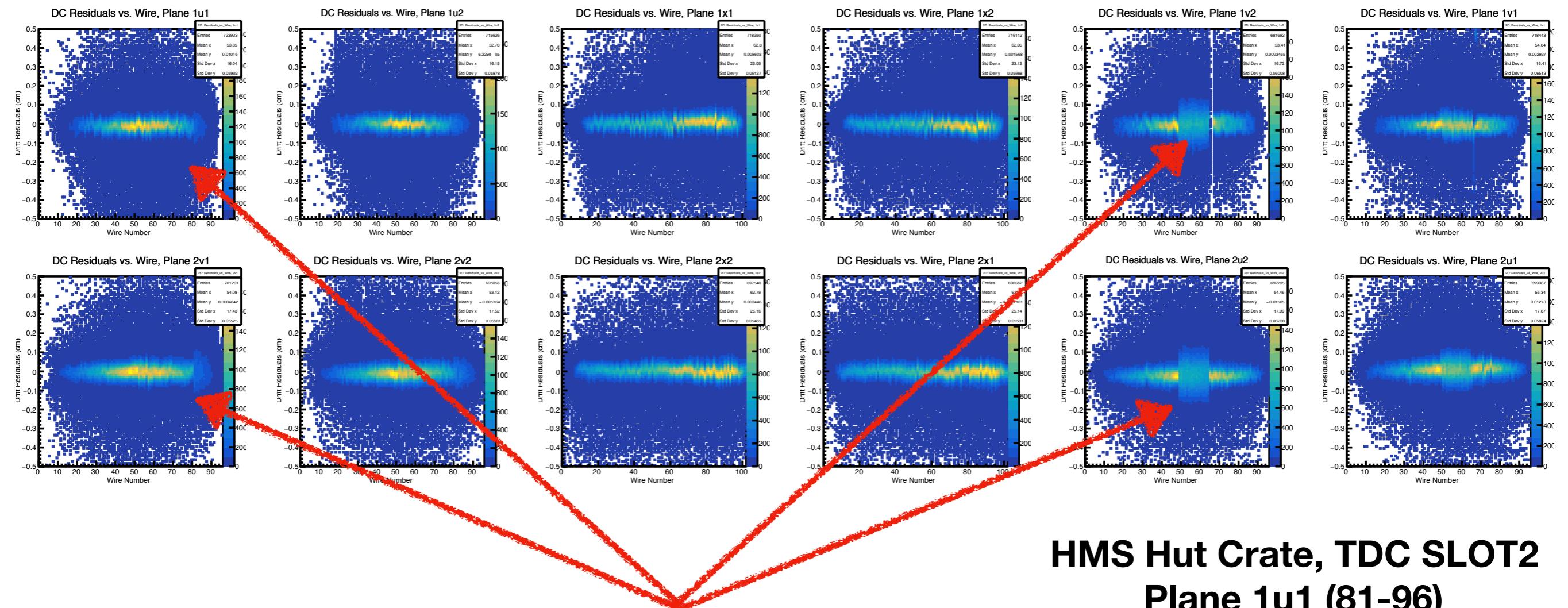


HMS Drift Chamber Update: Comments on Observed Bad Residuals

Carlos Yero
July 12, 2018

1 PASS (2.2 GeV Beam):
HMS RUN 1267

DC RESIDUALS

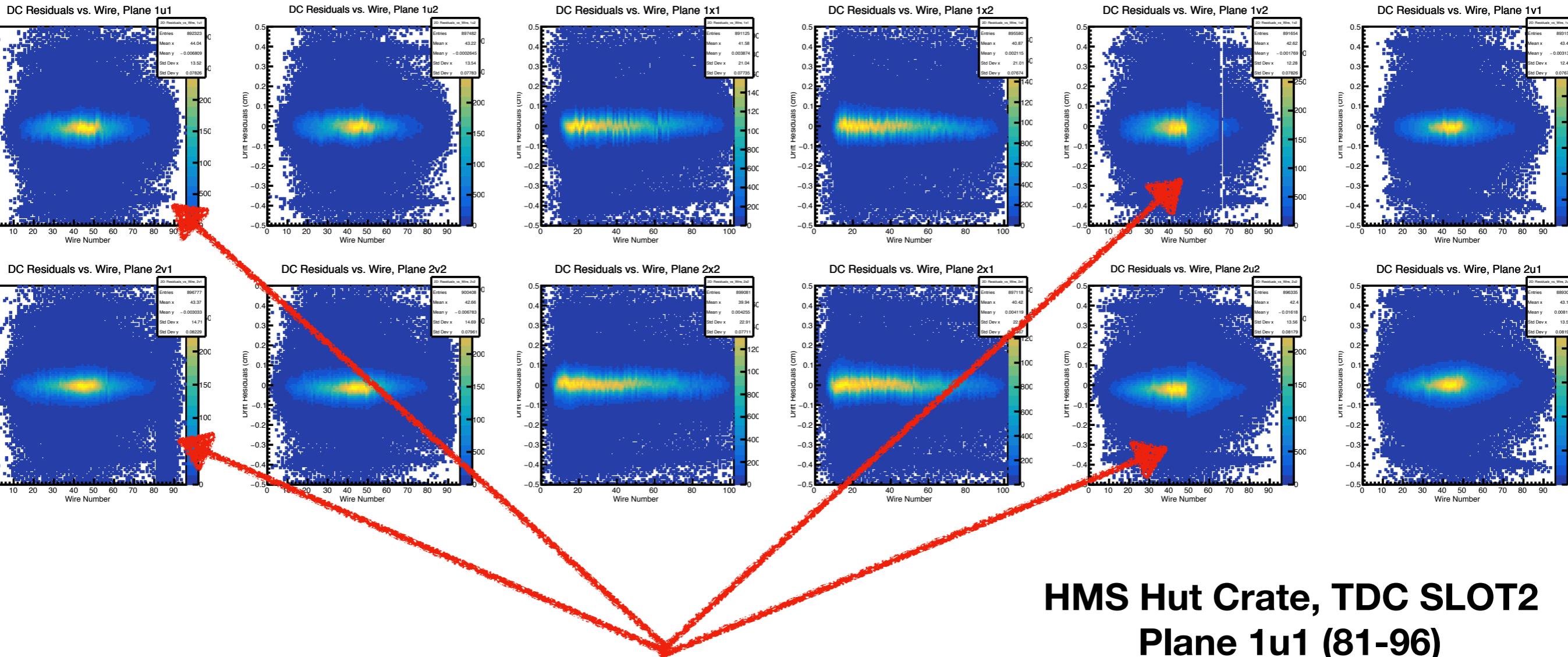


Observed Bad Residuals
Corresponding to group of
Wires. ALL in TDC Slot 2

HMS Hut Crate, TDC SLOT2
Plane 1u1 (81-96)
Plane 1v2 (49-64)
Plane 2v1 (81-96)
Plane 2u2 (49-64)

