

Hodoscopes Efficiency Study in 2018 Data

CORAL-Weekly Meeting

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Extraction Method of Hodoscope Efficiency

Method:

- ▶ Selecting **good muon tracks** and requiring inclusive **CT** event.
- ▶ Extrapolated tracks to each hodoscopes and requiring special hodoscopes cut. (Sample 1)
- ▶ Looping **hits from this events** and check corresponding hits was found in **this slab or neighboring slabs (slab#±1)**. (Sample 2) [*** For HG02Y1/Y2 extend to slab#±2**]
- ▶ **Slab Efficiency = (Sample 2)/(Sample 1)**

Selection Criteria

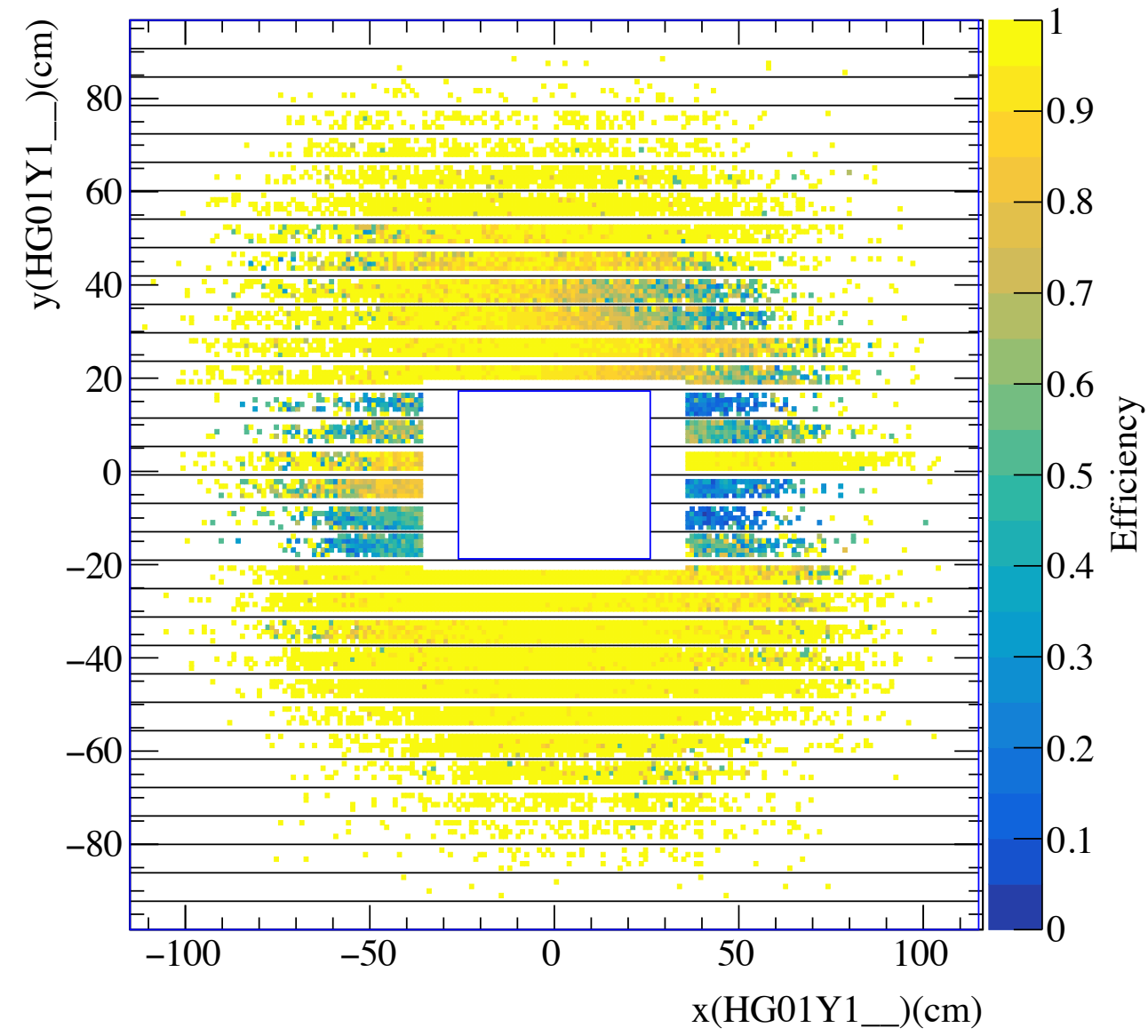
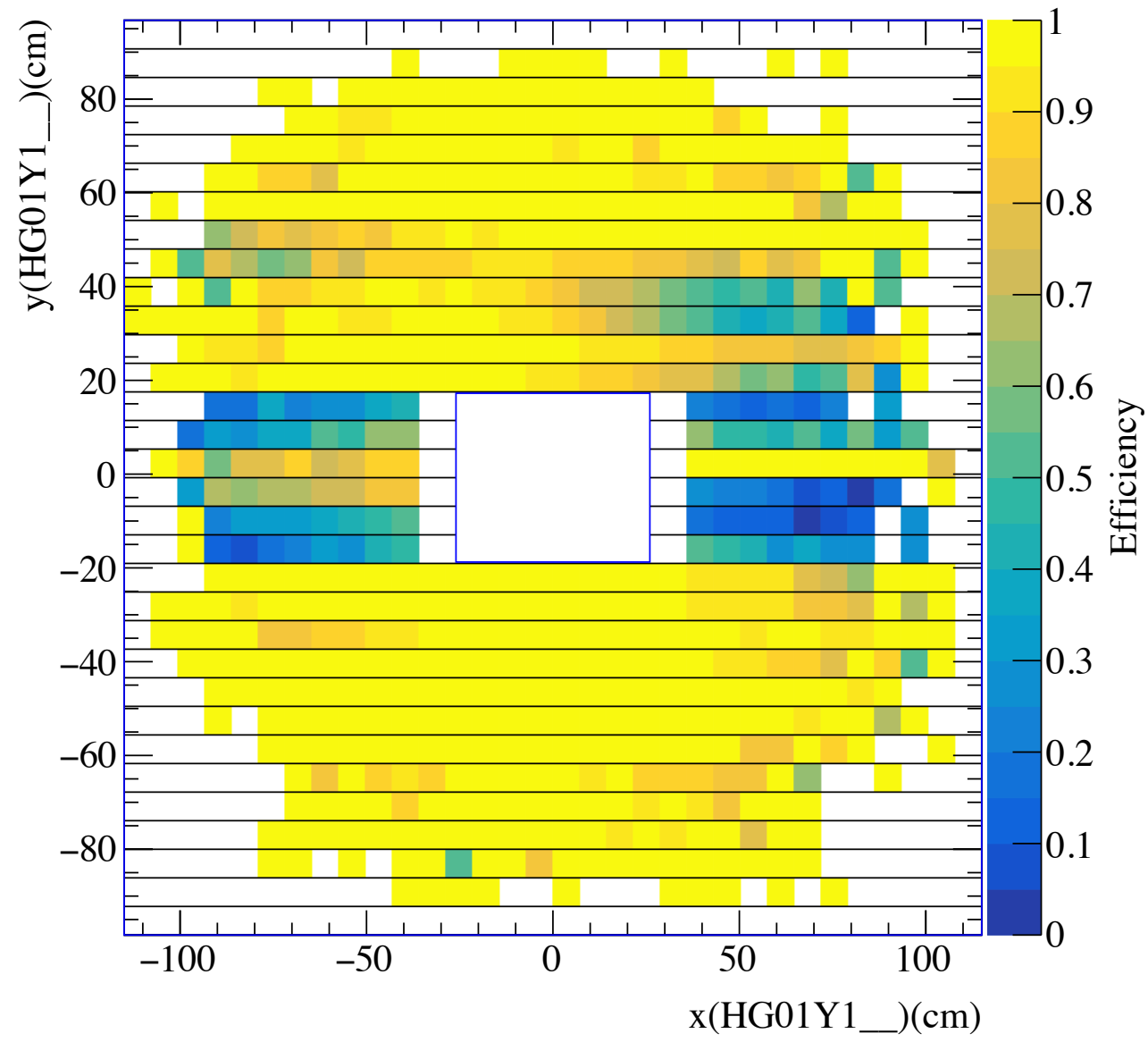
- Skip if there is no outgoing particle
- Skip if there is no vertex
- Skip if $XX0 < 30$
- Skip if $\chi^2/ndf > 10$
- Skip if $Z_{\text{First}} > 300$ cm
- For LAS event:**
 - skip if $p_{\mu} < 10$ GeV/c**
 - skip if #hits from muon wall A < 6**
- For SAS event:**
 - skip if $Z_{\text{Last}} < 4200$ cm
 - skip if $p_{\mu} < 20$ GeV/c**
 - skip if #hits from muon wall B + MWPCs(PB) < 6**
 - skip if `CrossYokeSM2() == true`**

Cut on Hodoscopes

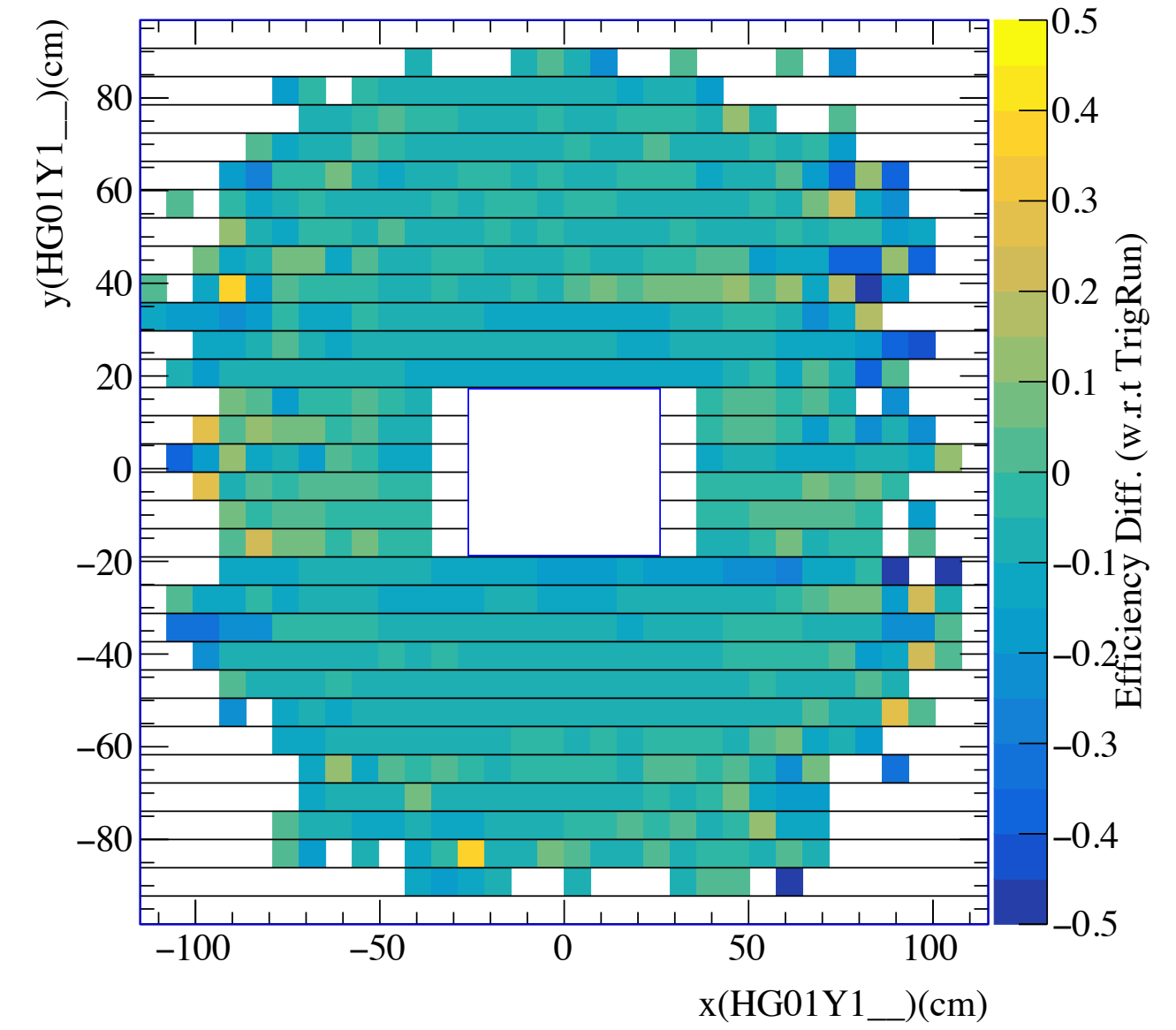
- For all of hodoscopes:**
 - Shrink the edge by 2.5 cm in x and y
 - Shrink the edge of slabs by **20% of slab size in y**
- For HG01:**
 - Enlarge the dead zone by 2.5 cm in y
 - Enlarge the dead zone by 10 cm in x
- For HG02Y1 and HG02Y2:**
 - Shrink the edge by 10 cm in x (only on overlap region)
- For HG02, HO03, HO04:**
 - Enlarge the dead zone by 2.5 cm in x and y

HG01Y1_Hodoscope Efficiency

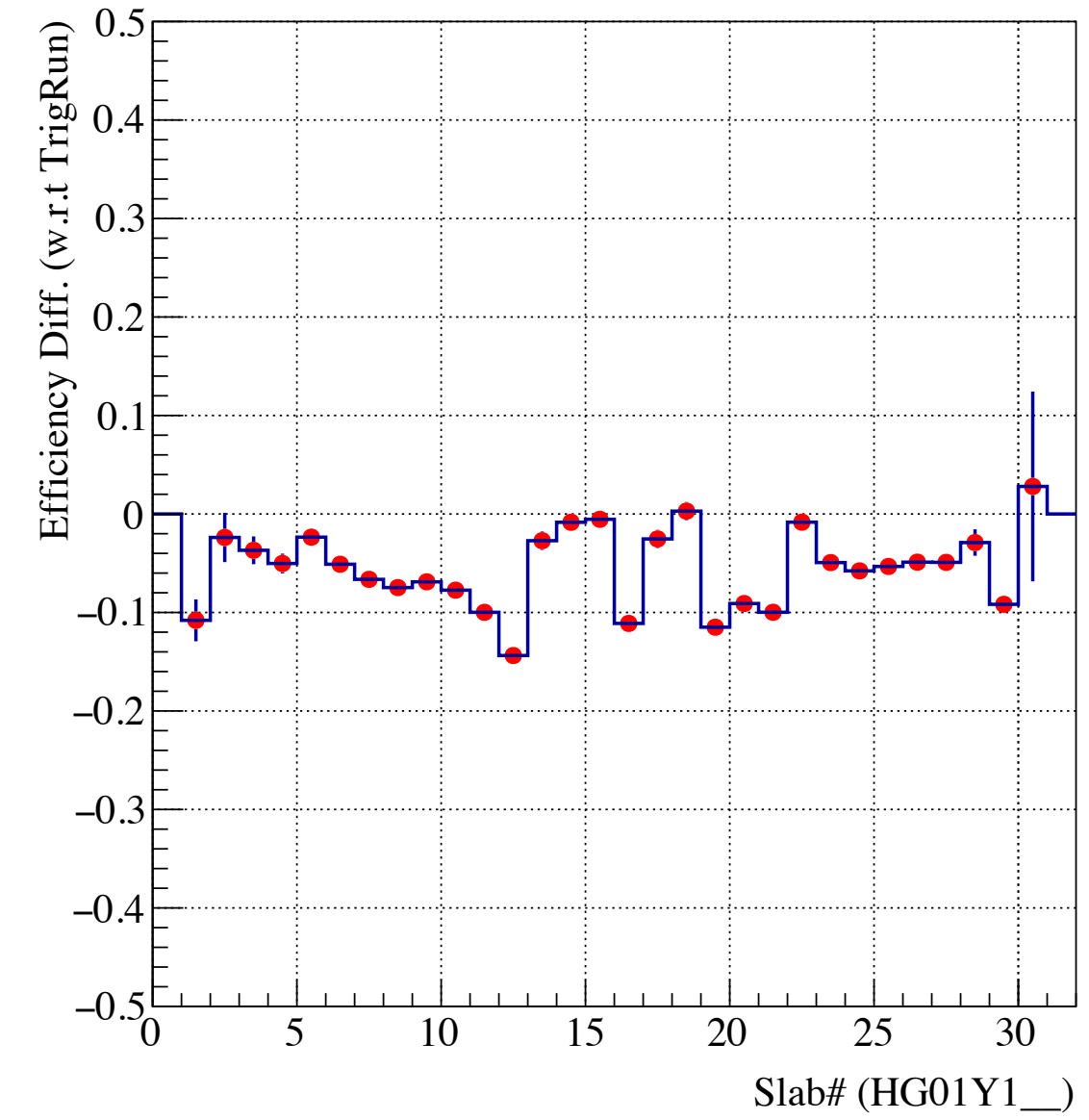
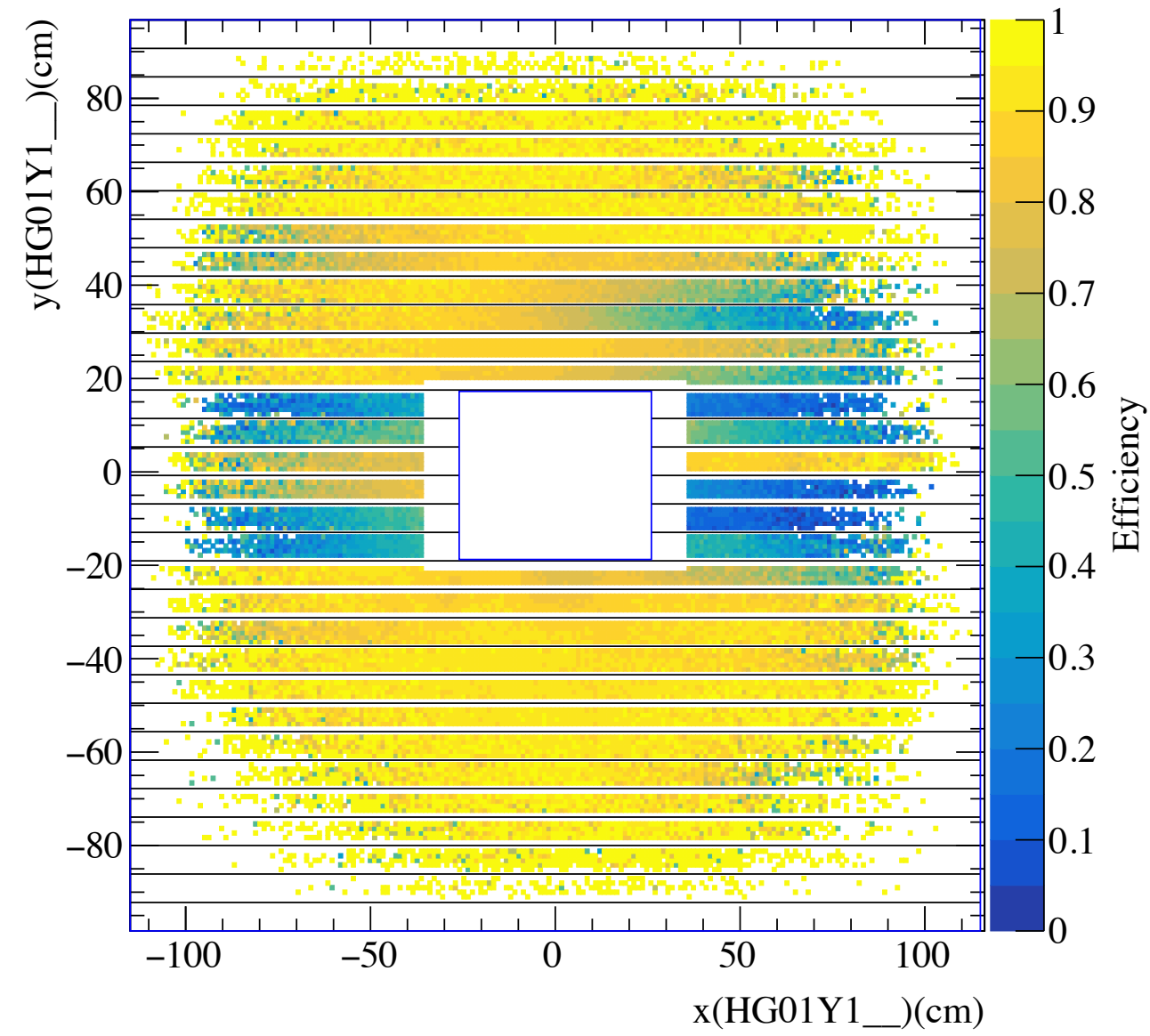
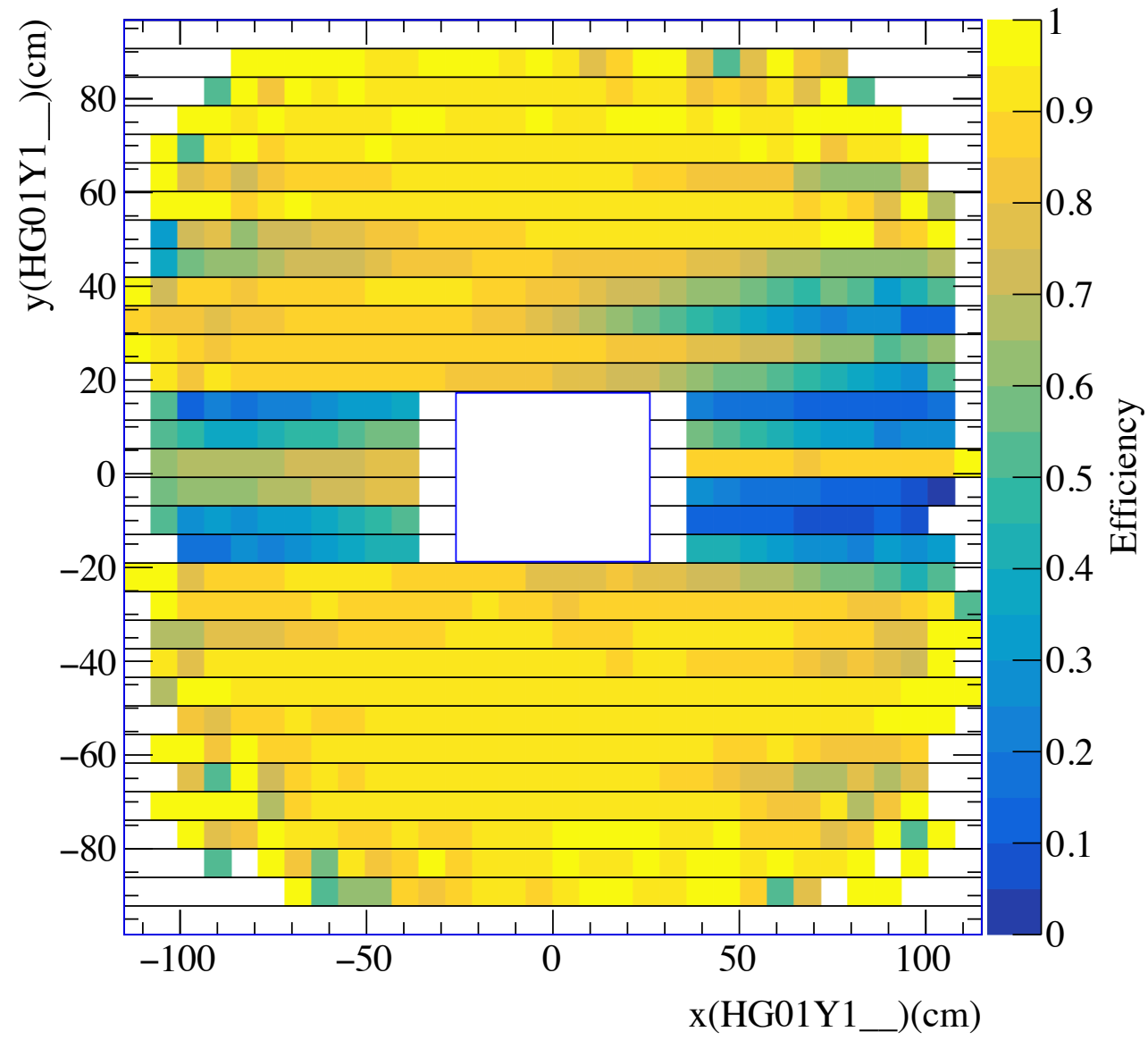
P03t7 TrigRun



Efficiency(CaloDump) - Efficiency(TrigRun)

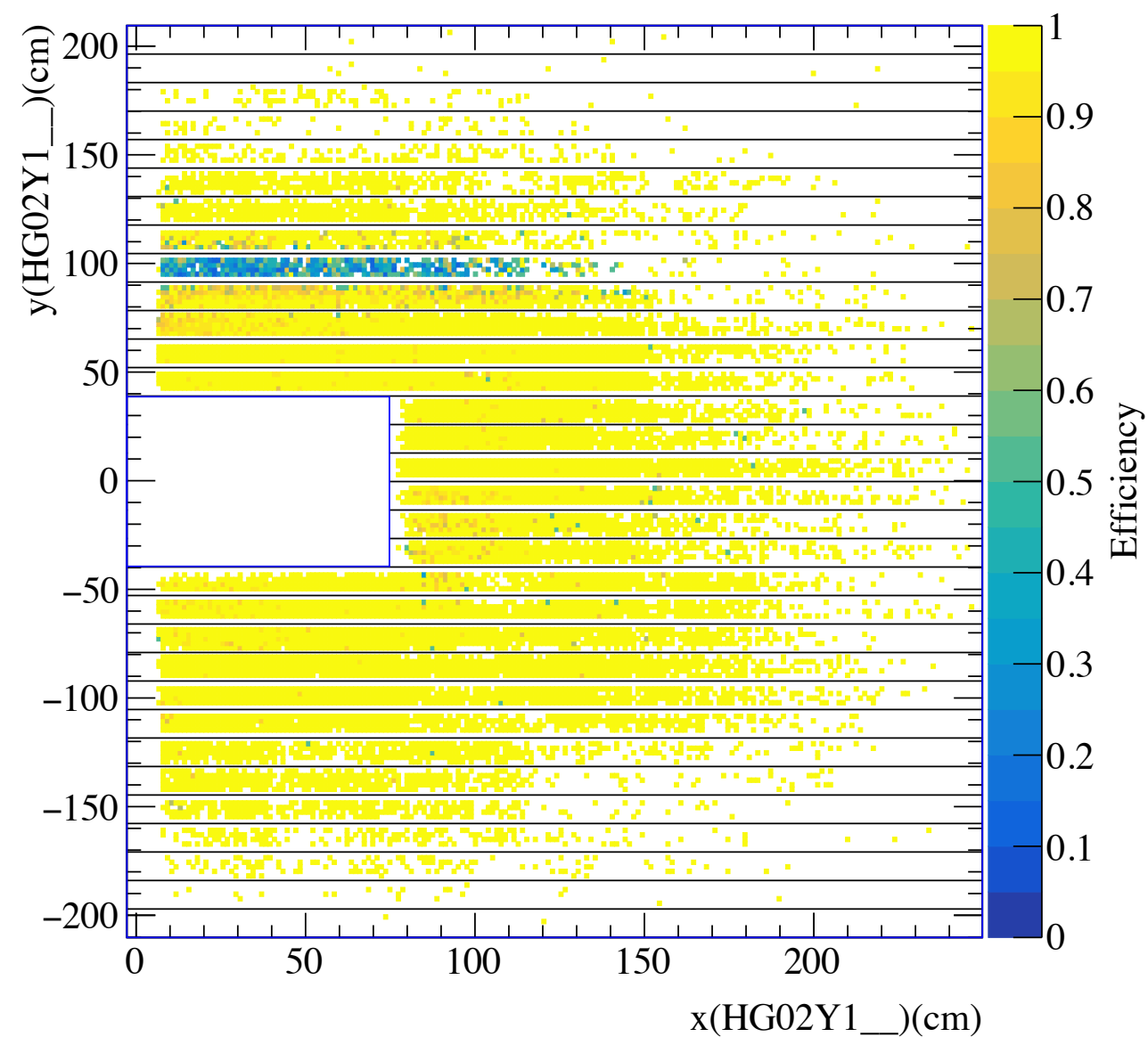
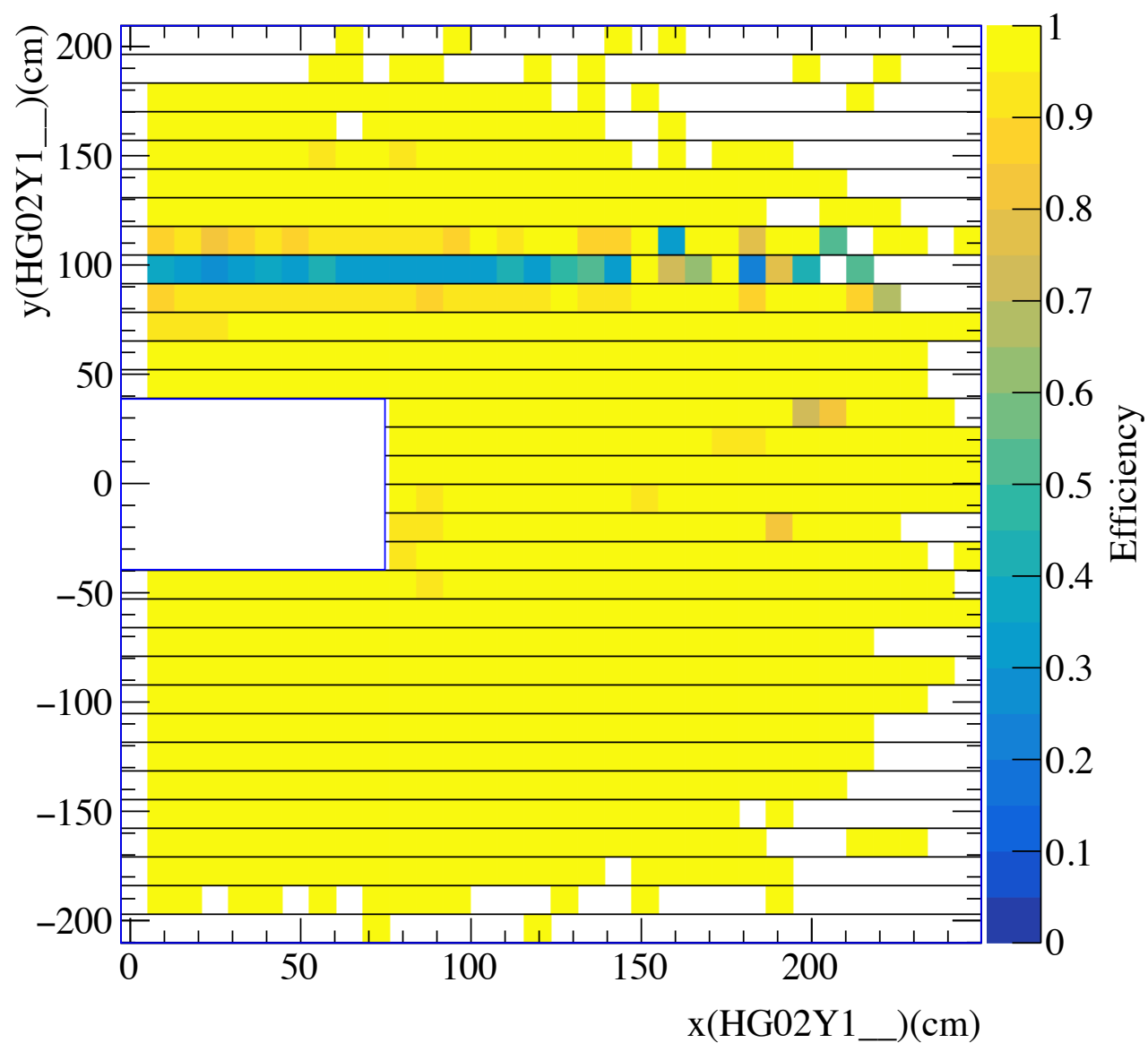


