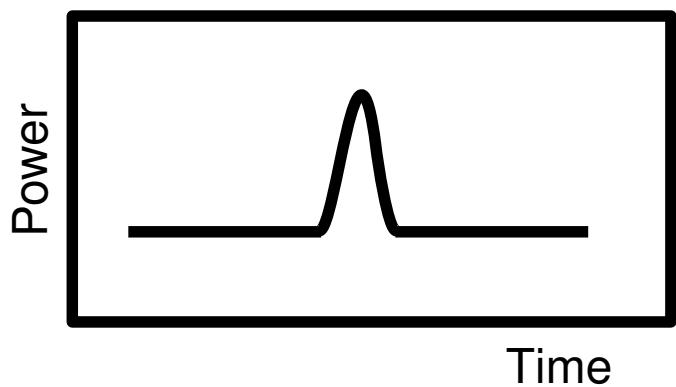


# **AMBER Data Filter**

## **Andres Romero-Wolf**

### **April 12, 2010**

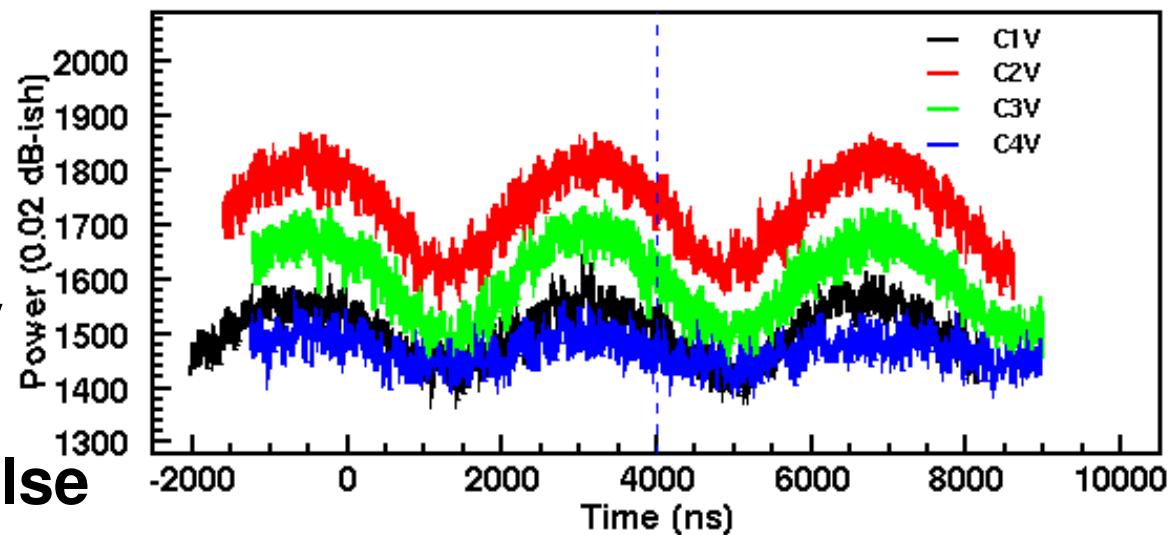
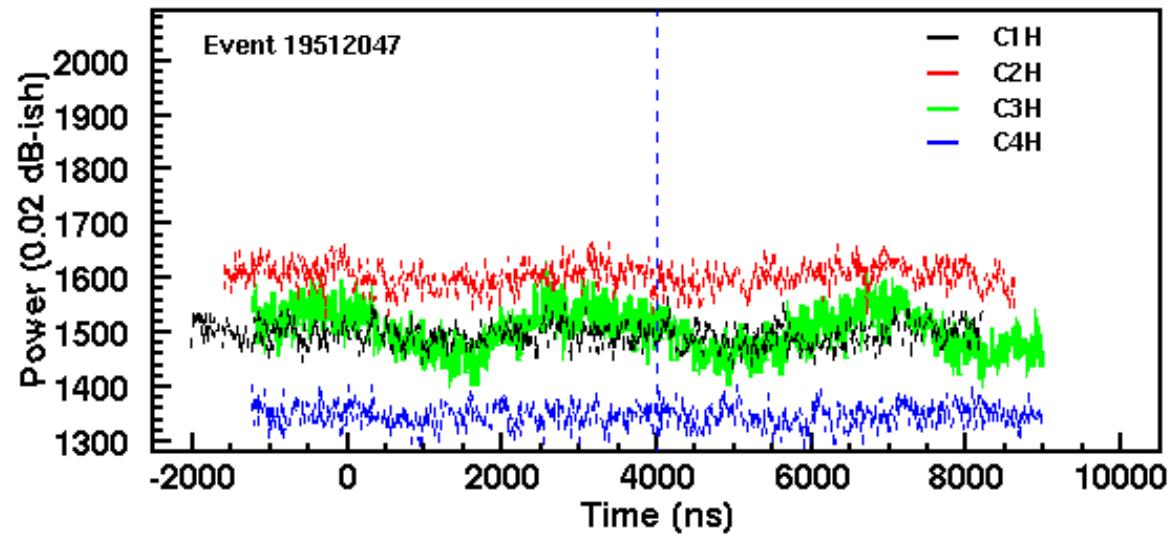
**Want to find something  
that looks like this**