**5 PASS (10.59 GeV Beam):
HMS RUN 1856**

DC RESIDUALS



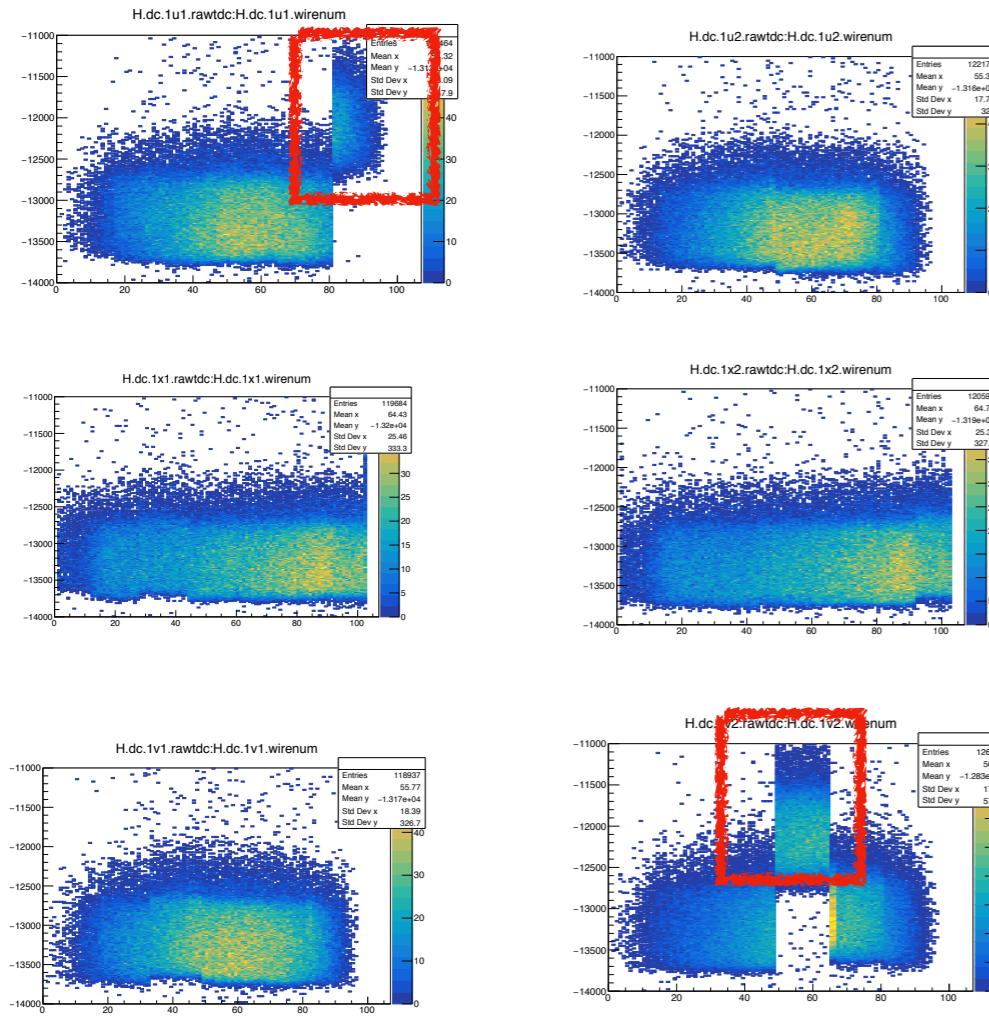
**Observed Bad Residuals
Corresponding to group of
Wires. ALL in TDC Slot 2
(Edge wires are less obvious)**

HMS Hut Crate, TDC SLOT2
Plane 1u1 (81-96)
Plane 1v2 (49-64)
Plane 2v1 (81-96)
Plane 2u2 (49-64)

