Noise Simulation with LArSoft

What I did:

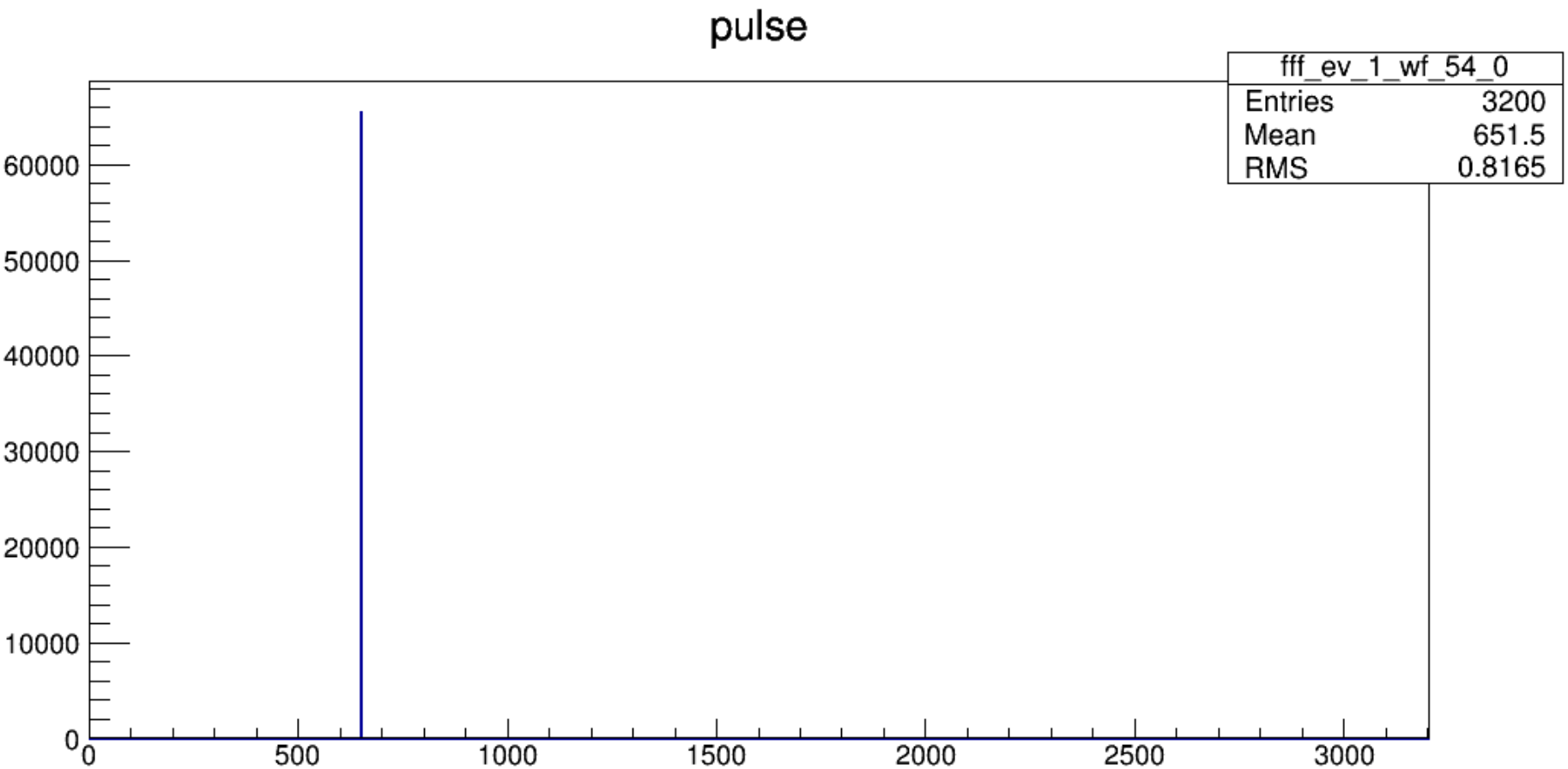
Very simple “study”. I generated/reconstructed a few events with the standard prodsingle_uboone.fcl and standard_reco_uboone.fcl

I generated these events in different configurations, modifying if/how noise for the wire data was being simulated