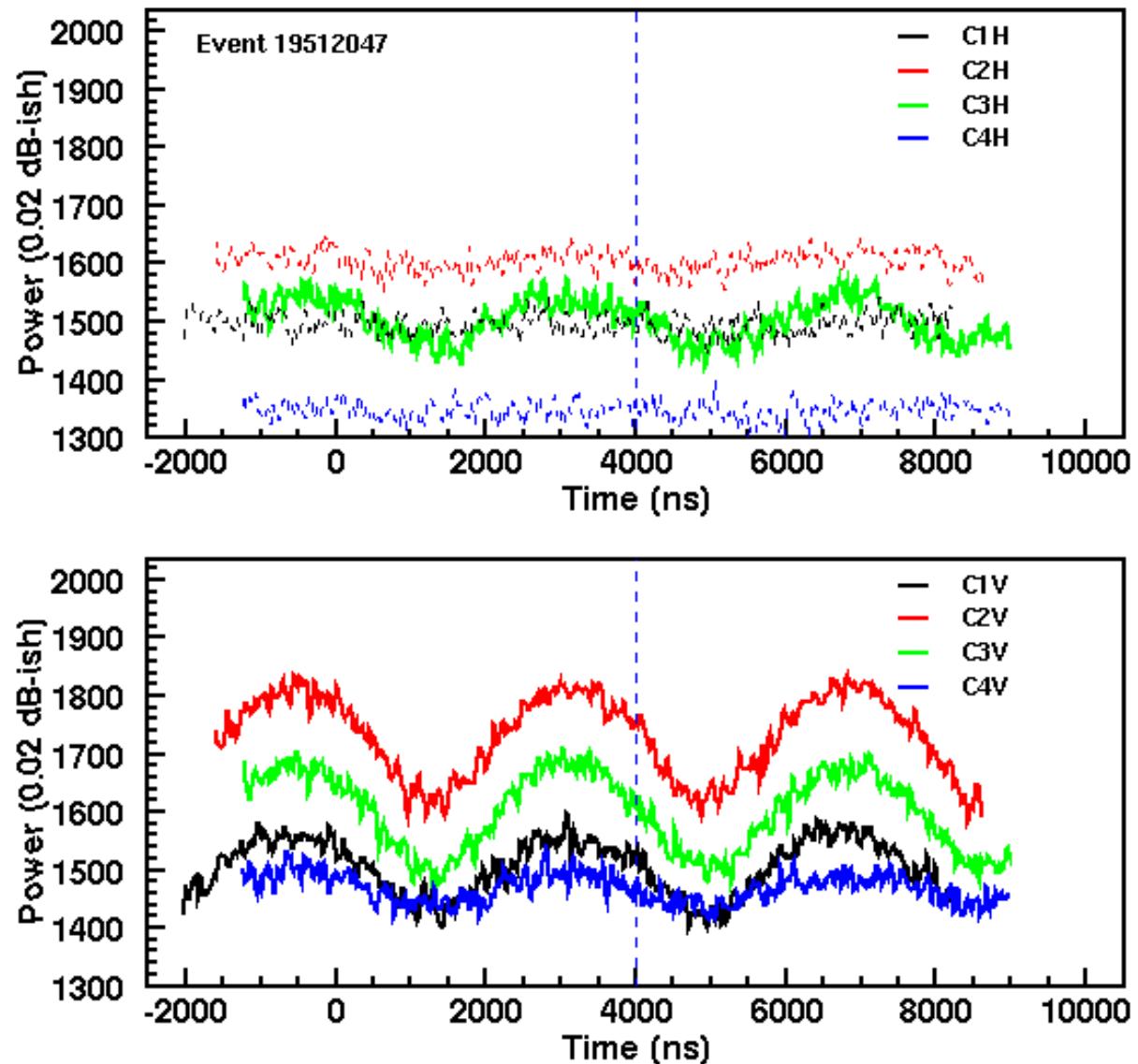
**In a data set with things  
that look like this**



**while allowing for a variety  
of pulse width and not  
too much restriction on pulse  
shape**



**Smooth the data  
Reduce the amount  
of jitter. Using ROOTs  
histogram smoothing  
function. May change  
it to a low pass filter.**



# Simple Cuts to Filter Out Uninteresting Data

3 triggers on the central C-bands.