P03t7 CaloDump

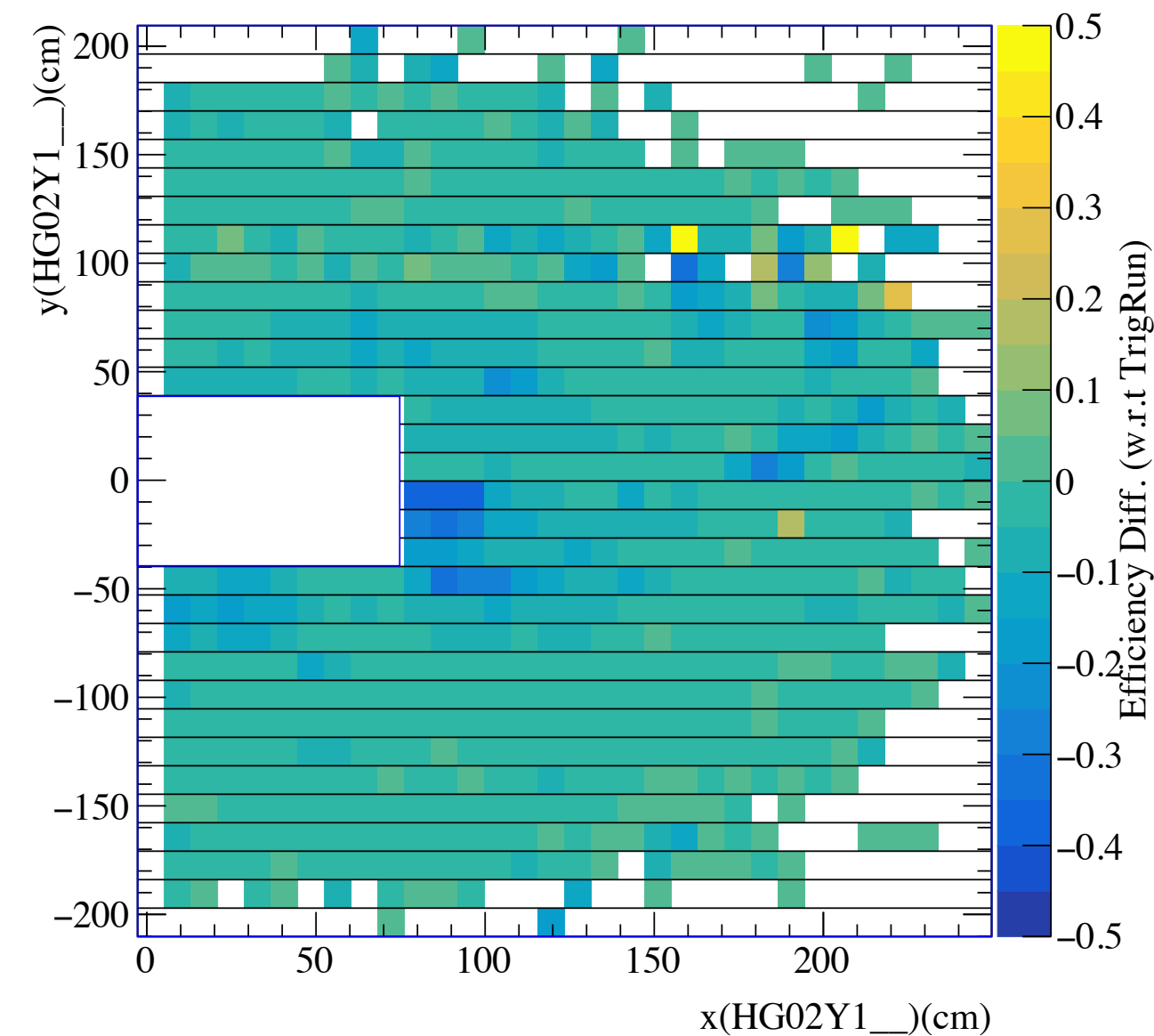


HG02Y1_Hodoscope Efficiency

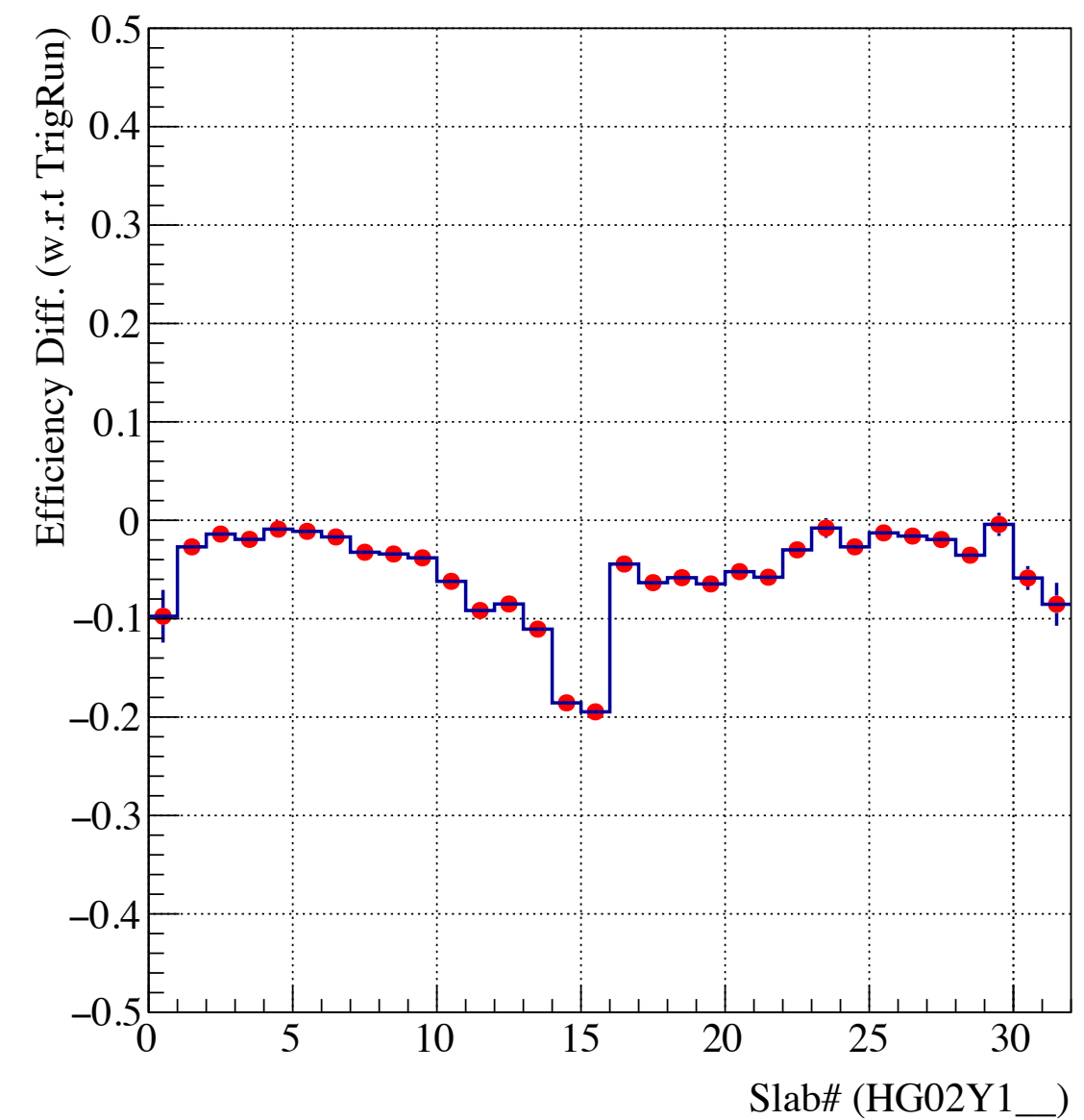
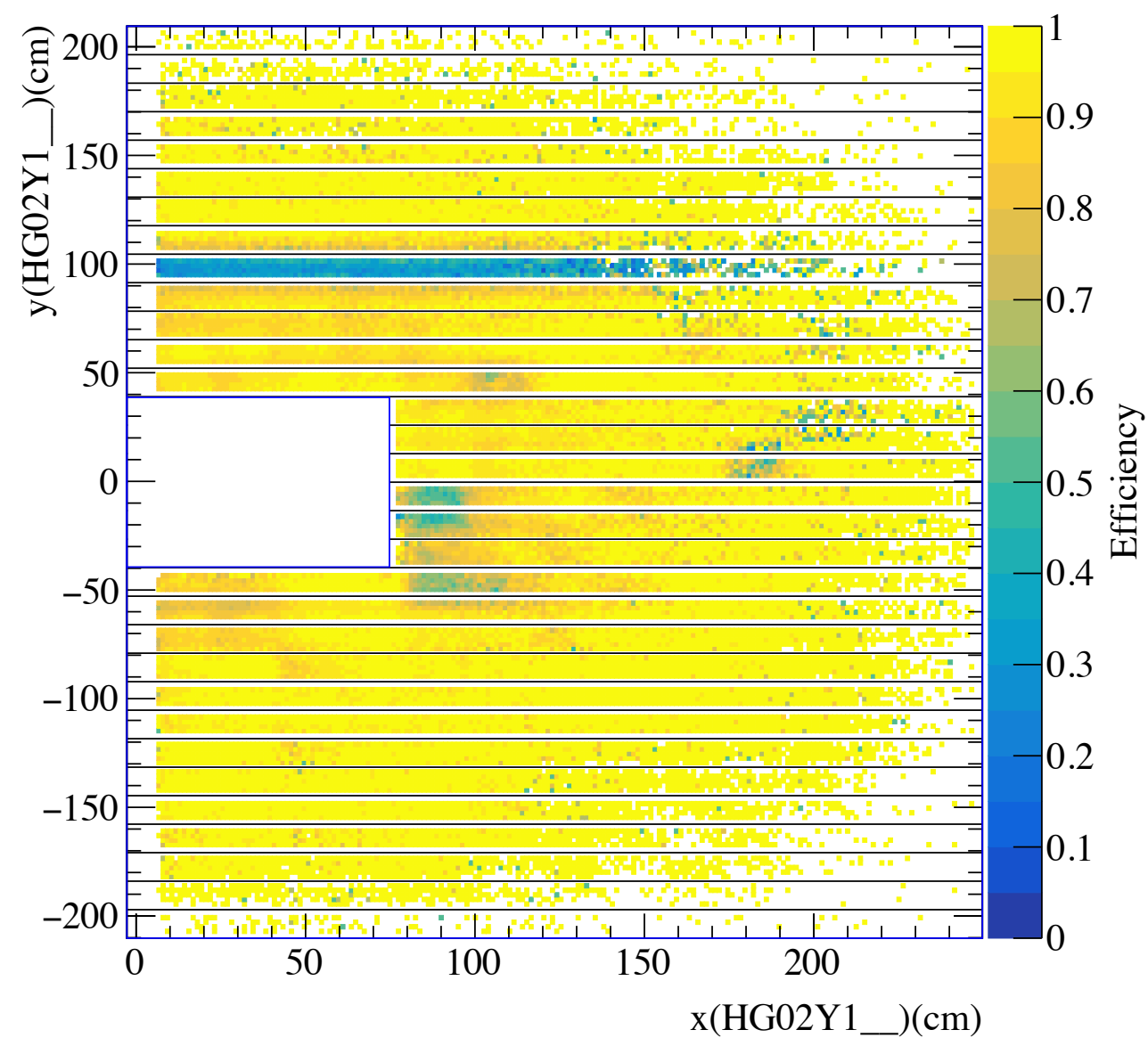
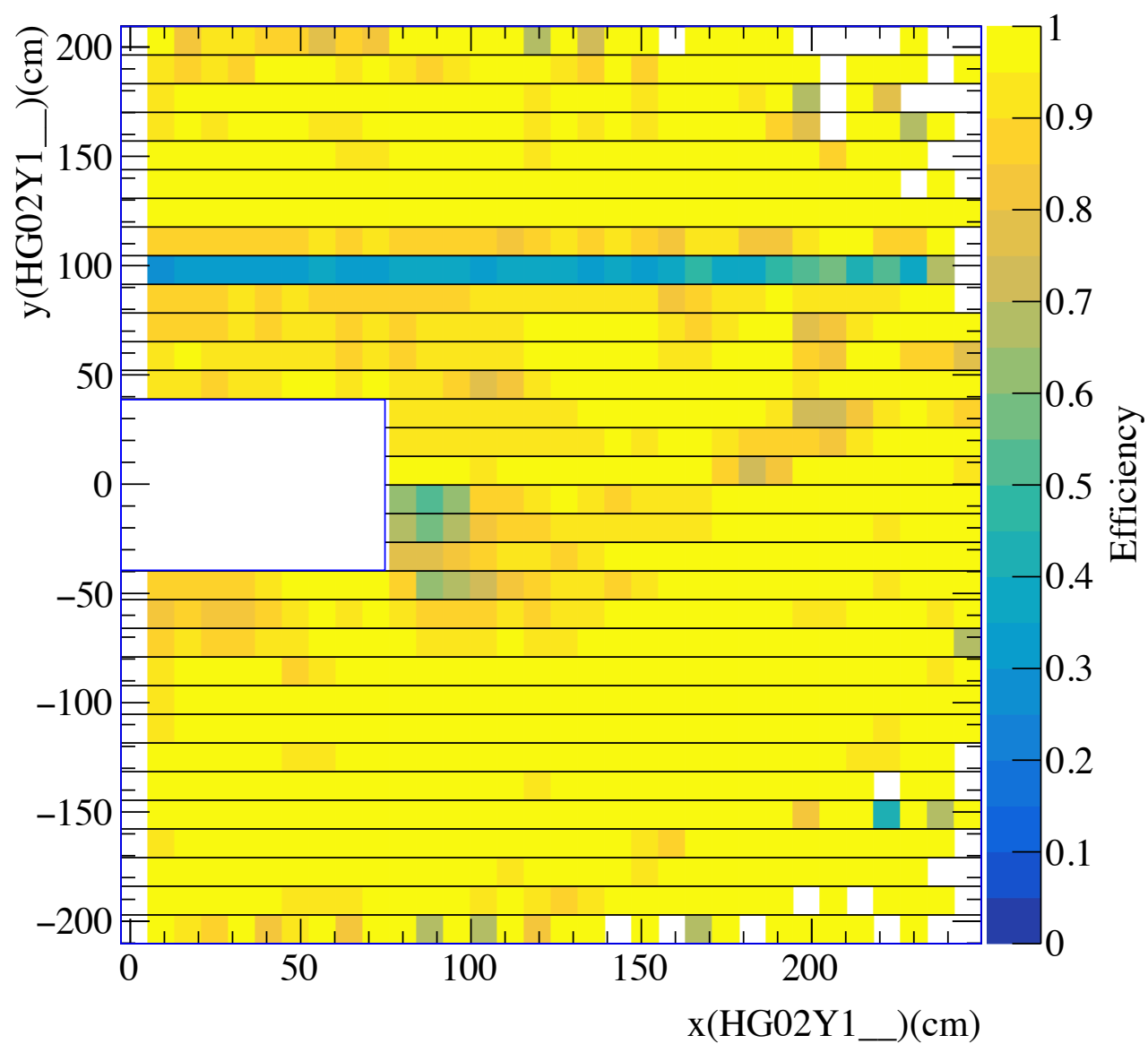
P03t7 TrigRun



Efficiency(CaloDump) - Efficiency(TrigRun)

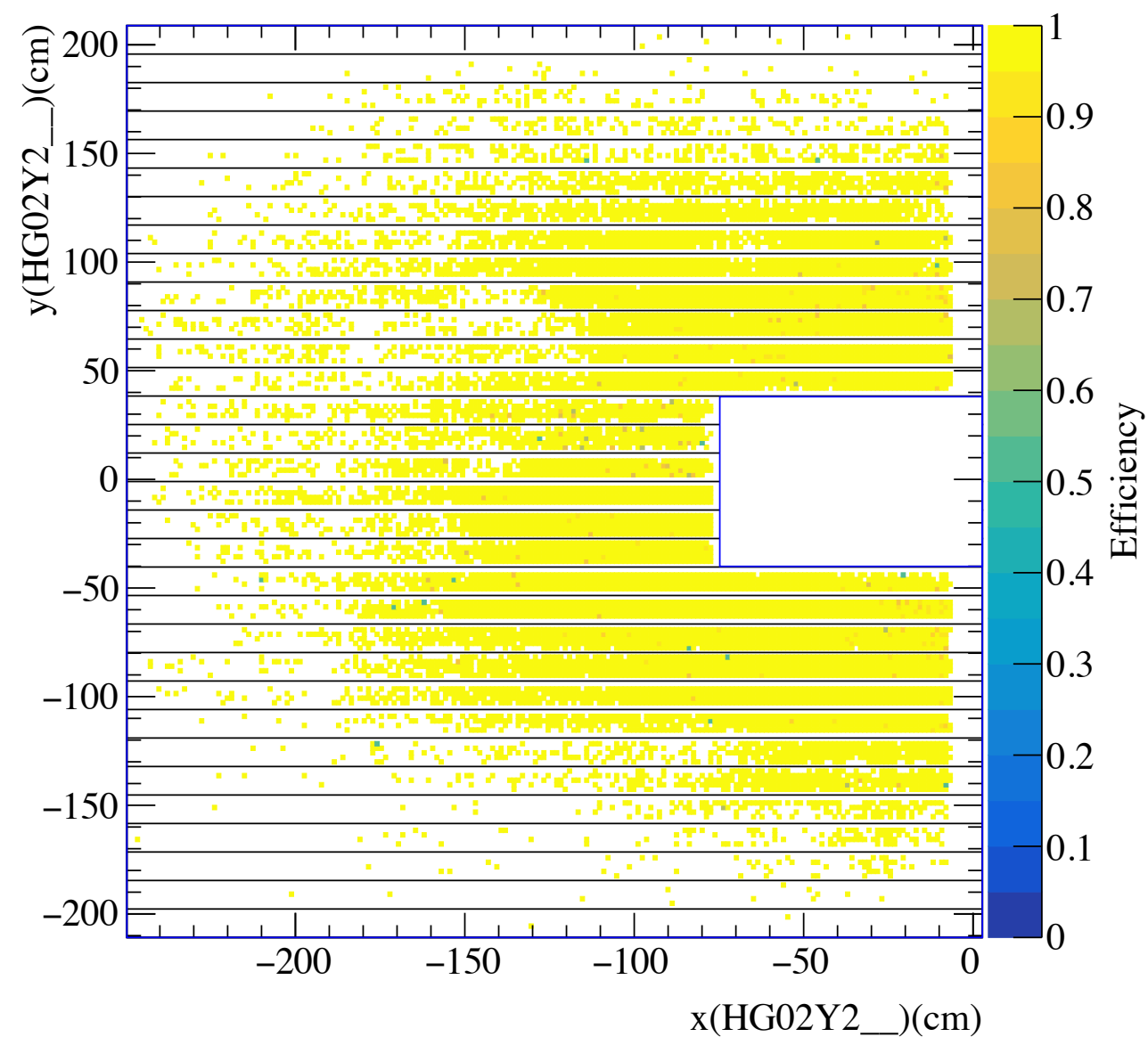
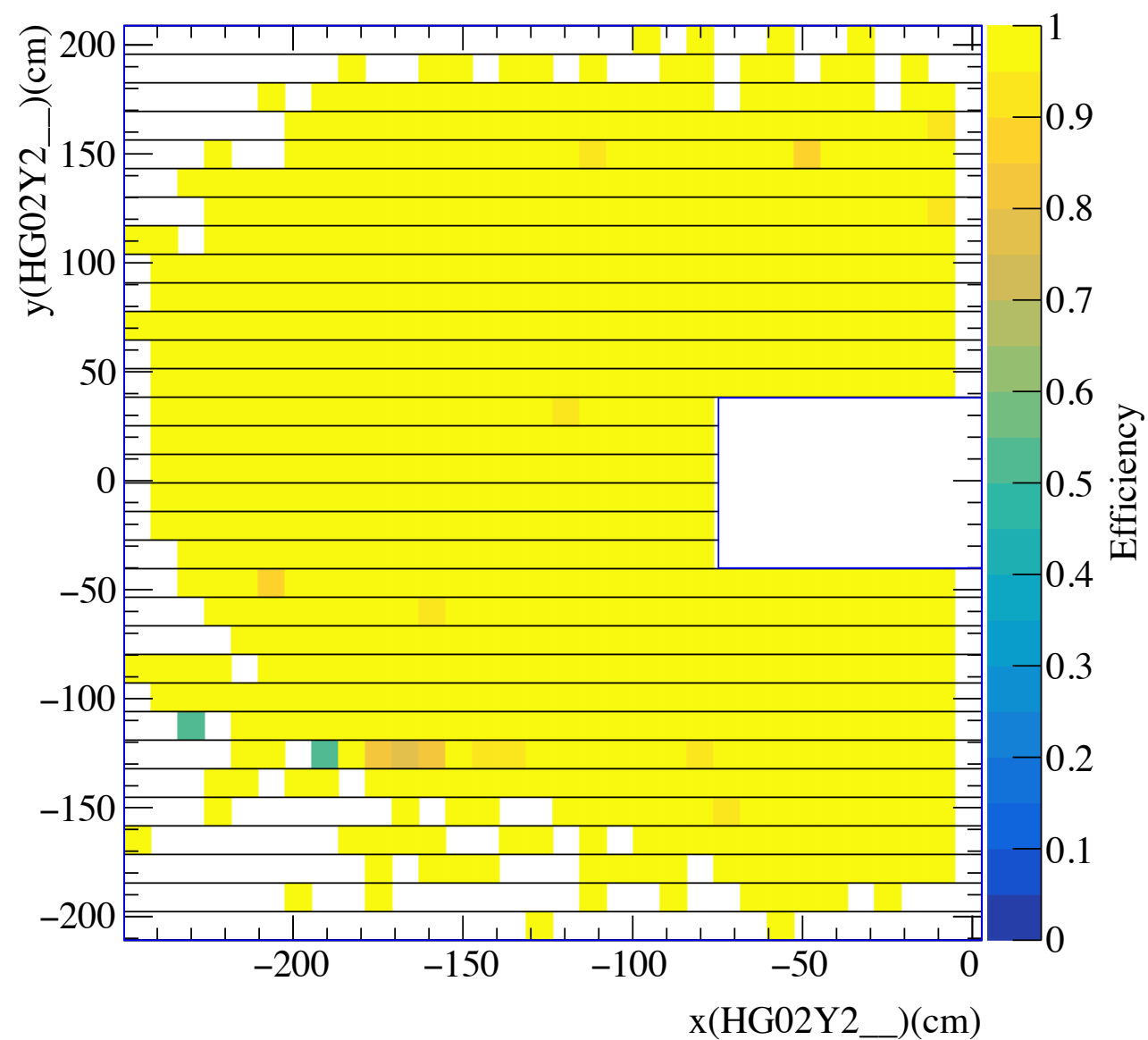


P03t7 CaloDump

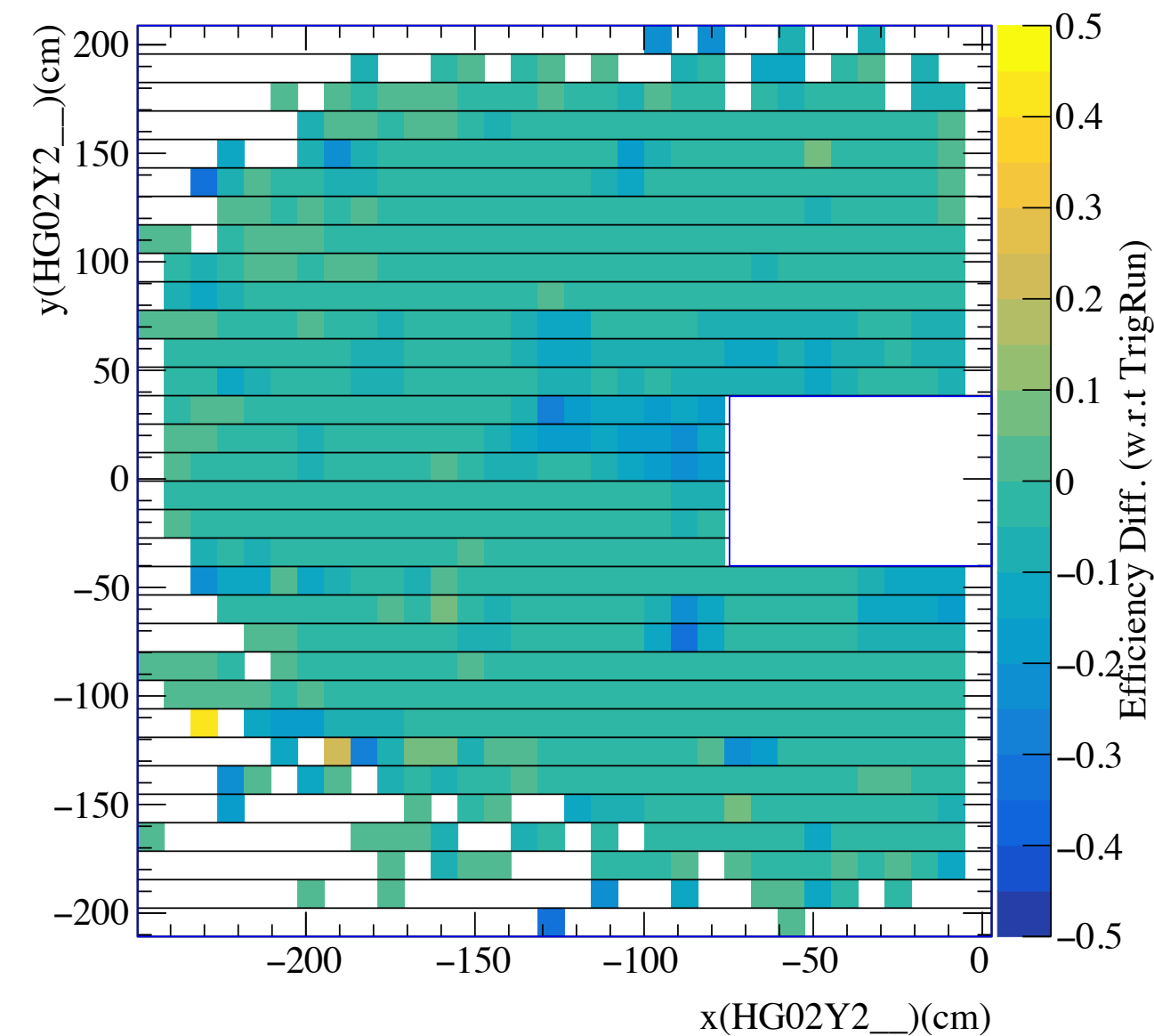


HG02Y2_ Hodoscope Efficiency

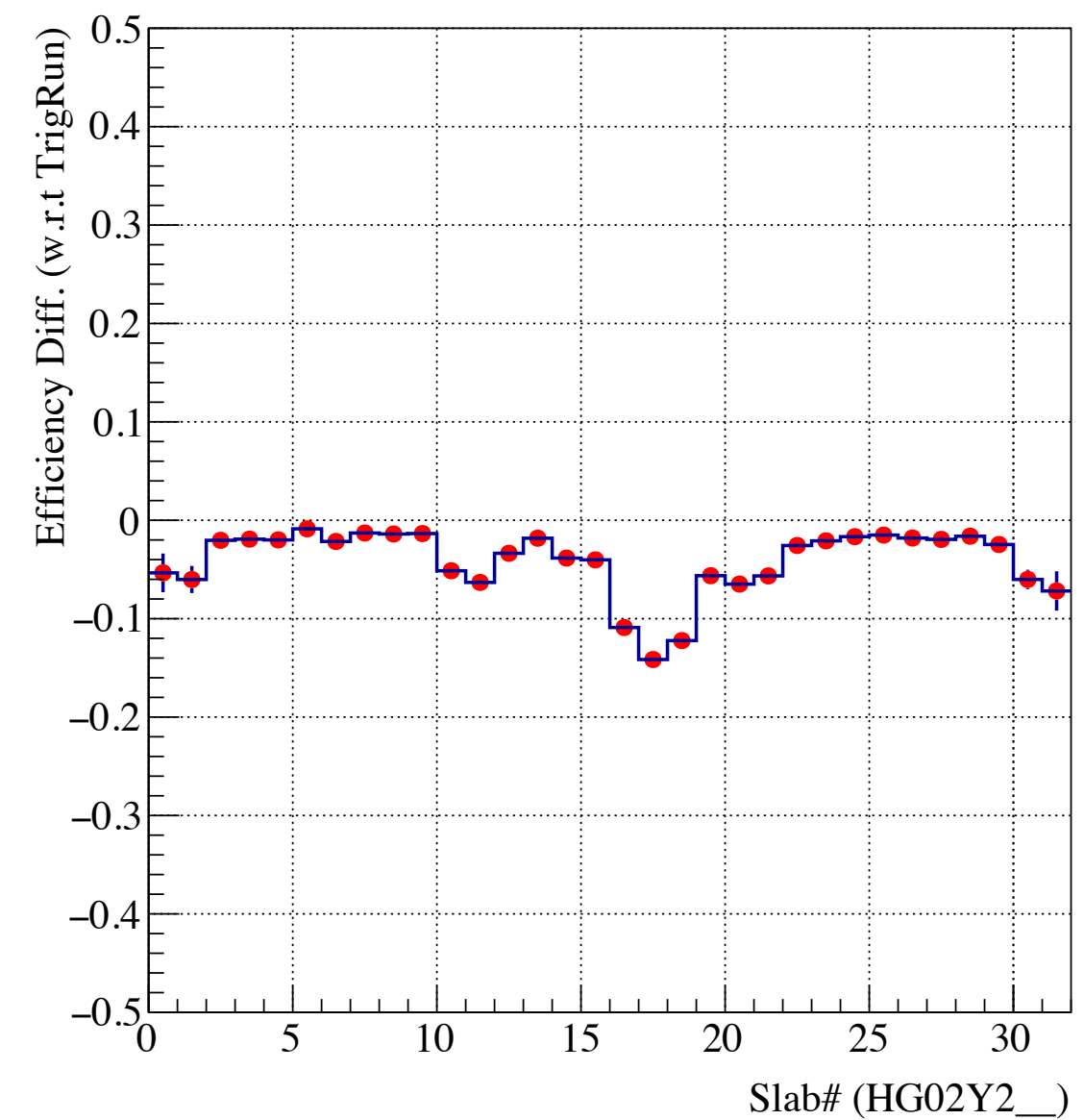
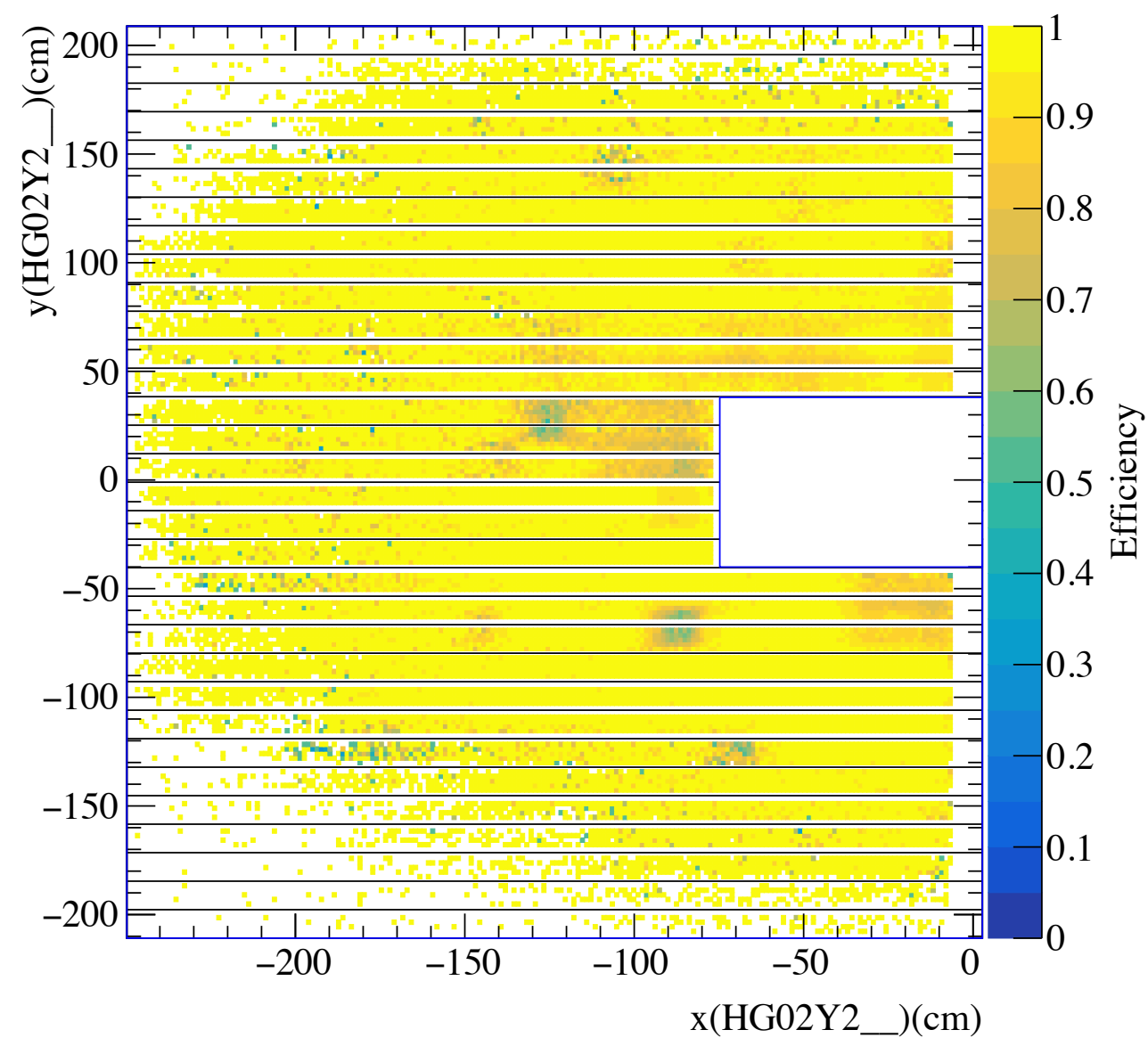
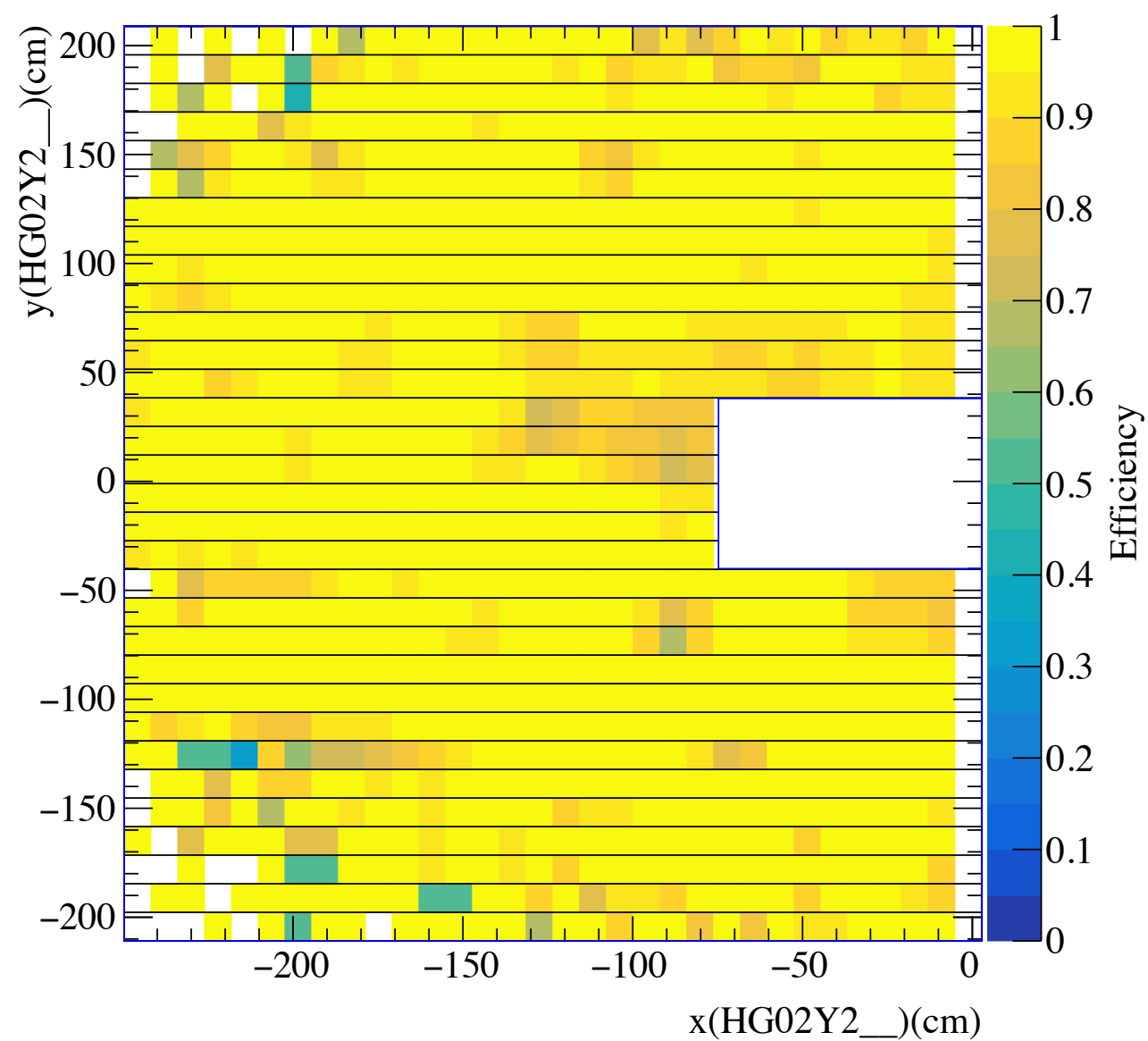
P03t7 TrigRun



Efficiency(CaloDump) - Efficiency(TrigRun)

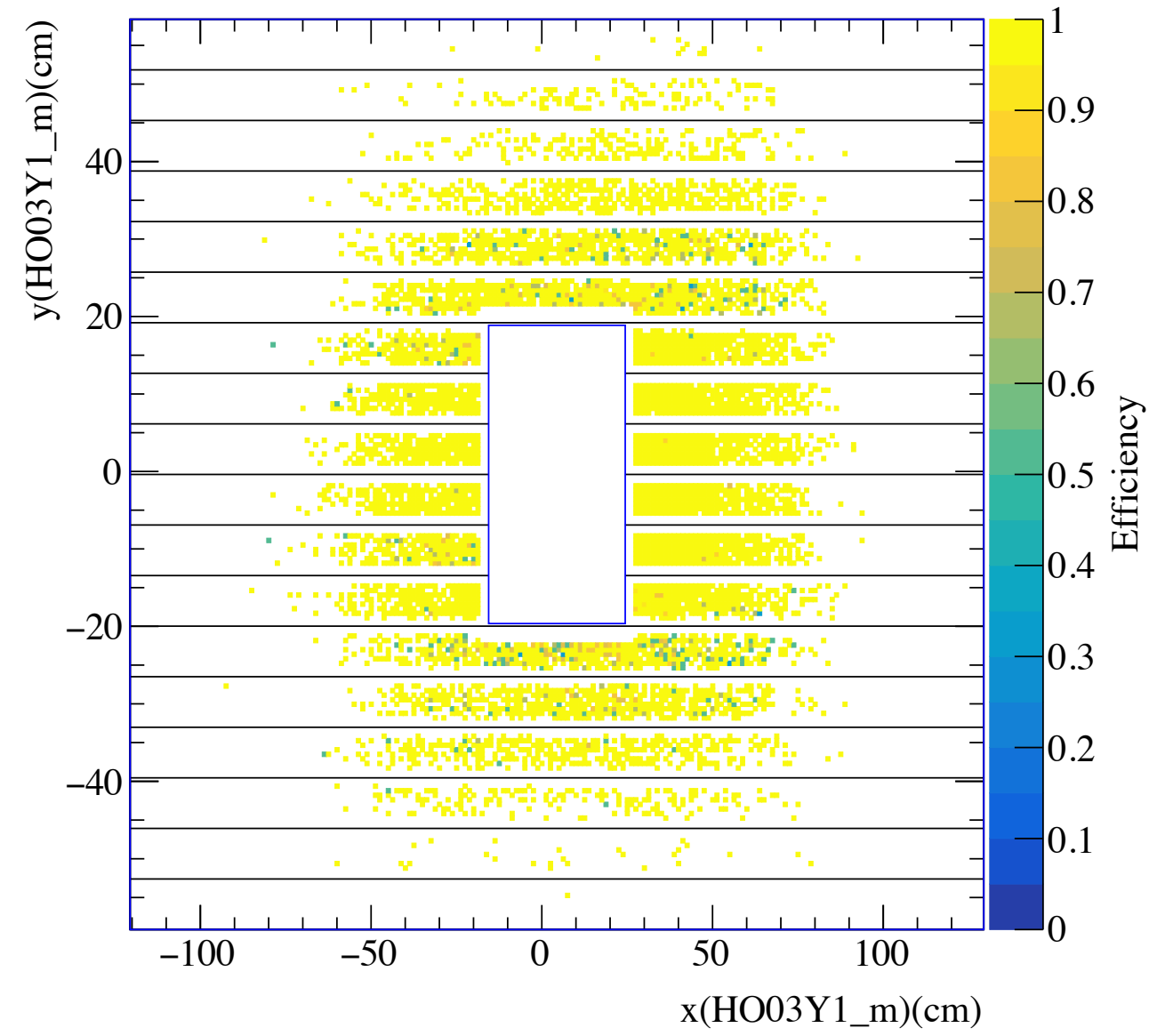
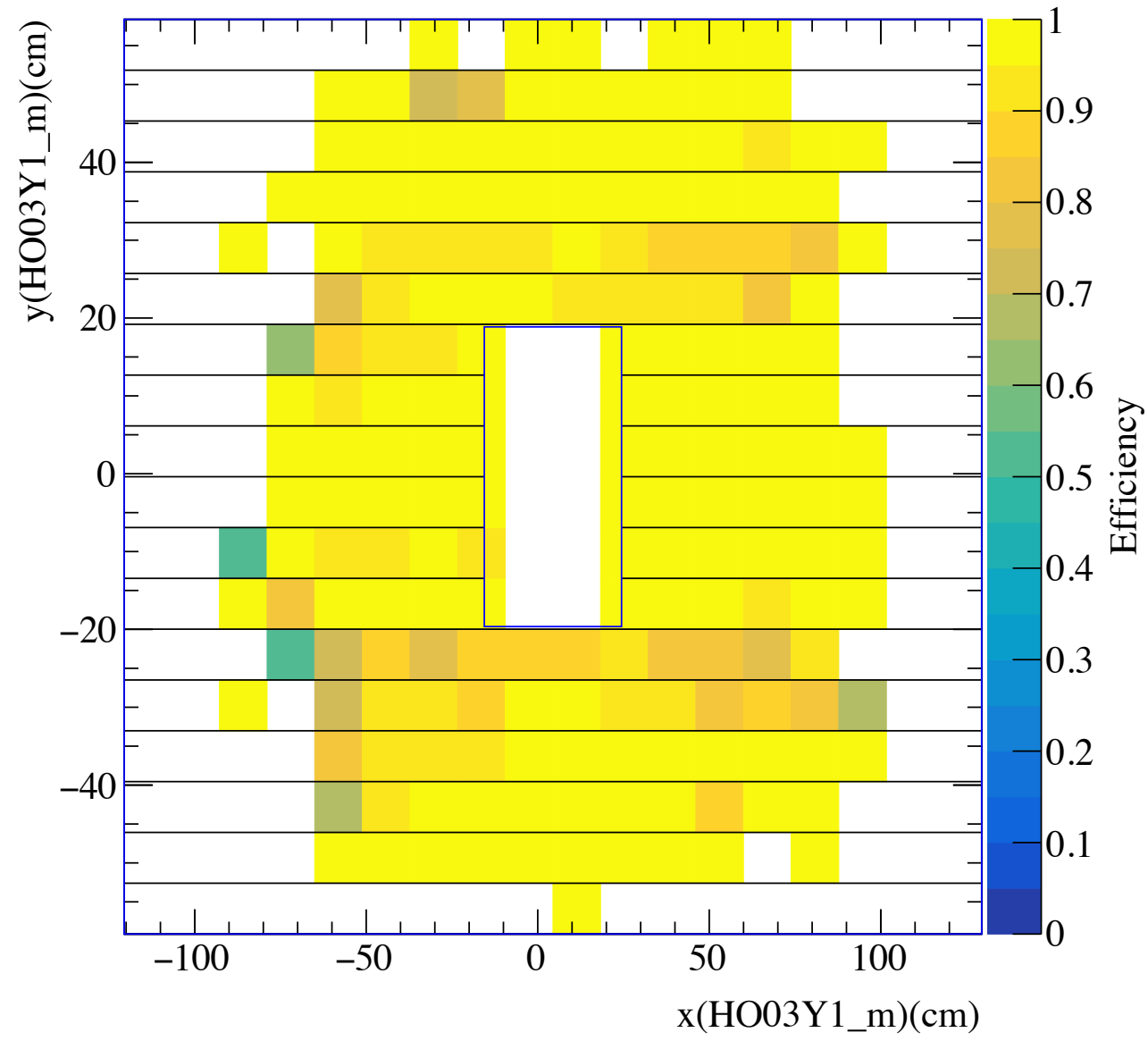