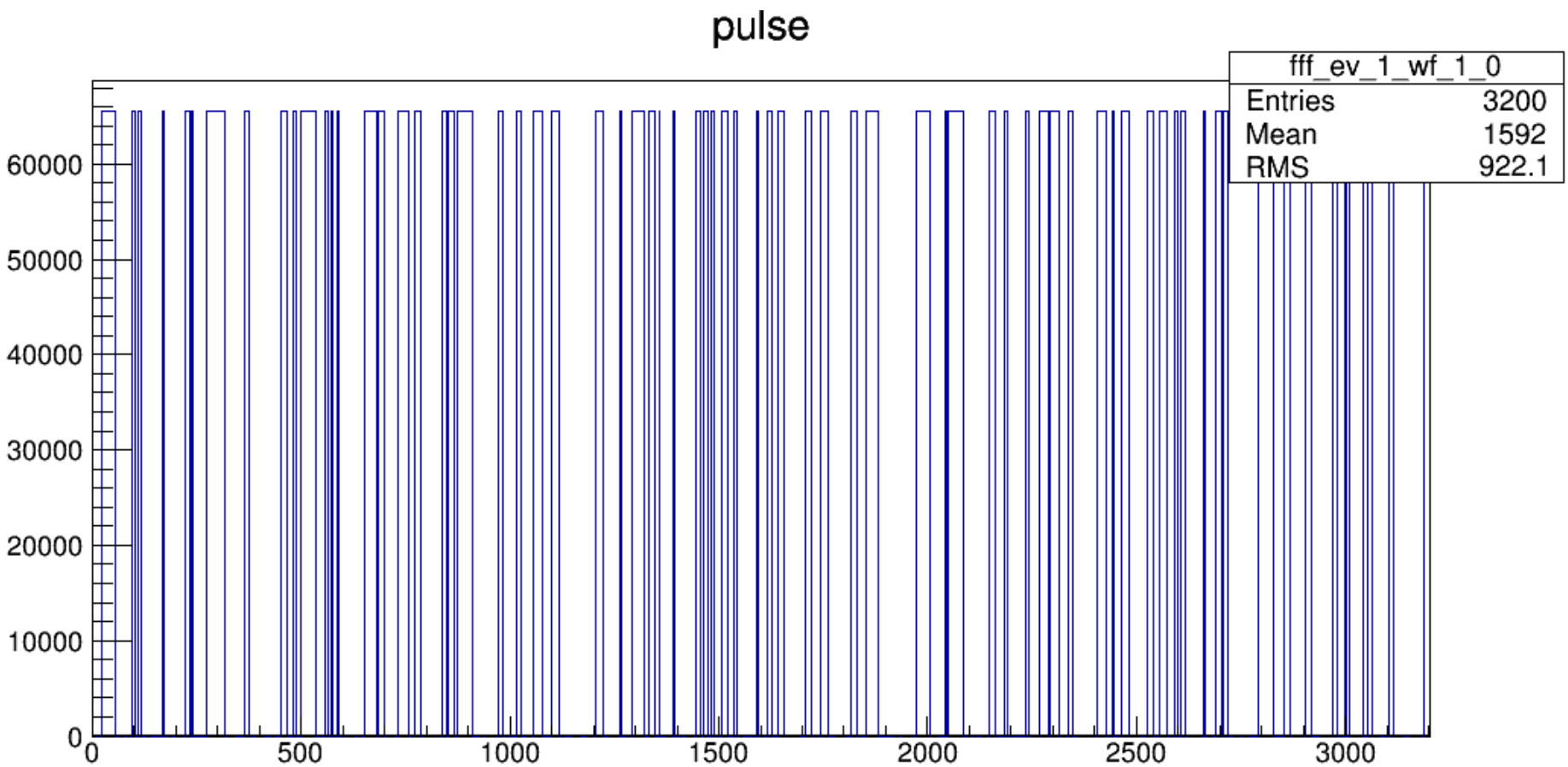
Noise configurations simulated

- **anoise**.....default values from uboonecode: noise amplitude very small (0.0132) and noisefromhsito=false
- **noise**.....noisefromhisto=TRUE and amplitude=0.132 (x10---equal to argoneut value)
- **noise0p0**.....noisefrmohisto=FALSE and amplitude=0
- **noisesuppressed**....noise suppressed in DetSimWire_microboone script...(multiplied by 0 whenever added to RawDigit)
- **noisemodamp**.....noise introduced with script that Kazu and I wrote a few weeks ago