**Flatness:** The first  $2\mu s$  and last  $2\mu s$  of the waveform be flat.

$$\text{Sum}(\log(\text{Power}) - \log(\text{MeanPower}))^2 < 450.$$

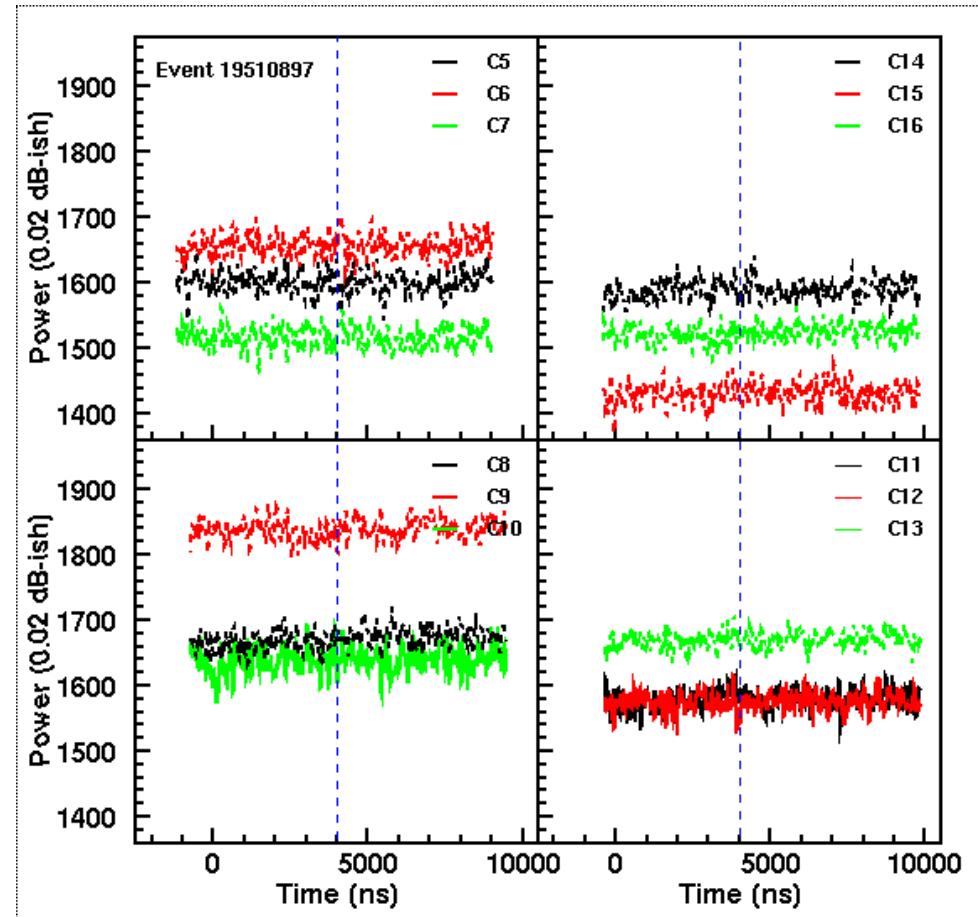
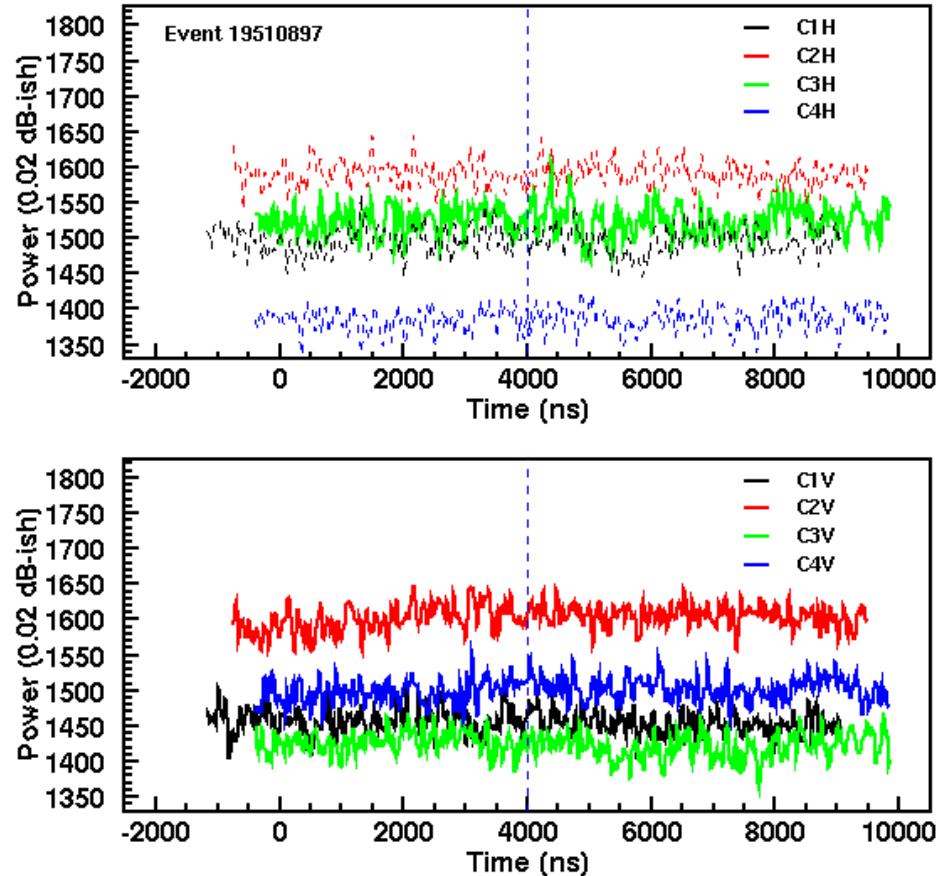
**Global Flatness:** The mean of first  $2\mu s$  and last  $2\mu s$  be roughly the same  
 $(\text{Mean\_first} - \text{Mean\_last}) / (\text{Mean\_first} + \text{Mean\_last}) < 0.06$

**Peak SNR:** Ratio of the peak power to the average power of the ends  
 $2 * \log(\text{PeakPower}) / (\log(\text{Mean\_first}) + \log(\text{Mean\_last})) > 1.05$