P03t7 CaloDump

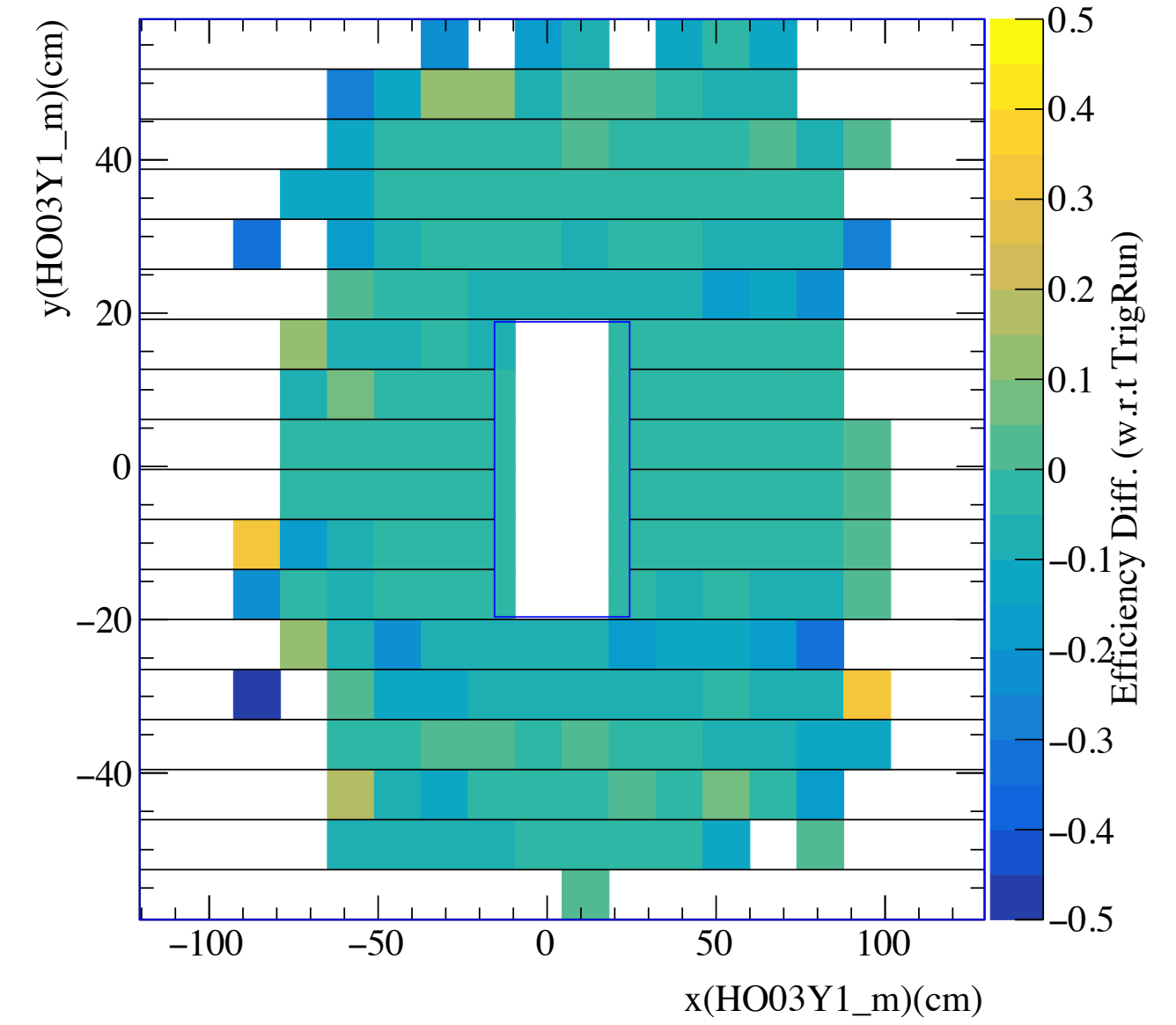


H003Y1_m Hodoscope Efficiency

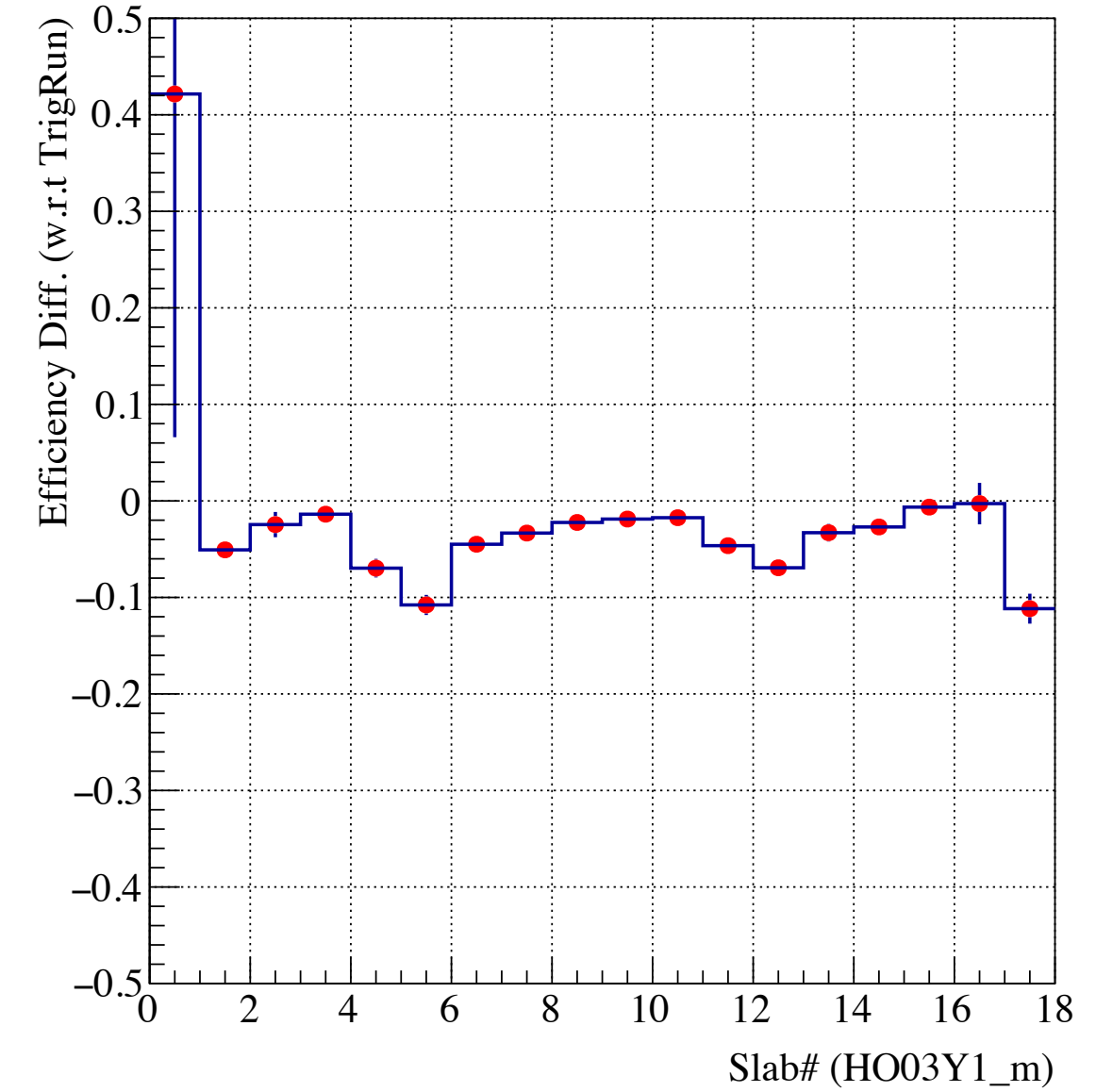
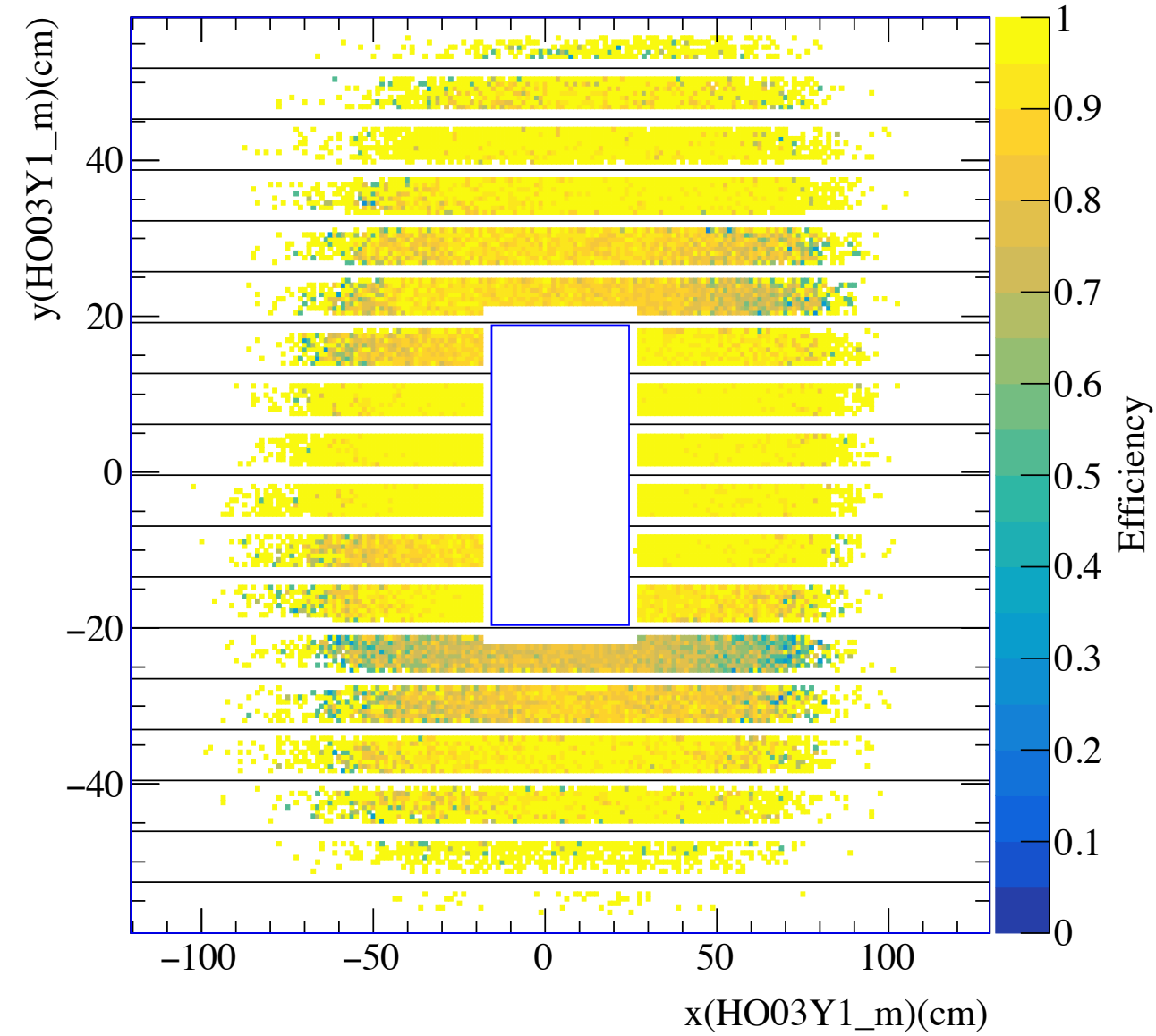
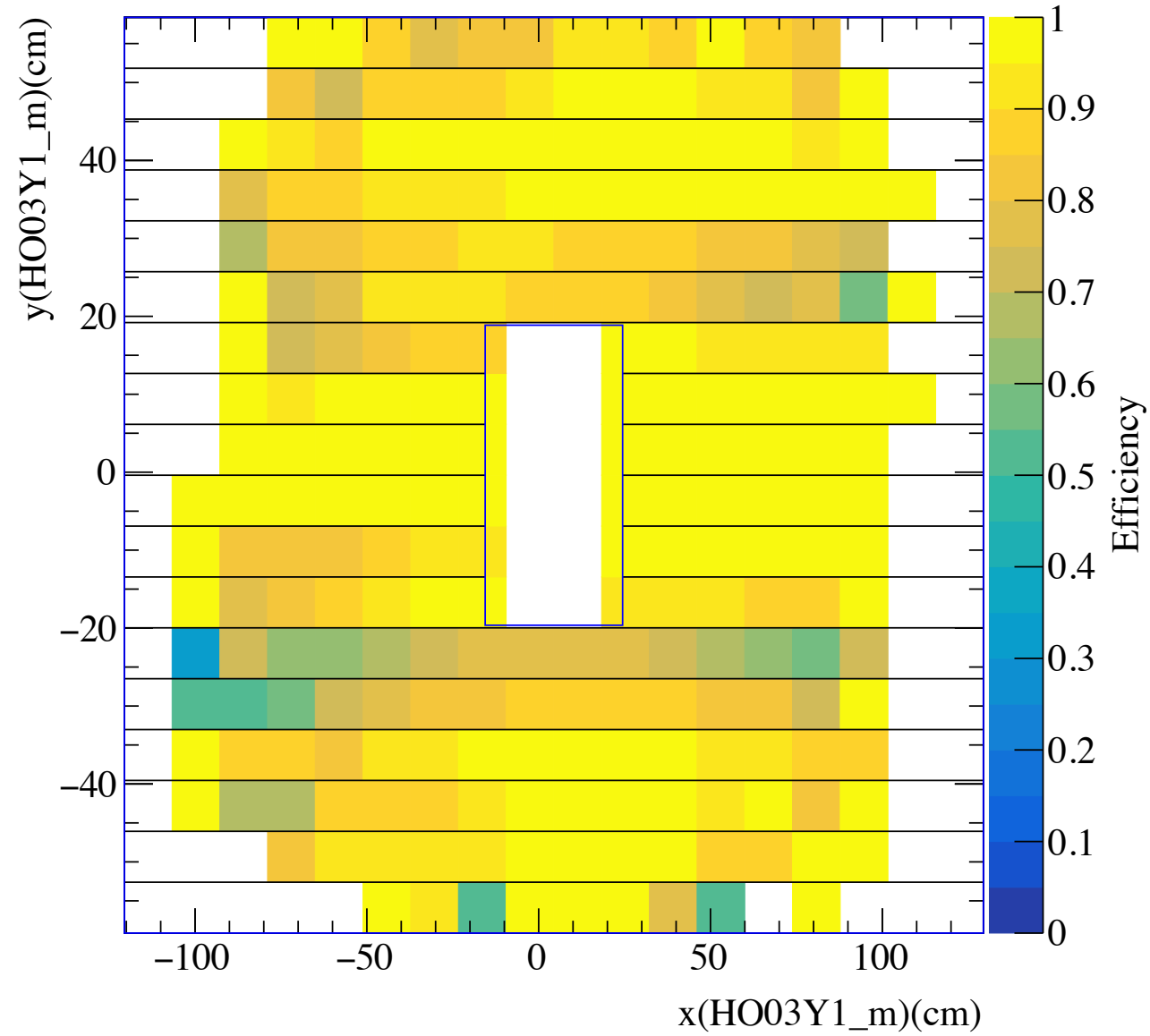
P03t7 TrigRun



Efficiency(CaloDump) - Efficiency(TrigRun)

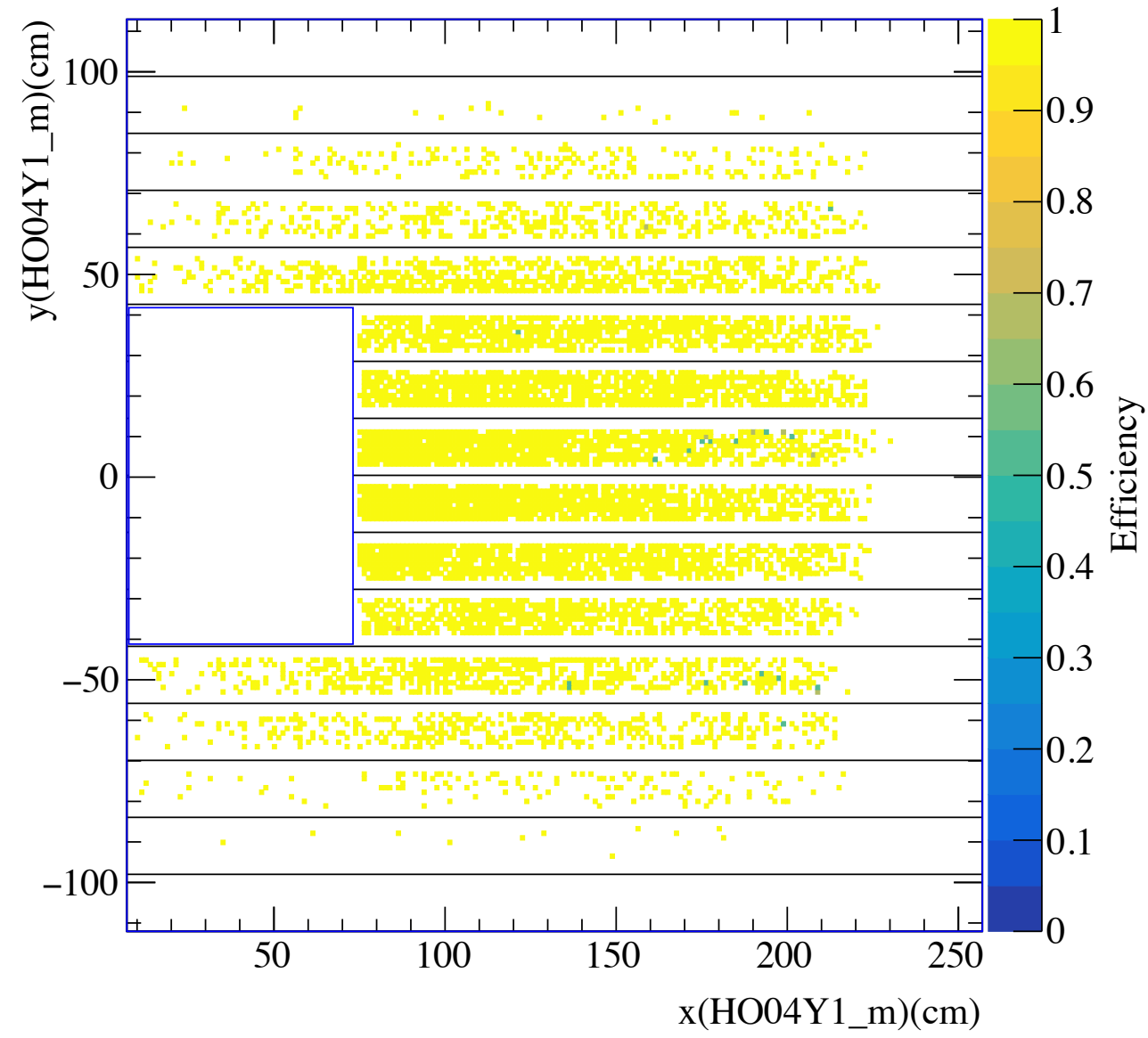
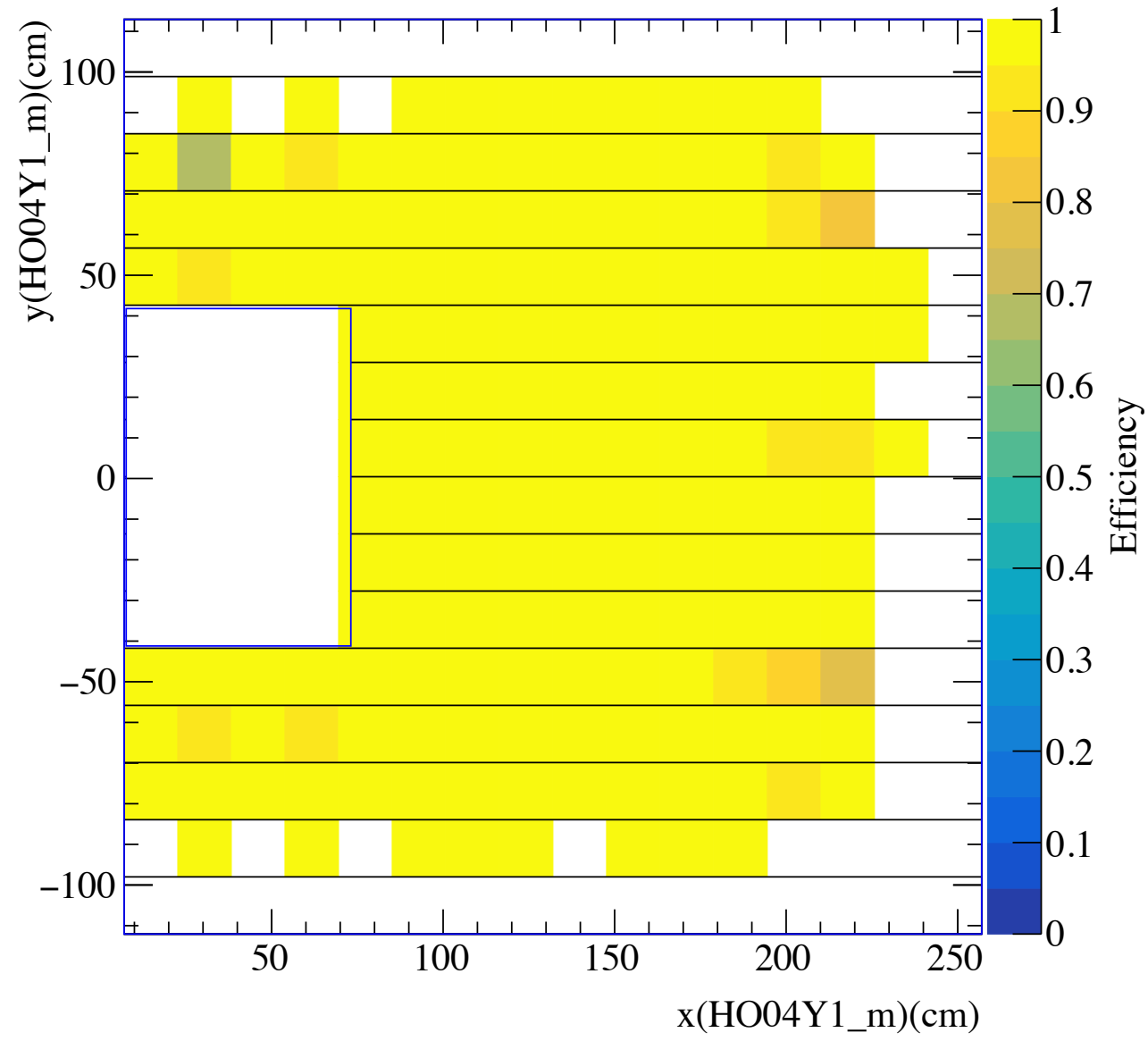


P03t7 CaloDump

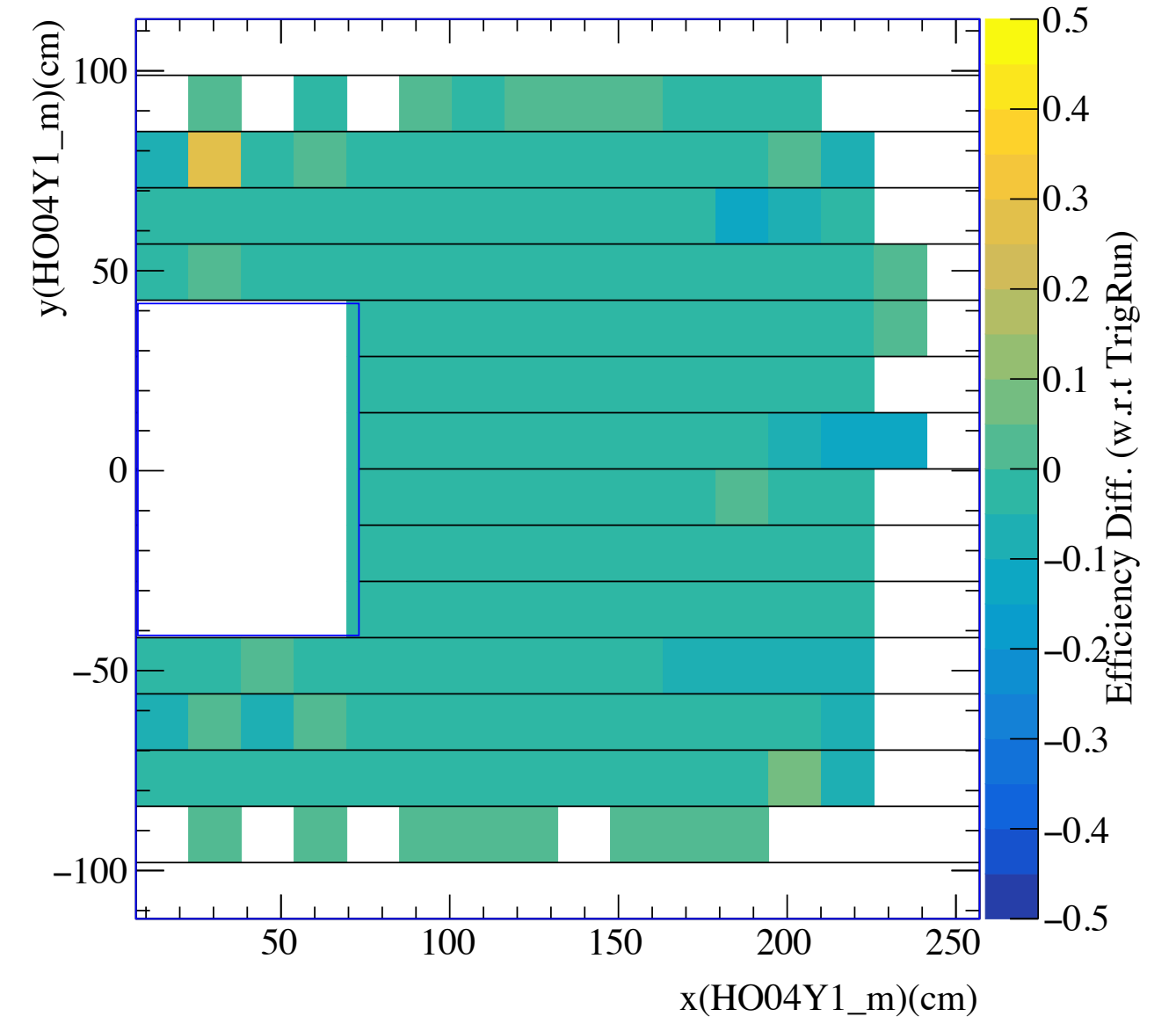


HO04Y1_m Hodoscope Efficiency

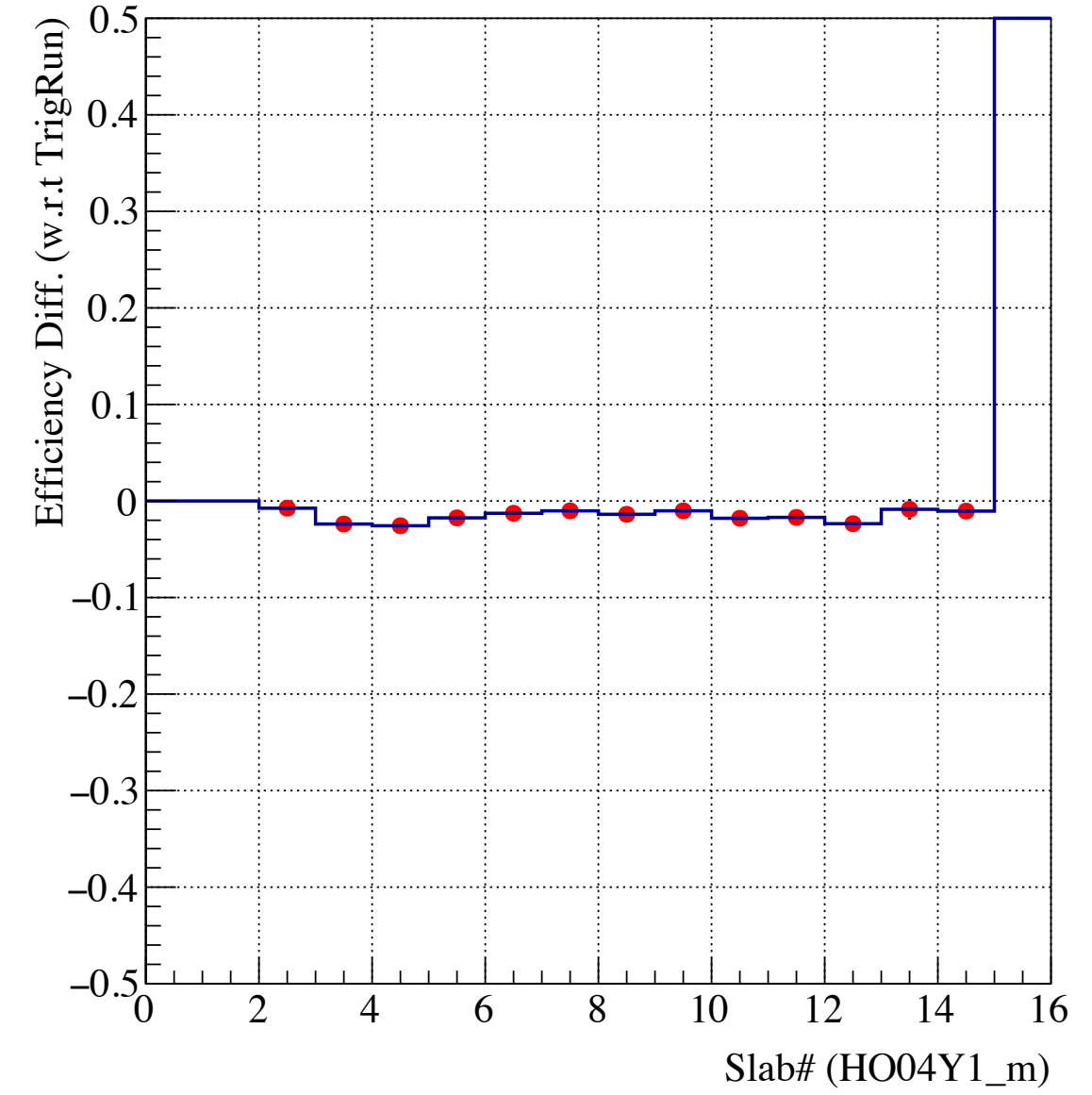
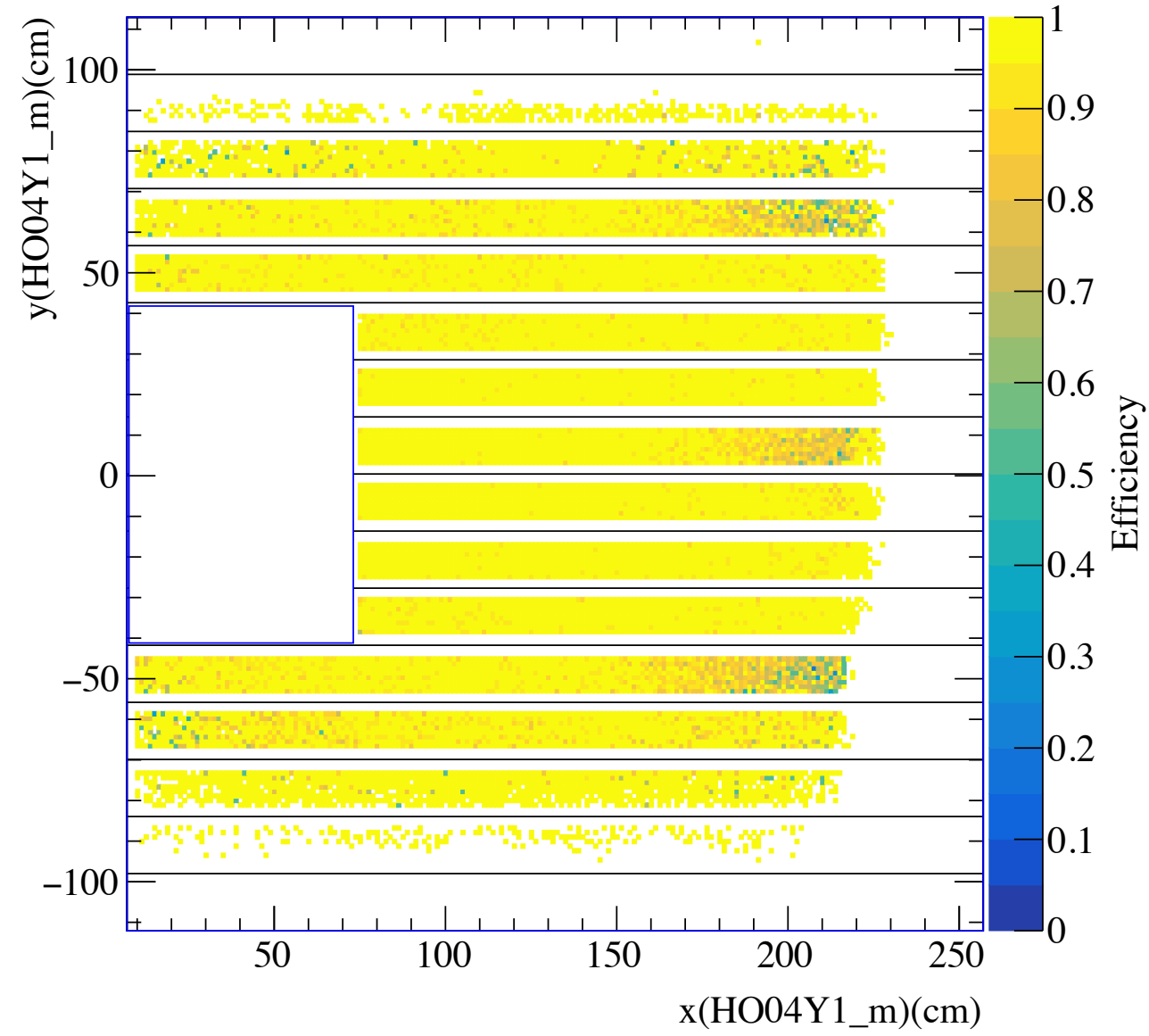
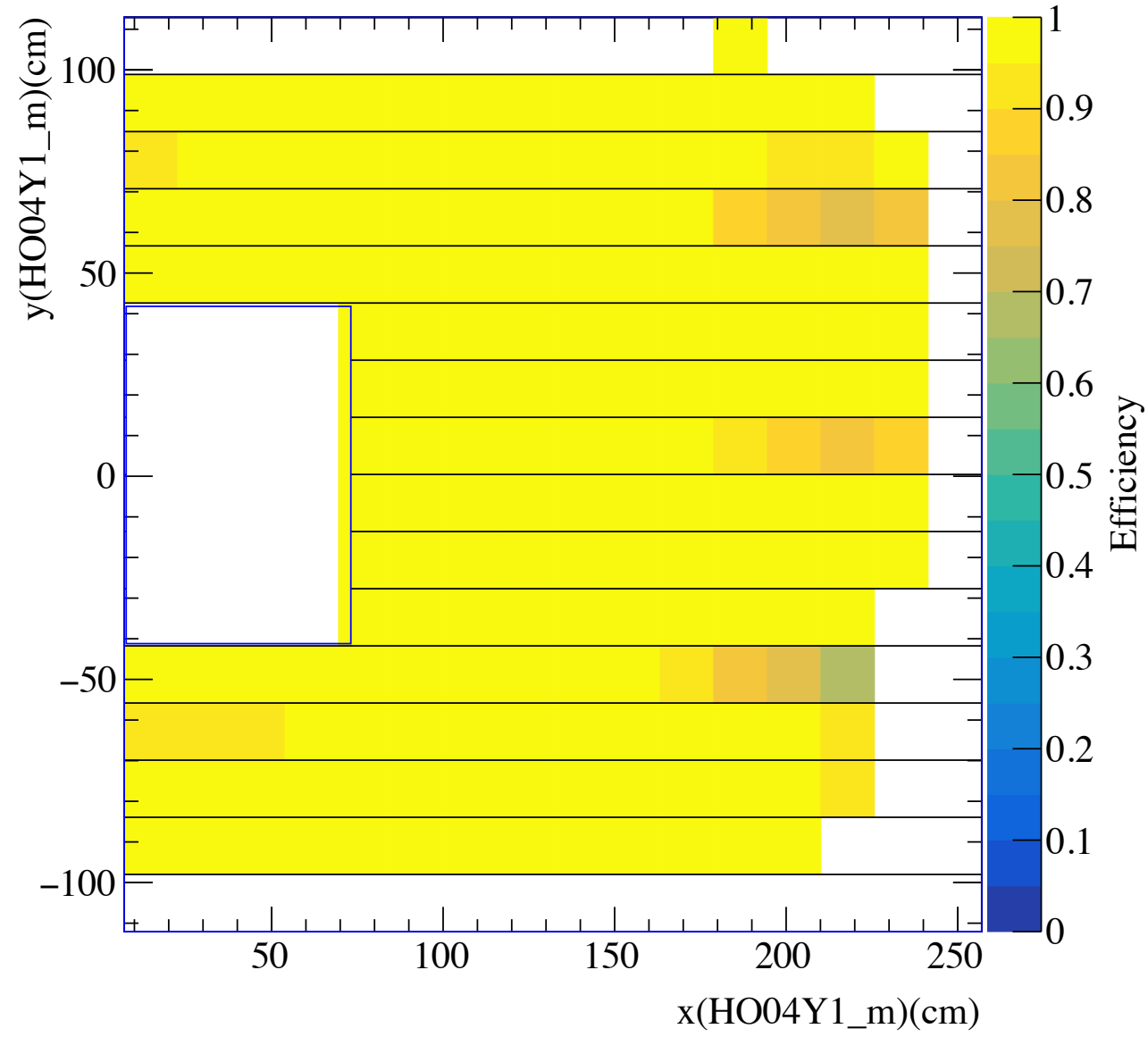
P03t7 TrigRun



Efficiency(CaloDump) - Efficiency(TrigRun)

