

# CRT Noise Monitoring Update

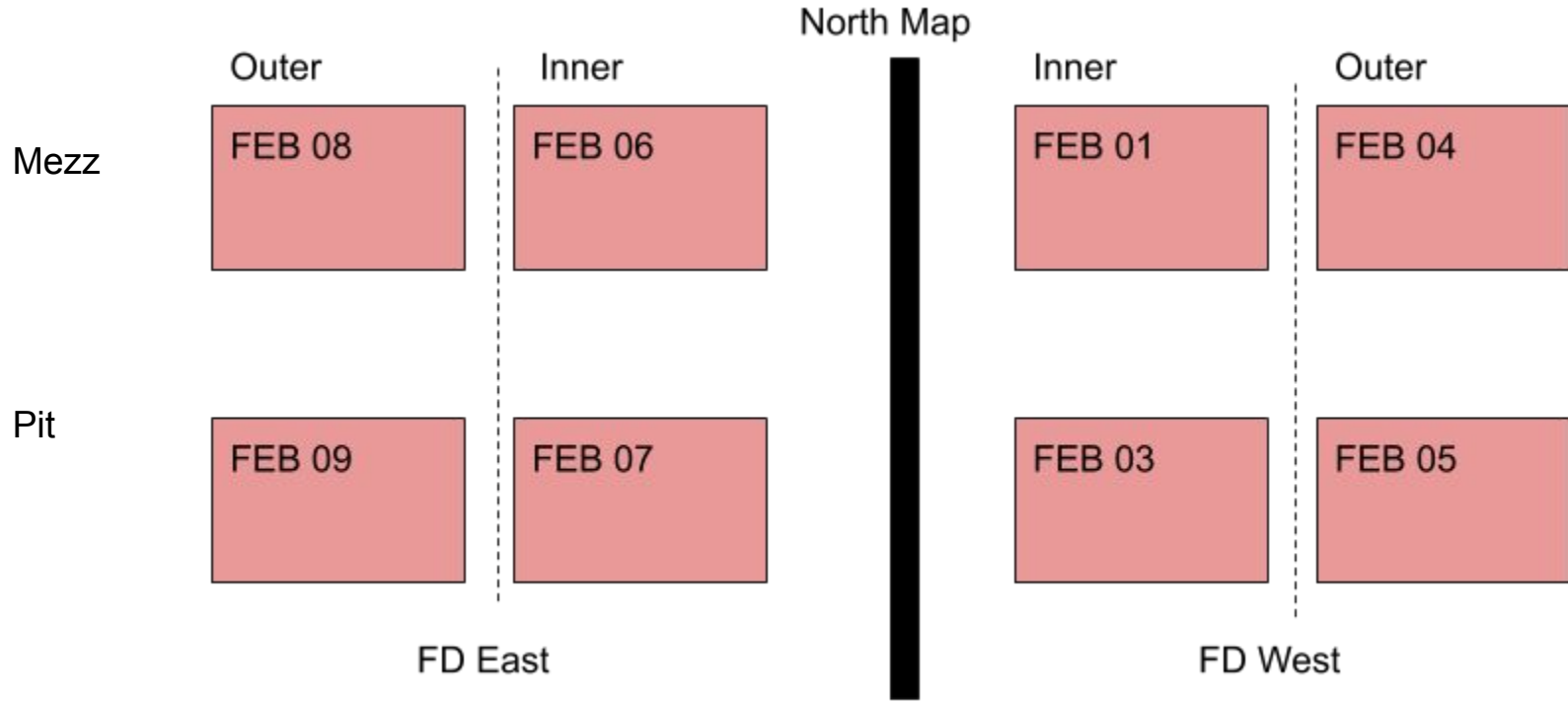
Tyler Boone (CSU)