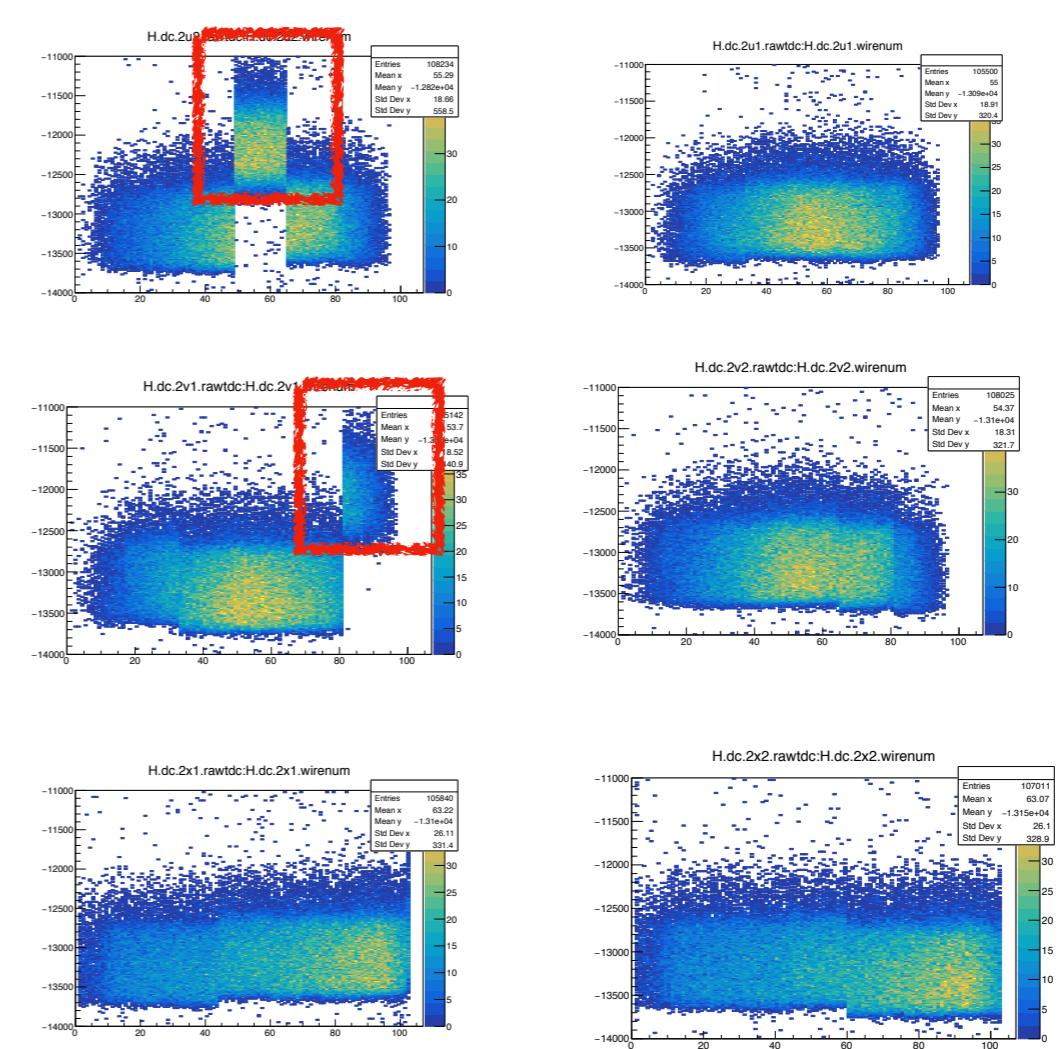
1 PASS (2.2 GeV Beam): HMS RUN 1267

Raw TDC vs. WireNumber

DC1



DC2

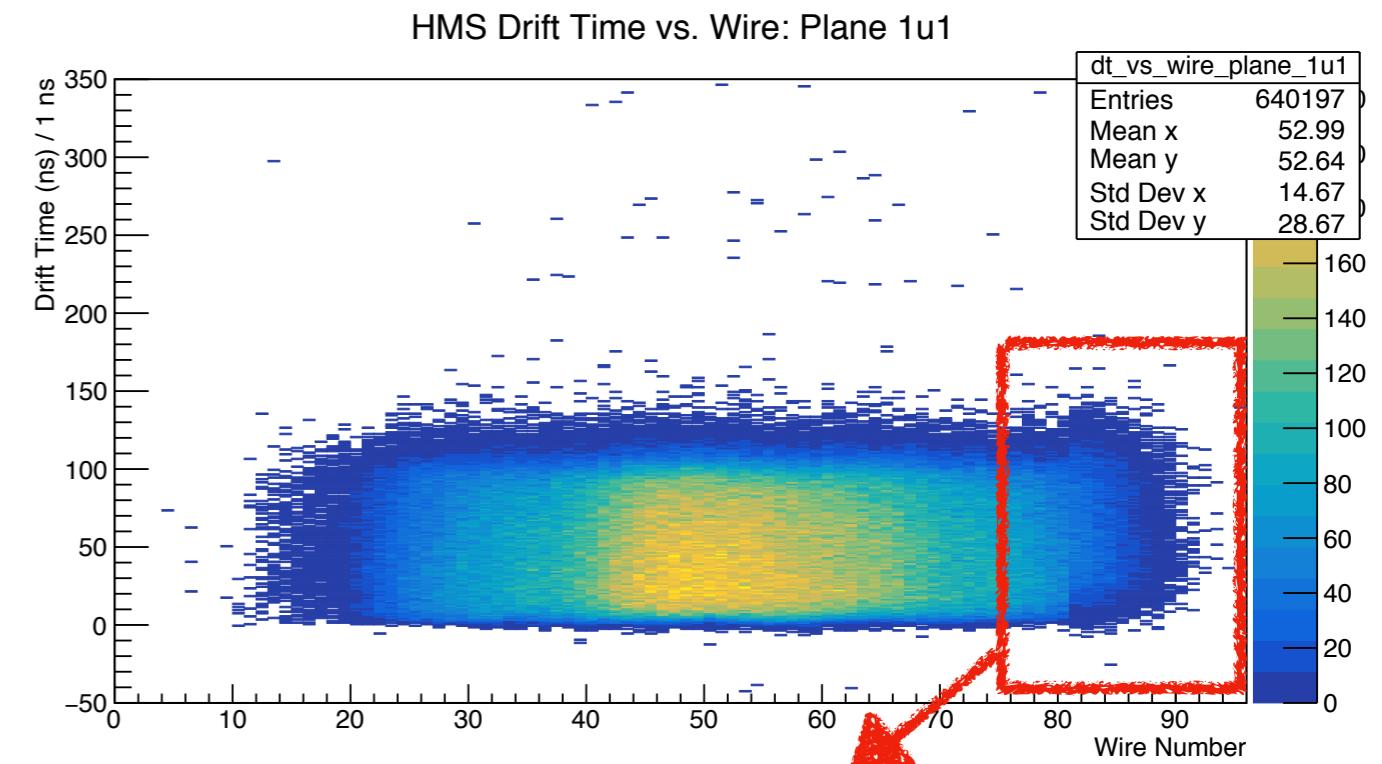
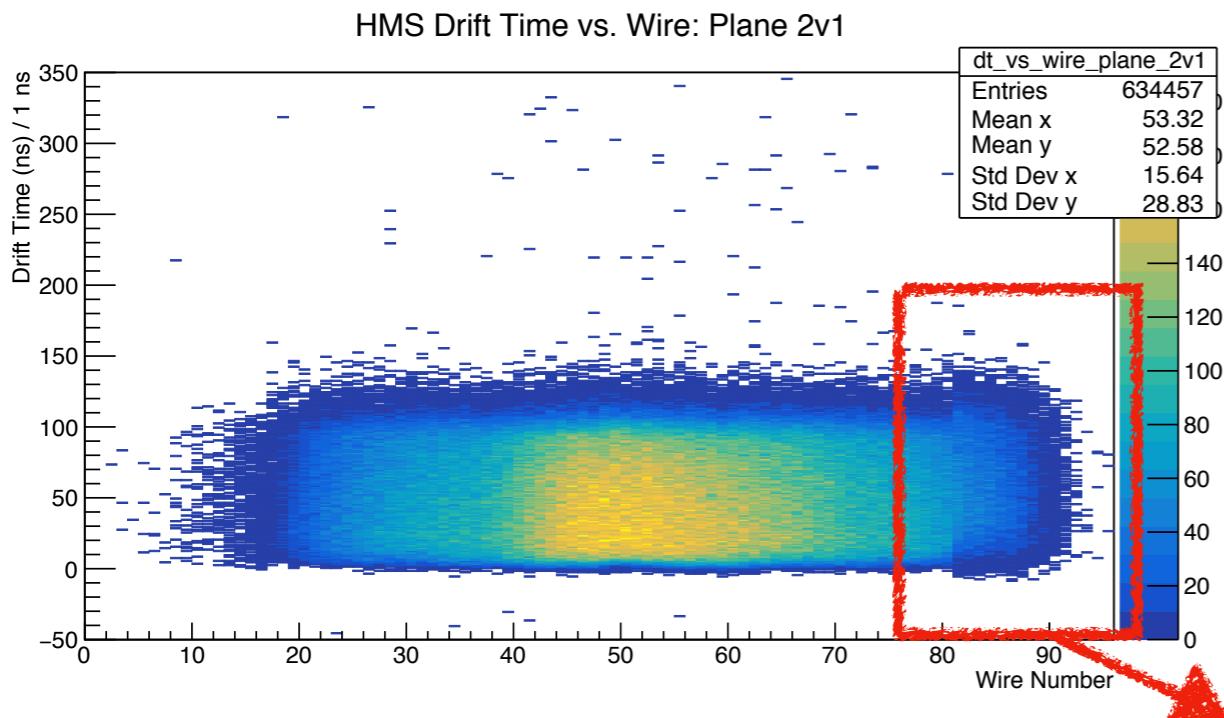


The **boxed** regions represent the groups of wires that are fed into TDC Slot 2 in the HMS DC Crate.

