
35t/FD Analysis

LArSoft Bad Channel List Update

Alexander Booth

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Topics to discuss.

- ▶ Amendments to the list of consistently bad channels in dunetpc.
- ▶ Examples of different kinds of bad channels which appear in the list.
- ▶ Quantative overview of the bad channel list.

LArSoft bad channels 1.

New list of channels has been pushed to dunetpc:

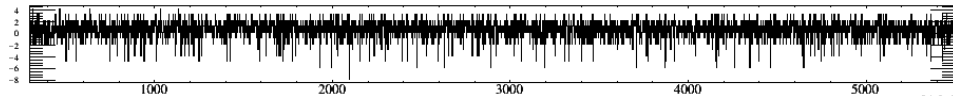
- ▶ These originate from two lists of online channel numbers made by Dan Wahl and Aaron.
- ▶ Consists of wires that will always be bad, they are for example damaged.
- ▶ Michelle Stancari and I have both added to and taken channels from this list.
- ▶ Michelle focused on the induction planes, myself on the collection planes.

All channels in the list have been checked by hand in the event display.

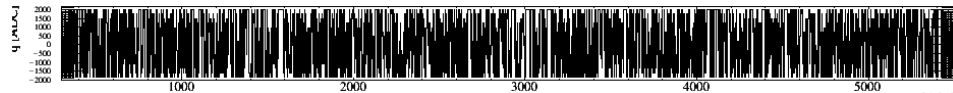
- ▶ Searching for channels with strange looking signals.
- ▶ Used two runs, 14427 (March 3rd) and 16364 (March 14th) to compare against each other.
- ▶ If a particular channel had similar unexpected characteristics in both runs then it was added to/taken from the list.
- ▶ This channel list currently lives in channelstatus_dune.fcl in dunetpc/dune/Utilities.

LArSoft bad channels 2.

Unrealistically low amplitude.

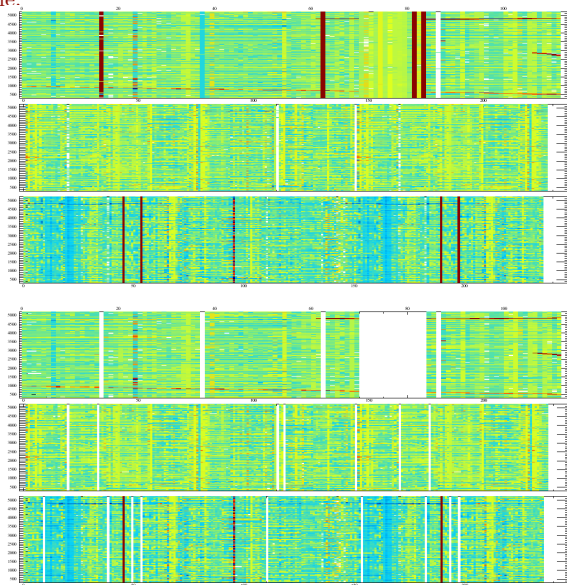


Unrealistically high amplitude.



LArSoft bad channels 3.

Bad channels visible.



Bad channel list implemented.

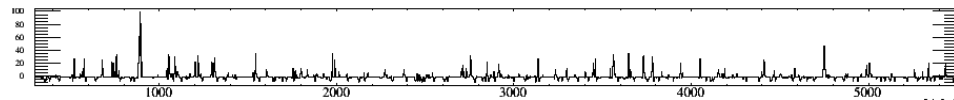
LArSoft bad channels 4.

An overview of the LArSoft list.

TPC	Induction	Collection
0/1	12	7
2/3	32	65
4/5	10	20
6/7	48	74
	102/1152	166/896

- ▶ 9% of induction channels.
- ▶ 19% of collection channels.
- ▶ **13.1% of all channels are consistently bad.**

Inside the same fcl file there is also a commented list of channels suffering from severe stuck codes.



- ▶ There is no reason to believe that these channels consistently miss hits or are noisy.
- ▶ By default, when the code unsticker encounters 5 or more stuck ticks in a row, it subtracts the pedestal. The number of consecutive bins before doing this is a fcl parameter.
- ▶ The user can choose whether to include these channels. The current list is most likely not comprehensive.

To summarise:

- ▶ A list of 268 channels that are consistently bad have now been pushed to dunetpc, both induction and collection.
- ▶ They were picked out by hand from the event display and can be found in the fcl file `channelstatus_dune.fcl`.
- ▶ A short list of channels suffering from large amounts of stuck code can be found commented out in the same fcl file.
- ▶ It has been established that around 13% of the total channels are consistently bad.