segments (~two weeks)
- Should be finished before December
- Need more computing resources on site to run off-time DMT jobs!!!



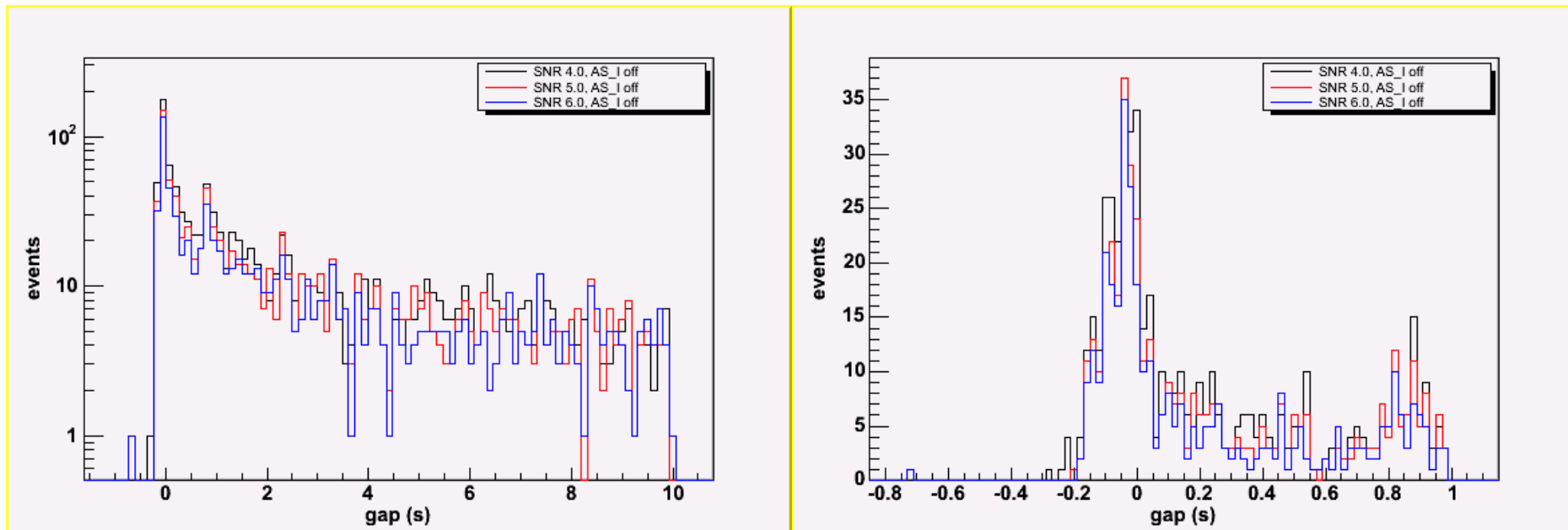
50 % of L1 S2 data:

SNR	Number of triggers	Dead time fraction (%)
4	145499 (432452)	0.9 (5.0)
5	97004 (231588)	0.6 (3.0)
6	68576 (118867)	0.5 (1.5)