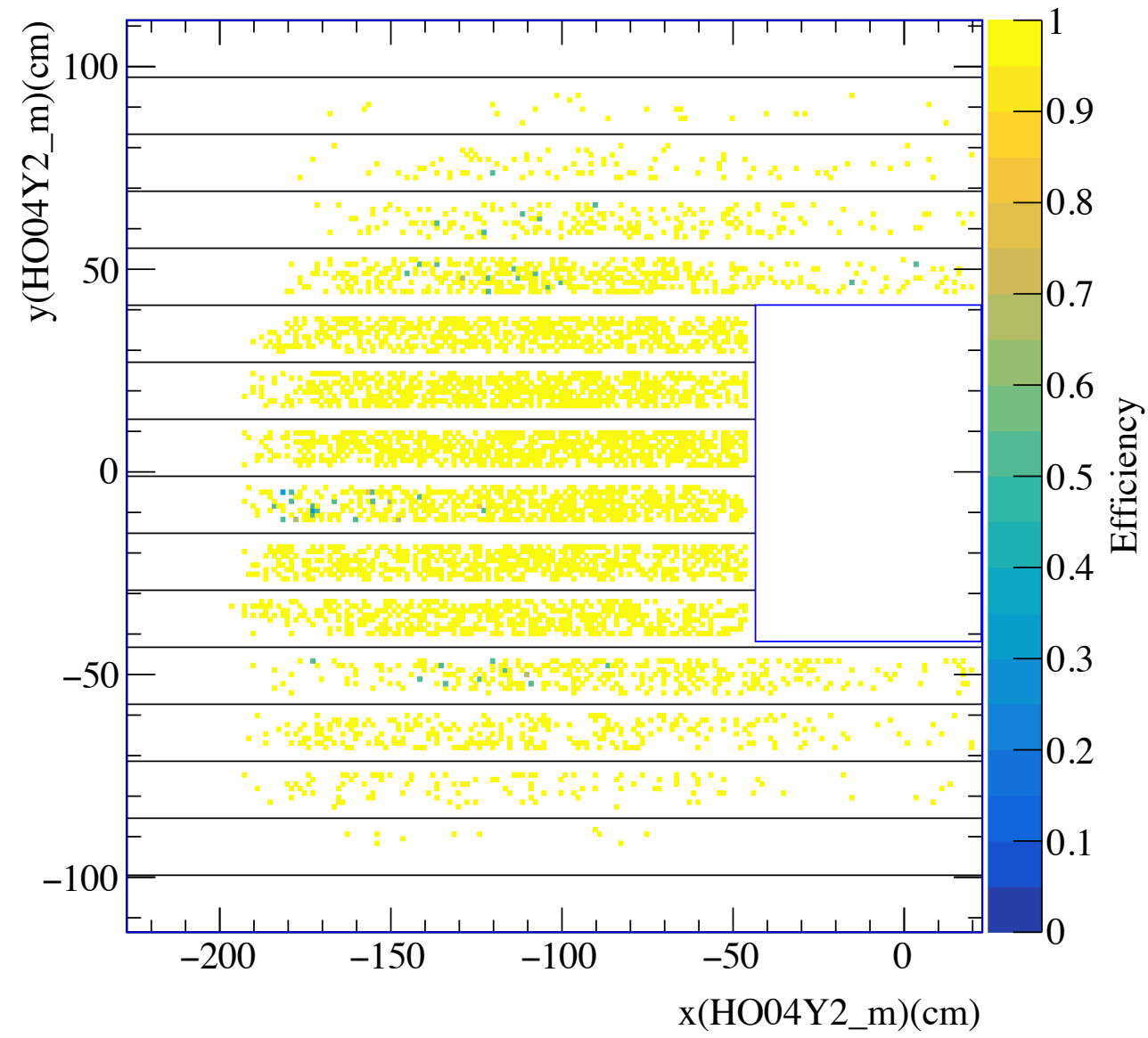
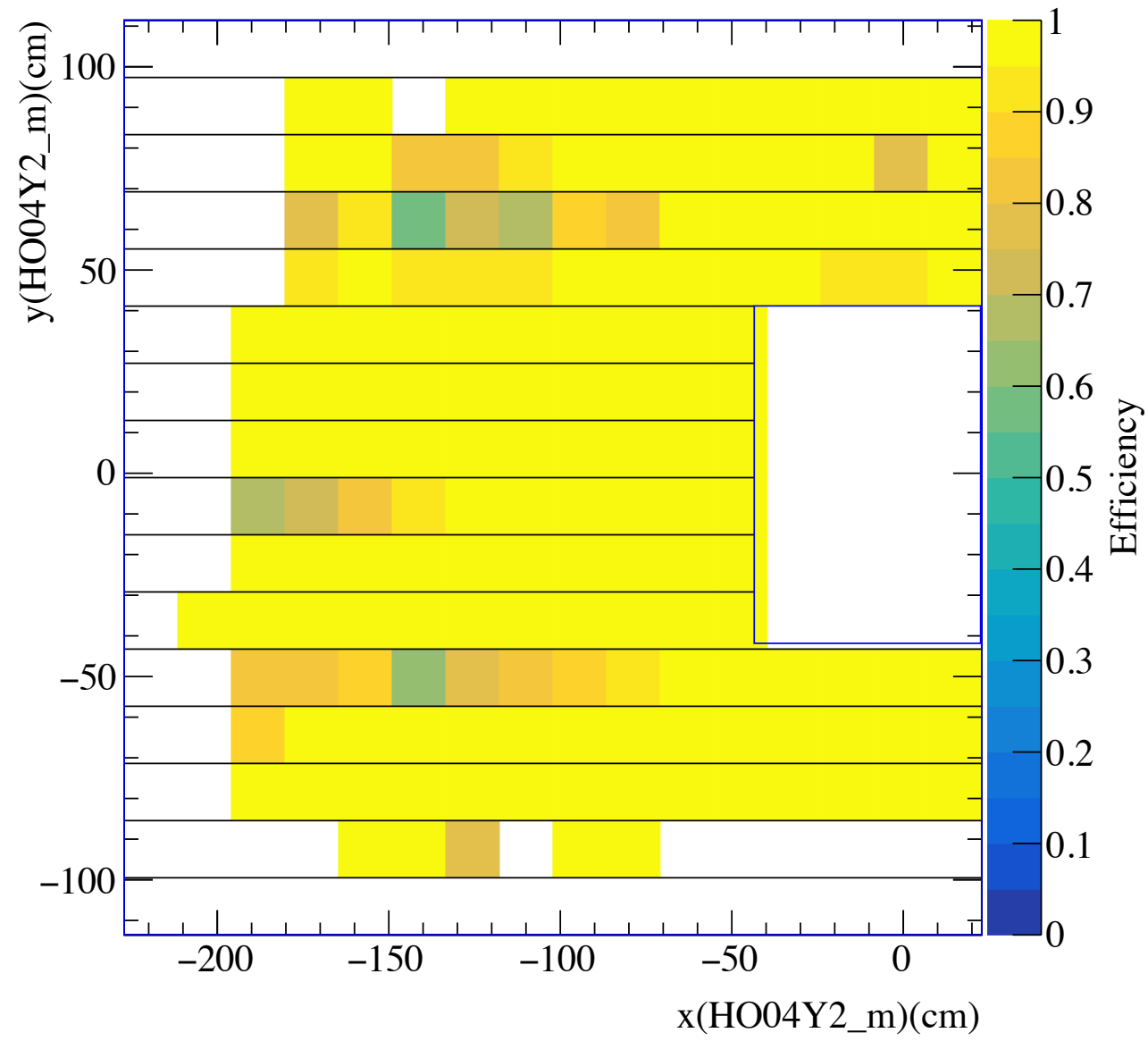


P03t7 CaloDump

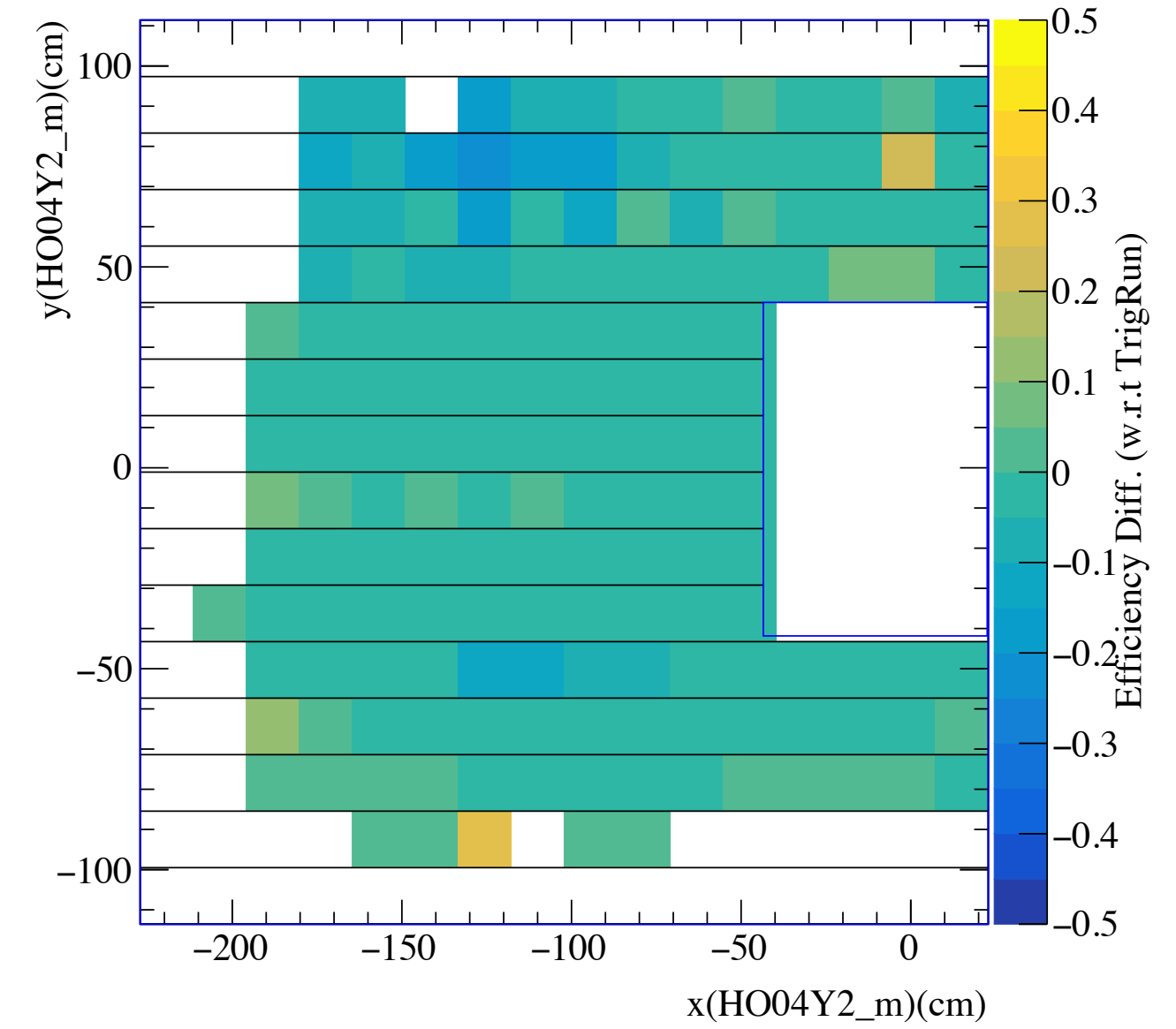


H004Y2_m Hodoscope Efficiency

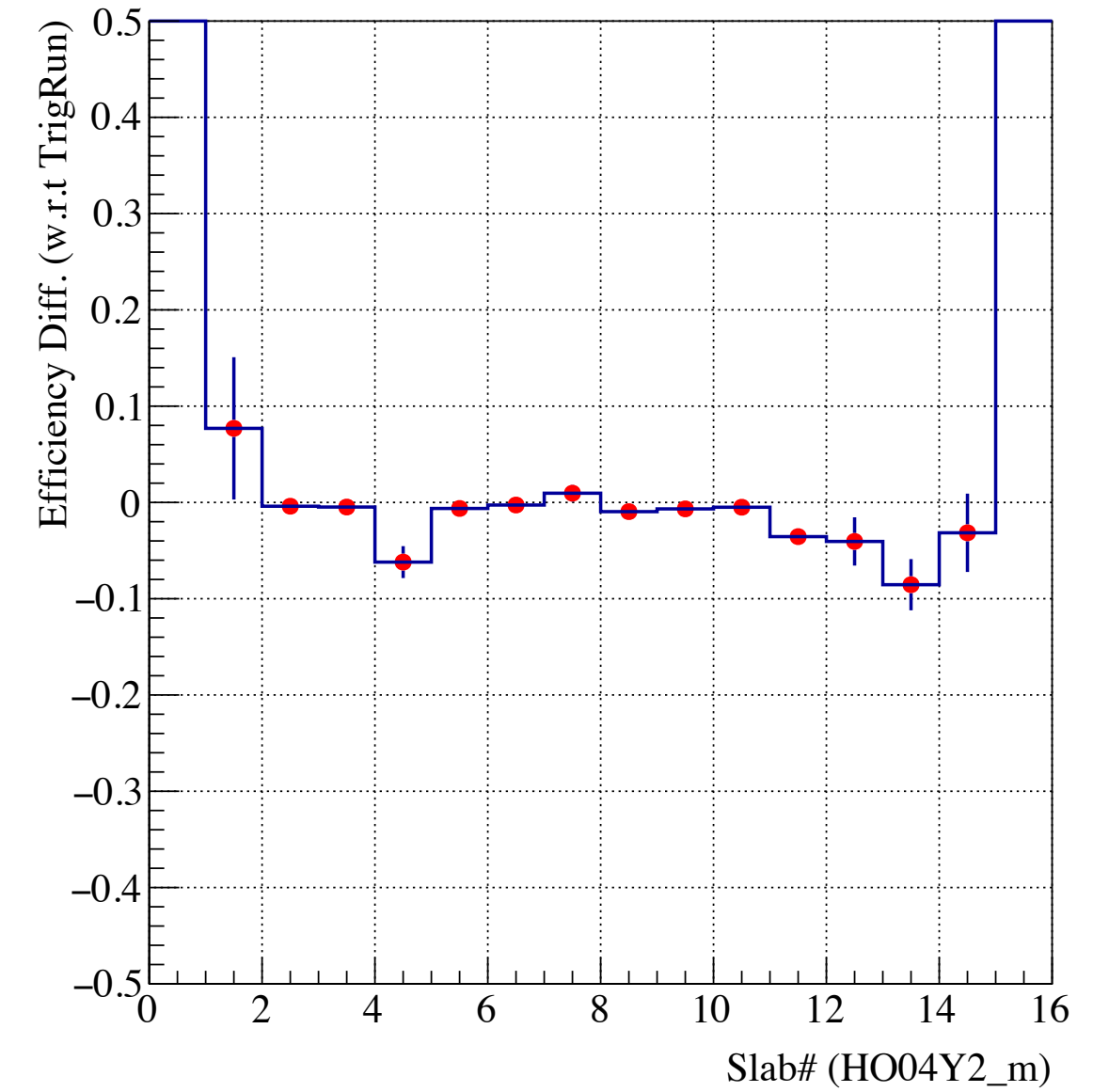
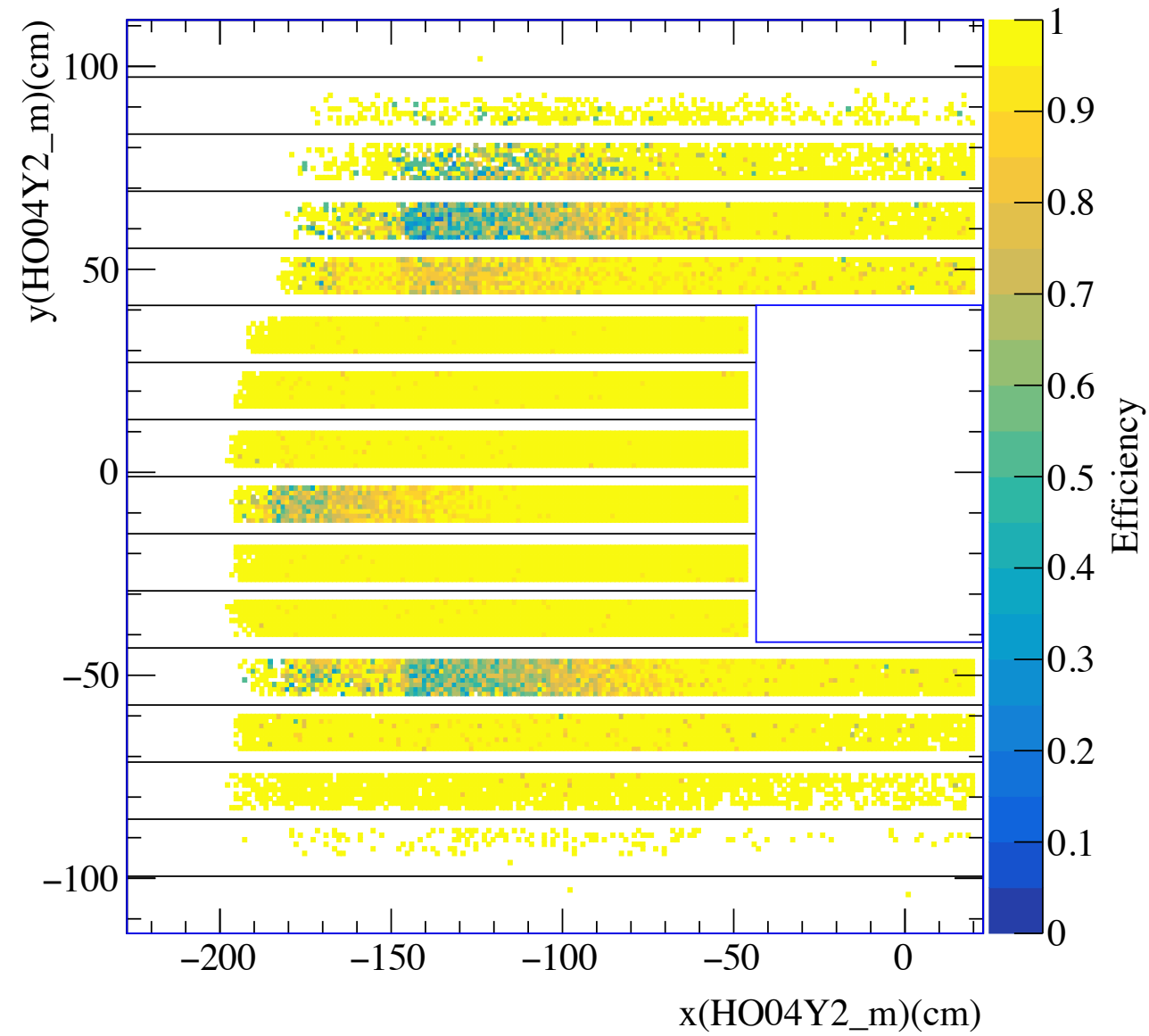
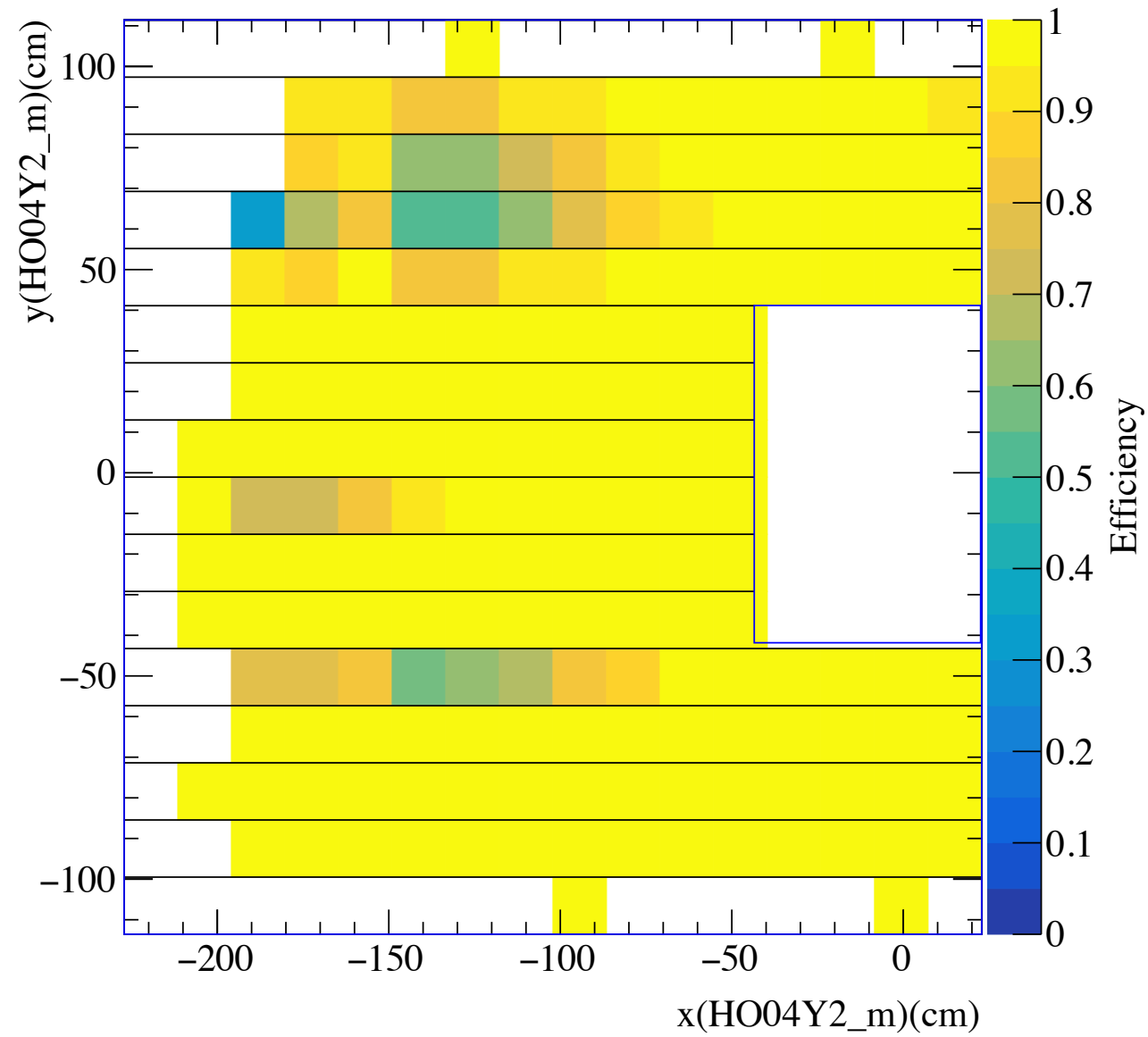
P03t7 TrigRun



Efficiency(CaloDump) - Efficiency(TrigRun)

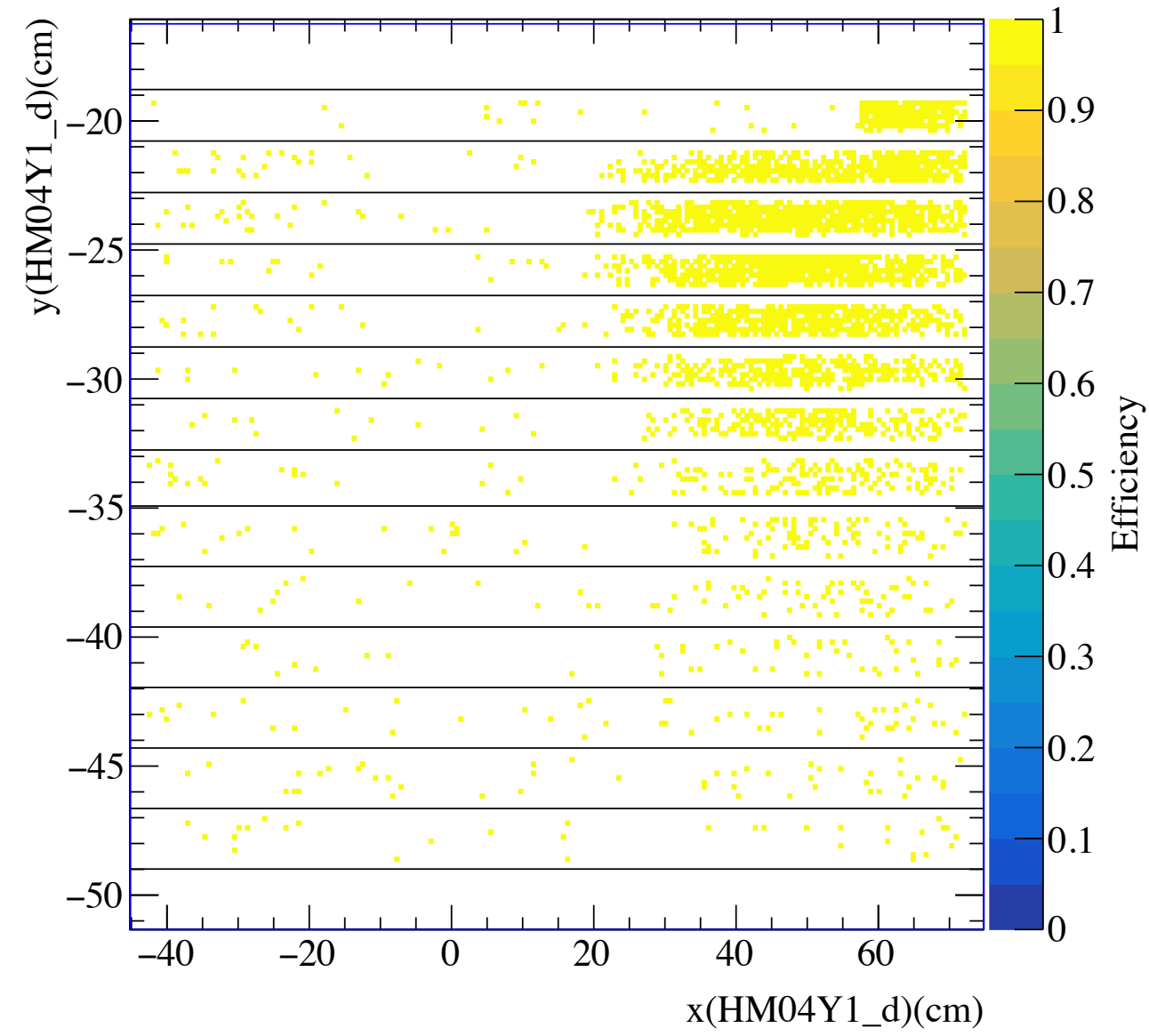
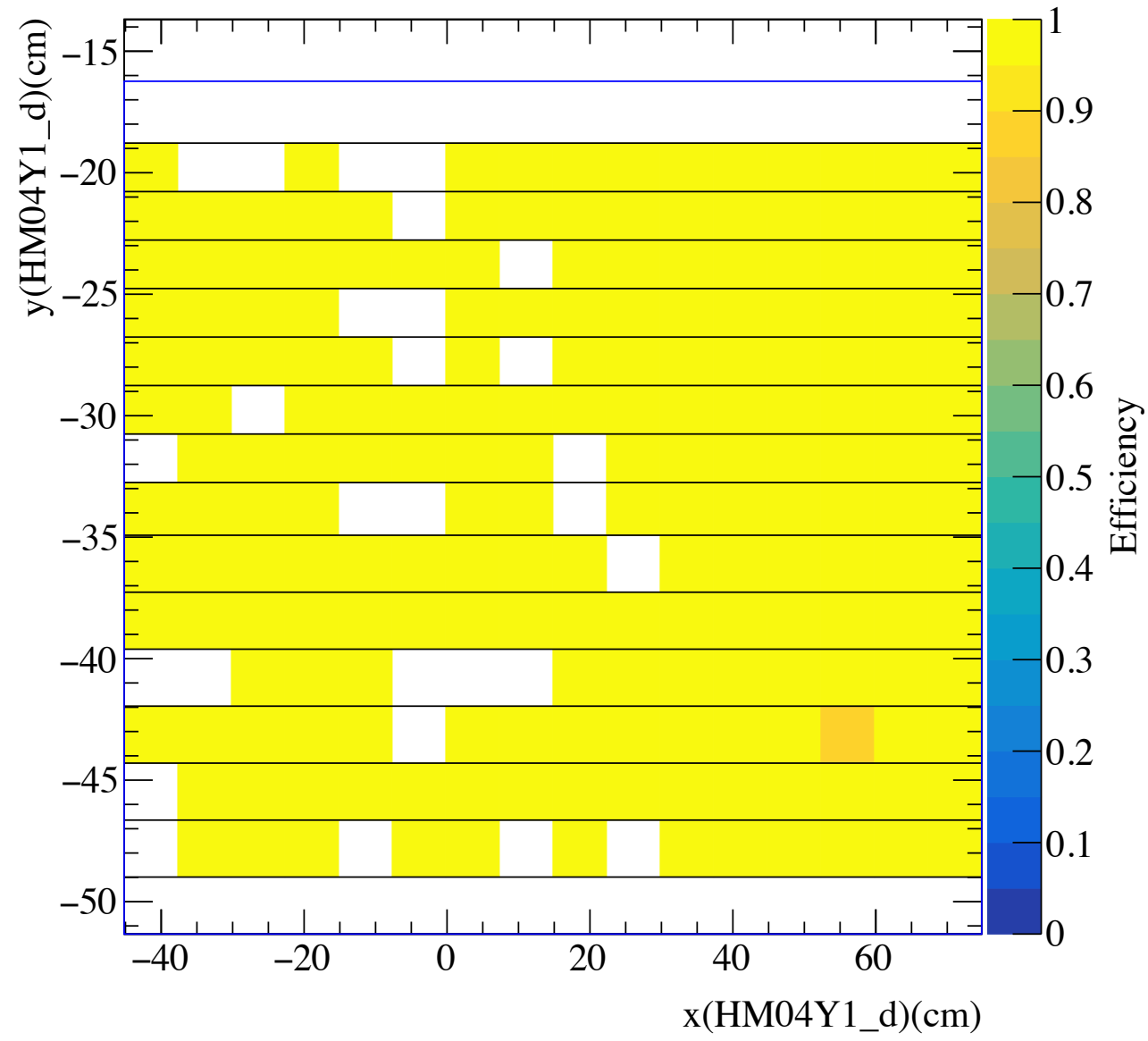


P03t7 CaloDump

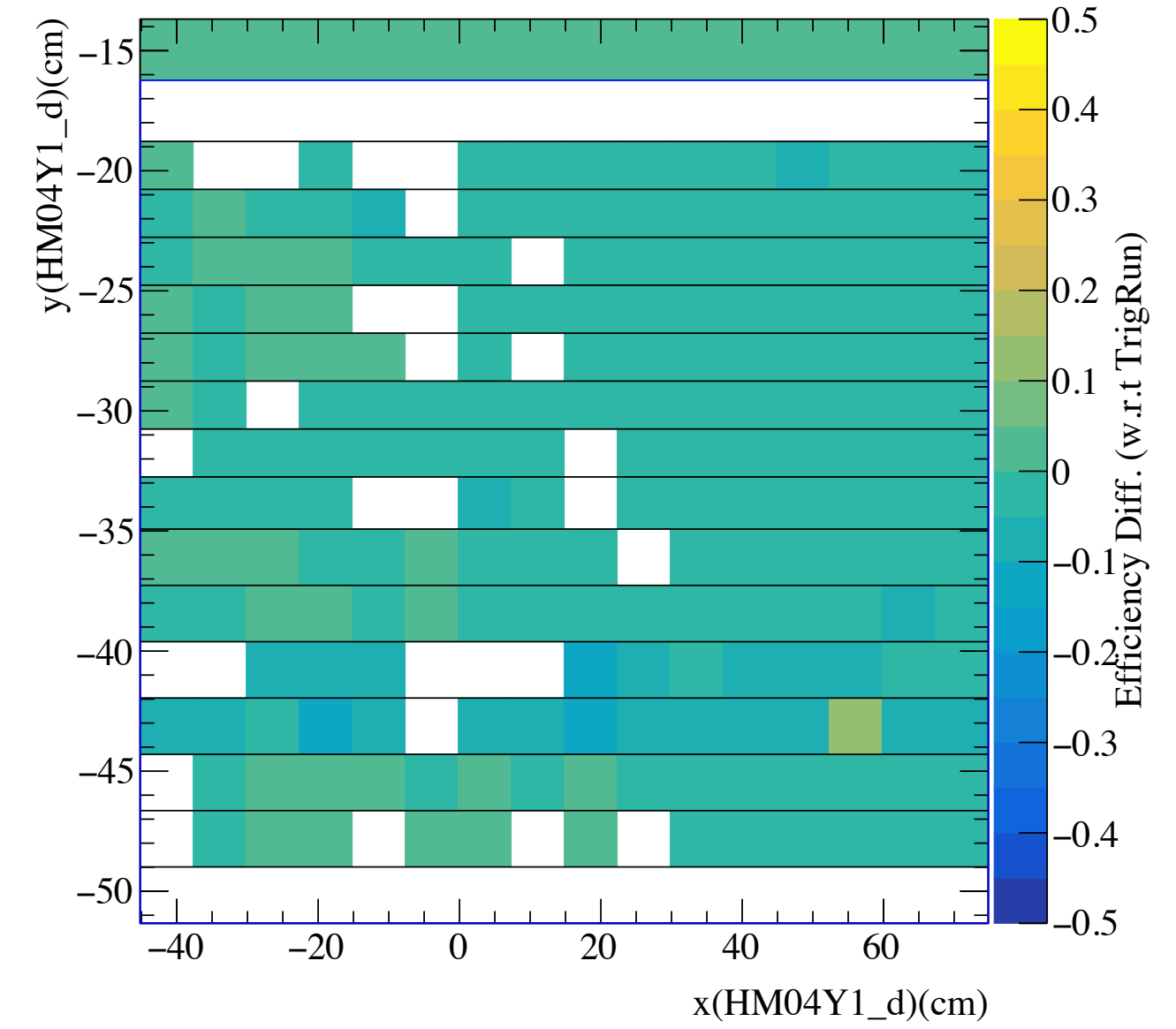


HM04Y1_d Hodoscope Efficiency

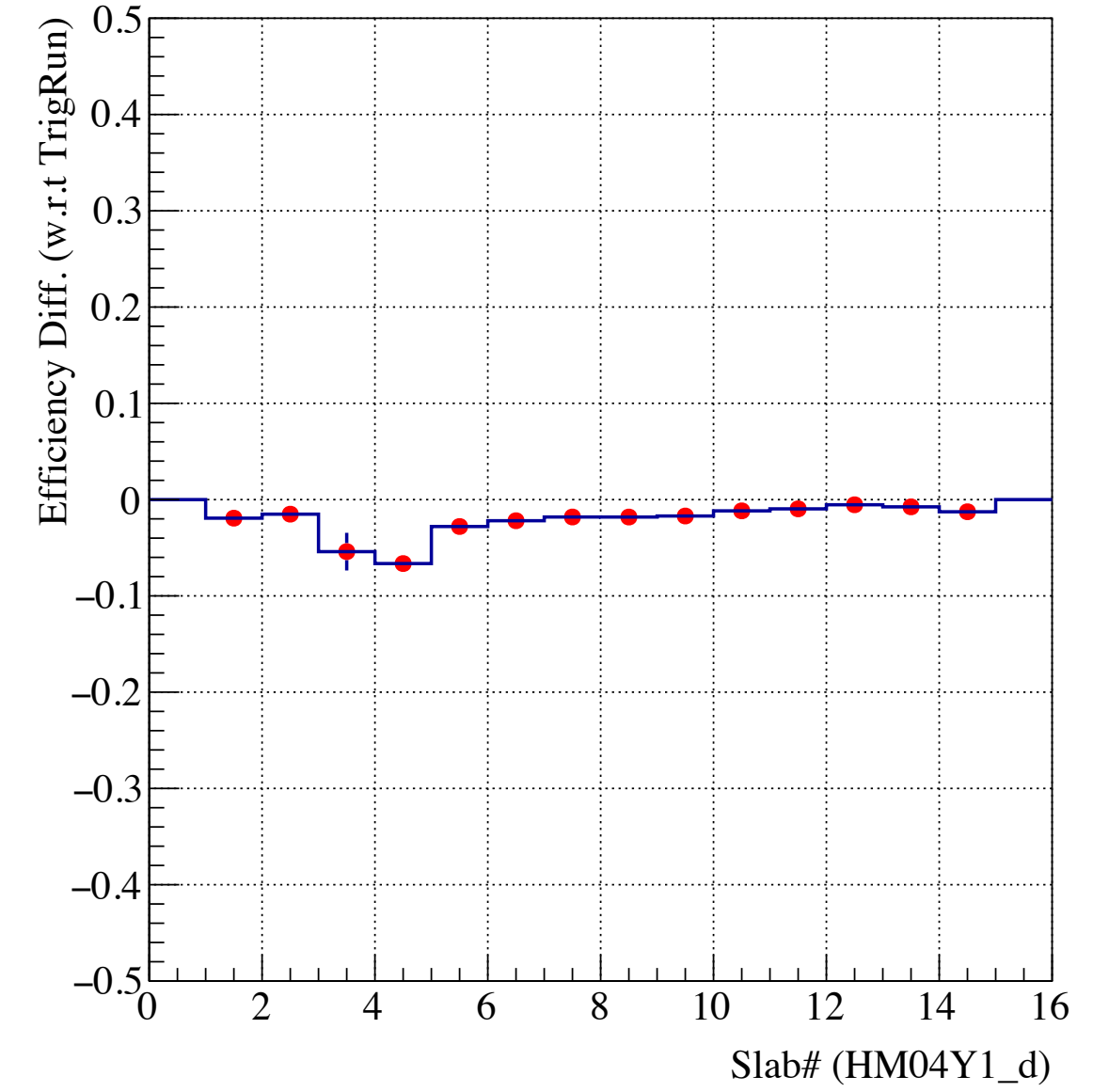
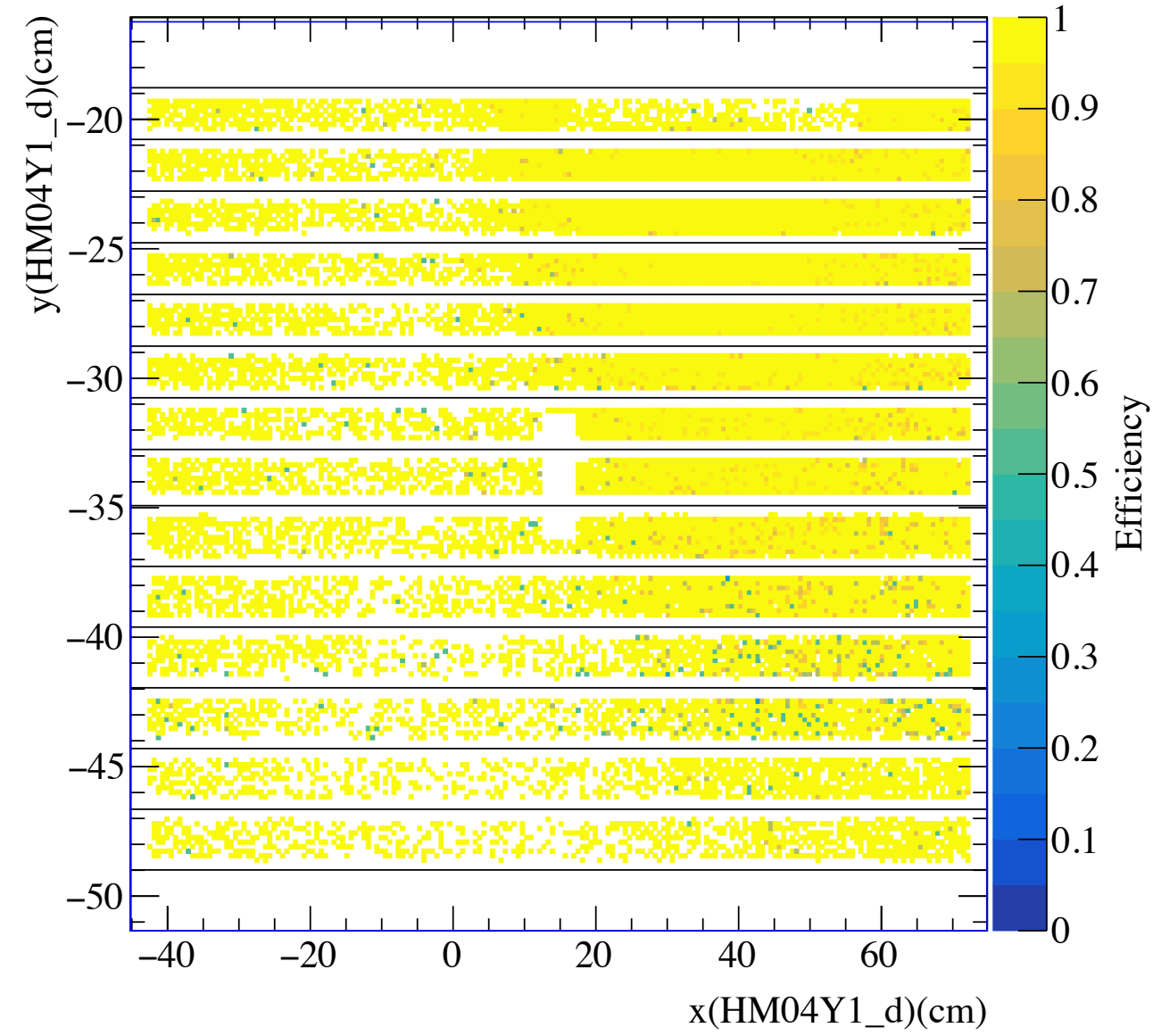
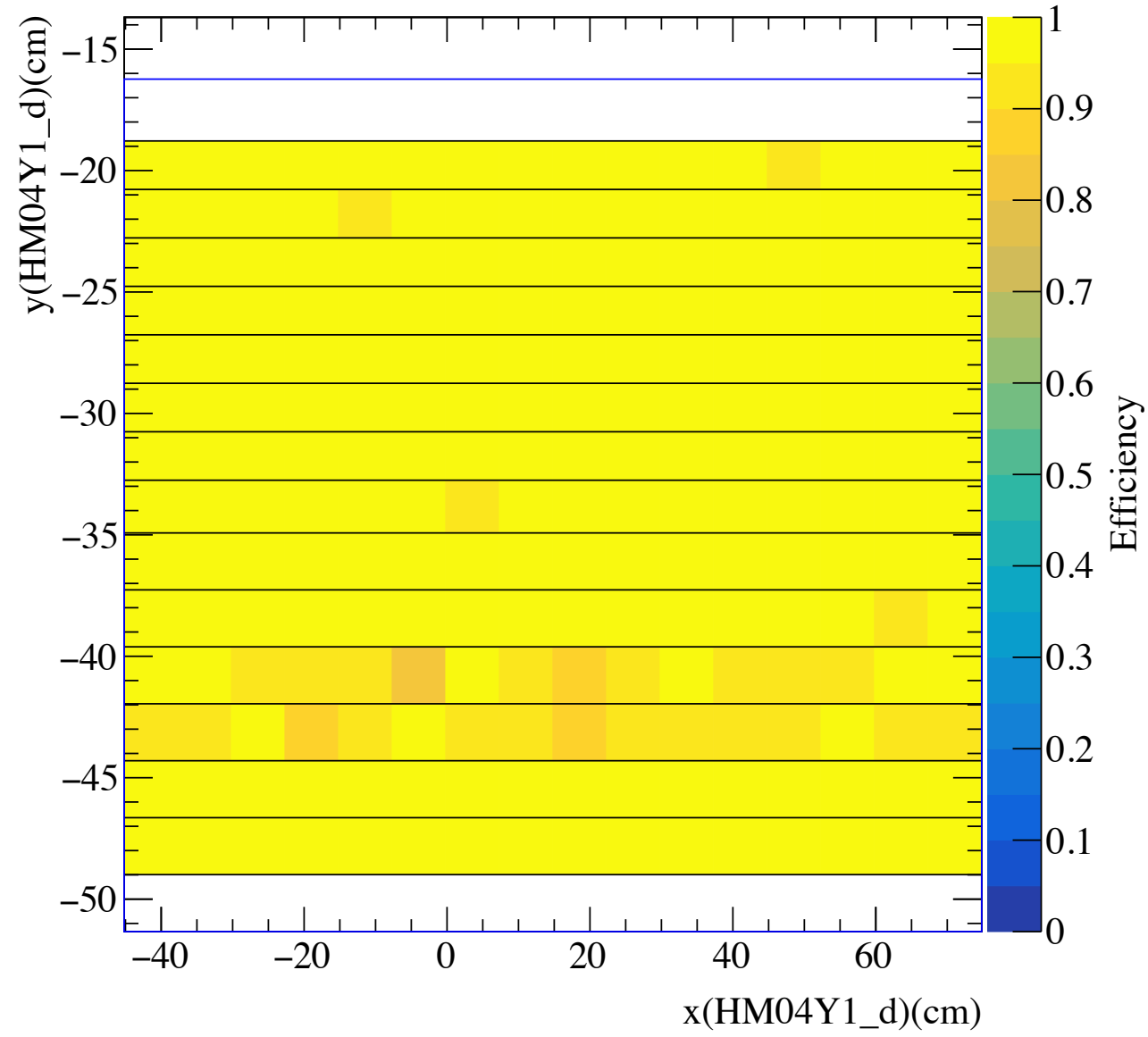
P03t7 TrigRun