7/1/20

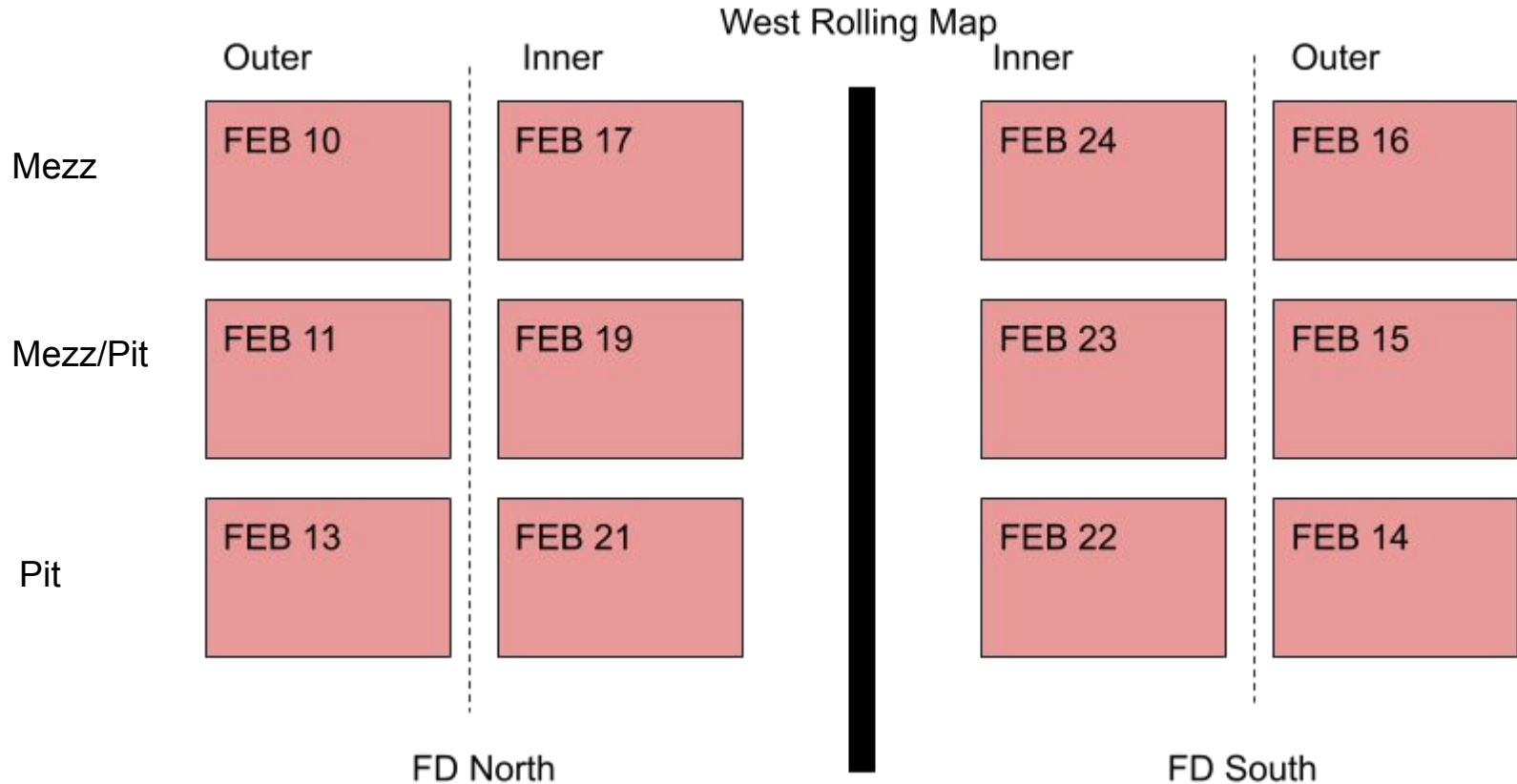
# Refresher on the Cosmic Ray Tagger (CRT)

- We have two walls: north and west rolling, each with two layers of scintillator, each layer is read out by a daisy chain of Front-End Boards (FEBs) on the icarus-crt servers
  - 20 Front-End Boards, 560 channels covering approximately 85 m<sup>2</sup> surface area
- The North Wall is exceptionally noisy due to proximity to cryogenics
- We take a set of one “noise” run, one “standard” run, and three “calibration” runs each day using artdaqDriver while we wait for DAQInterface to work with CRT
- The noise files from this data collection are put into the following plots to show the noise over time
- Day 0 is March 27th in these plots, as that is the day we began running in the current configuration (poll time of the Front-End Boards was adjusted from 300 ms to 50 ms)