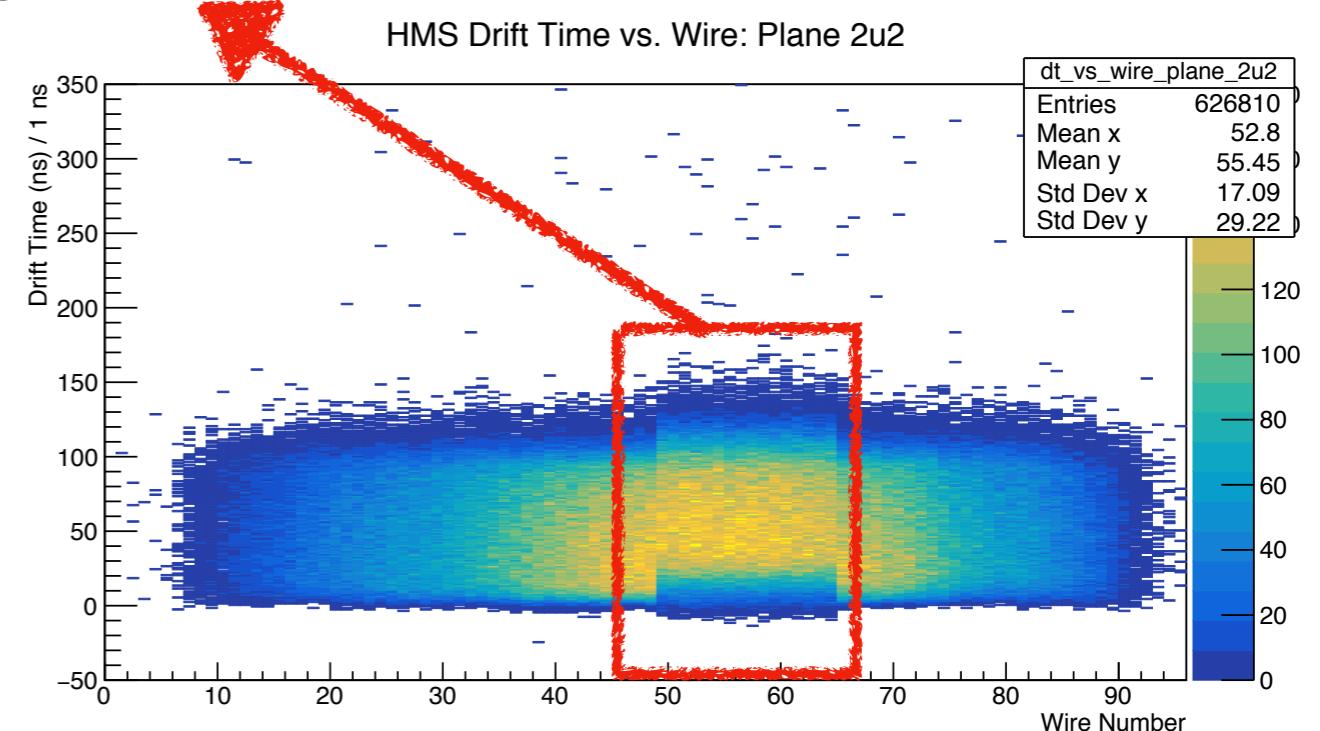
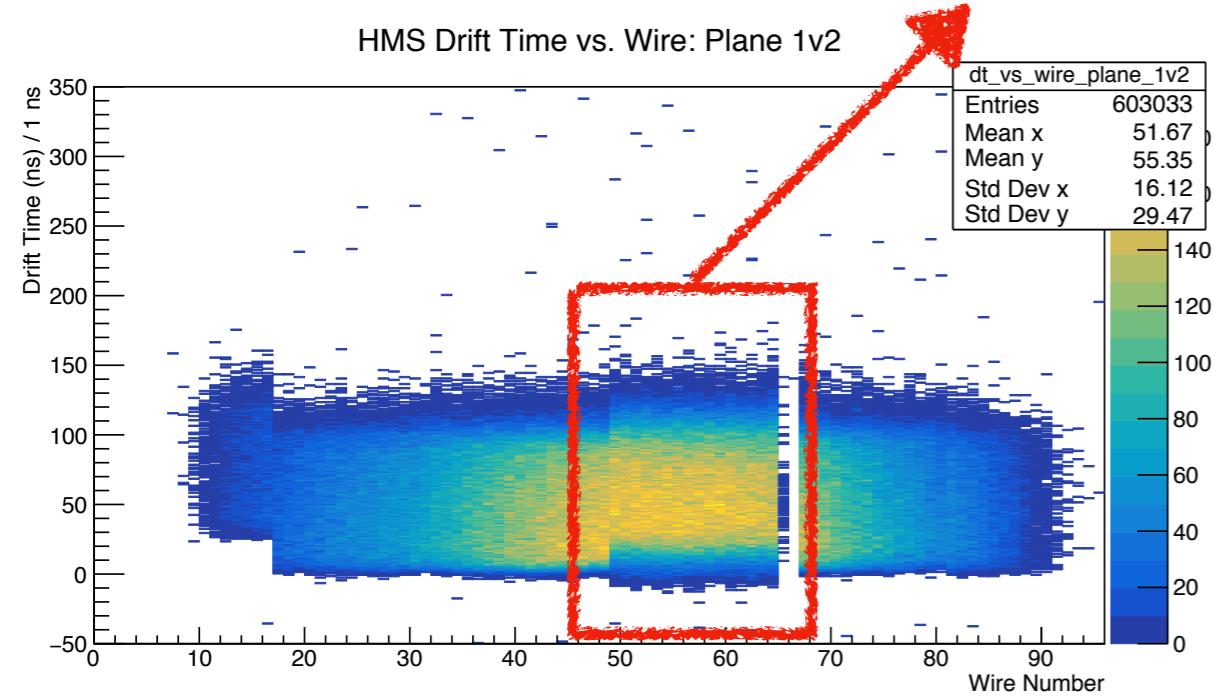
1 PASS (2.2 GeV Beam):