Efficiency(CaloDump) - Efficiency(TrigRun)

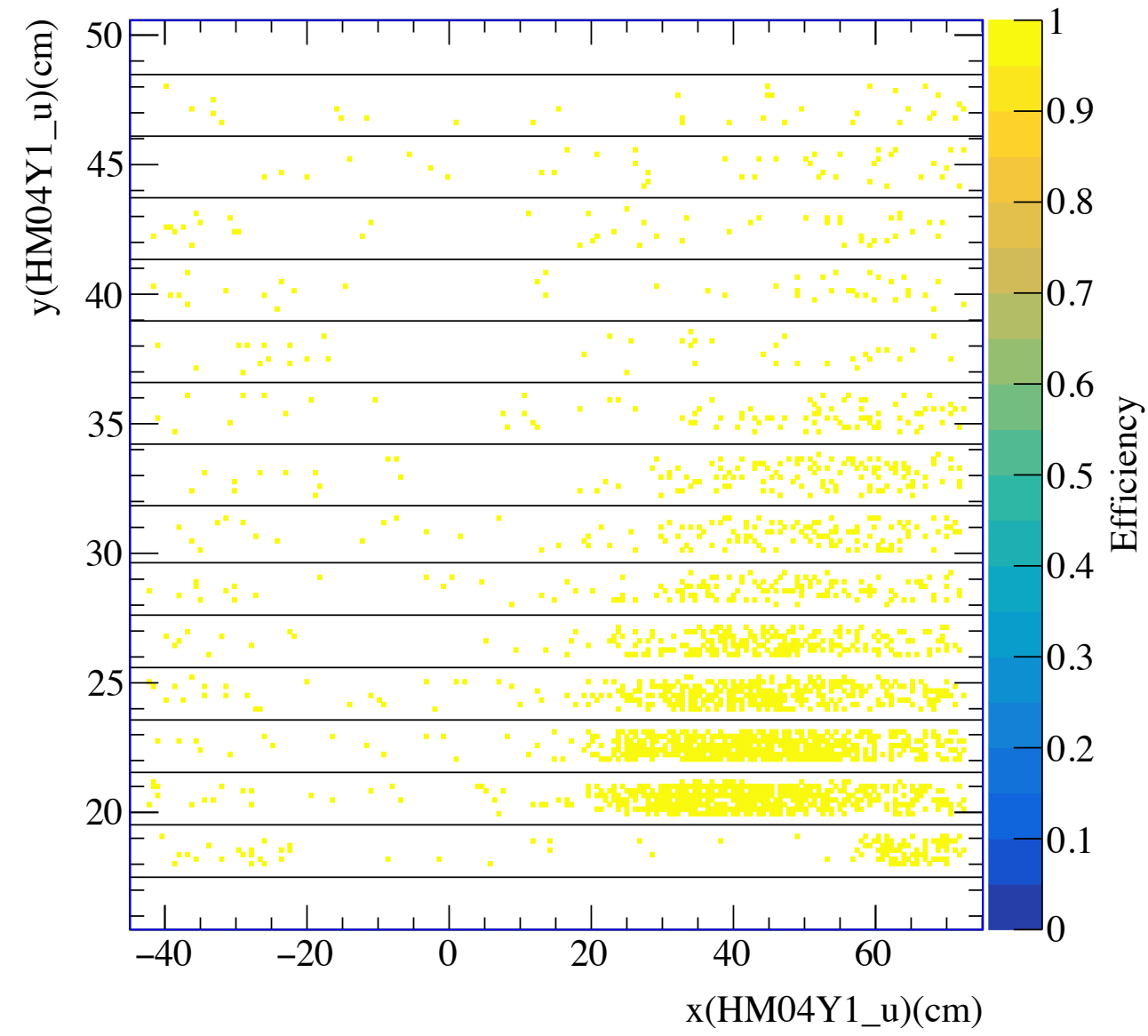
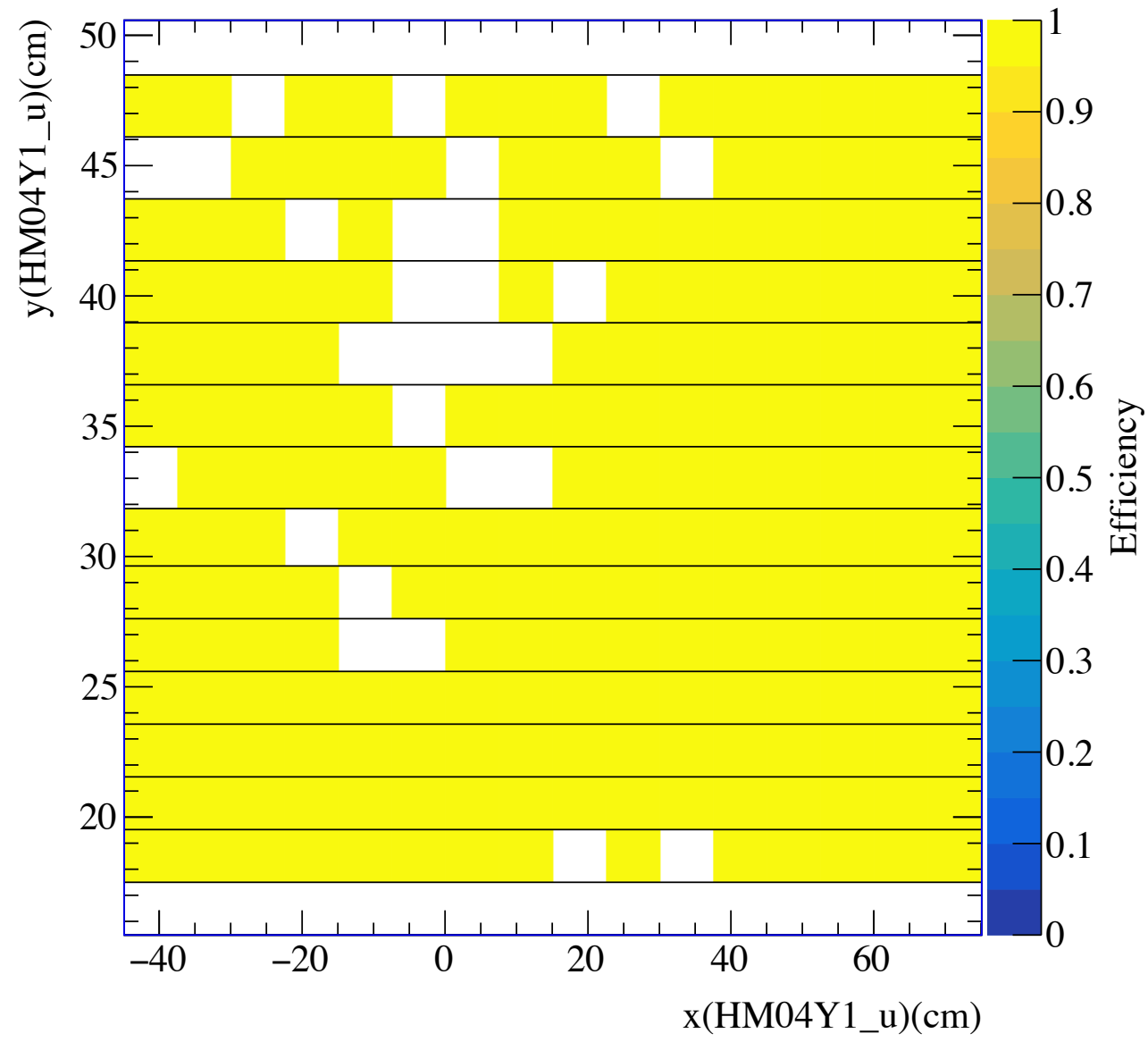


P03t7 CaloDump

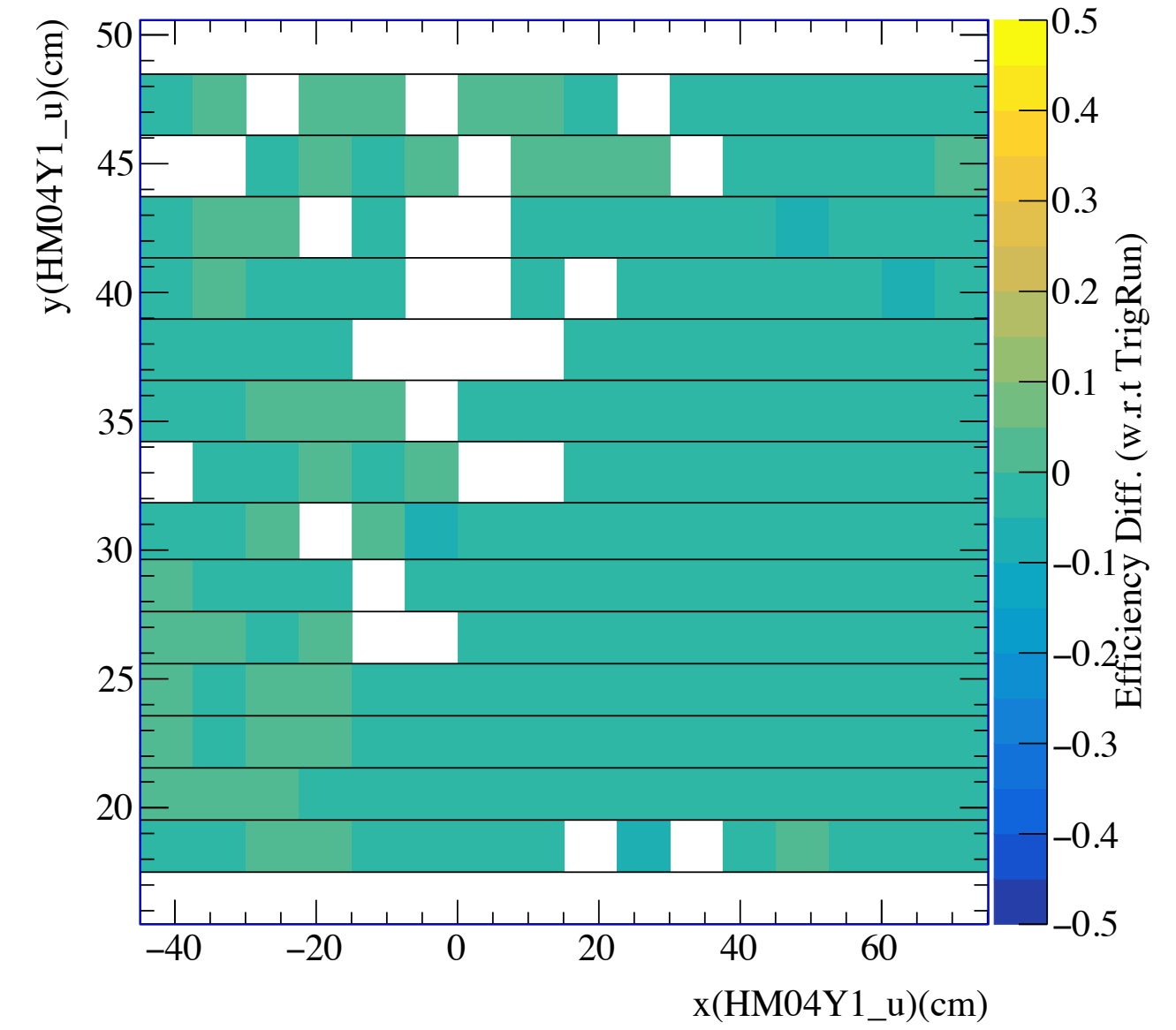


HM04Y1_u Hodoscope Efficiency

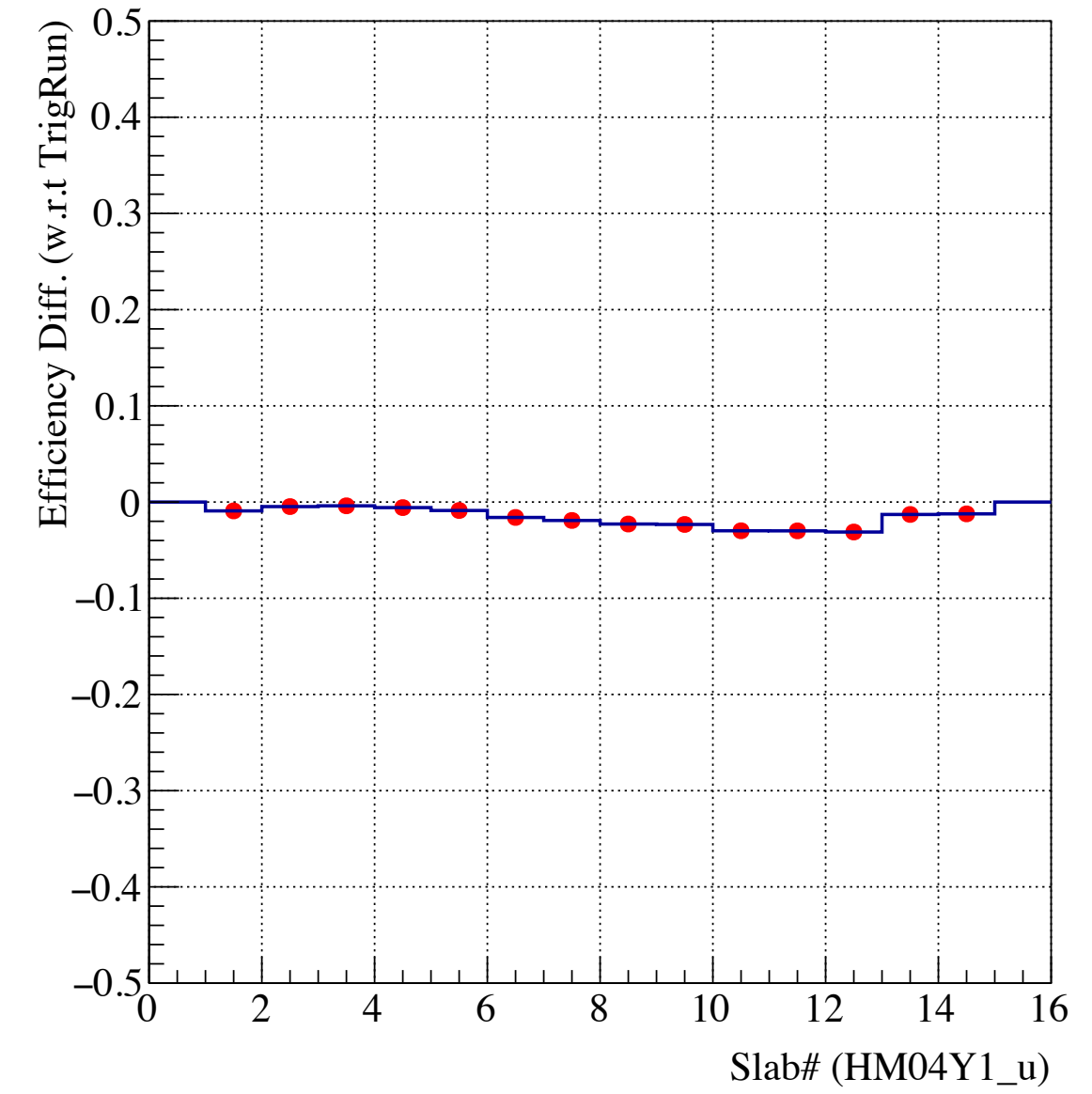
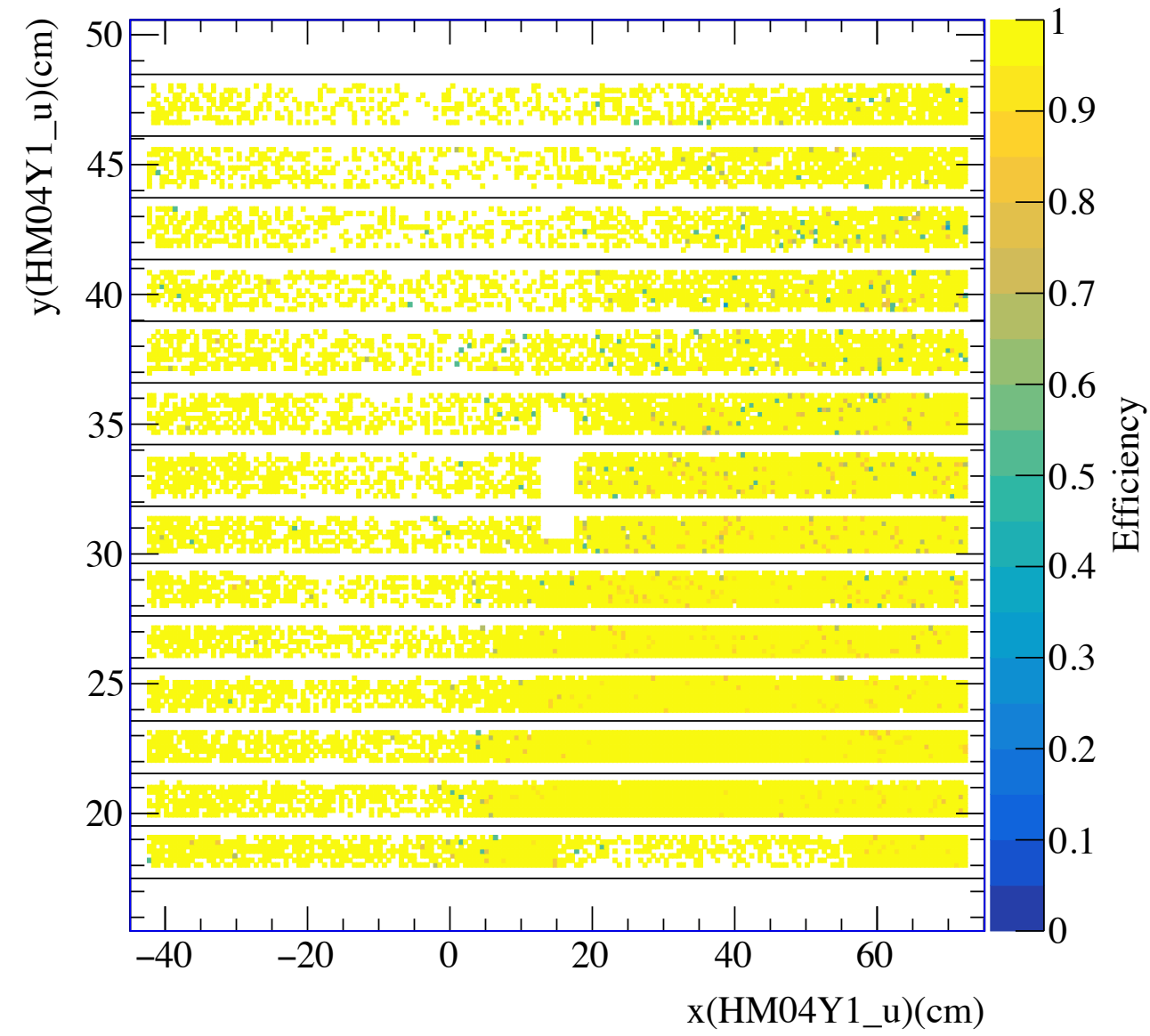
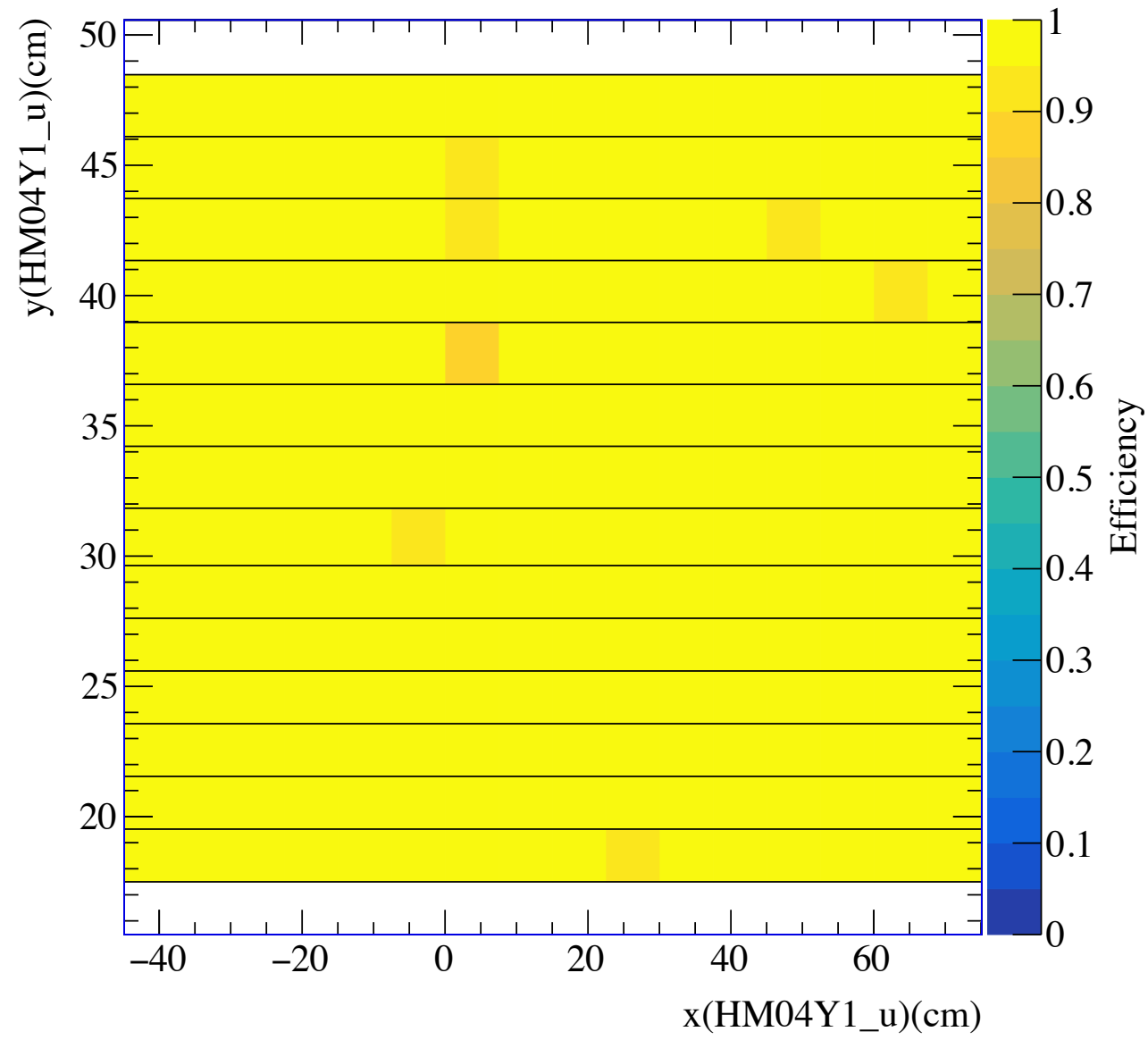
P03t7 TrigRun



Efficiency(CaloDump) - Efficiency(TrigRun)

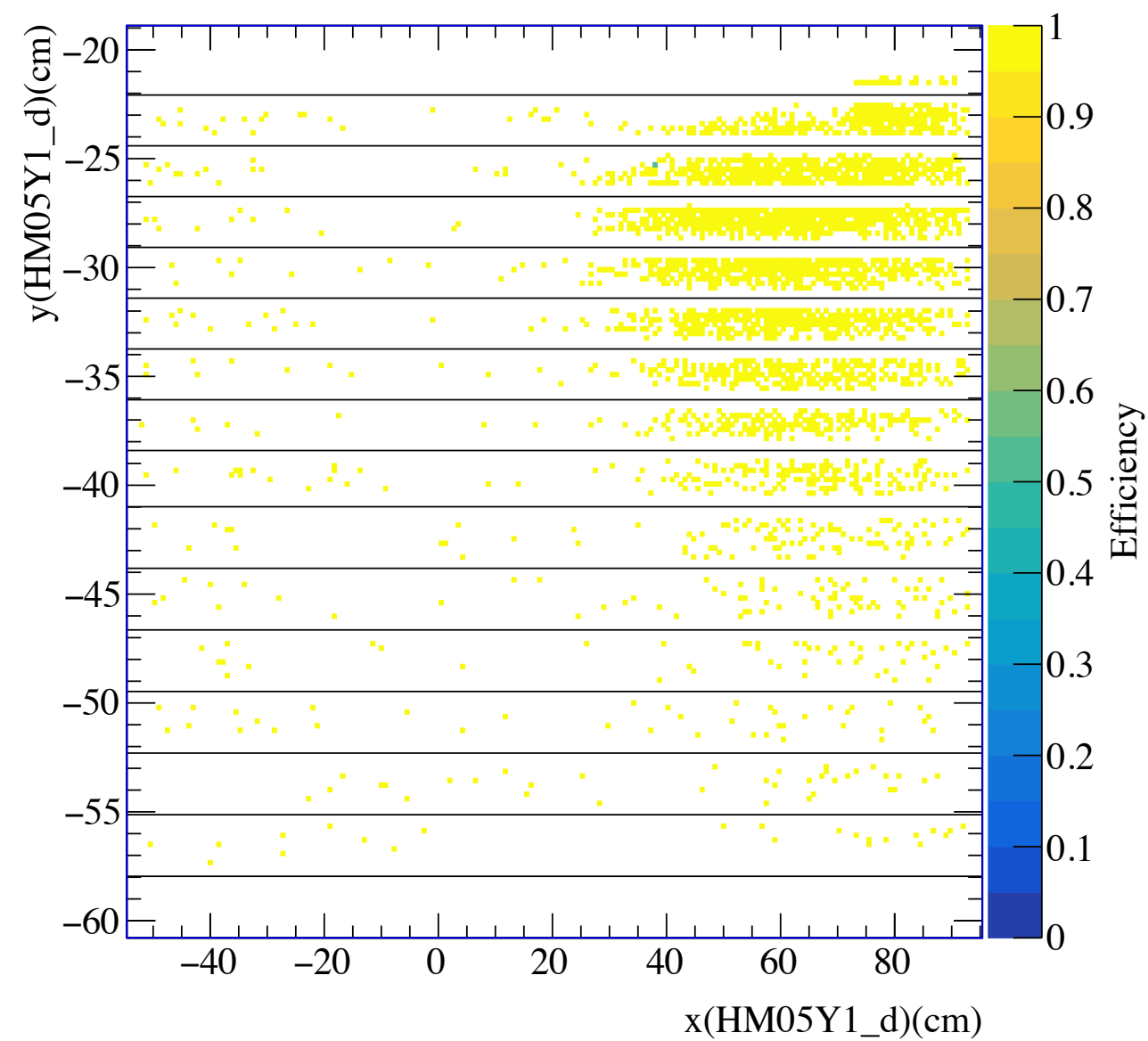
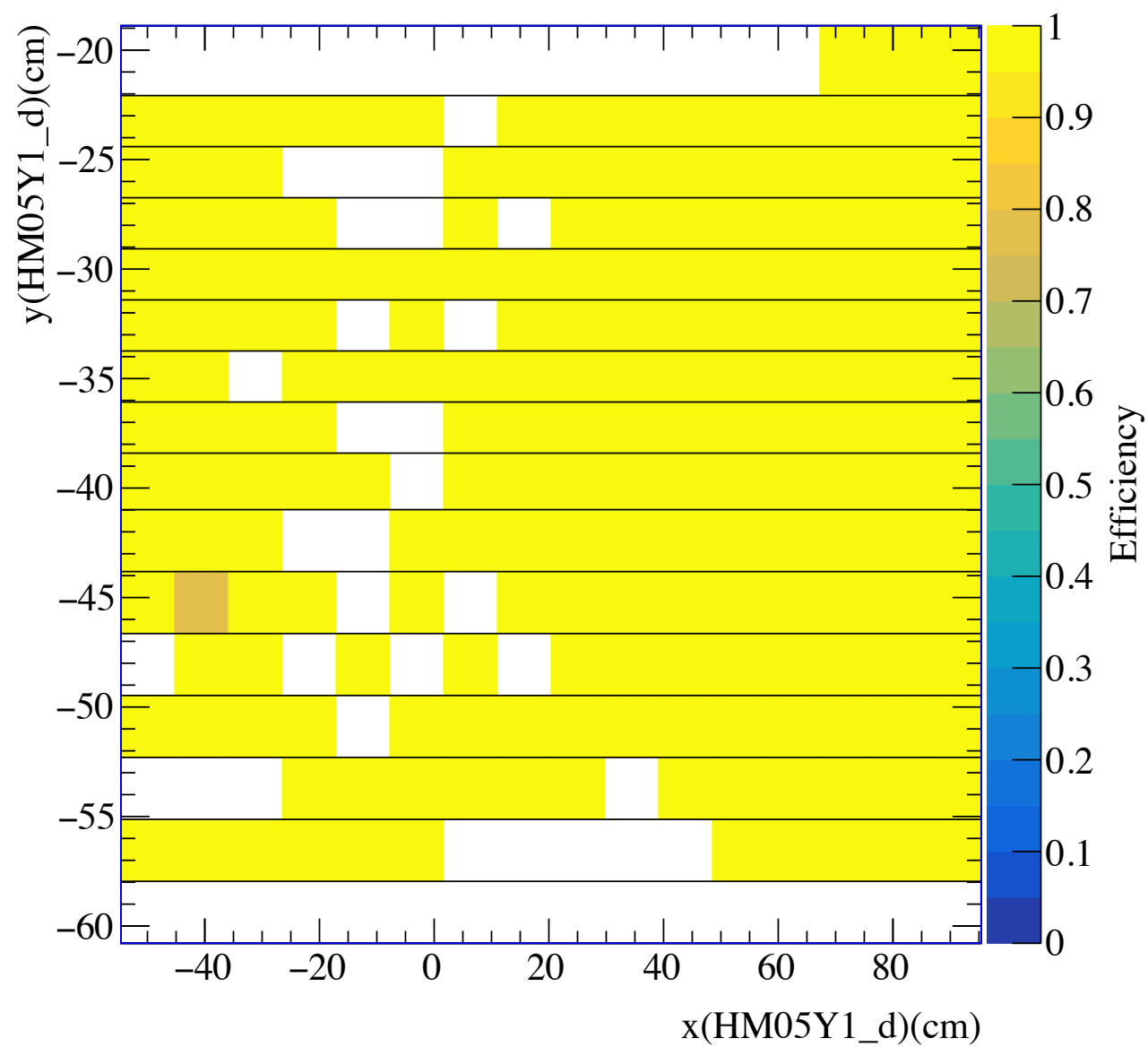