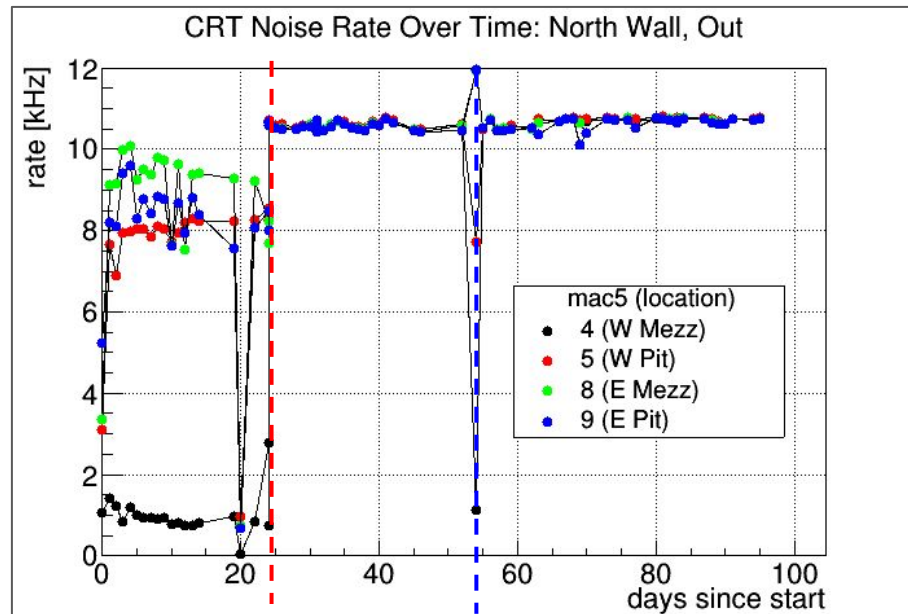
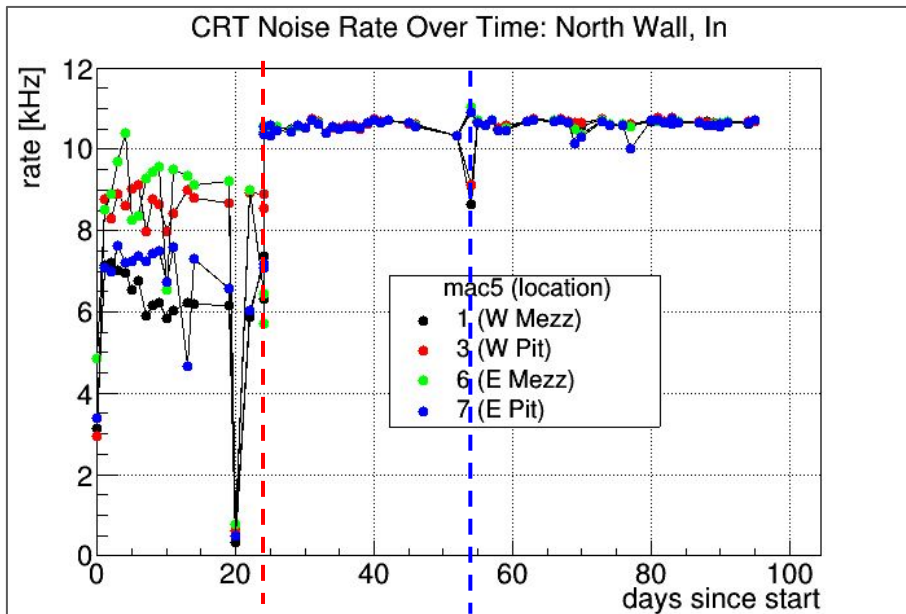
# North Wall FEB Mac ID guide