**Pulsiness:** A full width half max is obtainable for the trace.

**Test run 1674:** 1,912 events  
25 Survivors

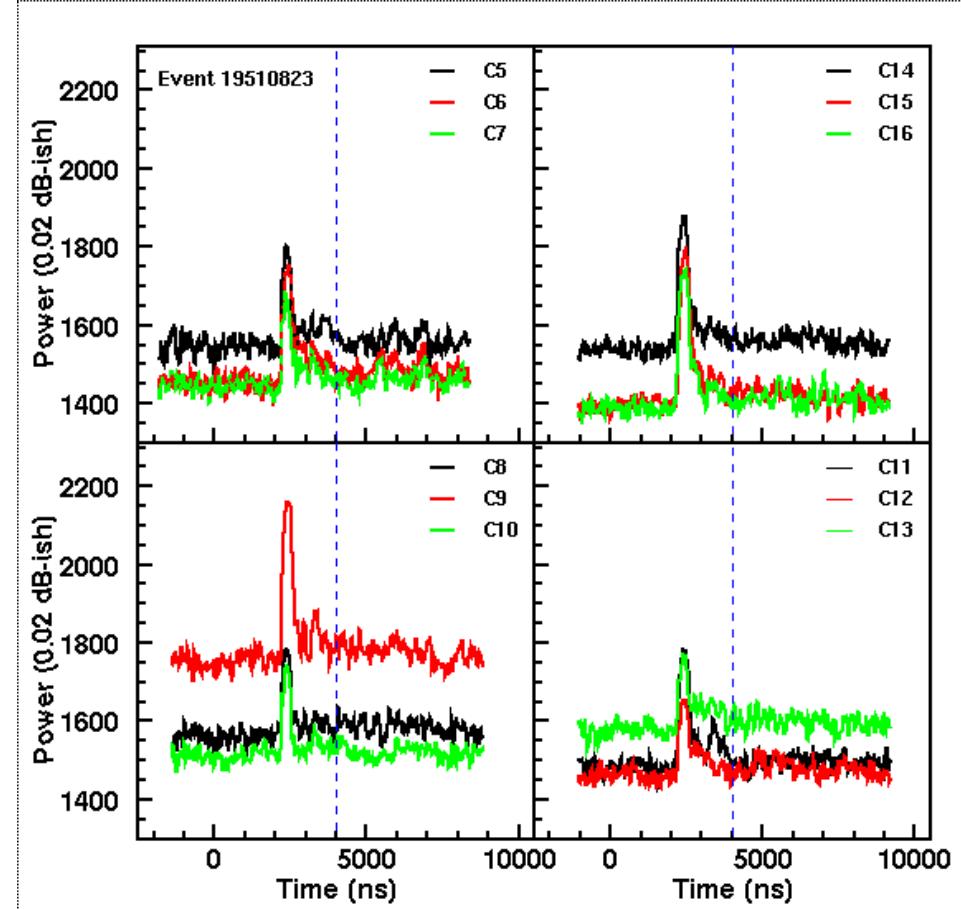
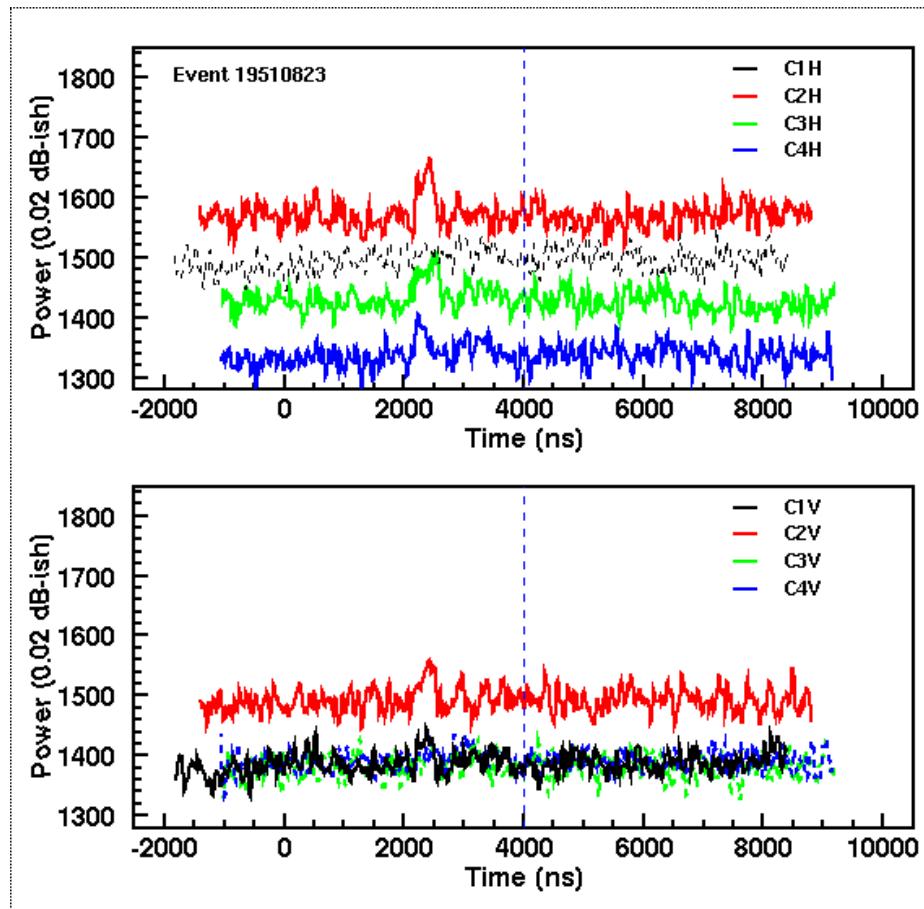
# Hash (2 of 25)