P03t7 CaloDump

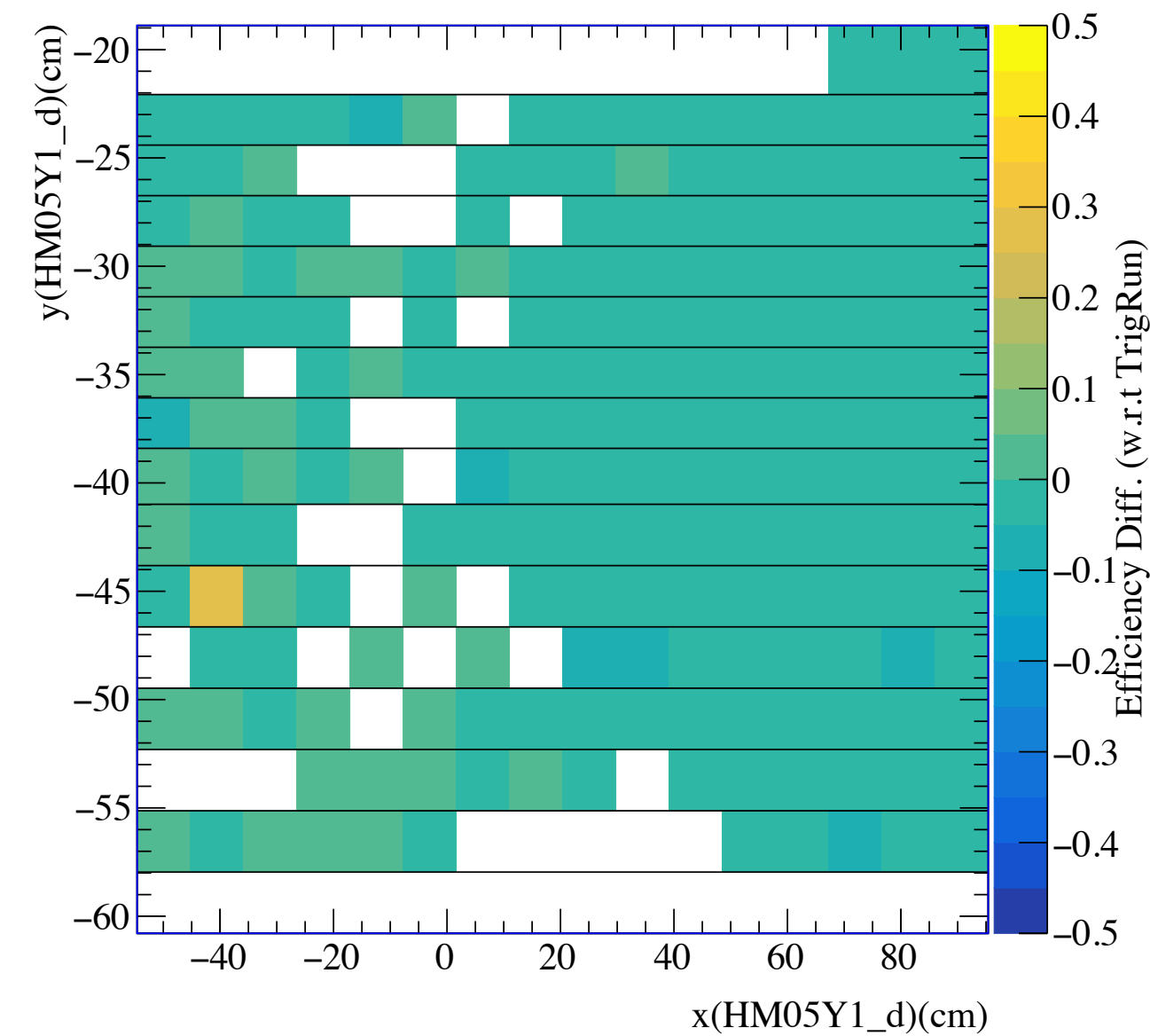


HM05Y1_d Hodoscope Efficiency

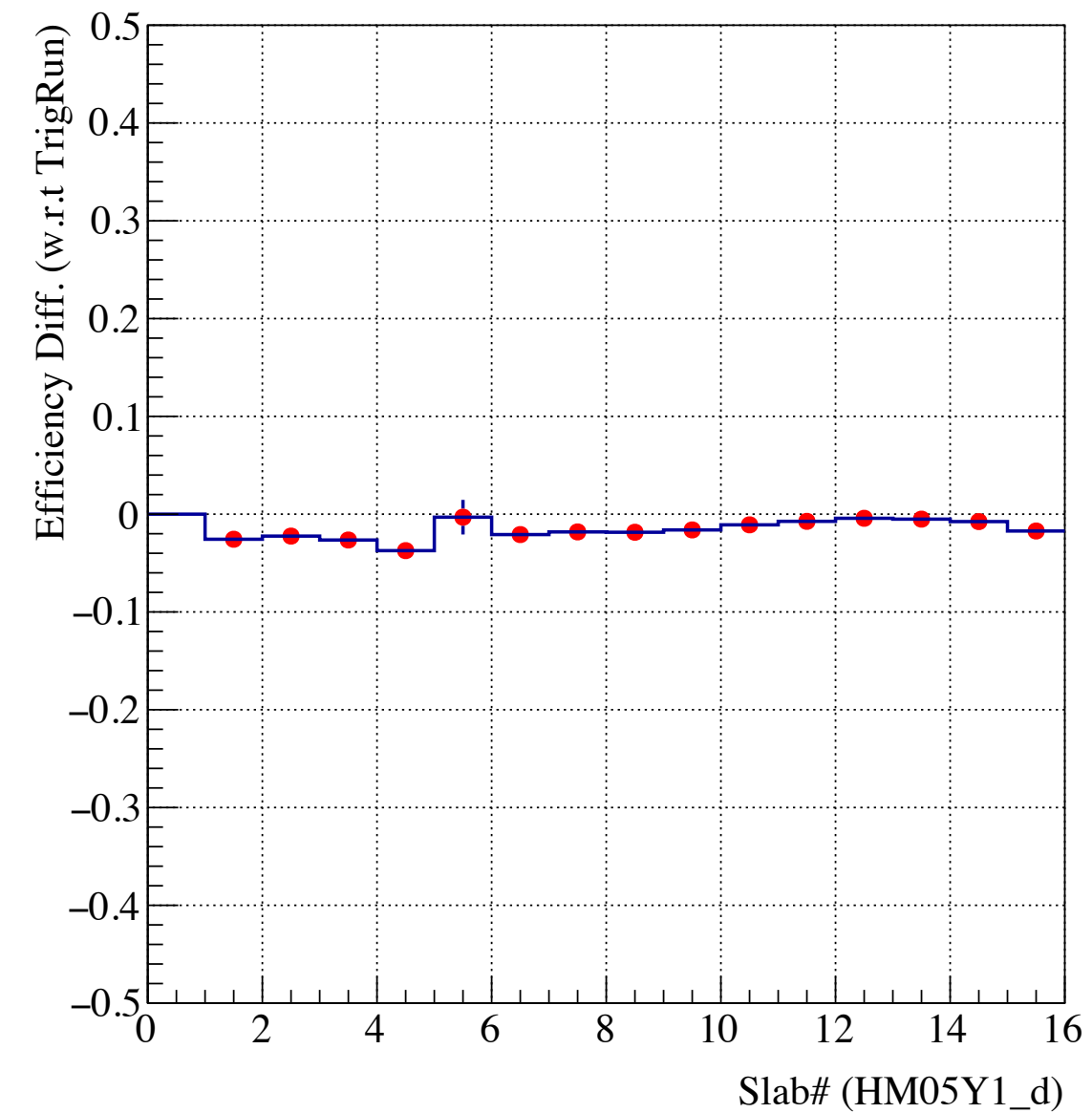
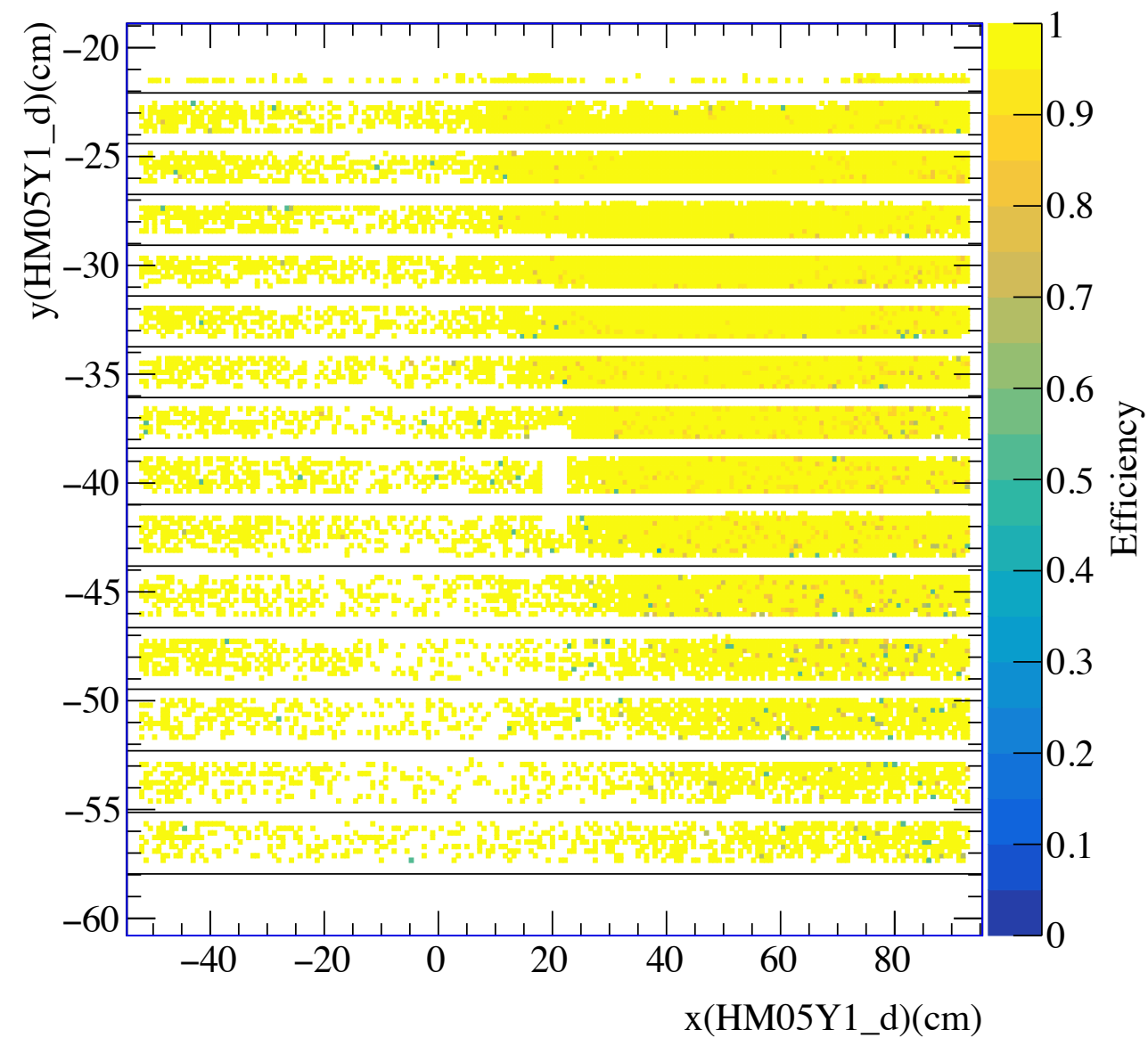
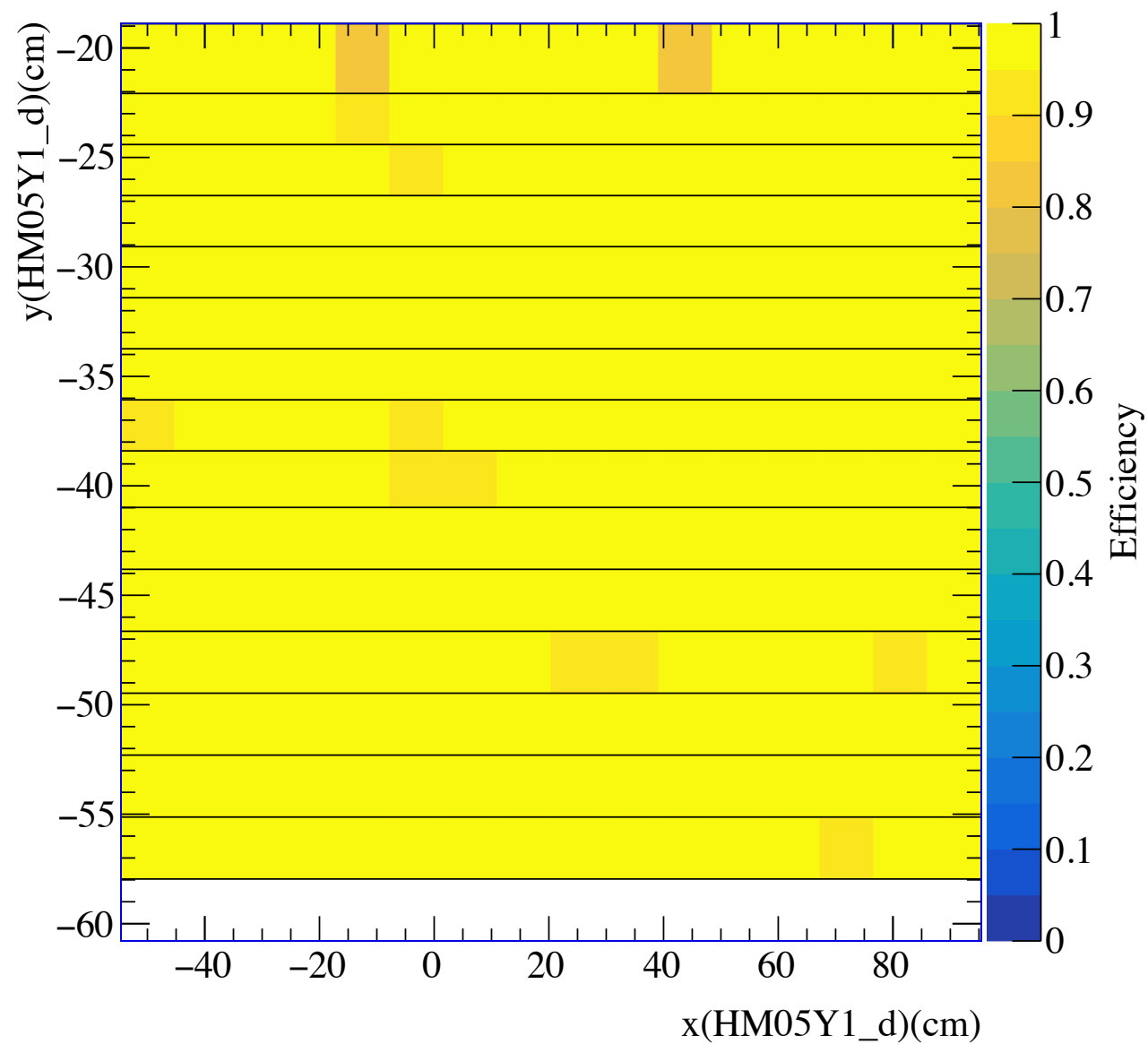
P03t7 TrigRun



Efficiency(CaloDump) - Efficiency(TrigRun)

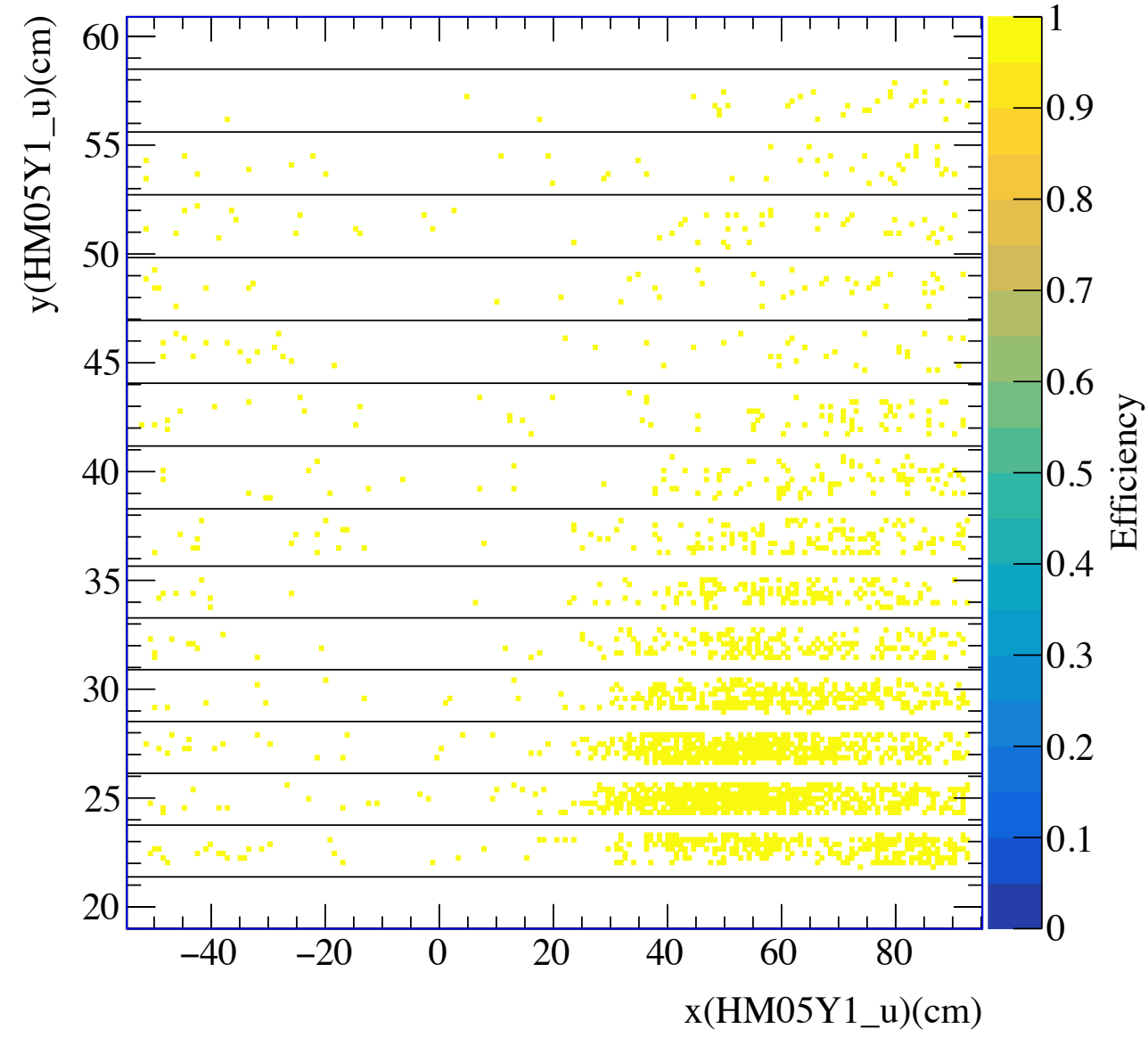
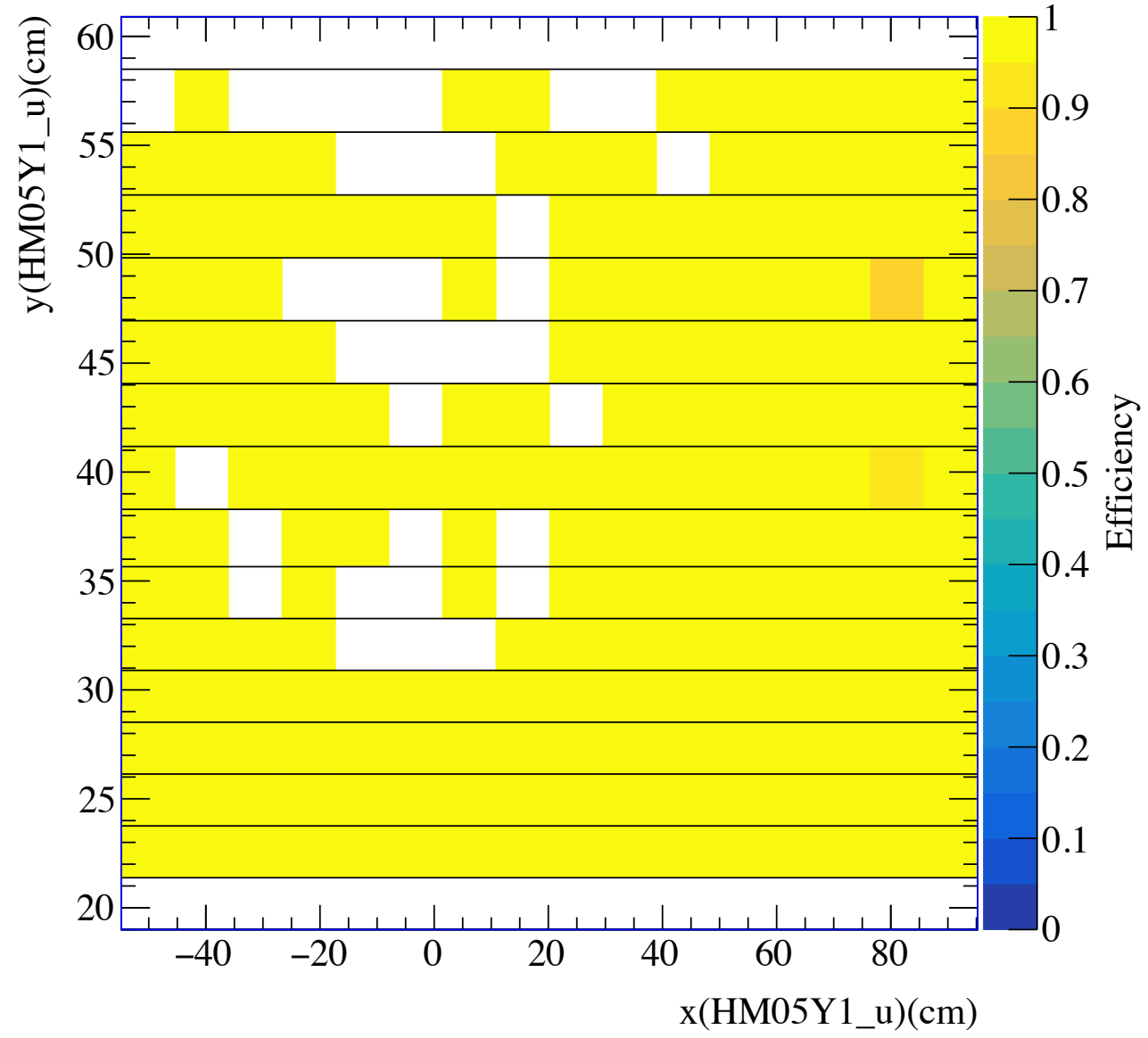


P03t7 CaloDump

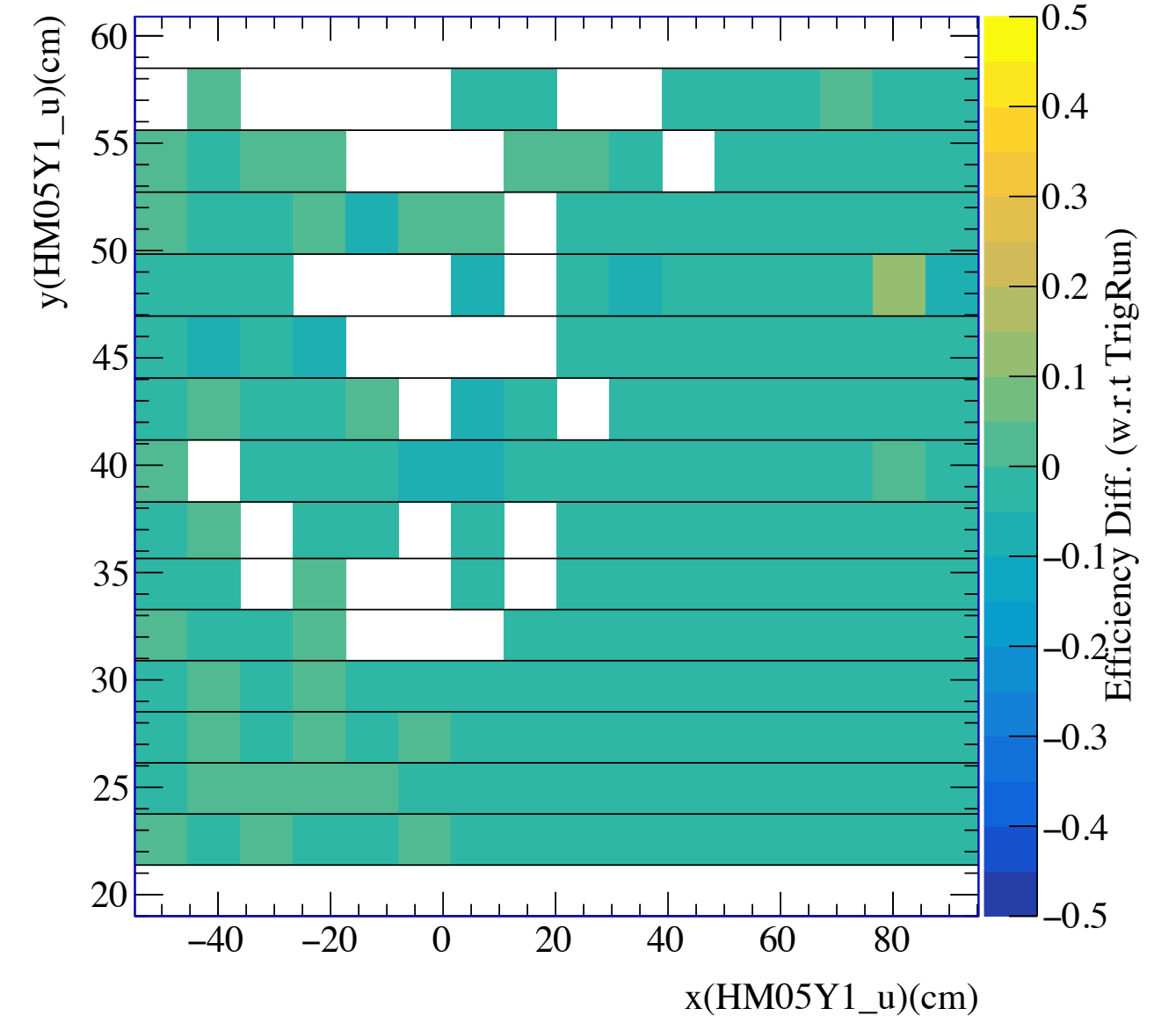


HM05Y1_u Hodoscope Efficiency

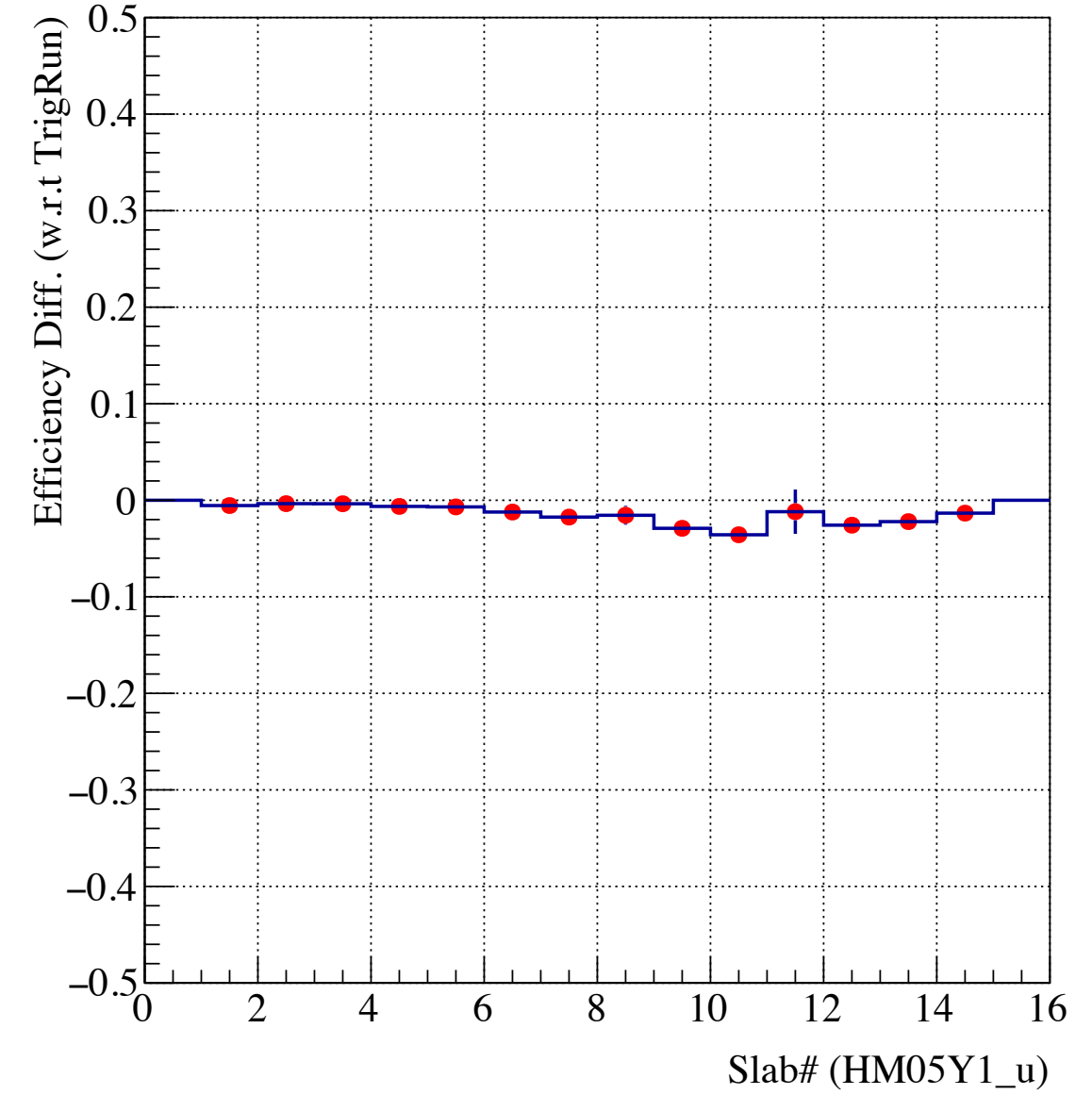
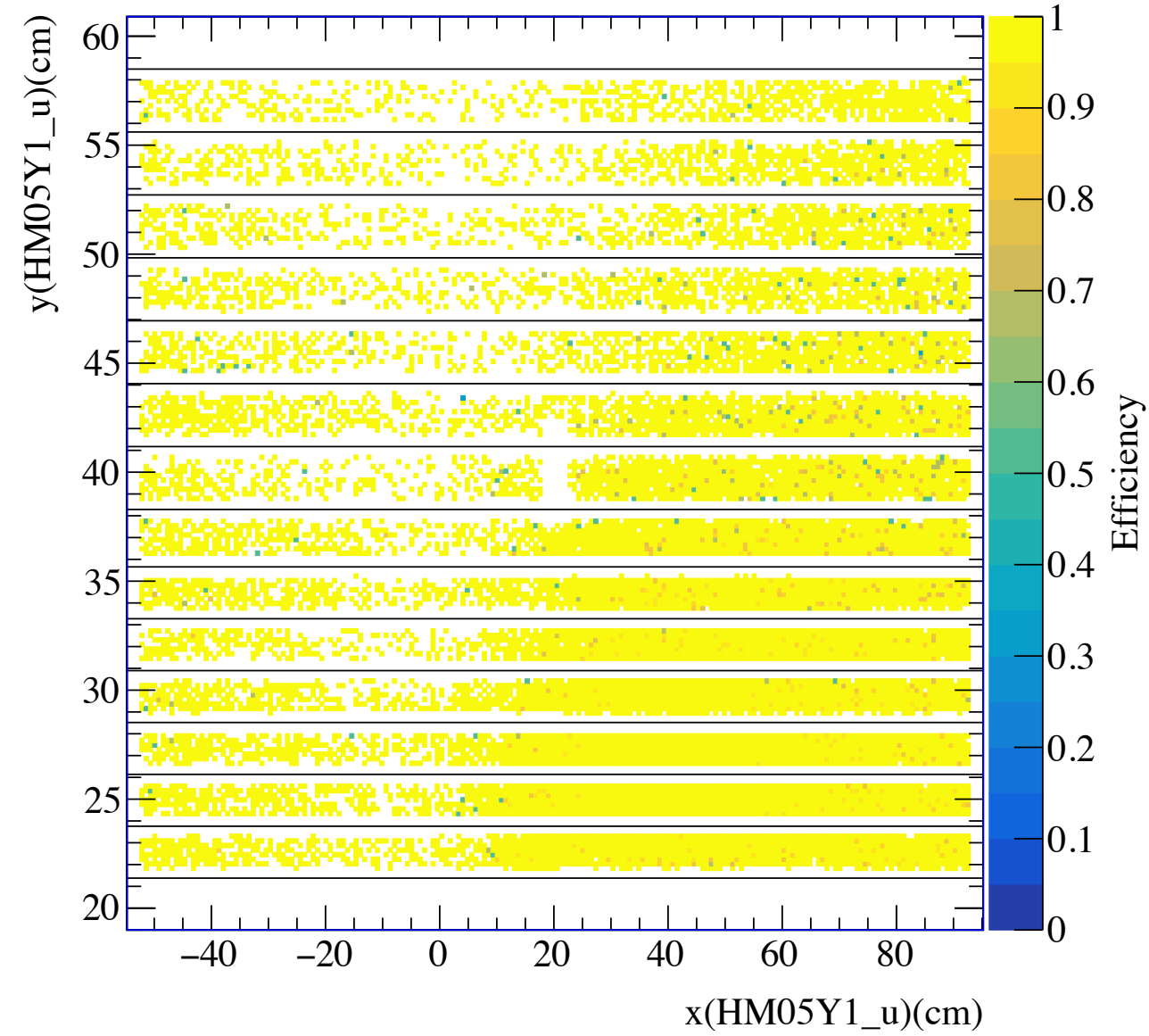
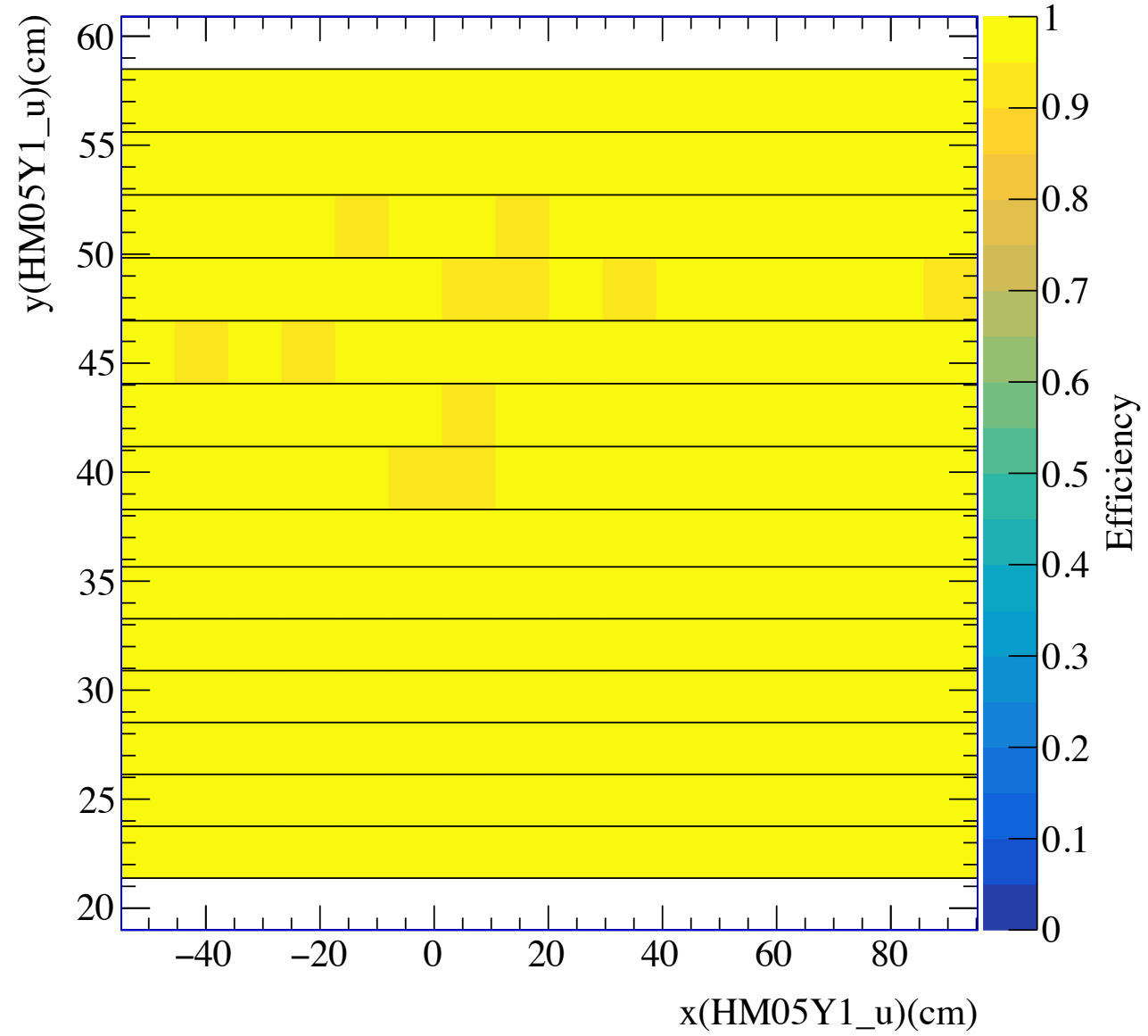
P03t7 TrigRun