HMS RUN 1267

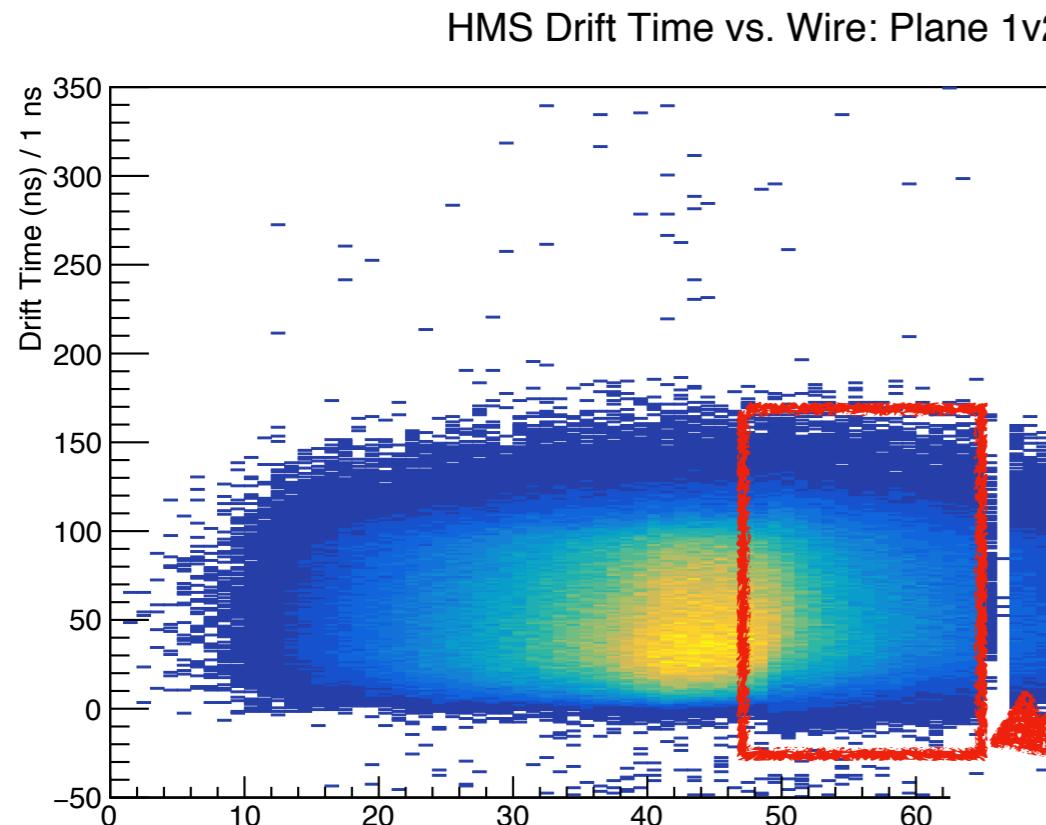
DC Drift Times vs. Wire



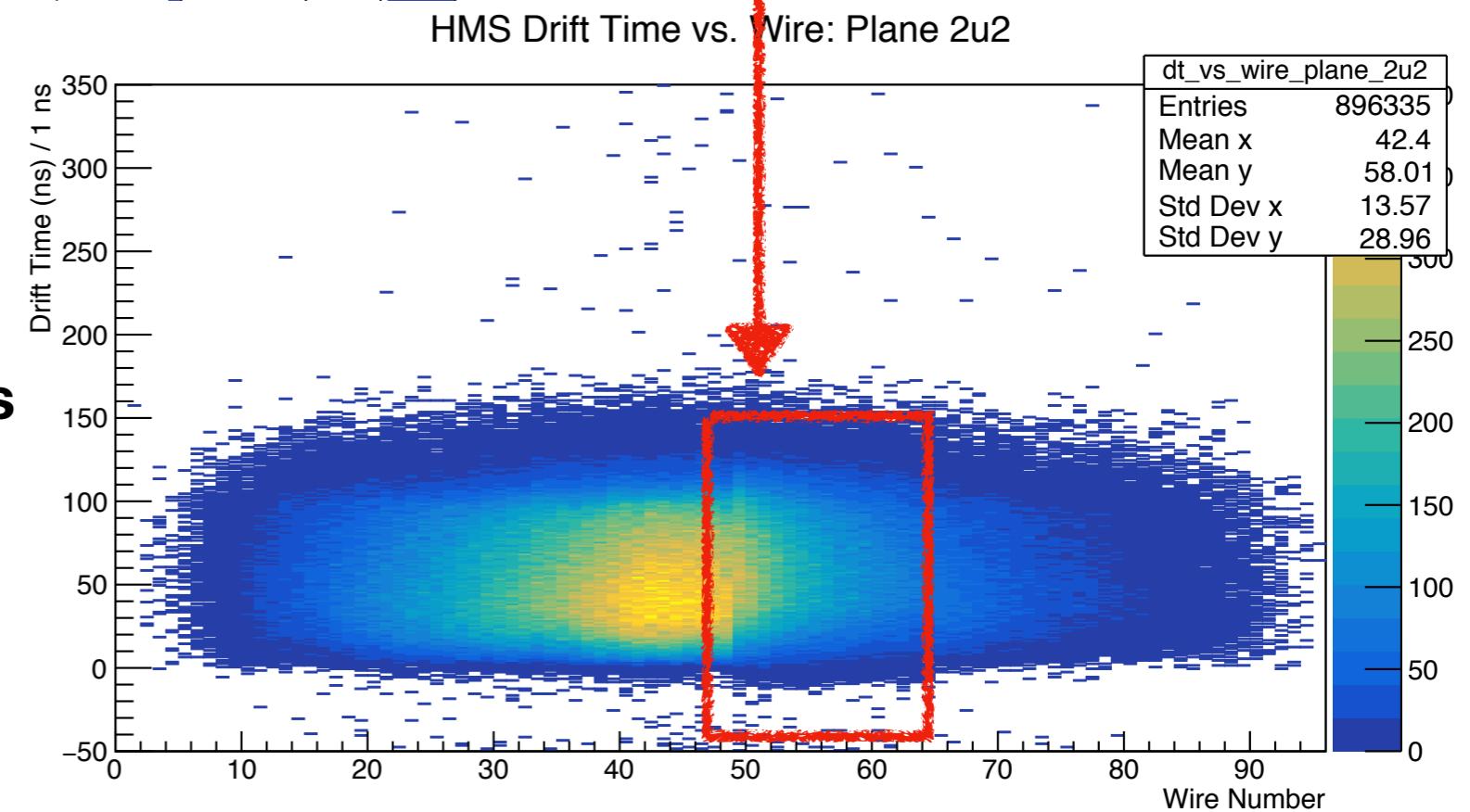
Odd Drift Times for the same groups that had bad residuals