# Pulses (7 out of 25)

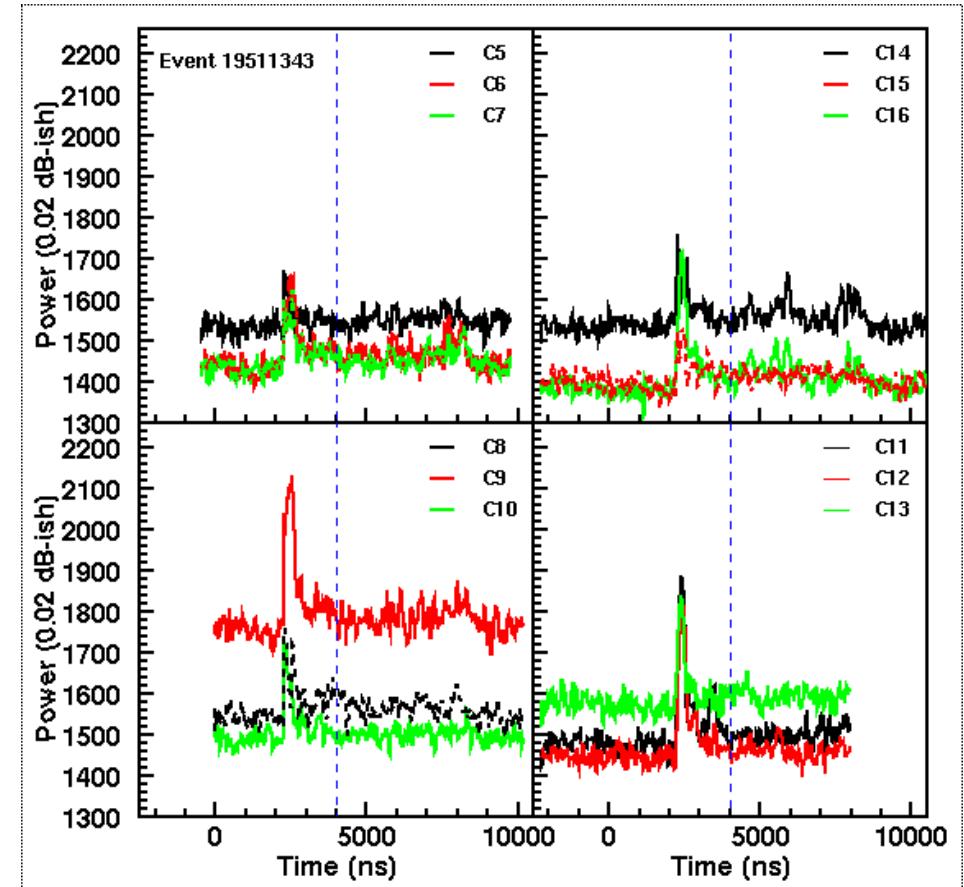
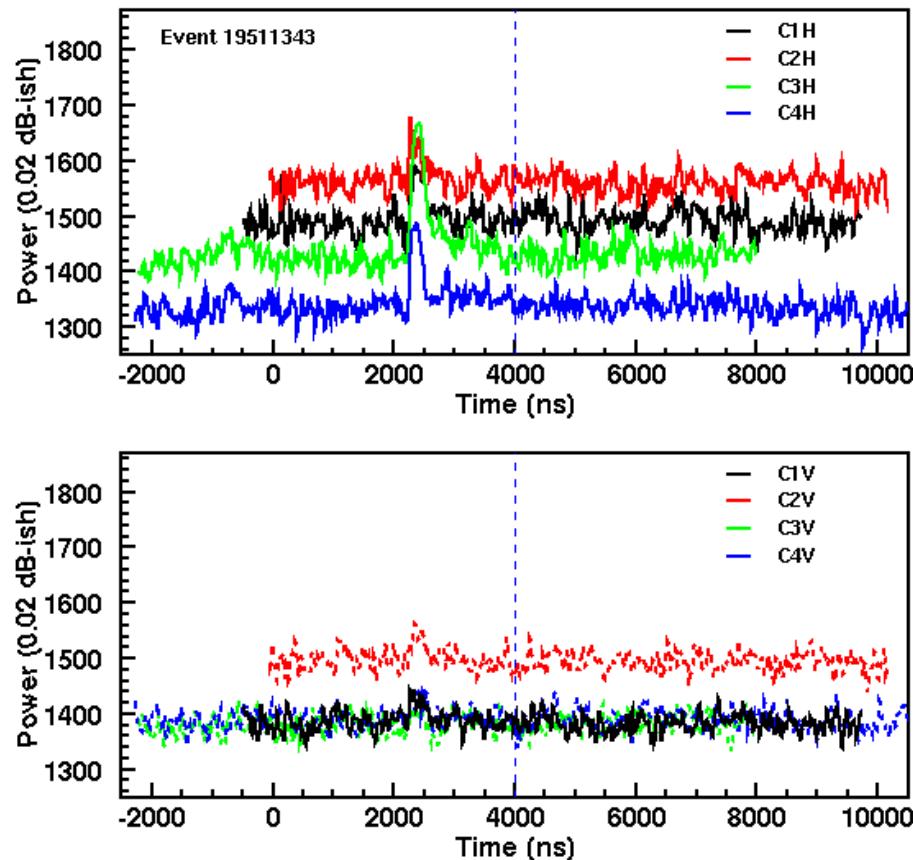
1269200163.642359230