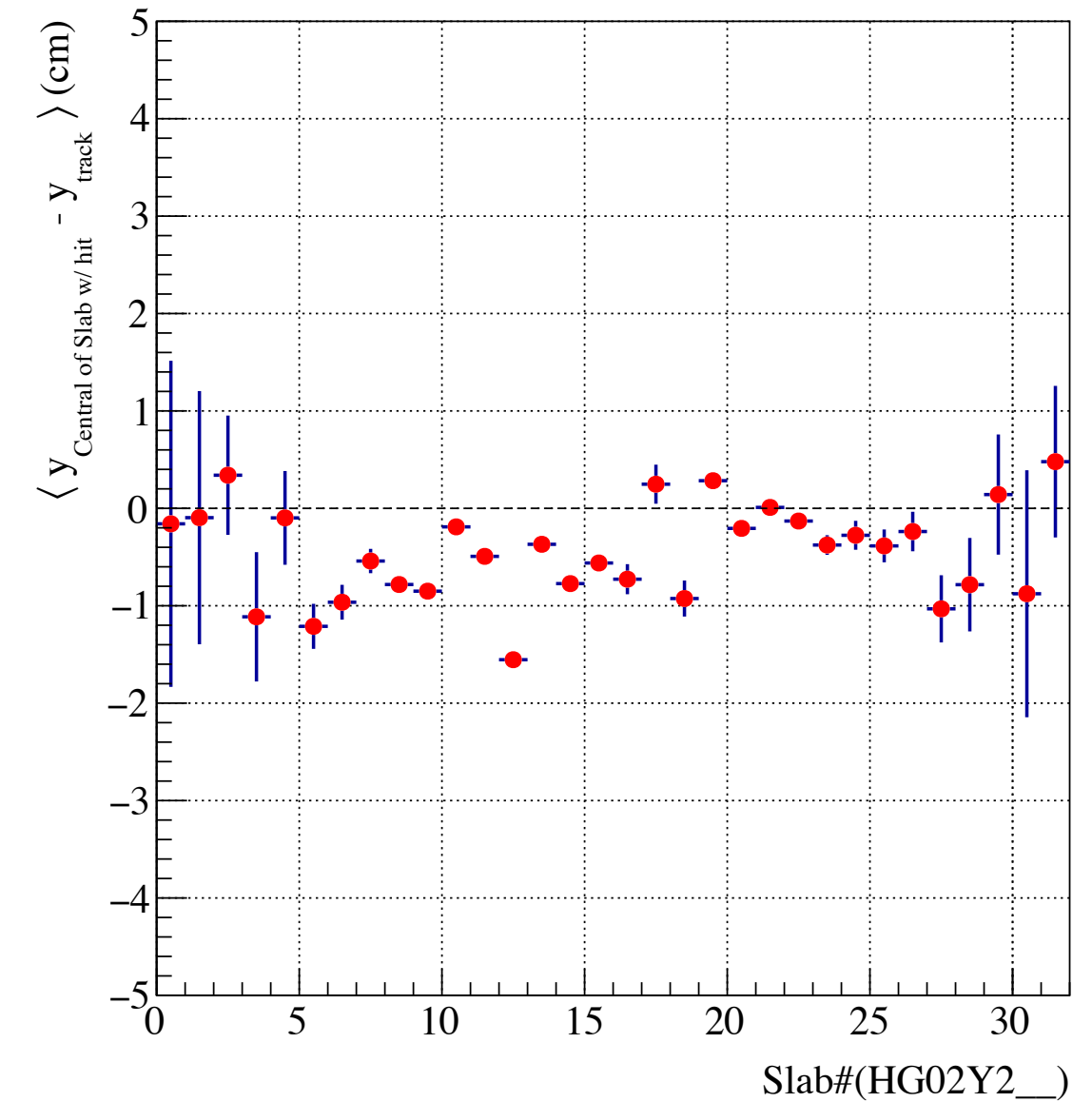
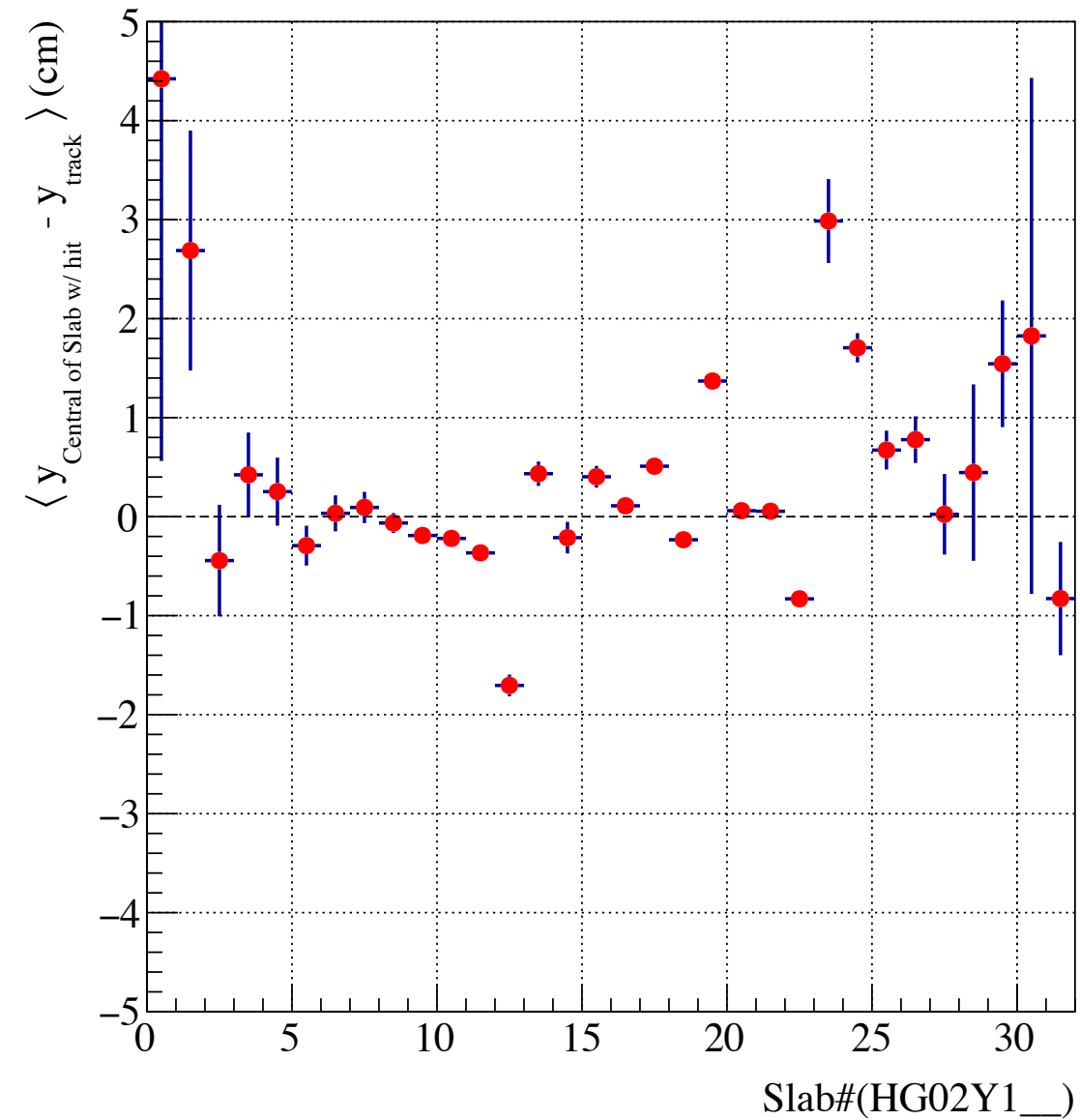
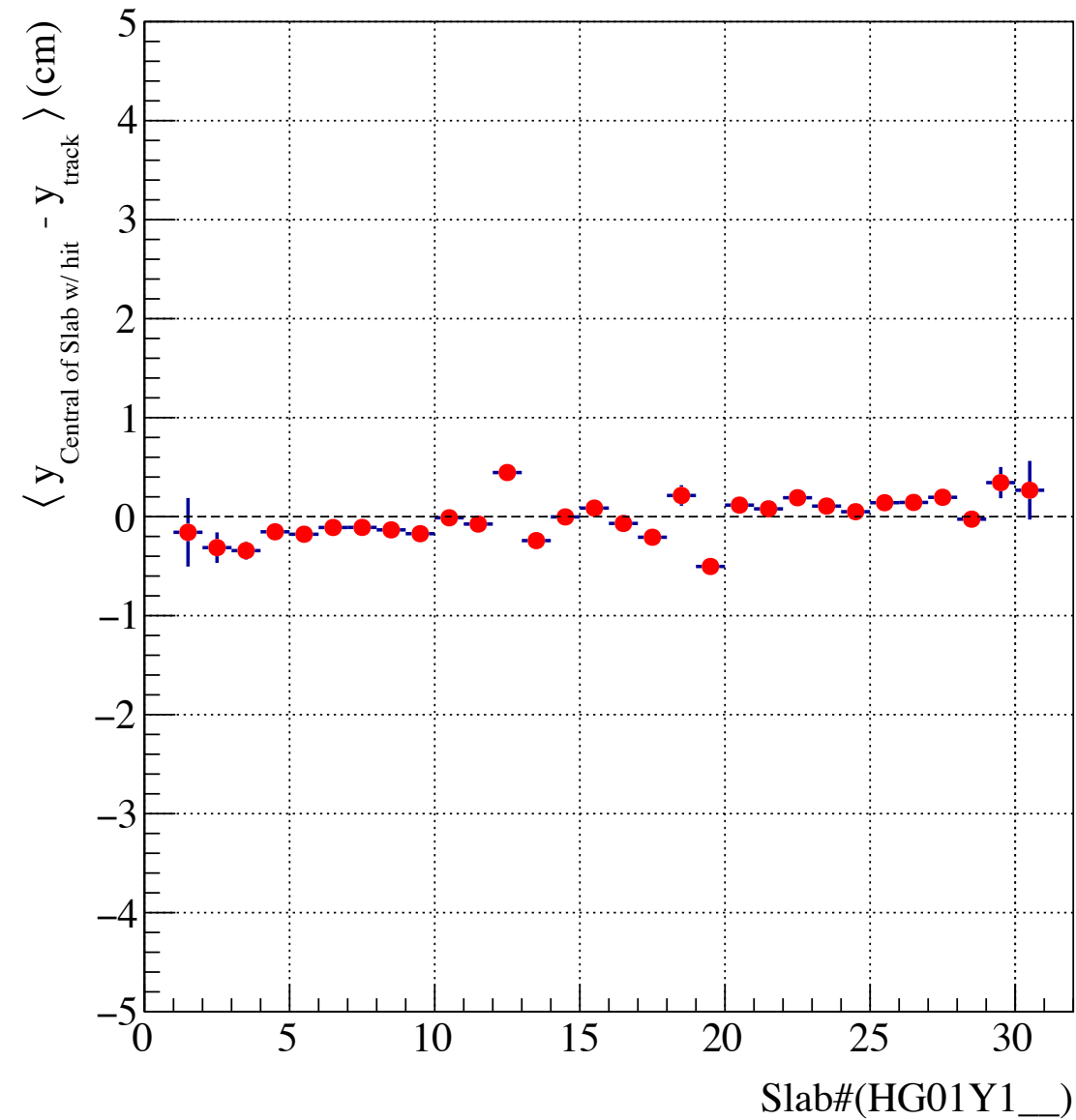
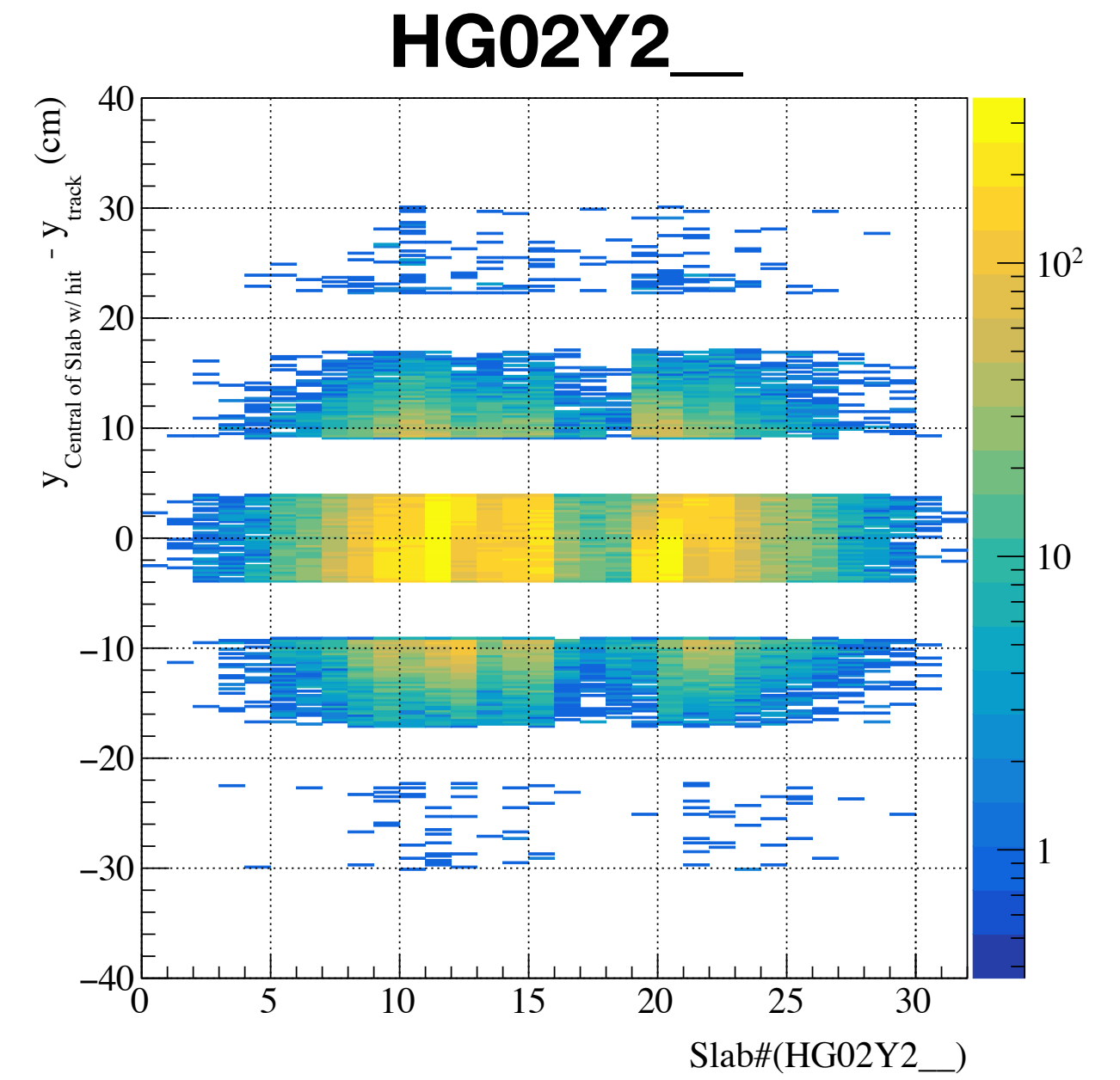
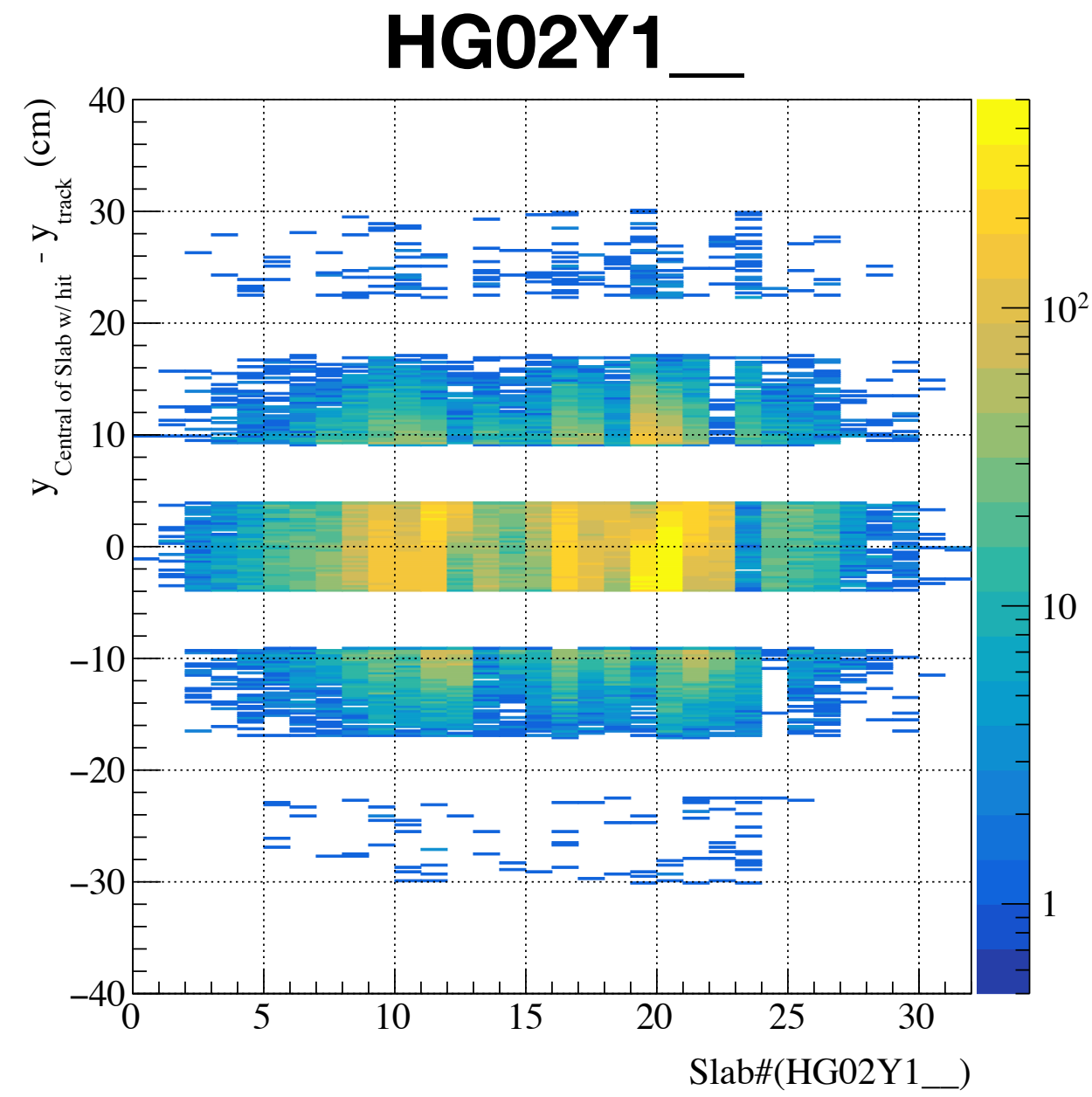
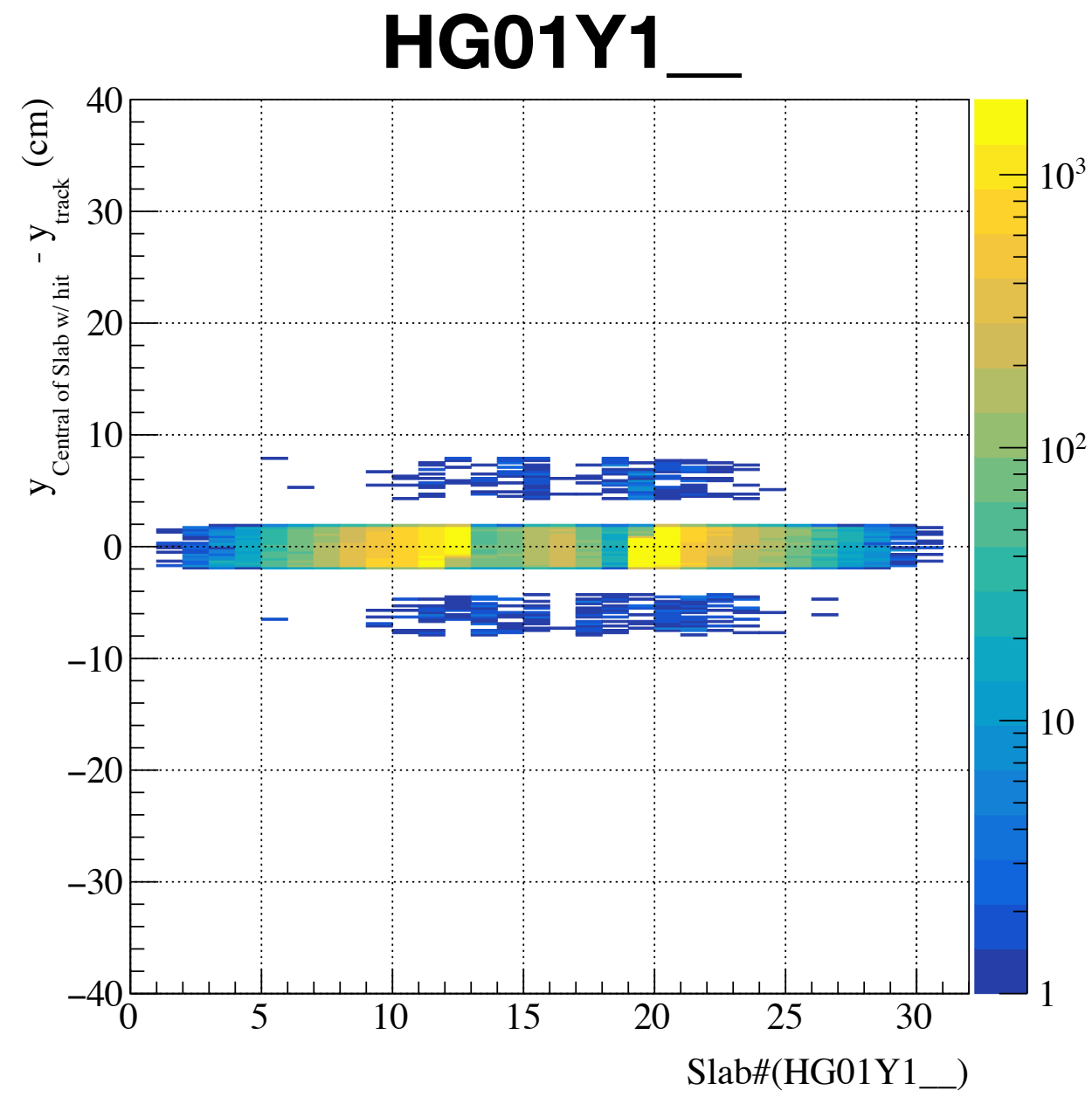
Efficiency(CaloDump) - Efficiency(TrigRun)



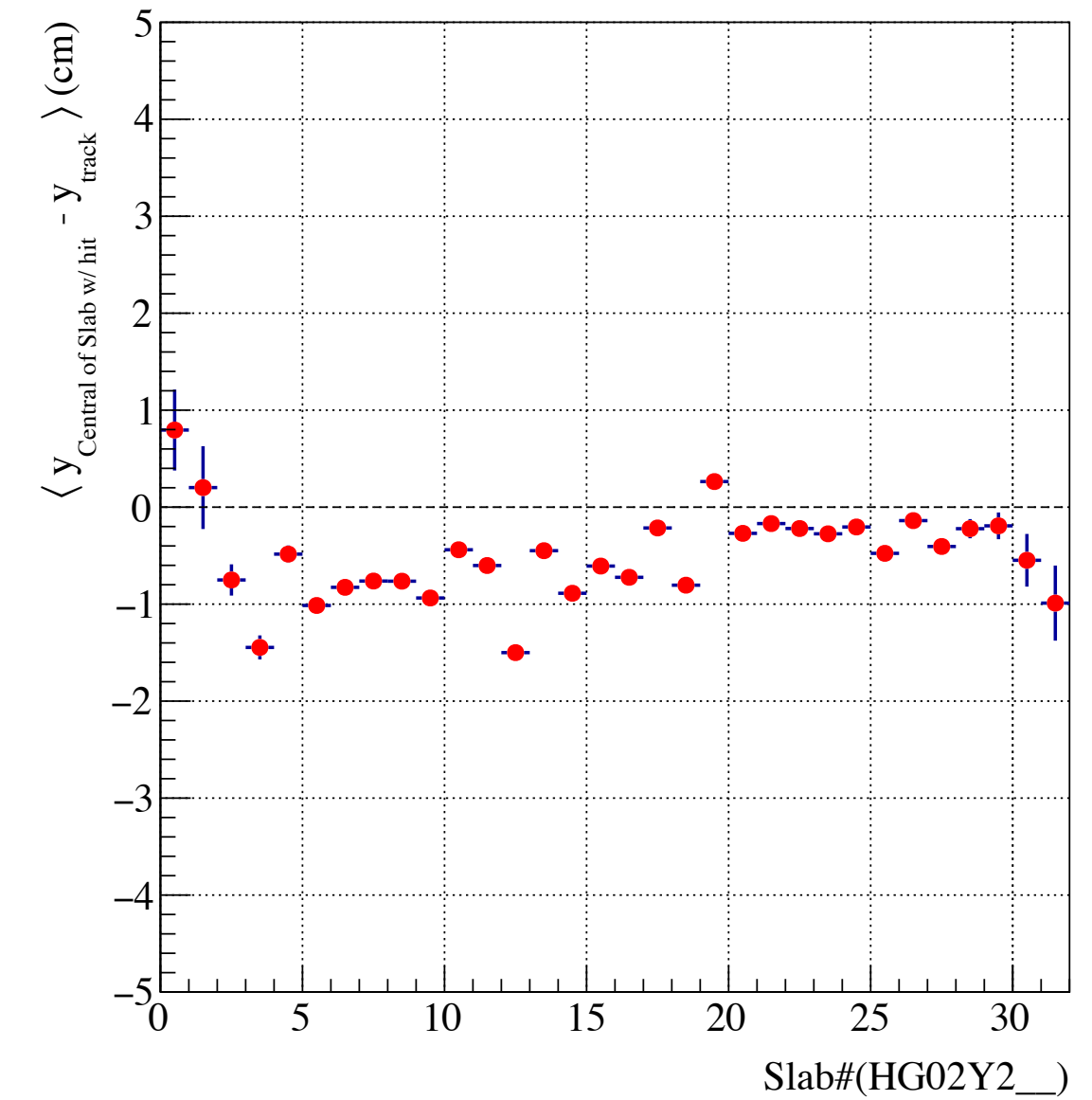
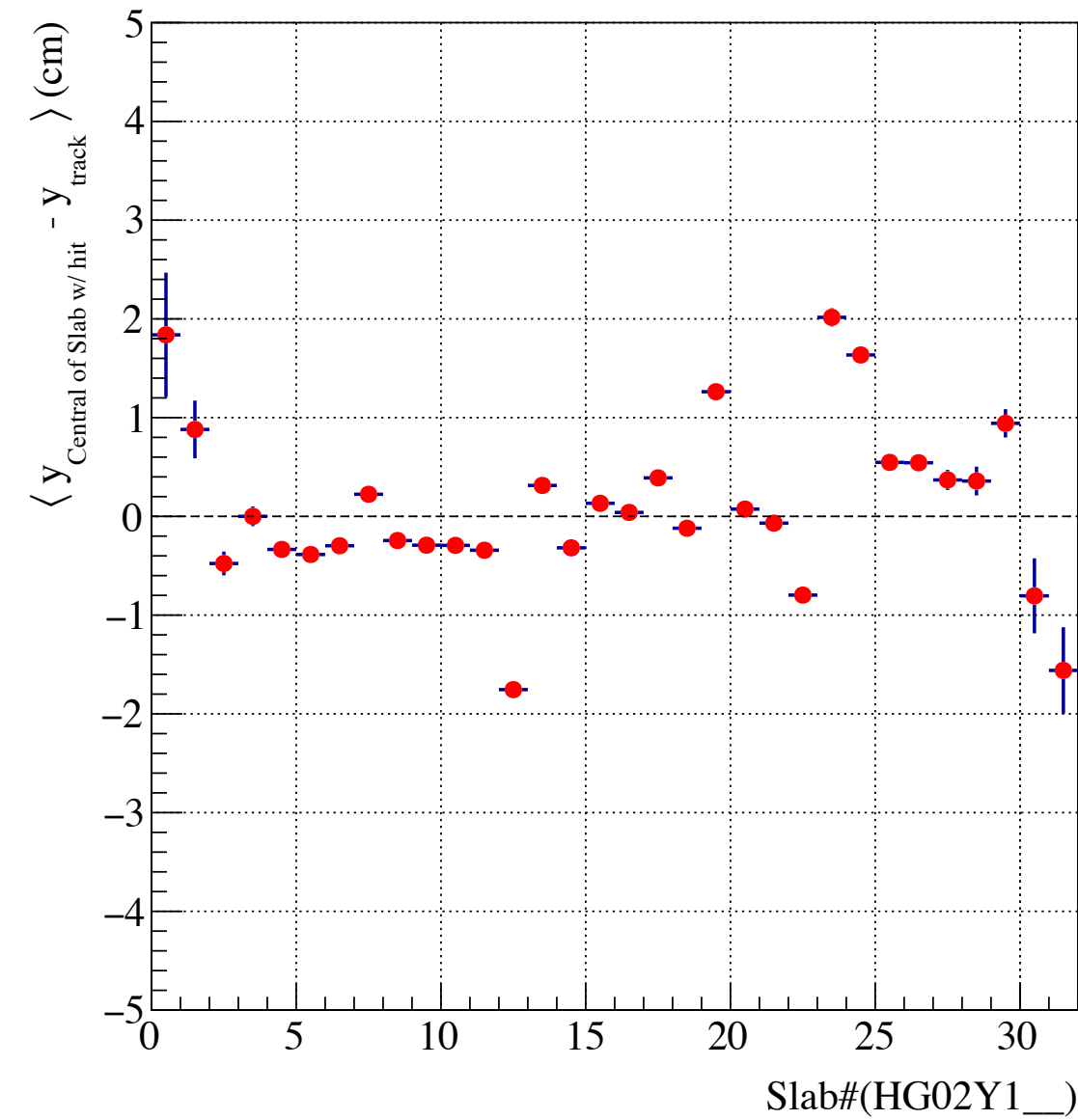
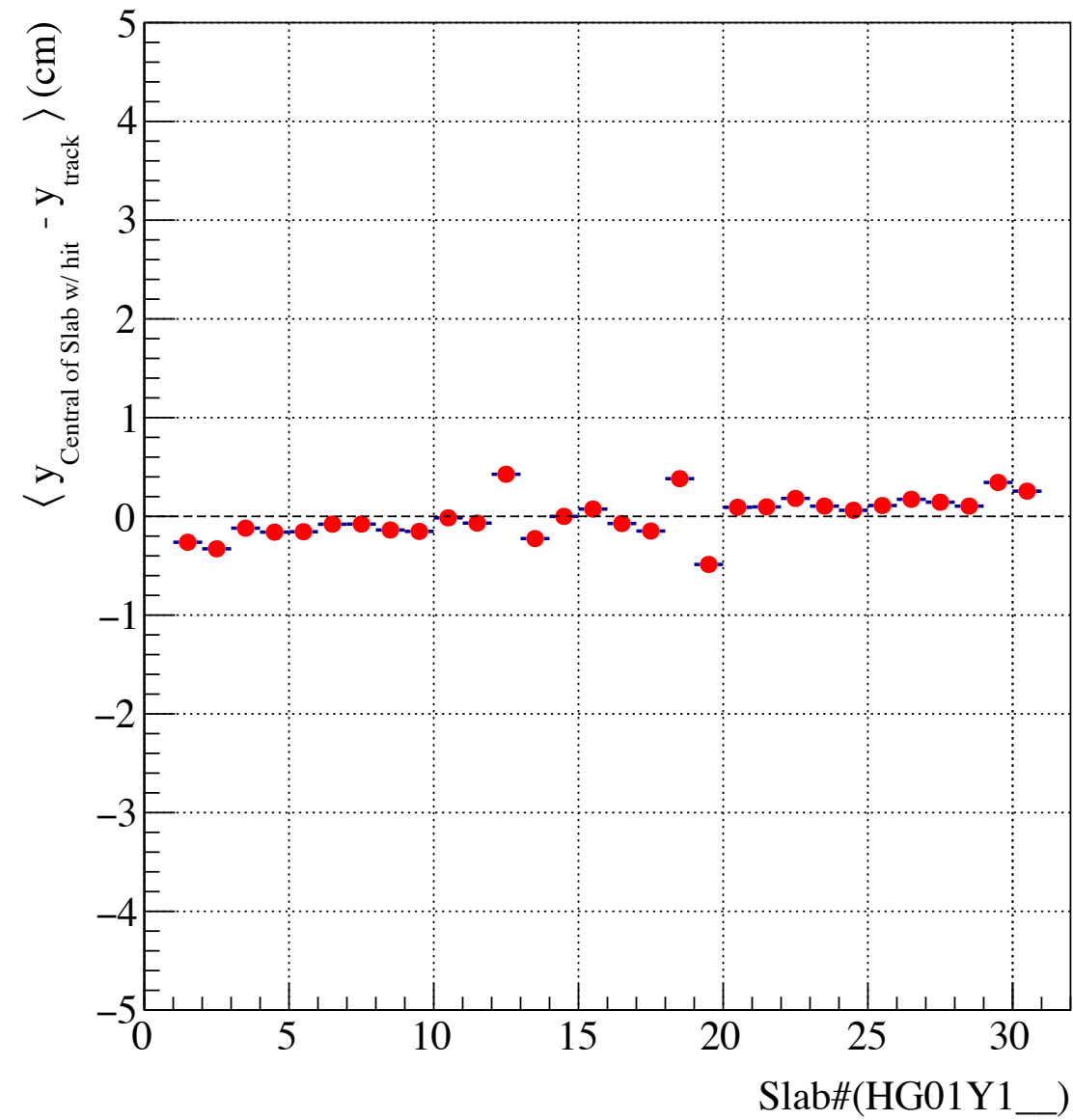
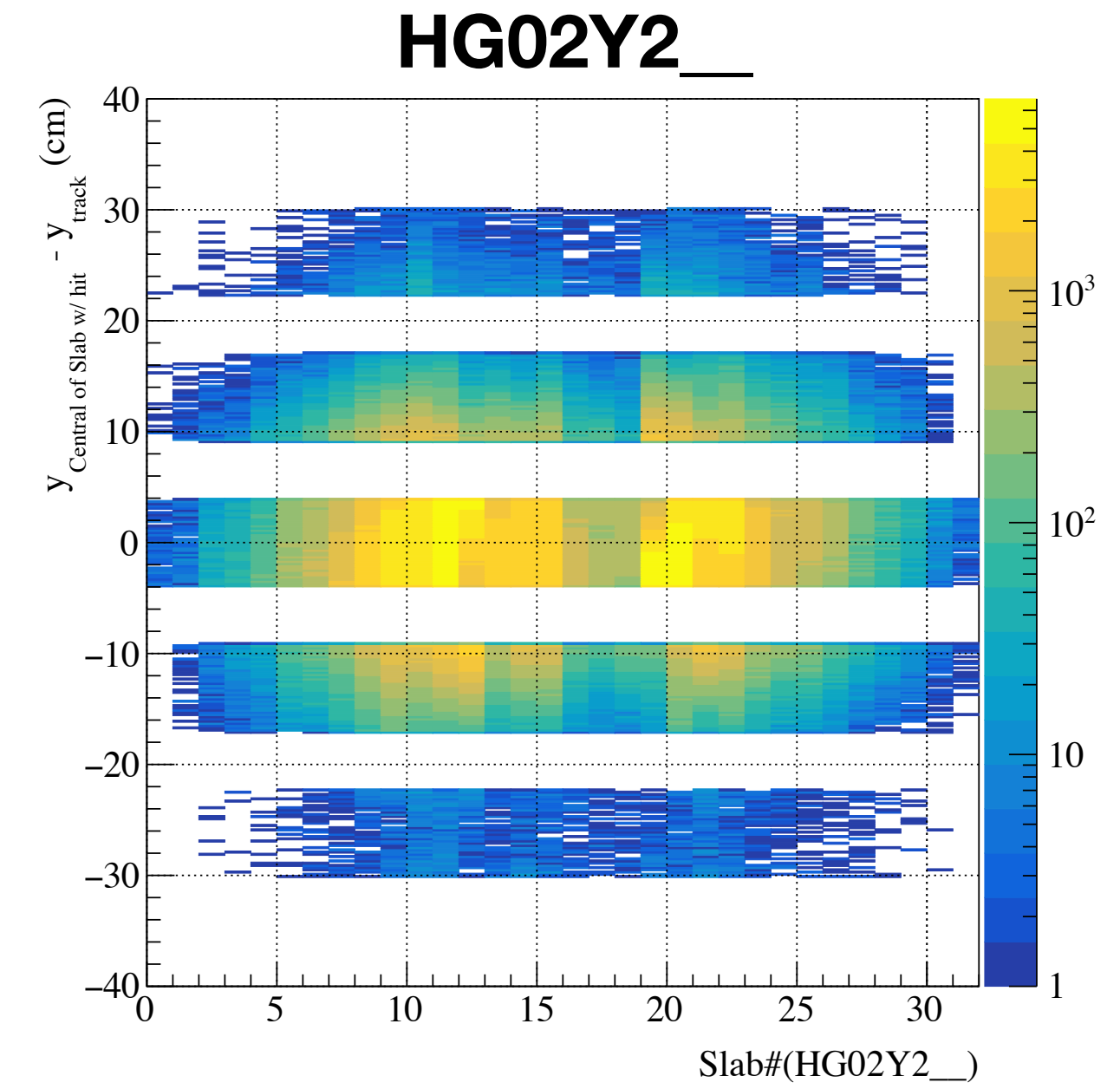
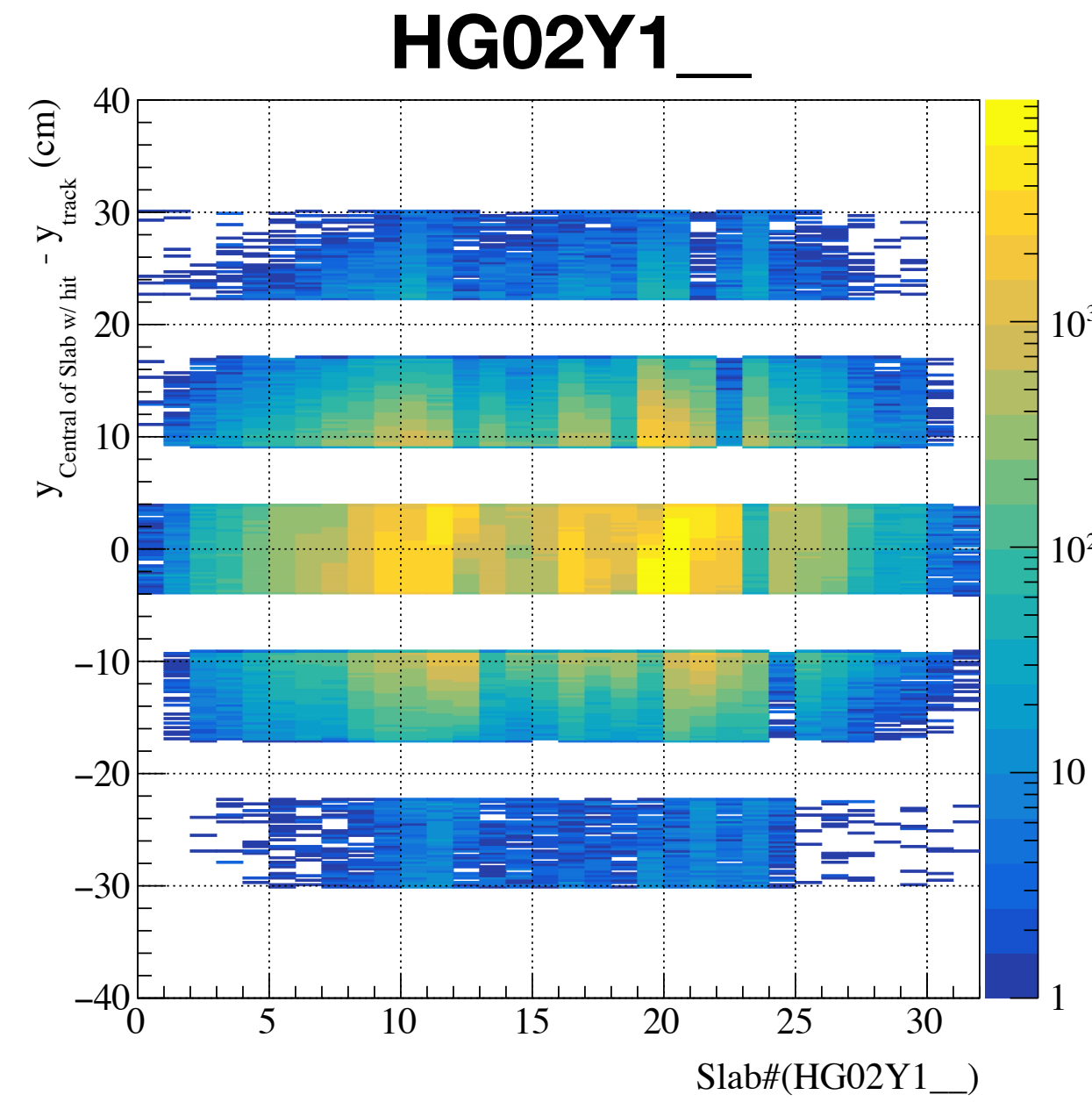
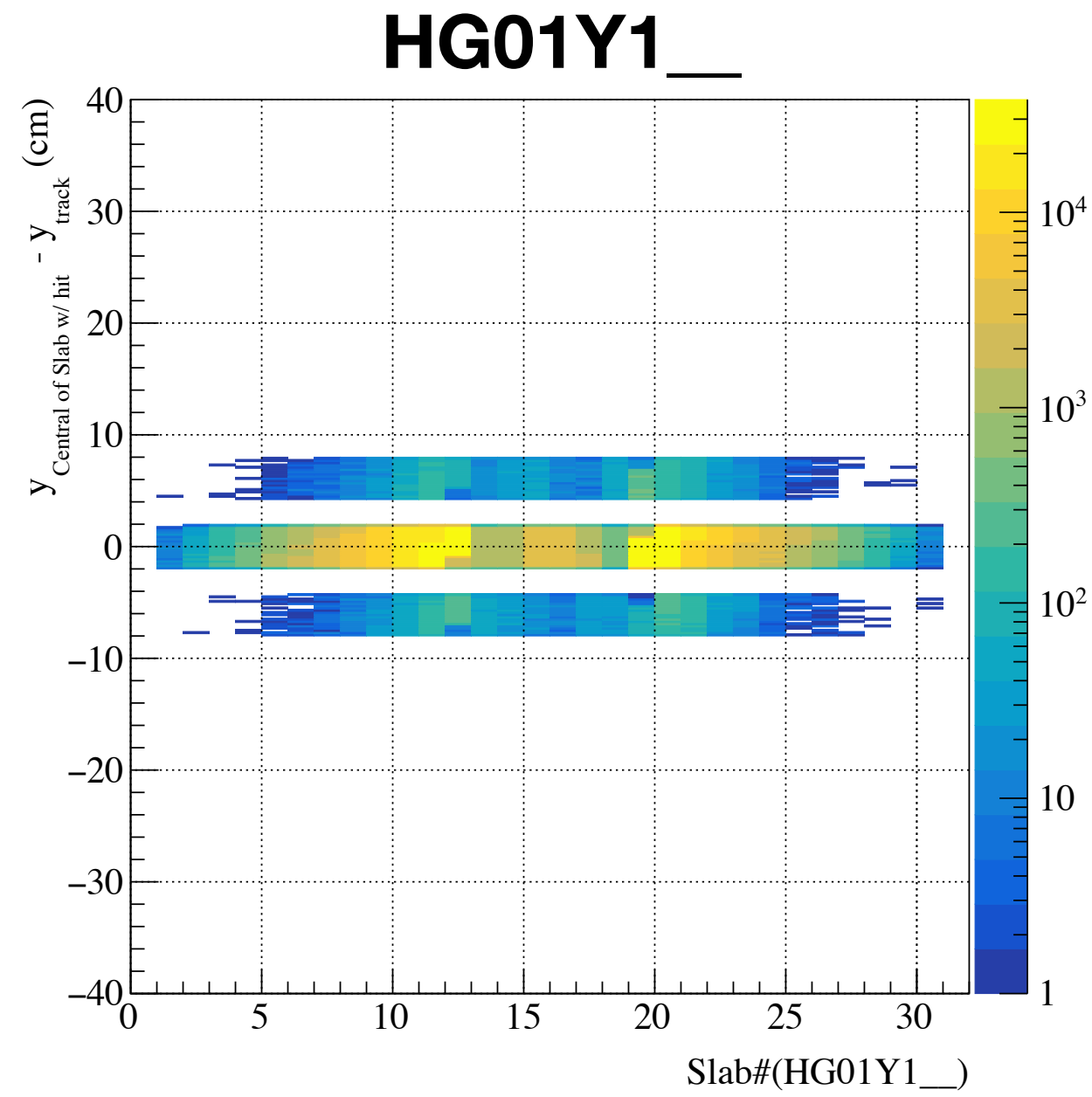
P03t7 CaloDump