5 PASS (10.59 GeV Beam): HMS RUN 1856

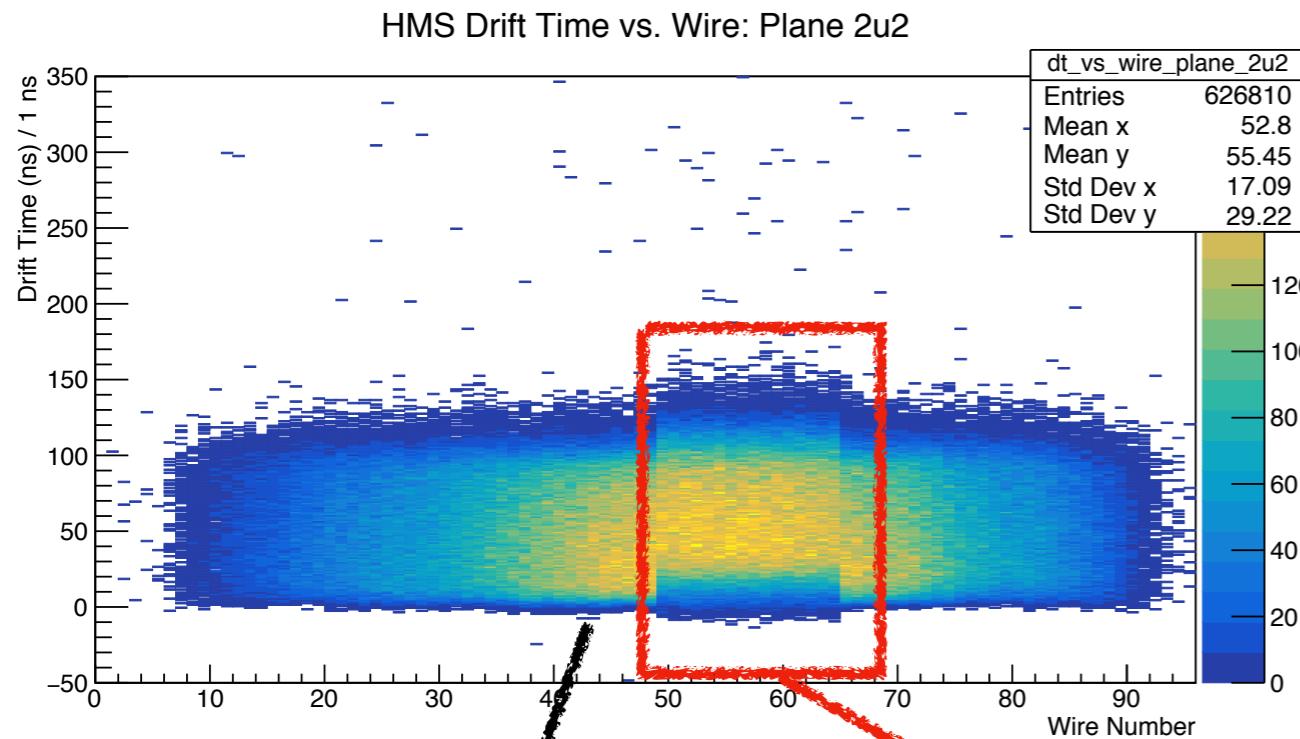


**Odd Drift Times for the
same groups that had bad
residuals**



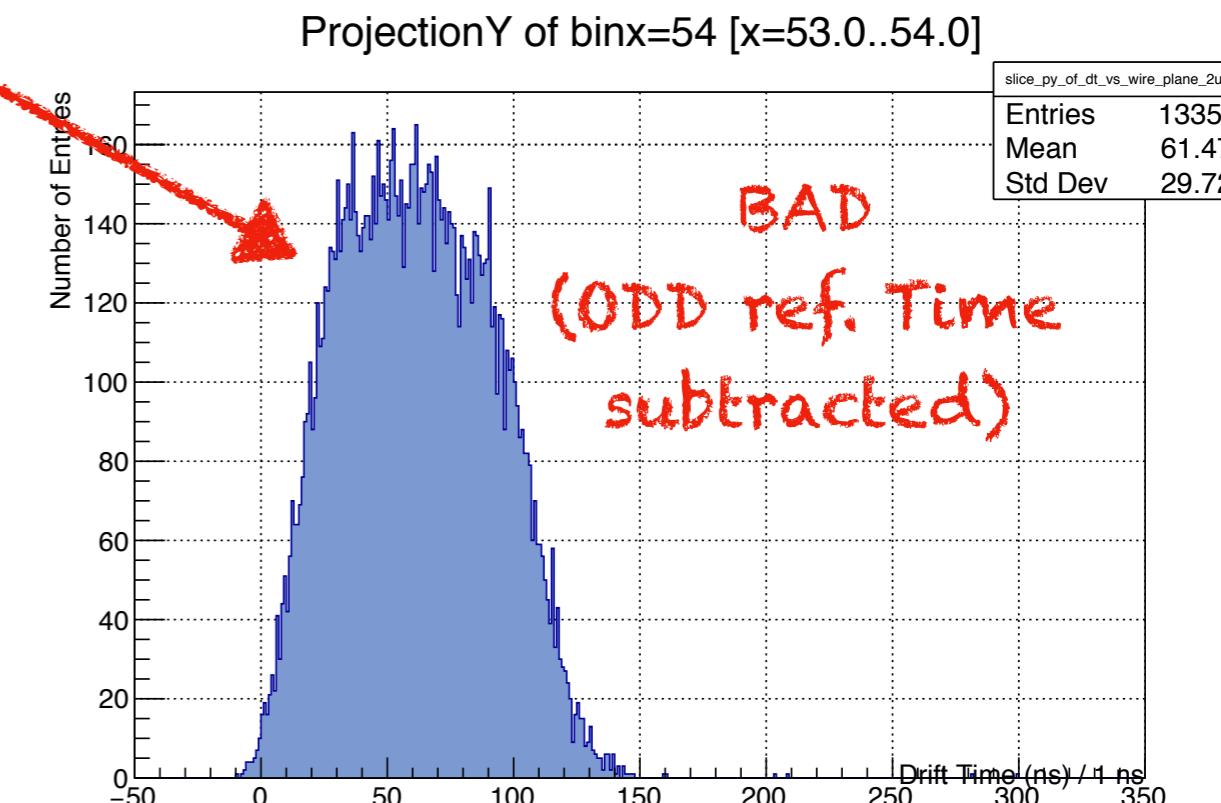
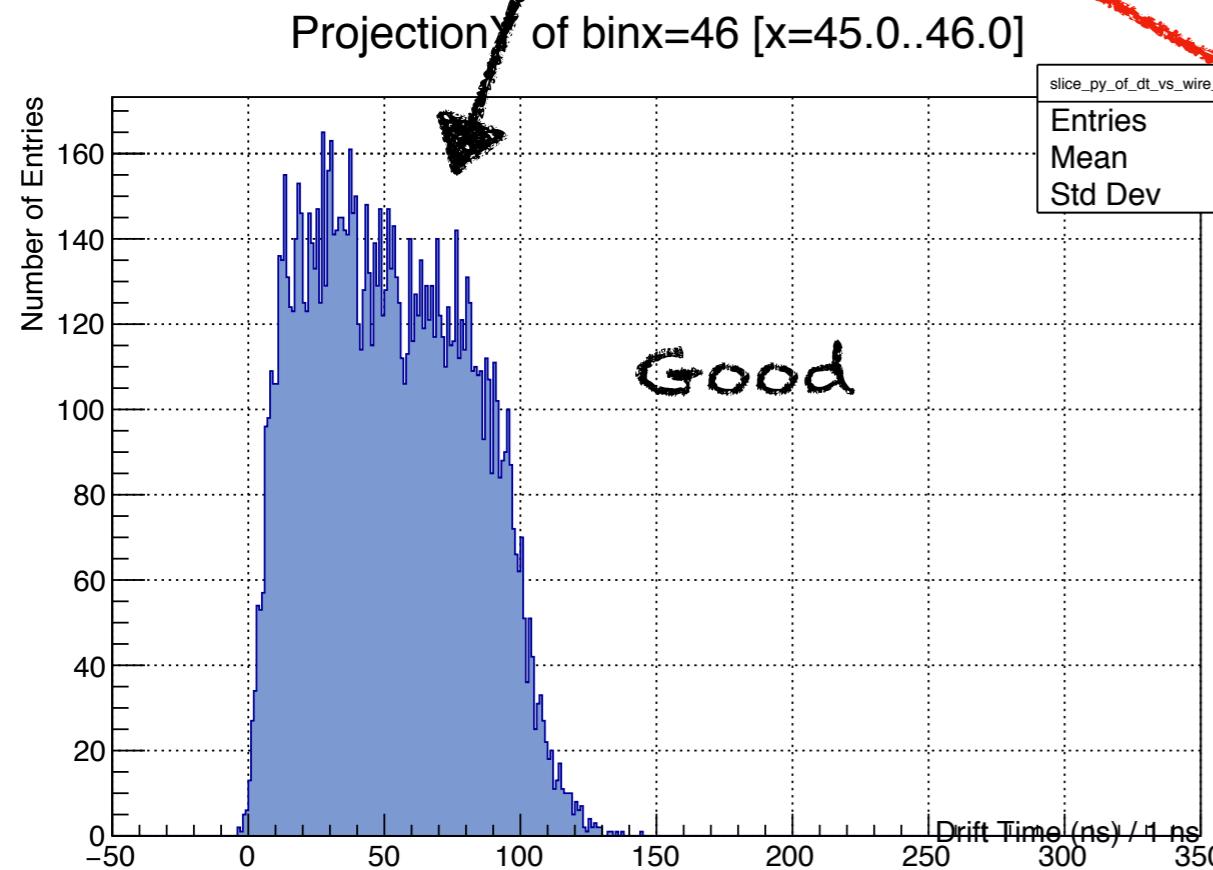
**The other groups of edge wires
From this run
were not that obvious,
And were not included**