Sun 21 Mar 2010 09:36:03 AM HST



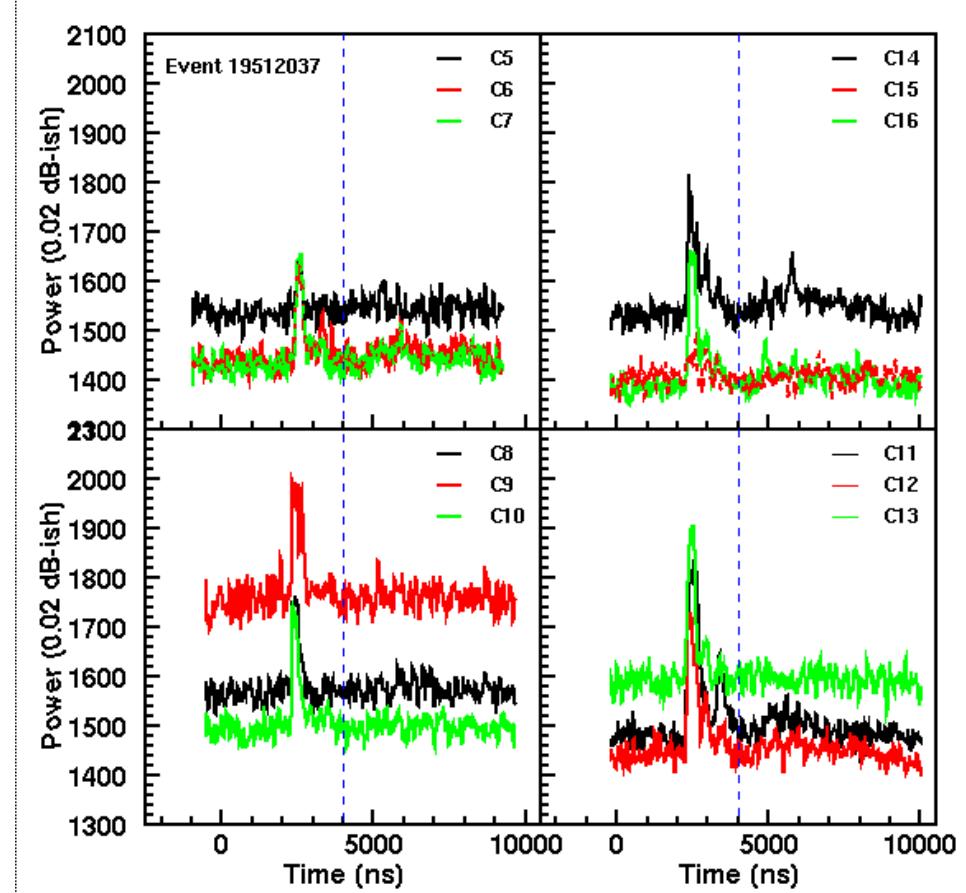
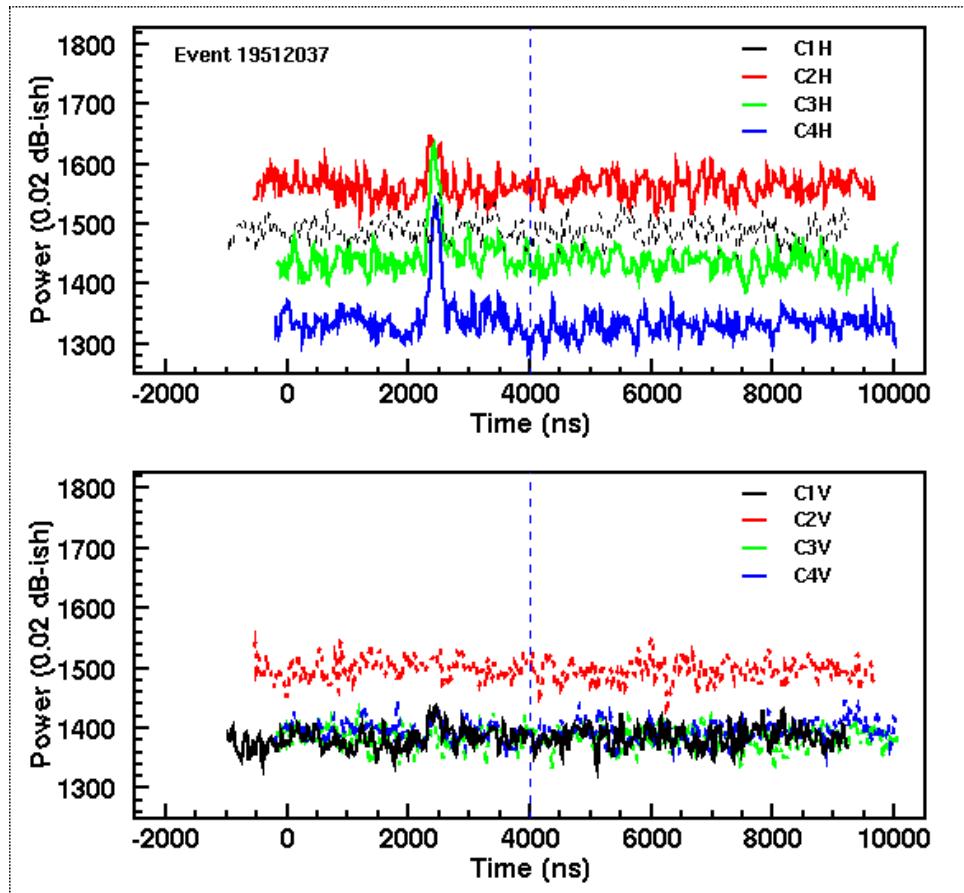
1269204764.063892626