(*): AS_I included

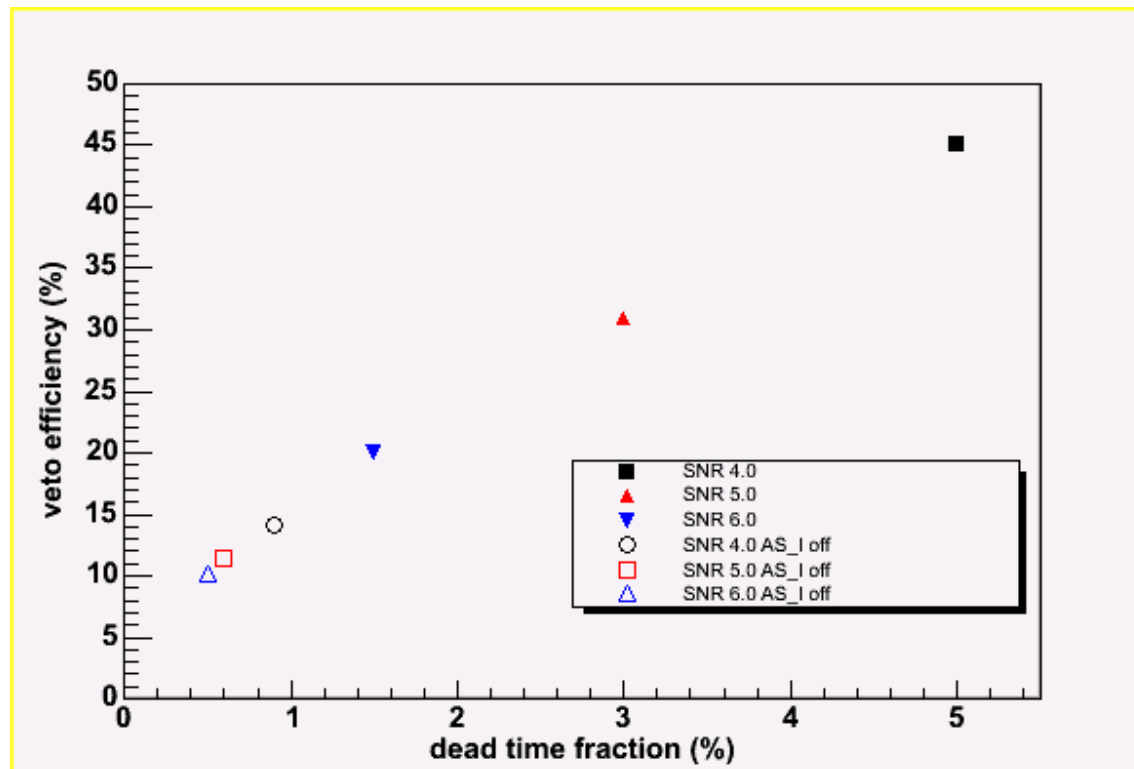
- Studying veto efficiency on triple coincidence off-time WaveBurst triggers
- L1 time shifted relative H1H2
- Gap: time between each WaveBurst trigger and the nearest in time existing WaveMon trigger
- Negative gap: Veto!

WaveBurst trigger to nearest WaveMon veto gap distribution:

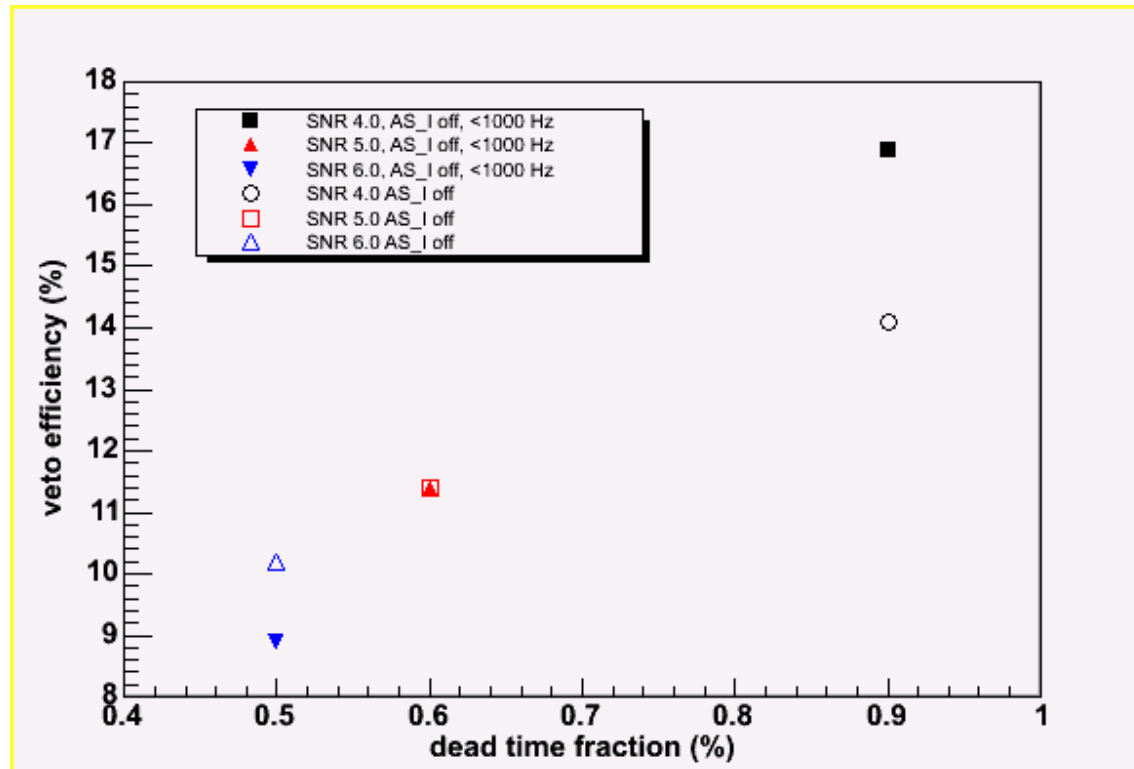


(all 65 channels except AS_I)

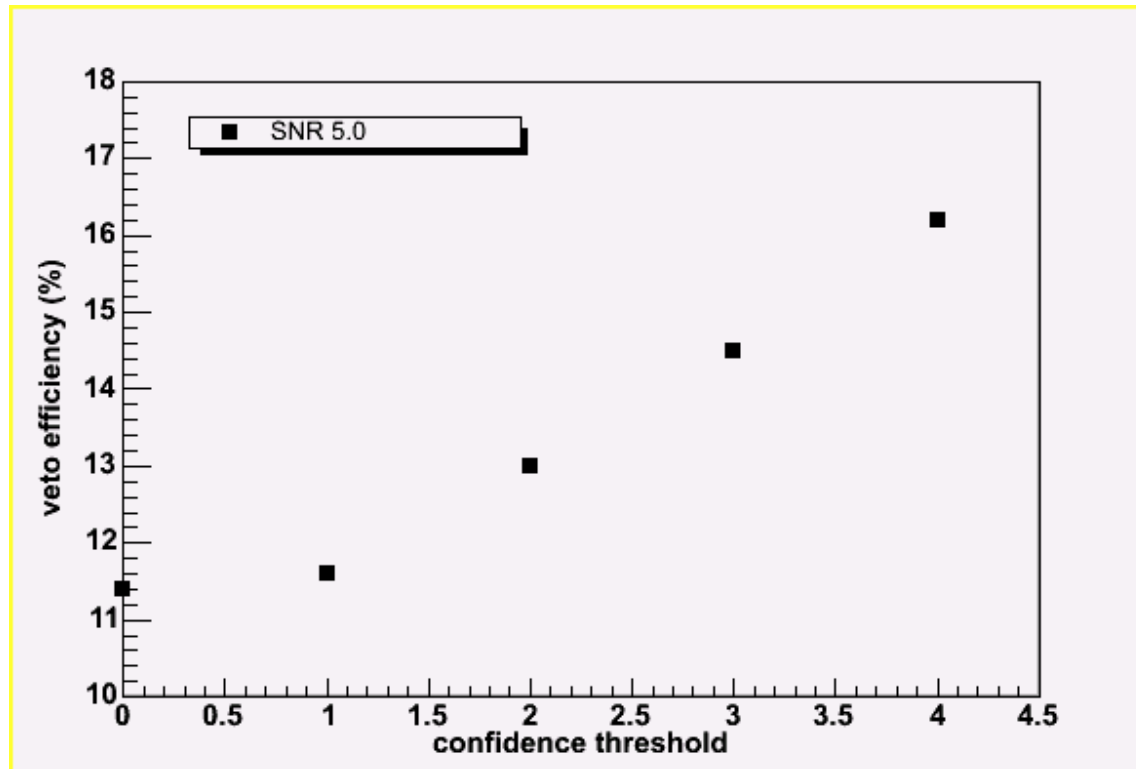
Veto efficiency vs. dead time fraction (with and without AS_I)