# West Rolling Wall FEB Mac ID guide



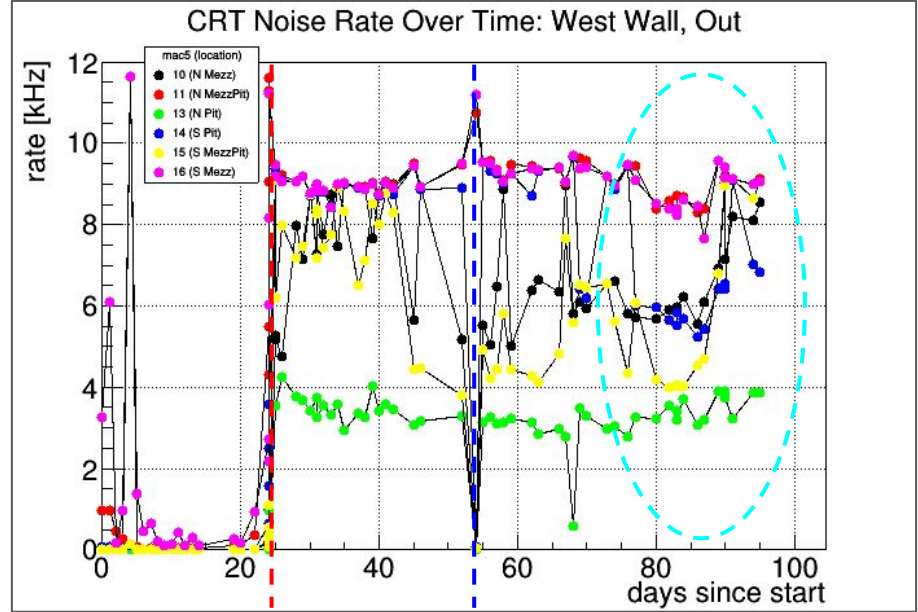
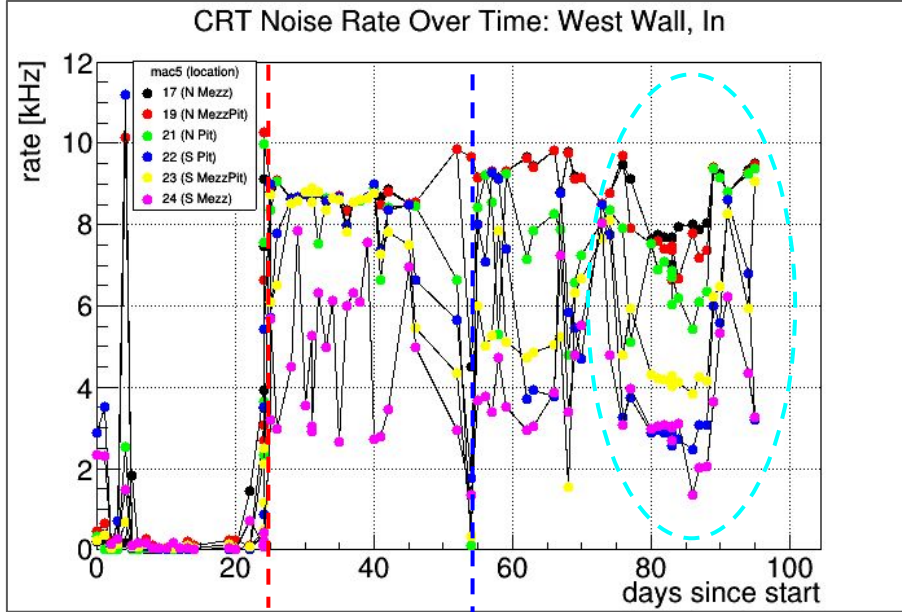
# North Wall noise monitoring



- - - - - April 20th, end of filling
- - - - - May 20th, re-fill in ECL 5908

FEBs that dropped on 5/20:  
1, 3, 4, 5  
(all West FEBs)