Sun 21 Mar 2010 10:52:44 AM HST



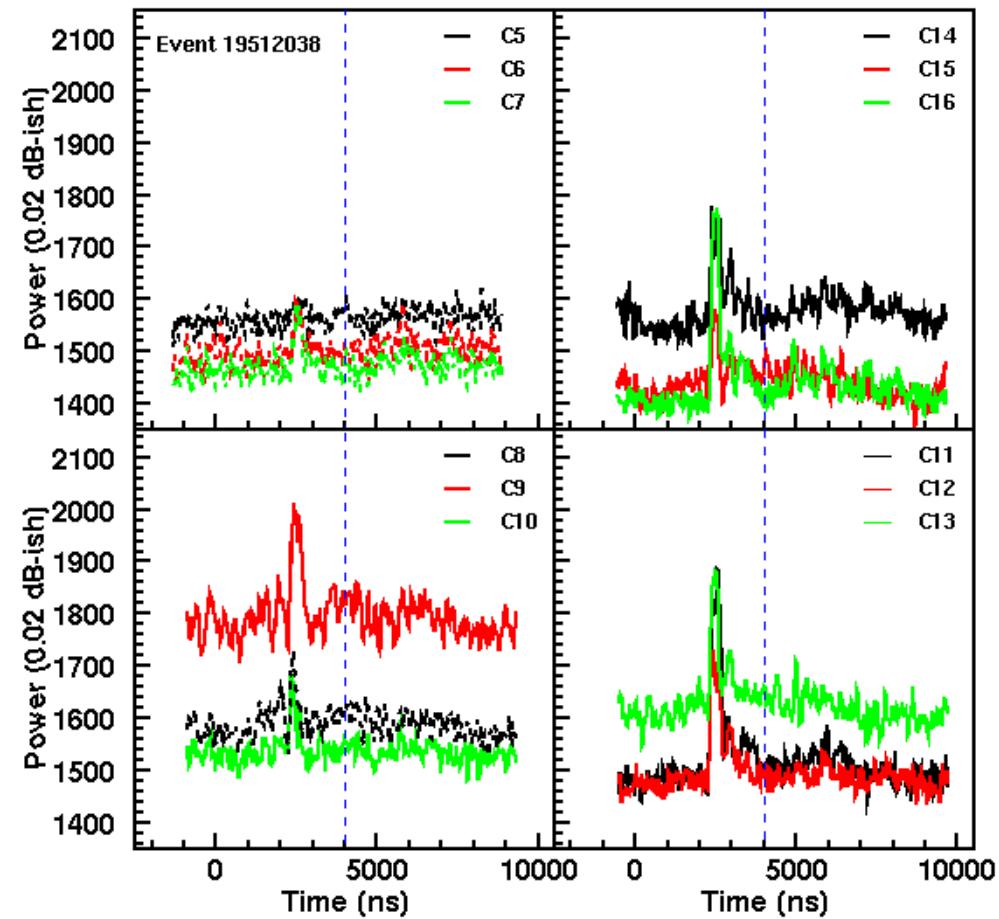
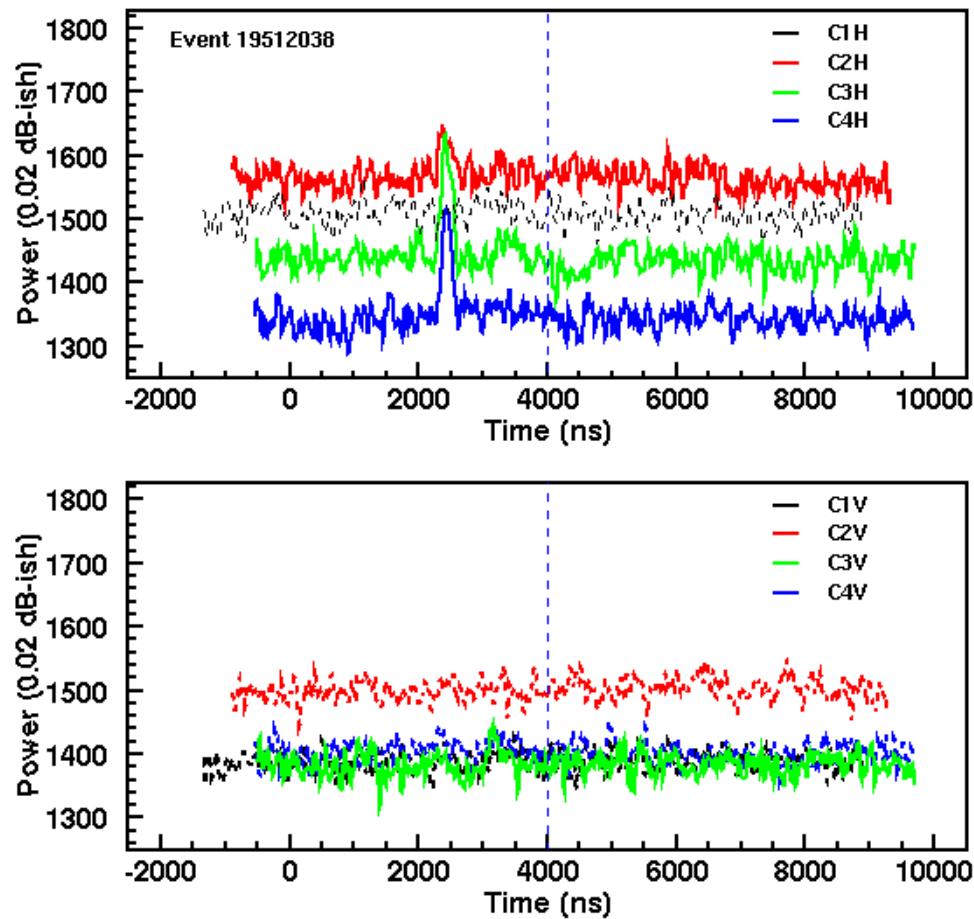
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Sun 21 Mar 2010 11:25:40 AM HST



