S4 h(t) validation

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LIGO-G050440-00-Z

Definitions! and Brief Result....

Strain data was produced during S4(Xavi). The data was in REAL8 format.

It was highpassed at 40 Hz before being cast into REAL4 format.

In 15657 seconds

a(t) : DARM_ERR > 536 triggers

h(t) : Strain Data > 552 triggers

Frequency Comparison

a(t)

h(t)

This shows the distribution of the triggers from h(t) and a(t) data.

The triggers follow somewhat similar frequency distribution.

Confidence distribution

a(t)

h(t)

This is the confidence distribution.

Here also triggers from both the data sets follow somewhat same distribution at different |confidence|.

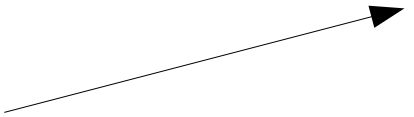
Non-coincident triggers ...

This shows the a(t) triggers which had no coincident triggers in h(t) data.

Note that all of them are low |confidence| triggers.

Frequency vs. Time

When looked at the frequency of the triggers as a function of the peak time we found instances when there were h(t) triggers[o] but no a(t) triggers[+]



(gps: 795356225)

Looking at the data.....

a(t)

AS_Q

h(t)

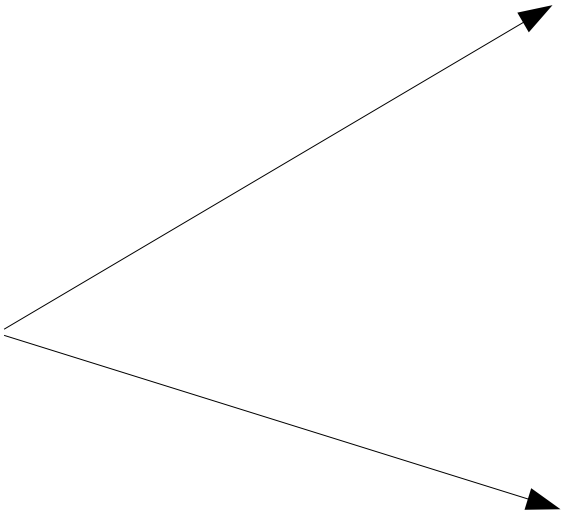
h(t)

Looking at the alpha-beta....

h(t)

We decided to look at the alpha ± beta factors since they have time-dependent values in the response function.

The strengthening of the feature in h(t) corresponds to a dip in alpha - beta.



with and without the factors....

h(t) with alpha(t)beta(t) = 1

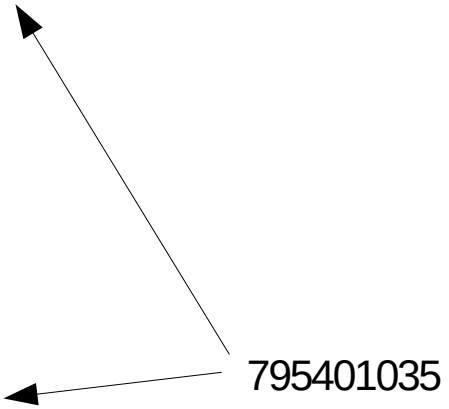
h(t) with time varying

alpha(t)beta(t).

Another instance...

a(t)

h(t)



Summary...

There are times when a weak feature in Darm_Err may appear to be stronger in strain data[h(t)].

This strengthening looks to be correlated with fluctuations in the alpha-beta factors.