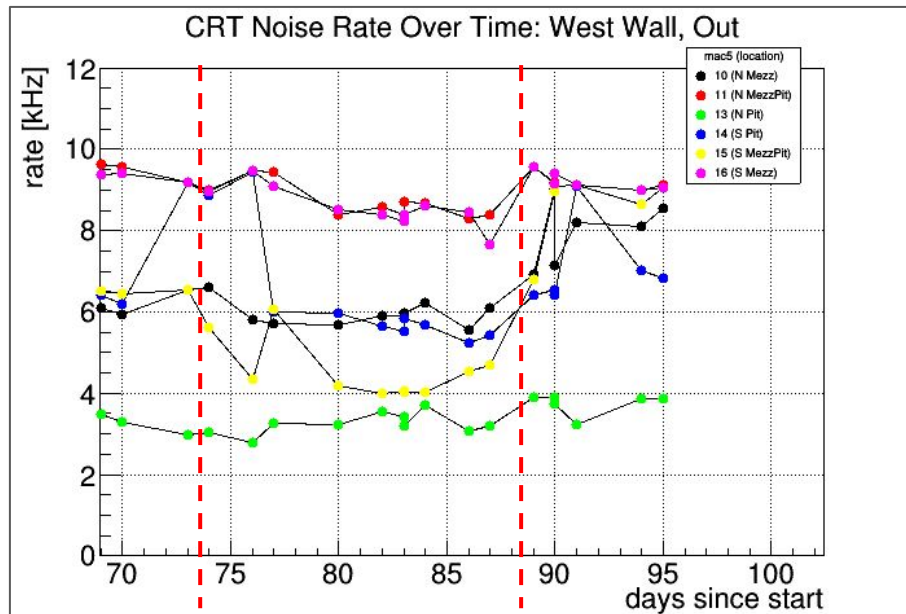
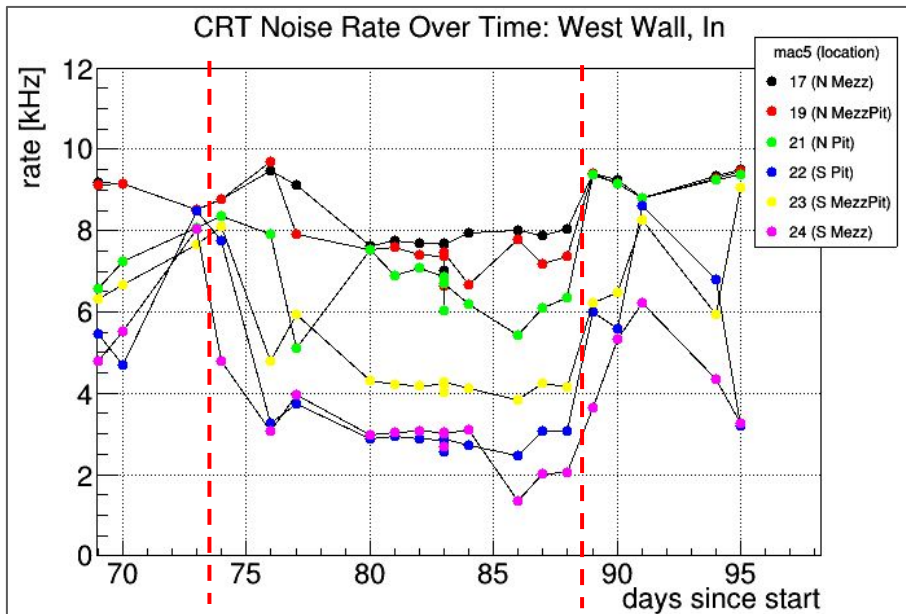
# West Rolling Wall noise monitoring



--- April 20th, end of filling  
--- May 20th, re-fill in ECL 5908

--- Will be expanded on in next slide

# West Rolling Wall, last few days



Time between red dashed lines is approximately the length of the ground short search, June 8th-> June 23rd, so shift downwards was potentially from detector electronics being powered off?

# Thoughts

- The ground short removal has not resulted in a loss of noise from the north or west rolling walls
- We have determined the issue before to be with the cryo pumps, we have evidence of them causing this issue both from tests we did with Linda before cooldown completed, as well as our data from the installed walls
- Umut and myself have some ideas of tests to perform at FD when we have clearance, we may want to discuss this with Linda, Chris has told me we have already cleared the actions on the list she gave us last time