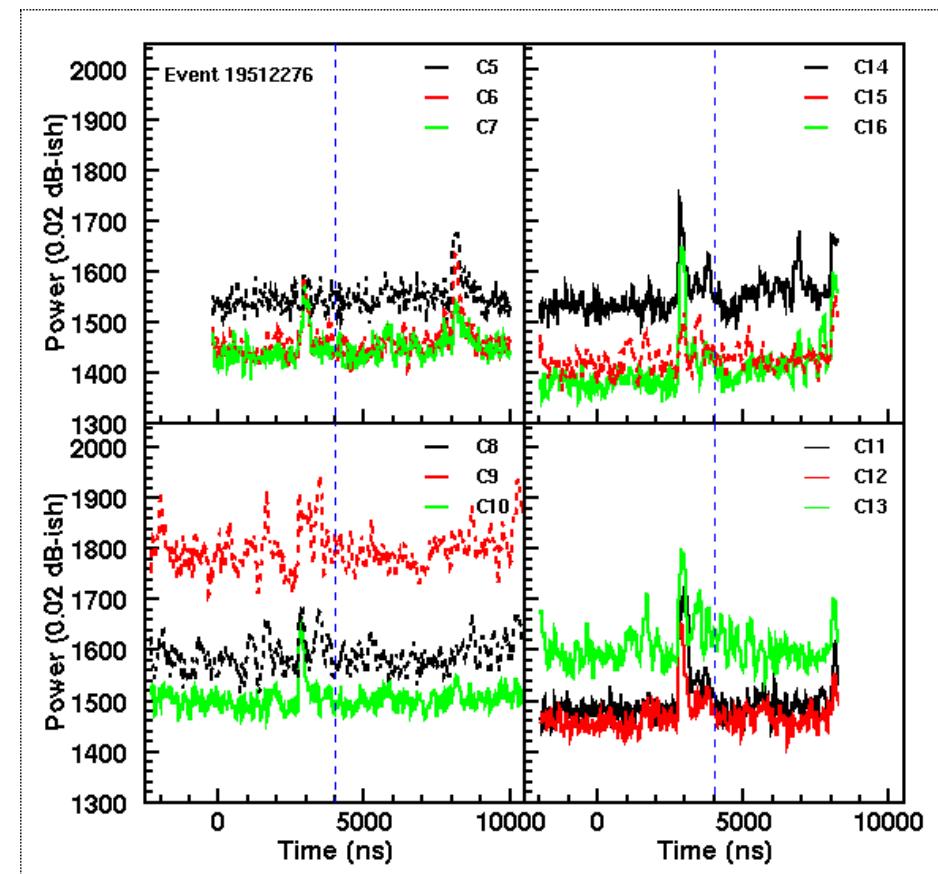
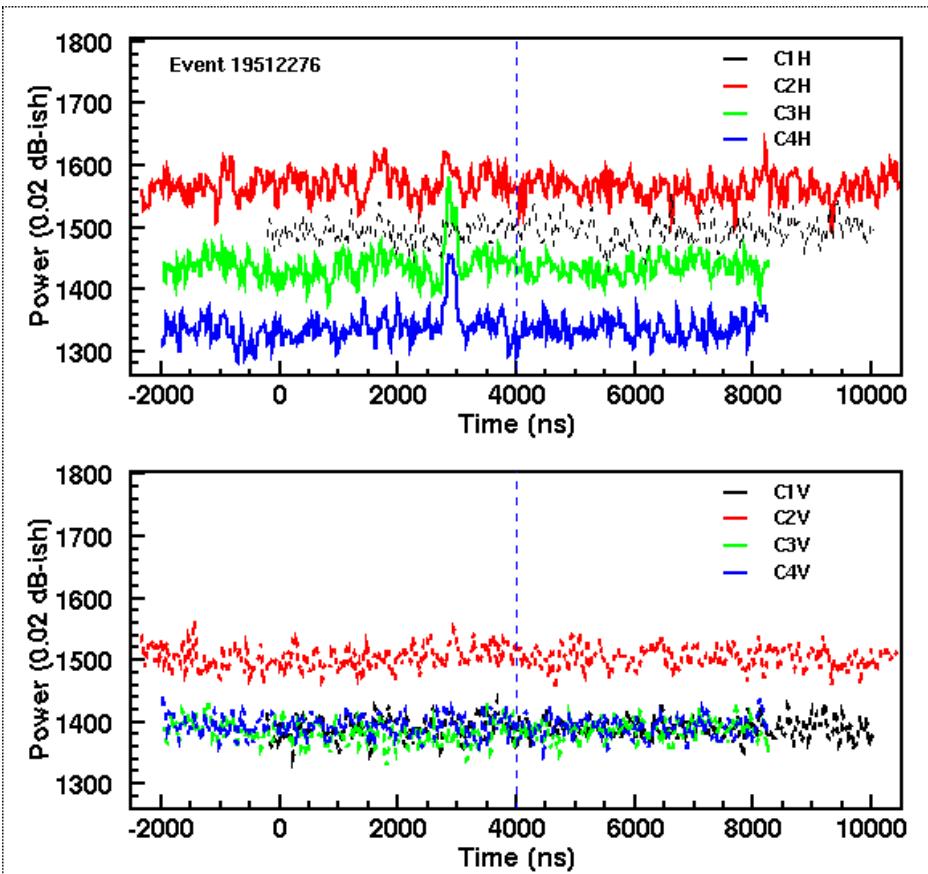
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Sun 21 Mar 2010 11:26:01 AM HST



1269207966.699377194

Sun 21 Mar 2010 11:46:06 AM HST



1269209373.381961712

Sun 21 Mar 2010 12:09:33 PM HST