Frequency limit on WB triggers:

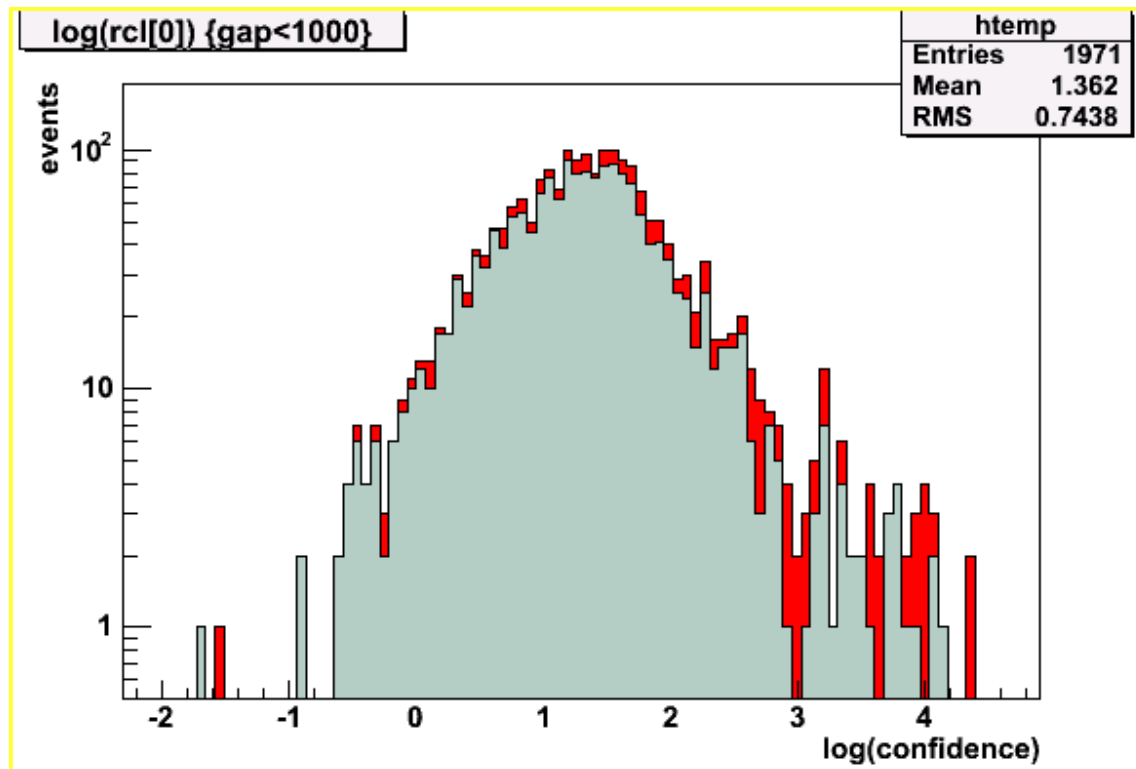


Confidence limit on WB triggers:



Triple coincident (3 IFOs) off-time WaveBurst triggers vetoed by L1 WaveMon triggers (50 % of S2, red all WB, blue vetoed WB):

Veto SNR 4.0,
 $\epsilon=14.1\%$



- Summary

- » Dead time fraction 0.5-1.0 % without AS_I
- » L1 veto efficiency 10-17 %

- Plans

- » Run WaveMon on H1, H2 data
- » Apply glitchMon data to WaveBurst triggers