1 PASS (2.2 GeV Beam): HMS RUN 1267

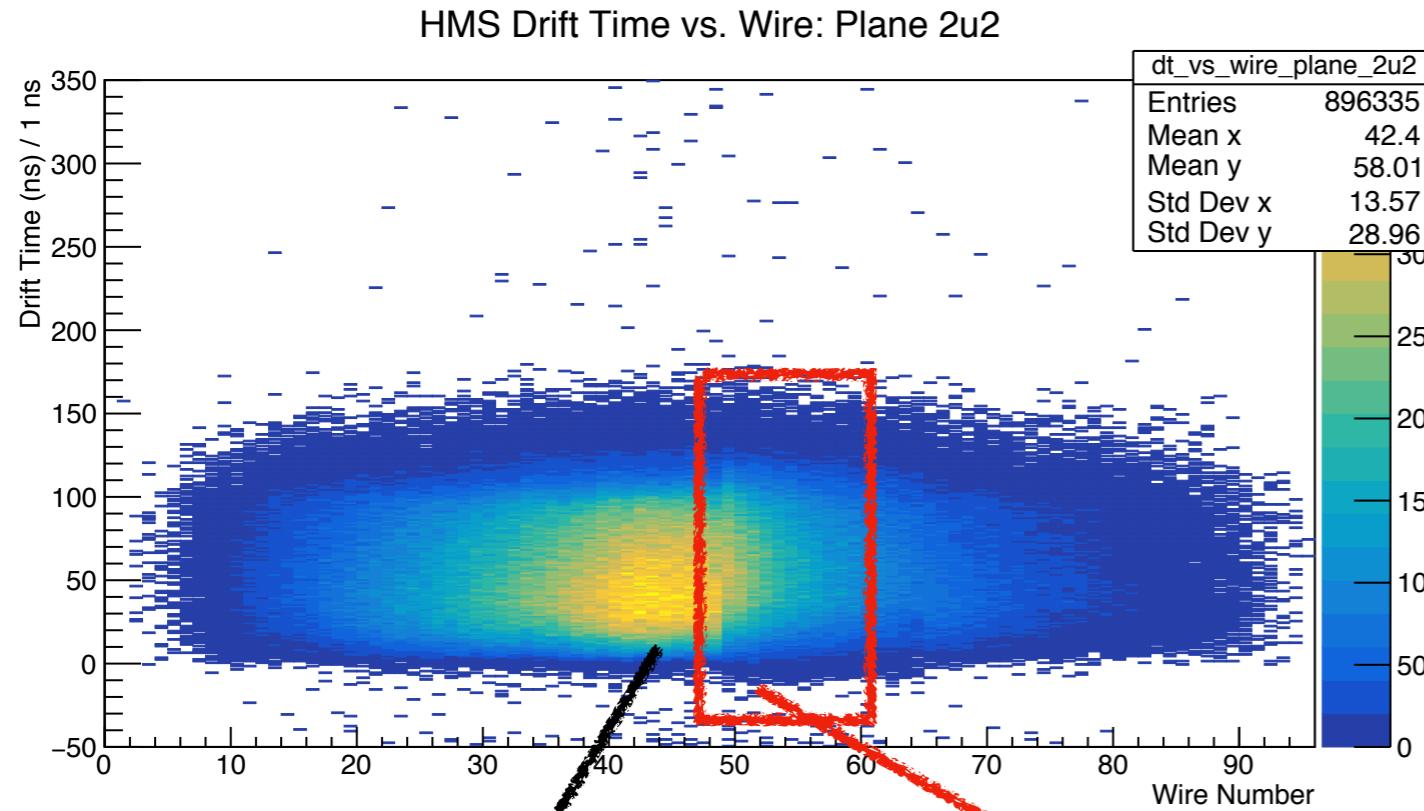


**It is as if SLOT 2 TDC, is
NOT determining the
Right reference time and so it appears to
be OUT of SYNC**

NOTE: This was the slot that
Had an abnormal shift in time,
so the DC calibration
Need to correct for this.

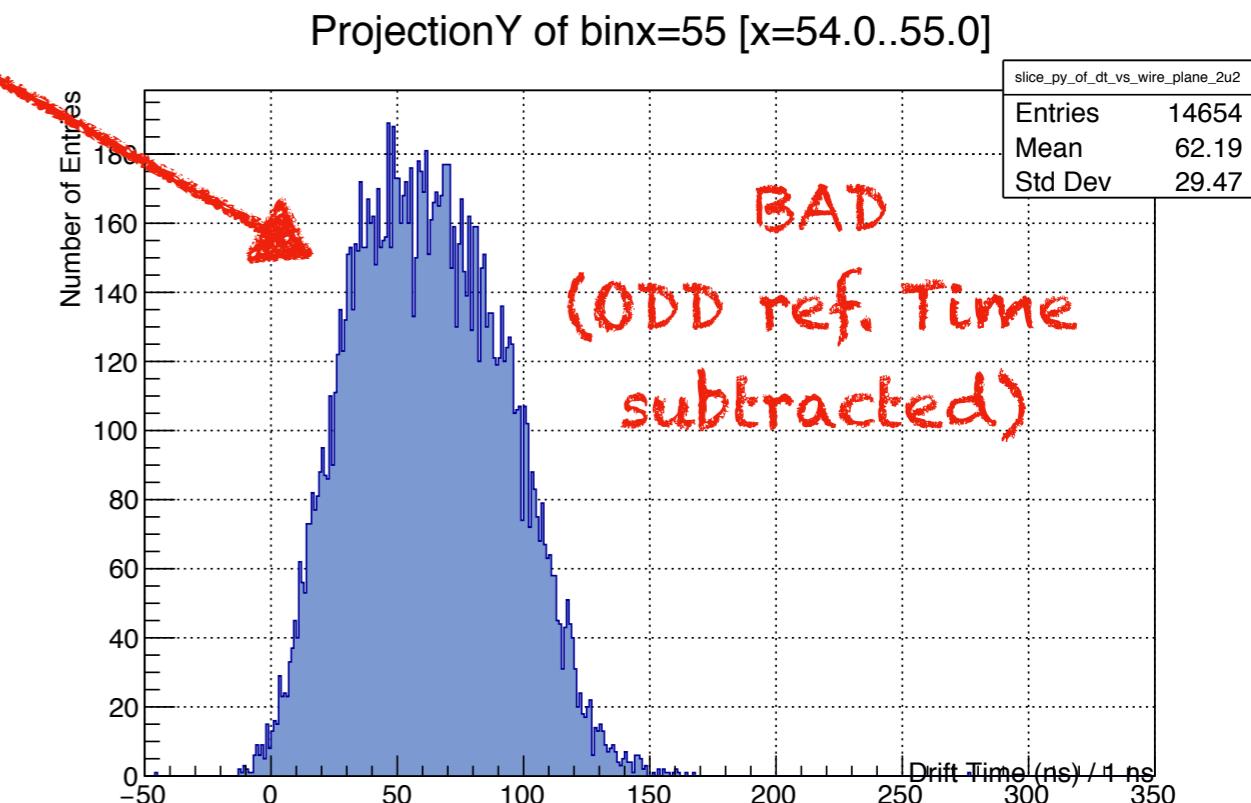
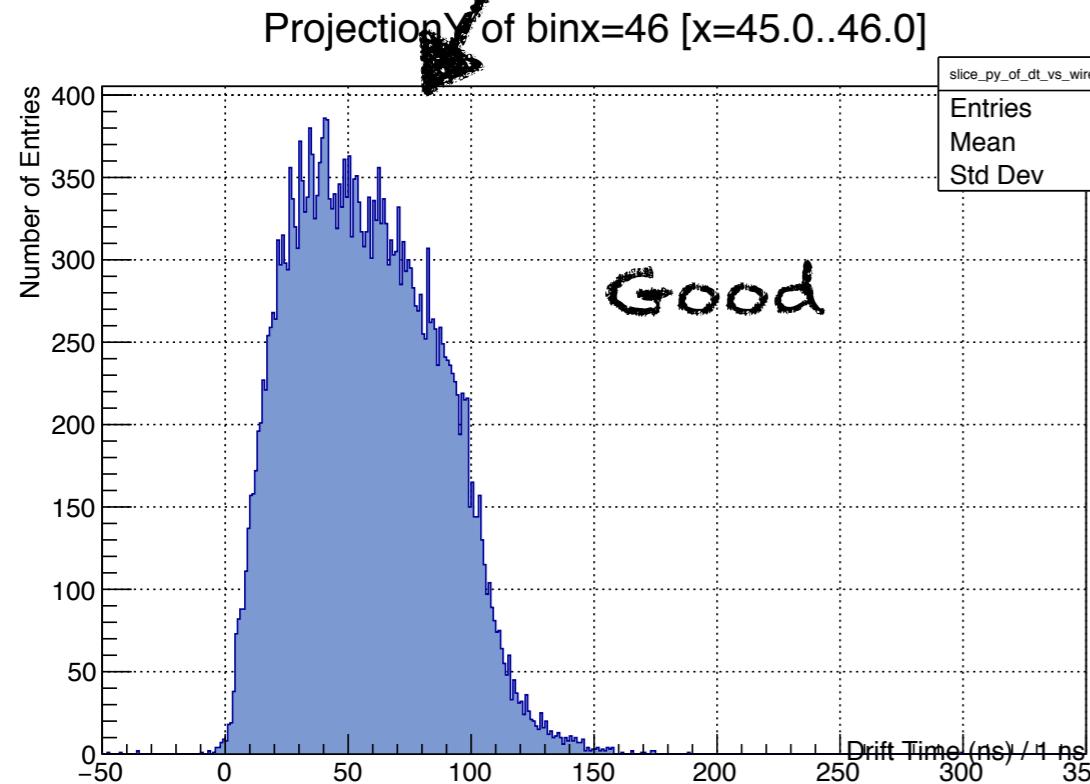