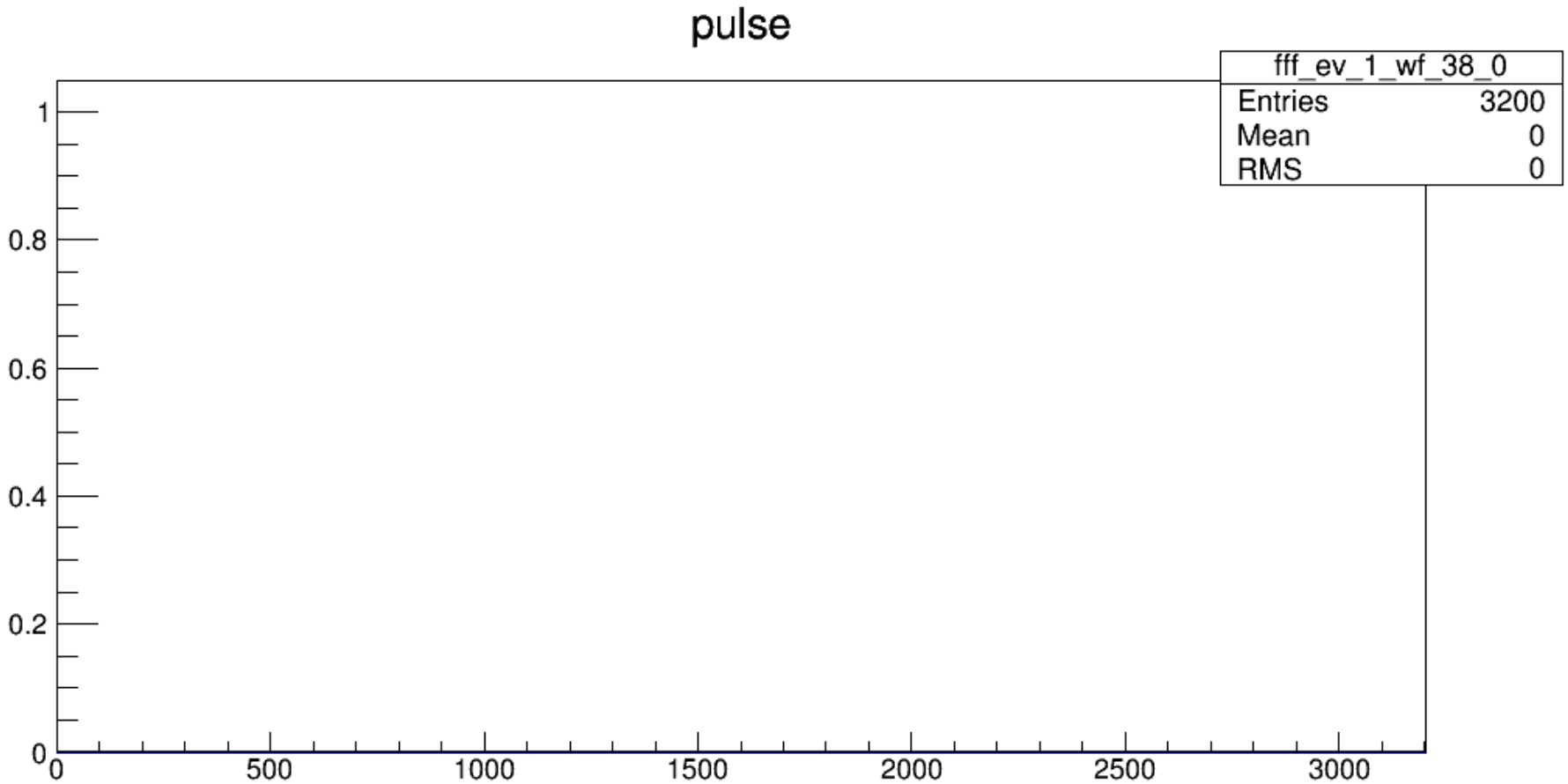
Wire data: anoise



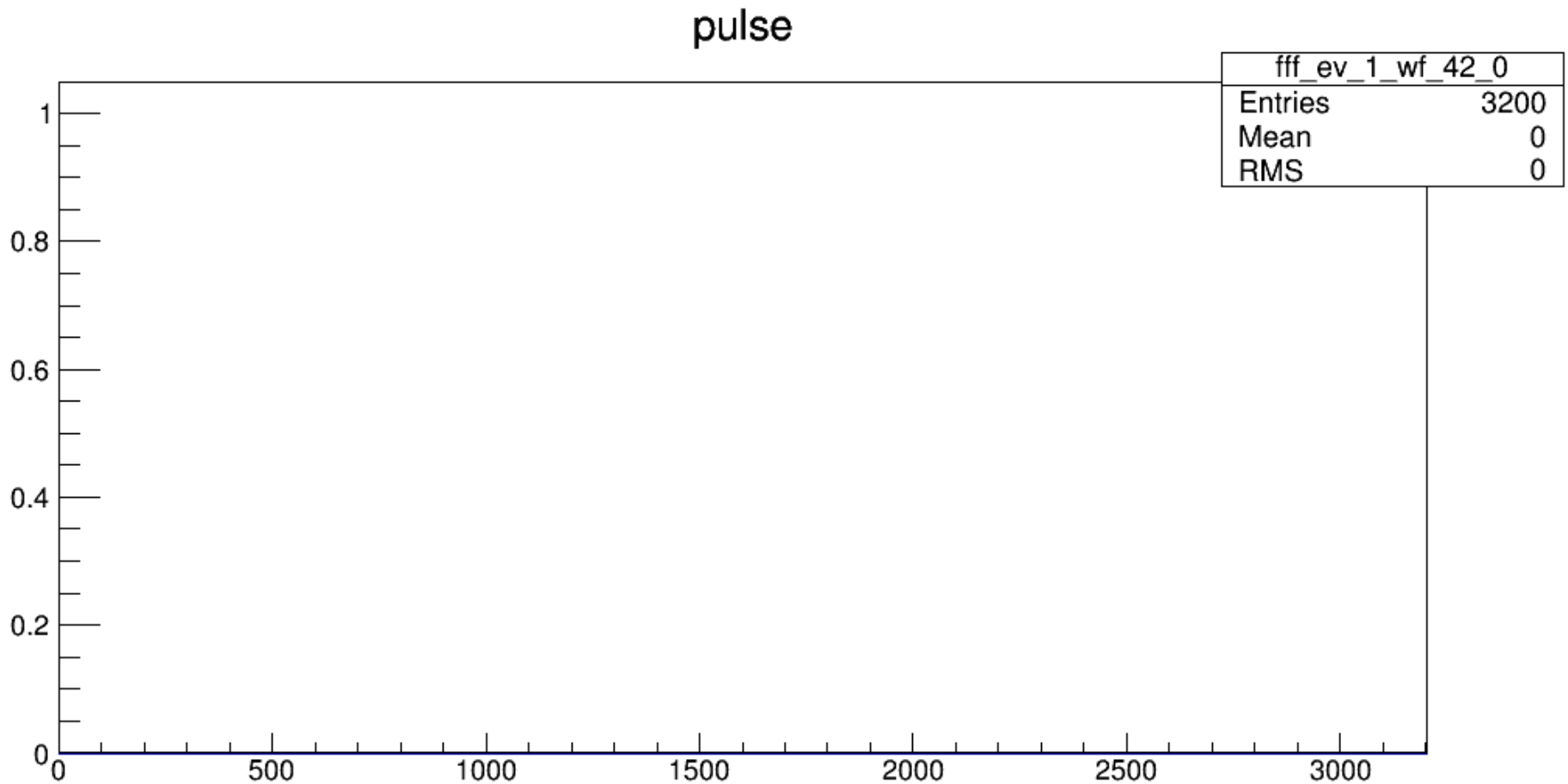
Wire data: noise



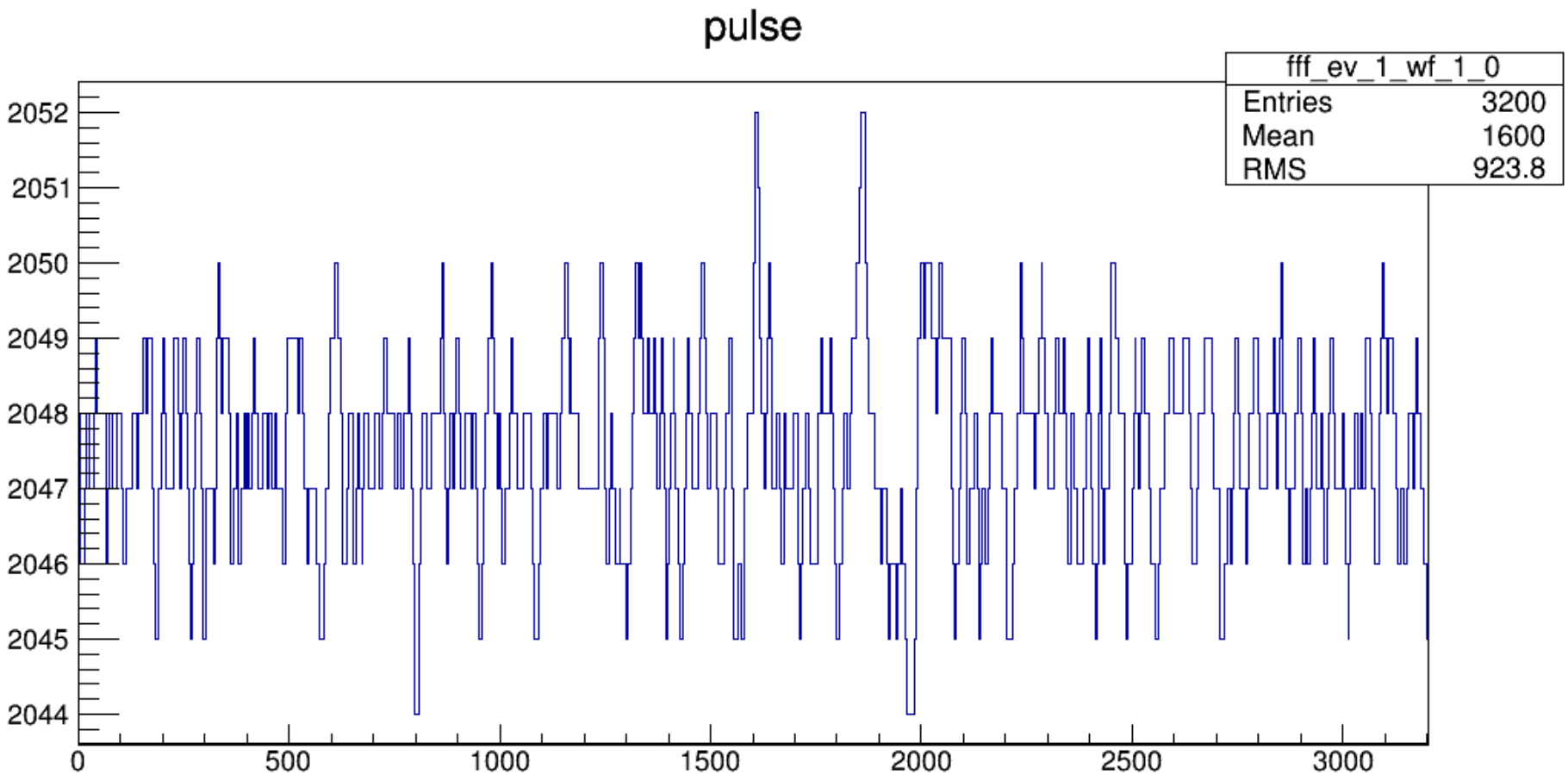
Wire data: noise0p0



Wire data: noisesuppressed



Wire data: noisemodamp



Time to run & file size (5 events)

Most time consuming processes in reco:

- ffthit: ~1.5 sec/event for anoise, noise0p0 and noisesuppressed. ~15 sec/event in noise. ~40 sec/event in noisemodamp
- dbcluster: ~0.1 sec/event in anoise, noise0p0 and noisesuppressed. ~1 sec/event in noise, noisemodamp

	prod file size [Mb]	reco file size [Mb]	prod tot time [sec]	reco tot time [sec]
anoise	7.4	123	67.54	149
noise	29	505	120.33	218
noise0p0	6.9	100	74.63	149
noisesuppressed	7.4	109	101	154
noisemodamp	28	462	88	378

What happens to hits with noise?

- http://argo-microboone.fnal.gov/#entry=0&filename=/uboone/data/us