5 PASS (10.59 GeV Beam): HMS RUN 1856

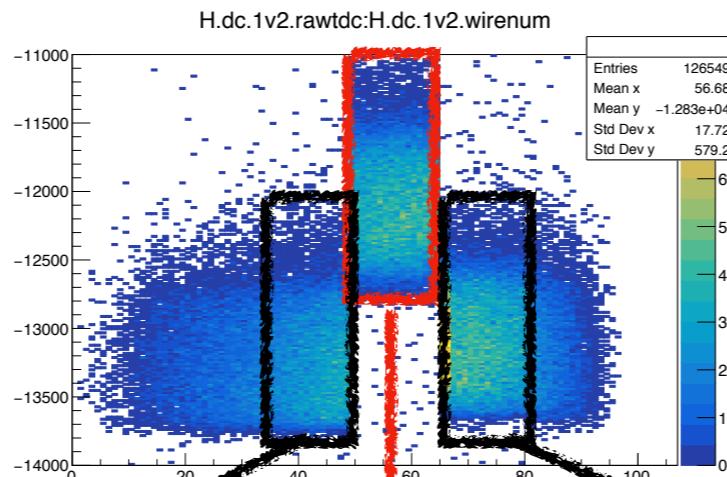


**It is as if SLOT 2 TDC, is
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NOTE: This was the slot that
Had an abnormal shift in time,
so the DC calibration
Need to correct for this.



1 PASS (2.2 GeV Beam): HMS RUN 1267



TOP 3 PLOTS:
hDCREF1 tdcTime v.
1v2 noREFtimeCorr. tdcTime

BOTTOM 3 PLOTS:
hDCREF1 tdcTime v.
1v2 tdcTime

T.hms.hDCREF1_tdcTime:H.dc.1v2.rawnorefcortdc {H.dc.1v2.wirenum>=33&&H.dc.1v2.wirenum<=48}

NO REF
Time Corr.

Entries	26014
Mean x	1816
Mean y	1767
Std Dev x	337.2
Std Dev y	7.232

T.hms.hDCREF1_tdcTime:H.dc.1v2.rawnorefcortdc {H.dc.1v2.wirenum>=49&&H.dc.1v2.wirenum<=64}

NO REF
Time Corr.

Entries	373
Mean x	29
Mean y	17
Std Dev x	315
Std Dev y	7.23

T.hms.hDCREF1_tdcTime:H.dc.1v2.rawnorefcortdc {H.dc.1v2.wirenum>=65&&H.dc.1v2.wirenum<=80}

NO REF
Time Corr.

Entries	40565
Mean x	1947
Mean y	1767
Std Dev x	320.7
Std Dev y	7.231

T.hms.hDCREF1_tdcTime:H.dc.1v2.rawtdc {H.dc.1v2.wirenum>=33&&H.dc.1v2.wirenum<=48}

REF Time Corr.

Entries	26014
Mean x	-1.32e+04
Mean y	1767
Std Dev x	328.5
Std Dev y	7.232

T.hms.hDCREF1_tdcTime:H.dc.1v2.rawtdc {H.dc.1v2.wirenum>=49&&H.dc.1v2.wirenum<=64}

REF Time Corr.

Entries	3736
Mean x	-1.209e+04
Mean y	176
Std Dev x	323.
Std Dev y	7.22

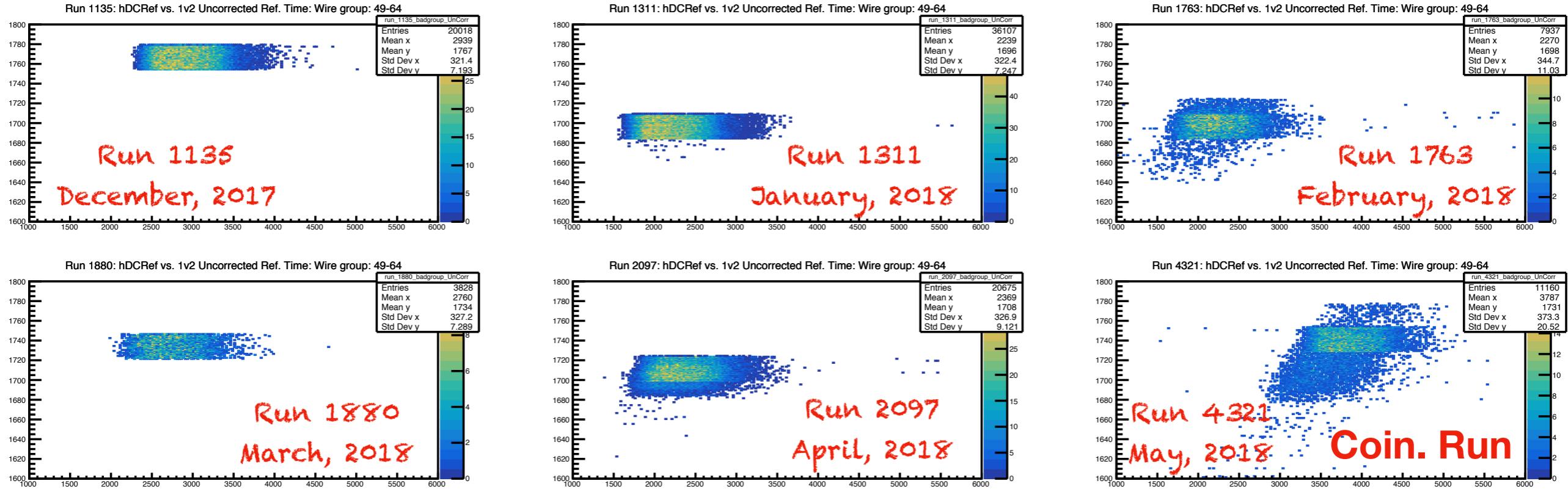
T.hms.hDCREF1_tdcTime:H.dc.1v2.rawtdc {H.dc.1v2.wirenum>=65&&H.dc.1v2.wirenum<=80}

REF Time Corr.

Entries	40565
Mean x	-1.307e+04
Mean y	1767
Std Dev x	311.6
Std Dev y	7.23

Abnormal REF. Time Corr

hDCRef1 vs. Uncorrected REF. Time, Plane 1v2, Wire group: 49-64



hDCRef1 vs. Corrected REF. Time, Plane 1v2, Wire group: 49-64