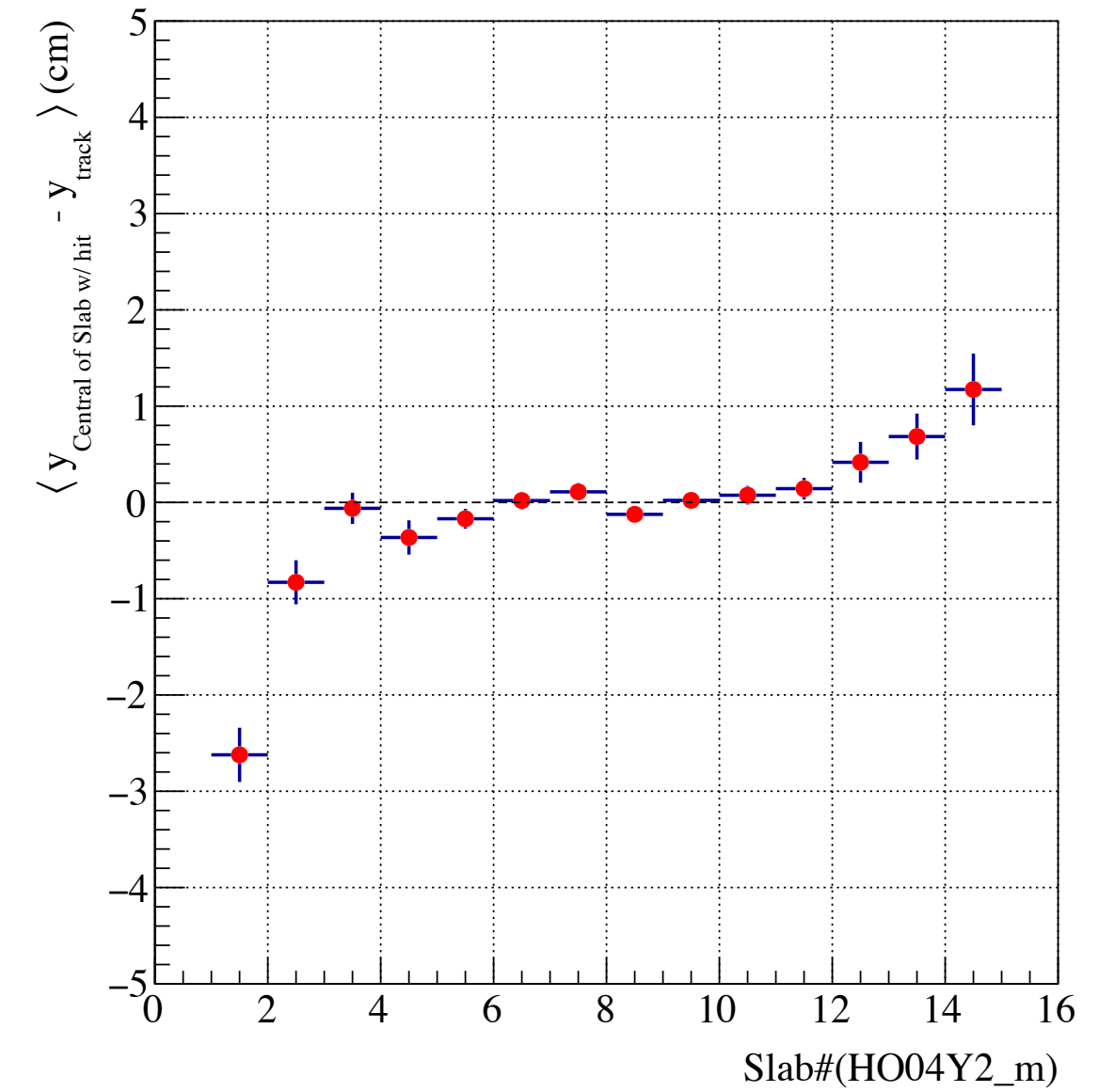
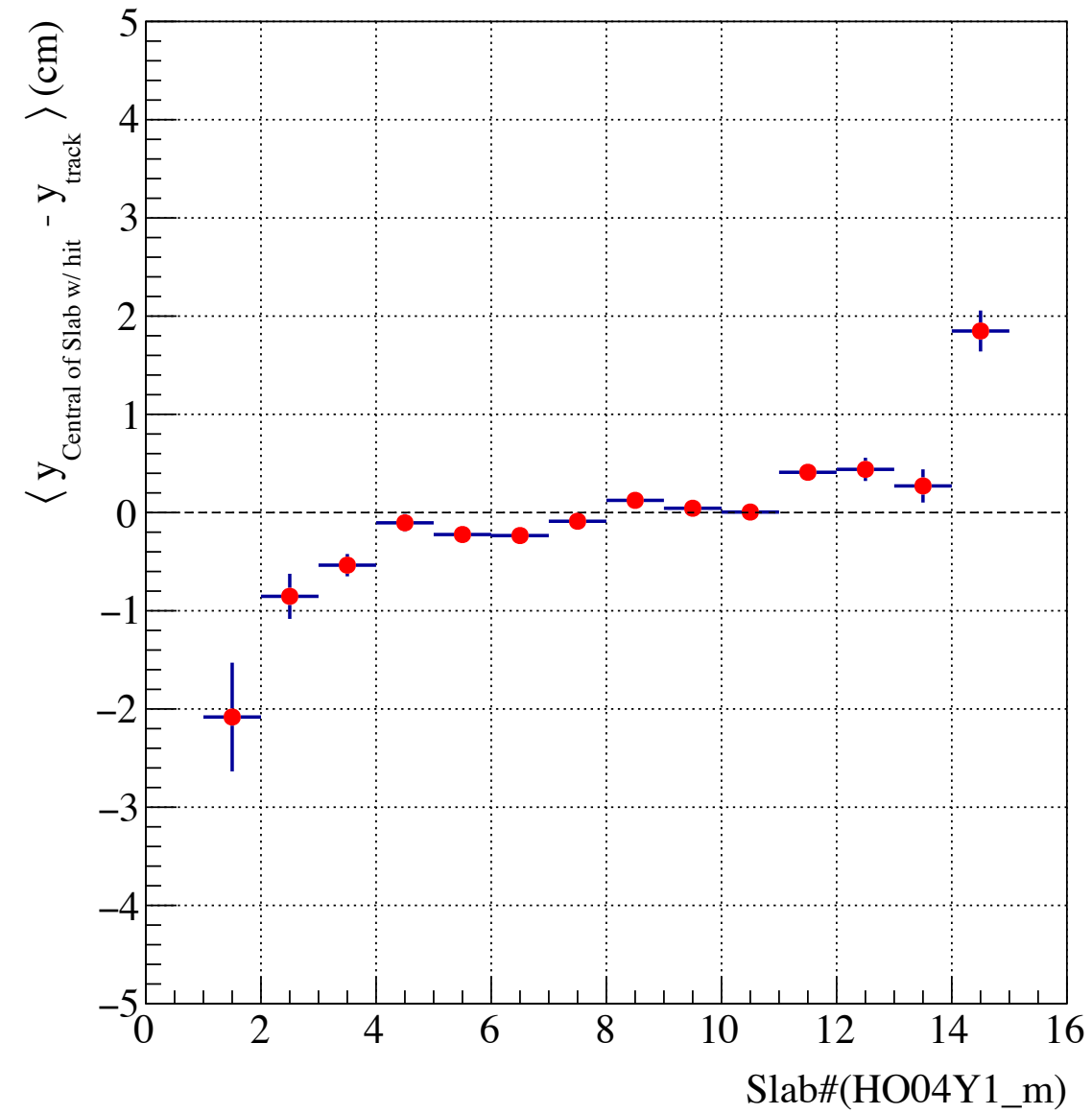
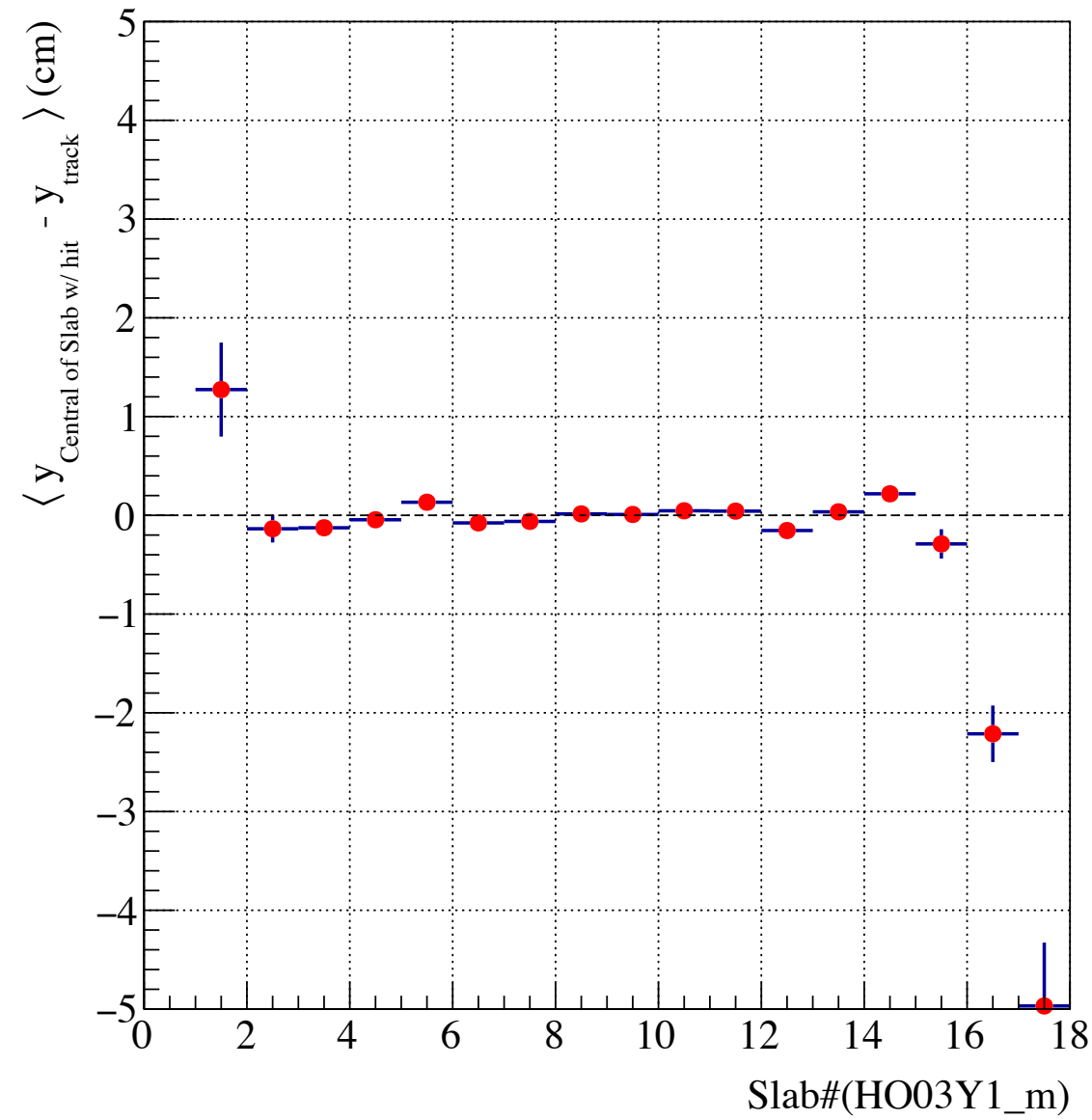
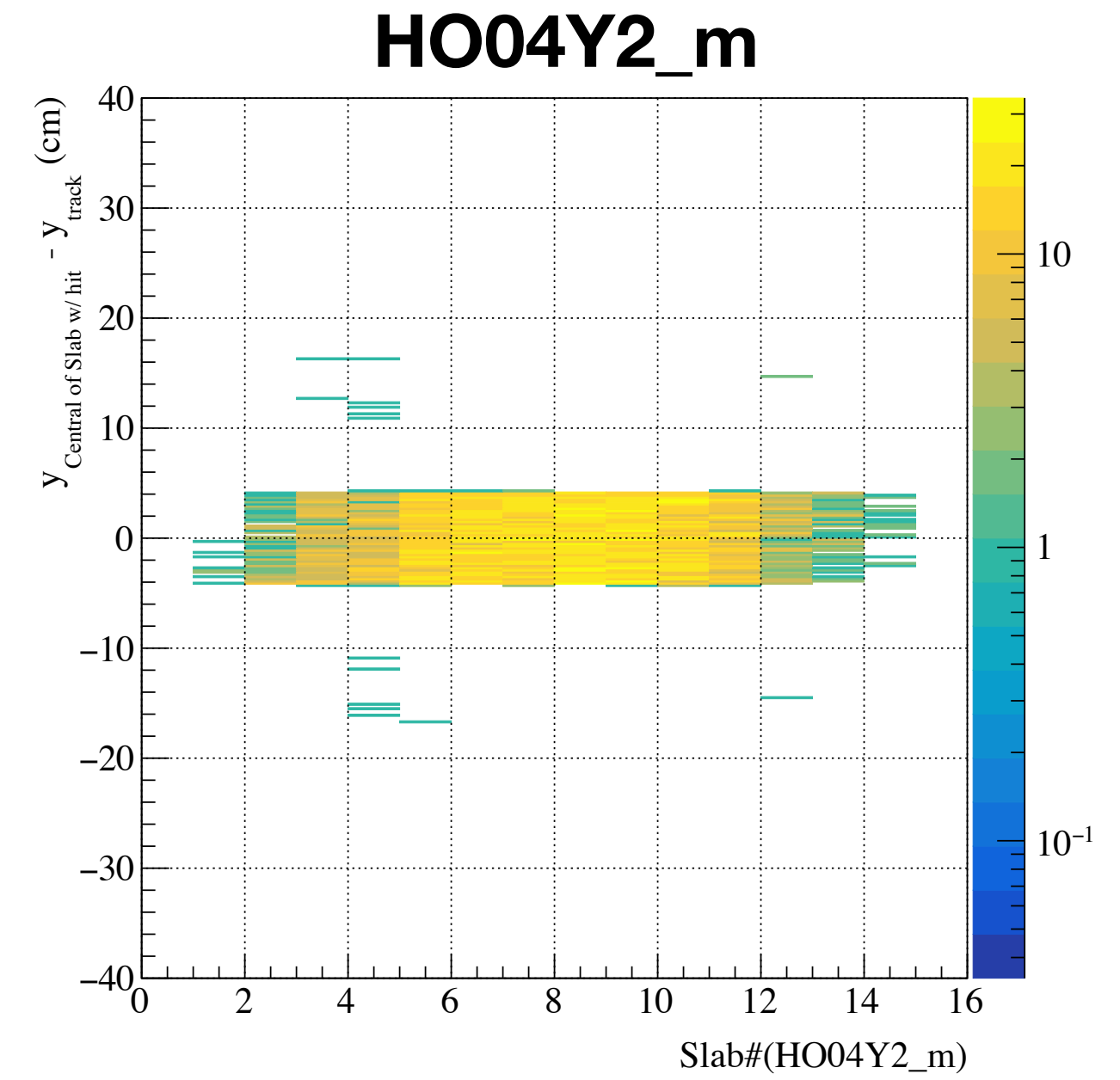
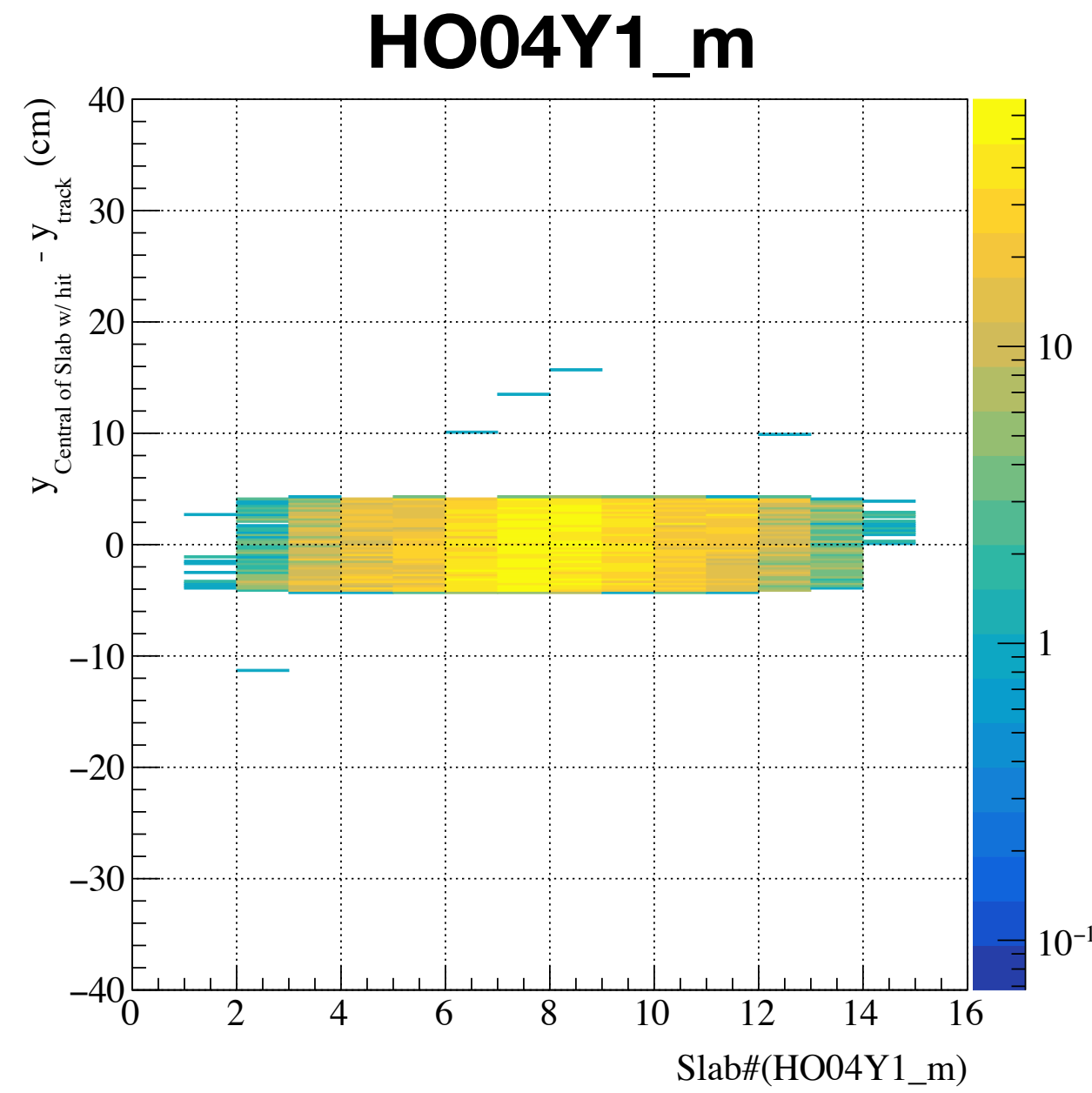
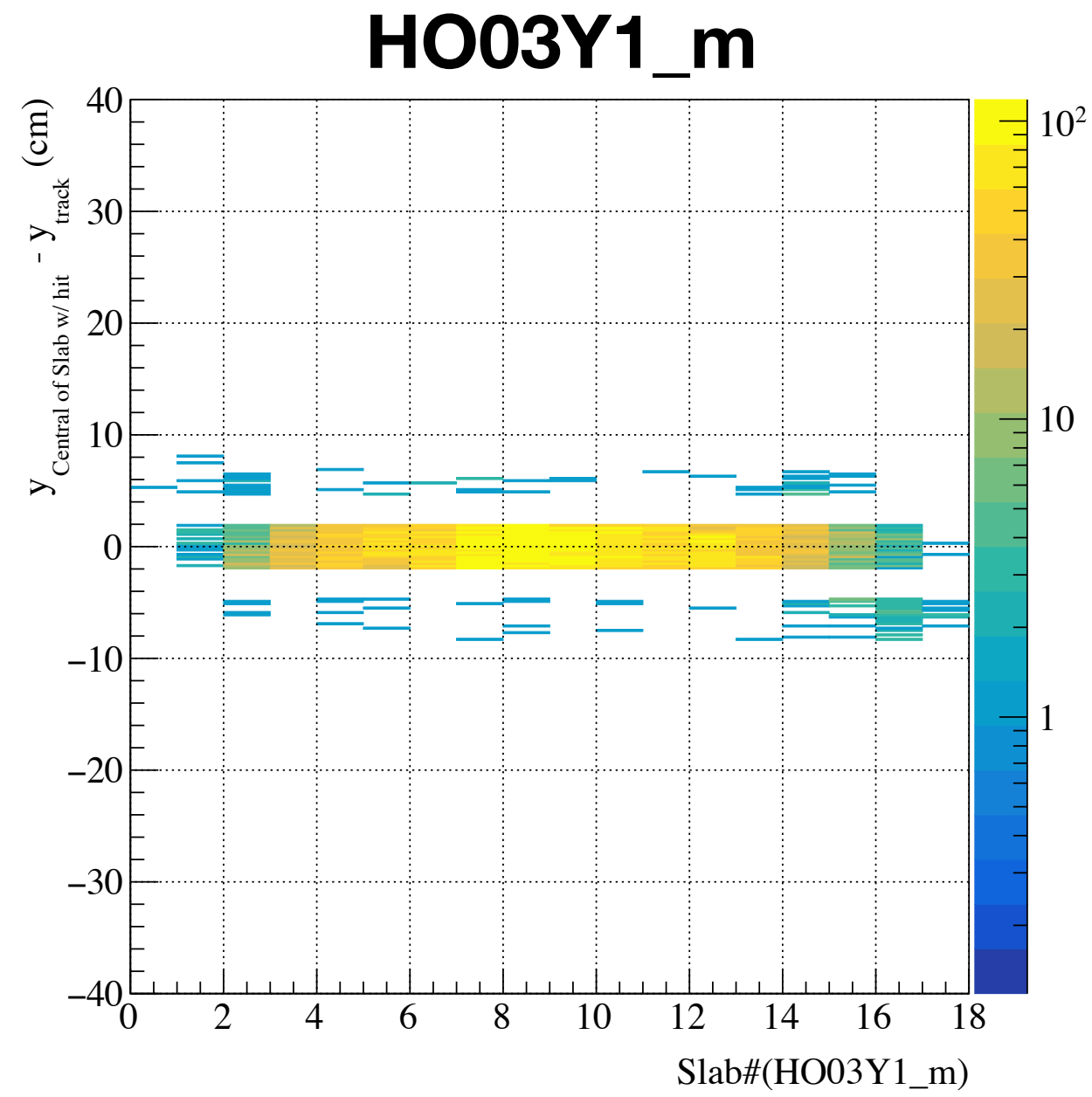
Residuals of Track Y position in HG (TrigRun)



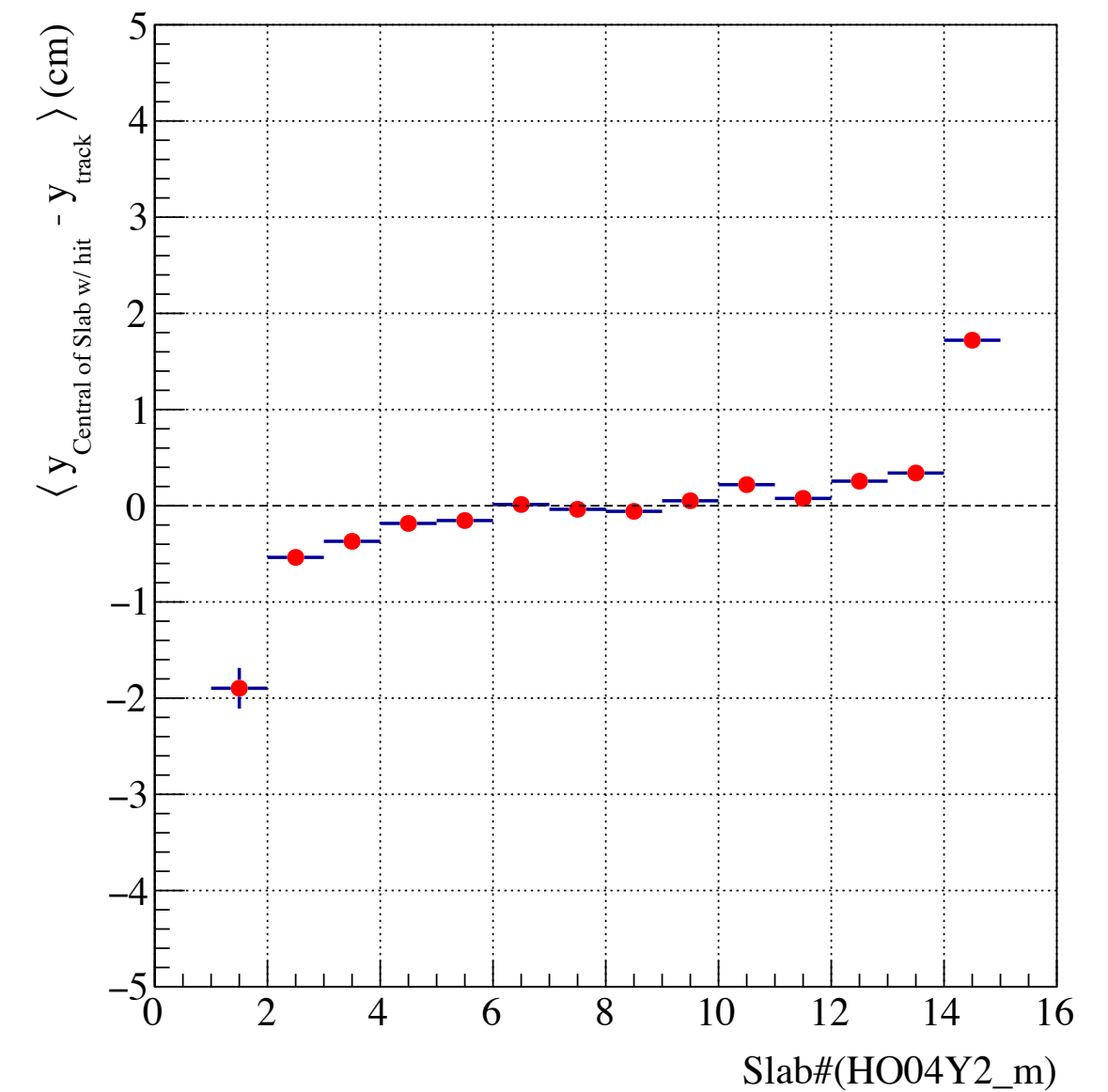
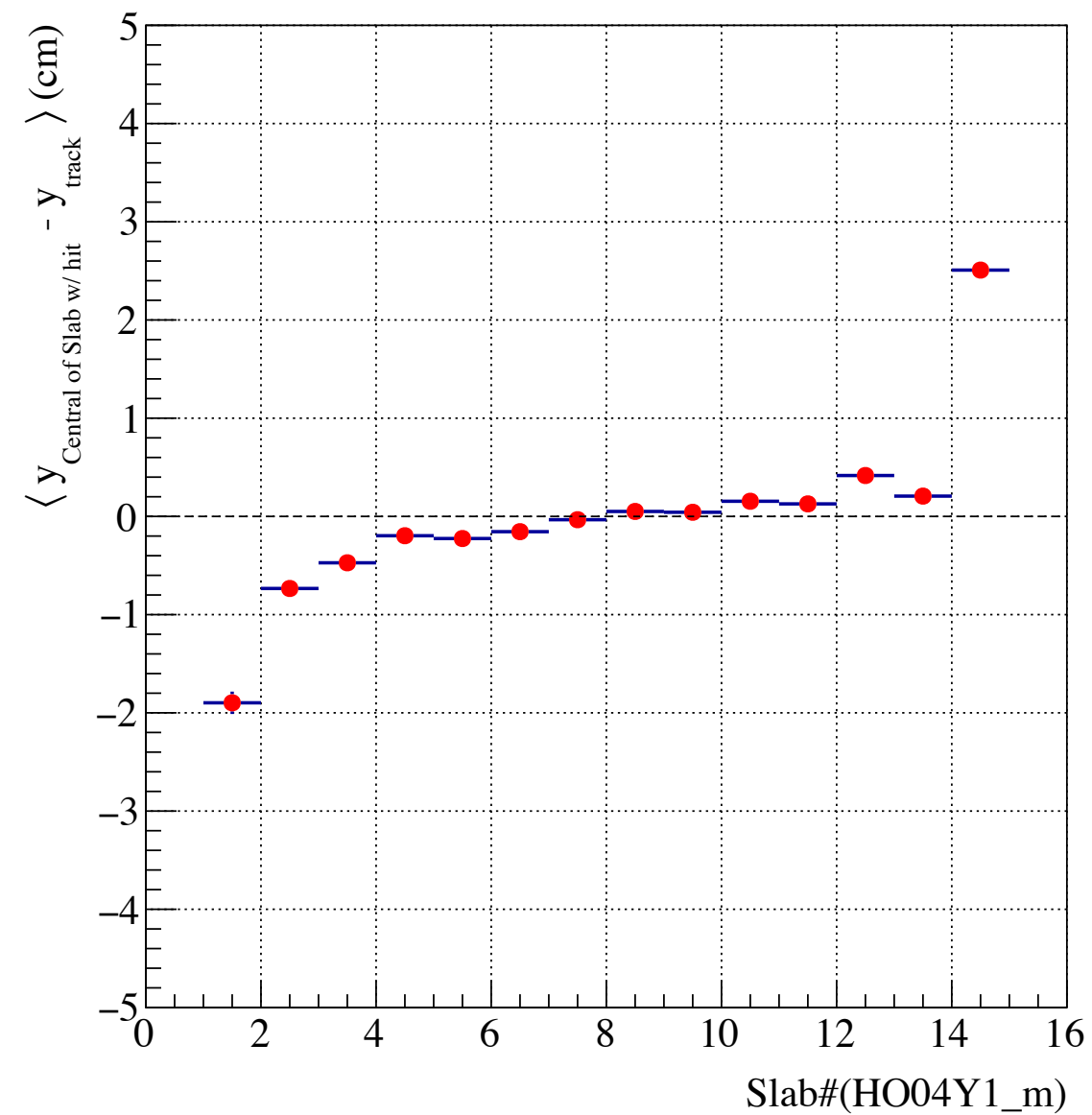
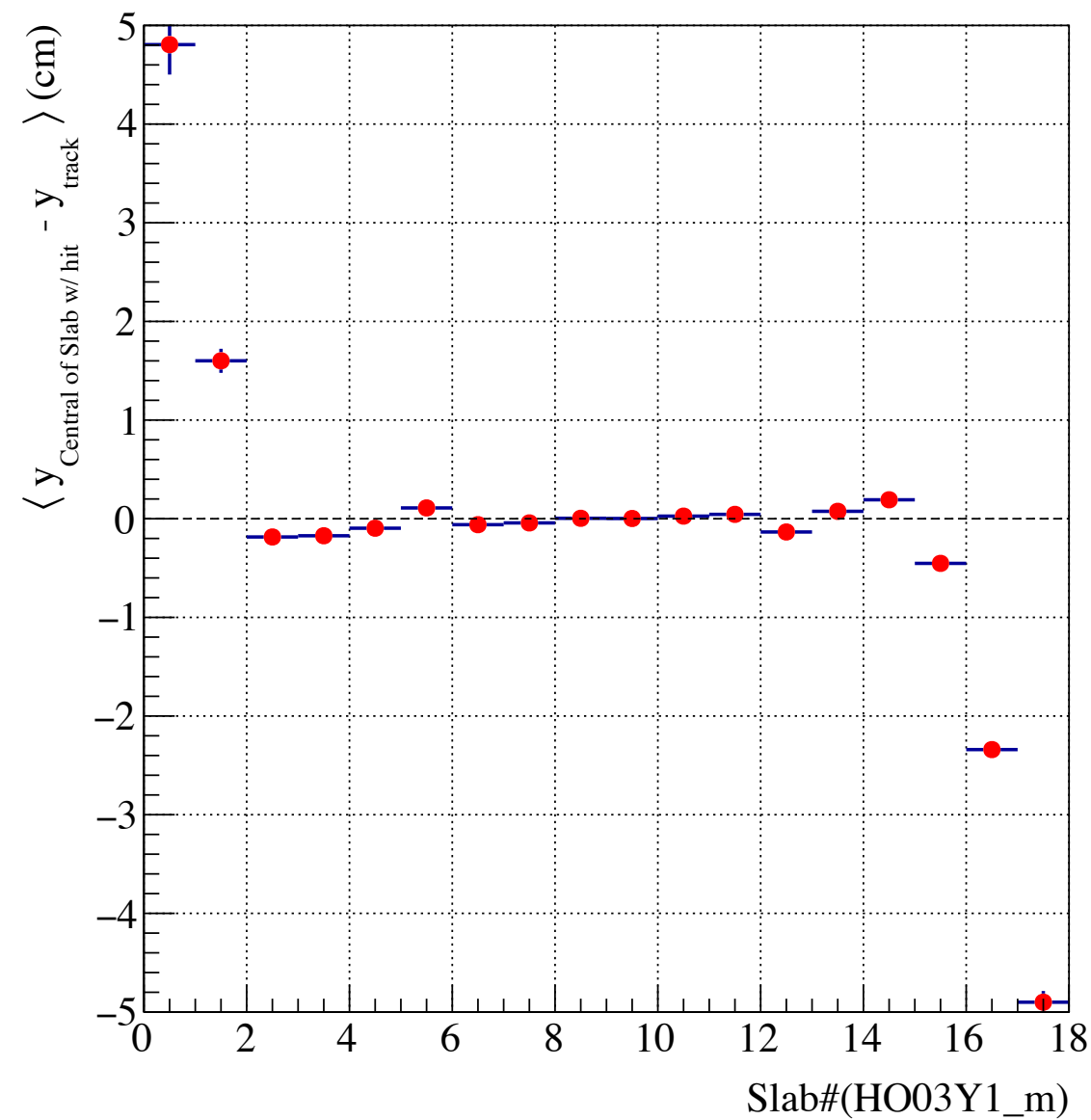
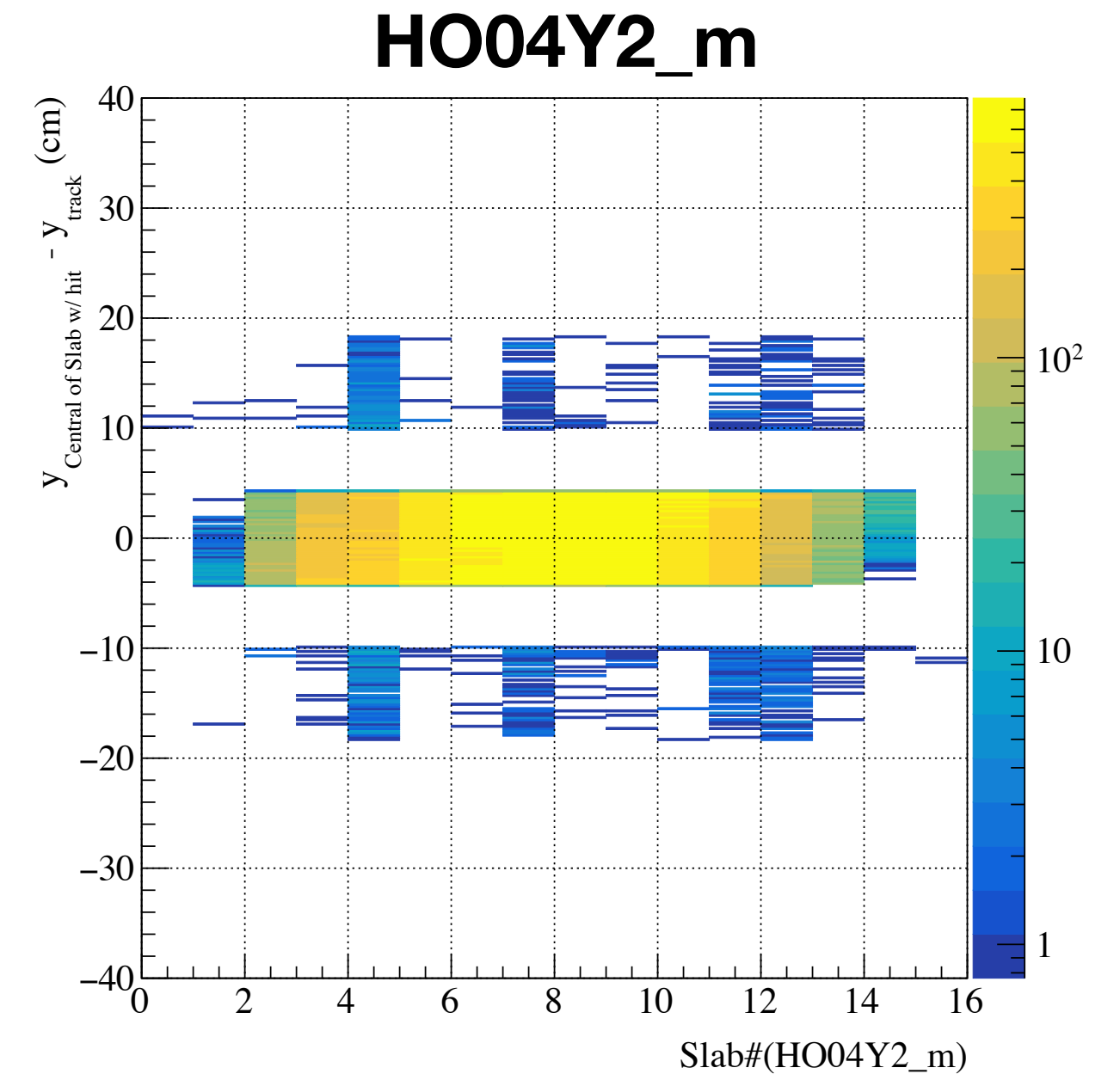
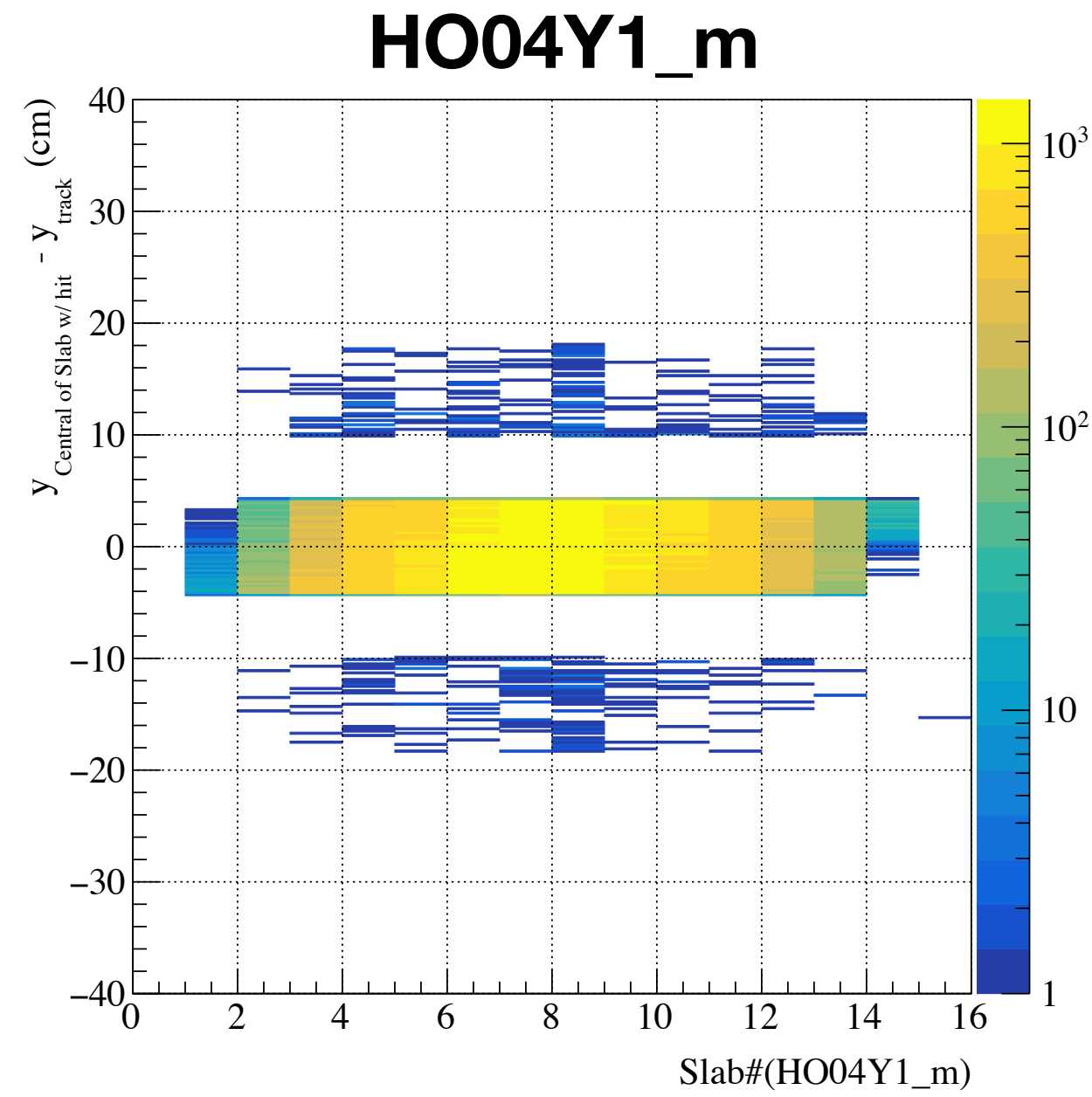
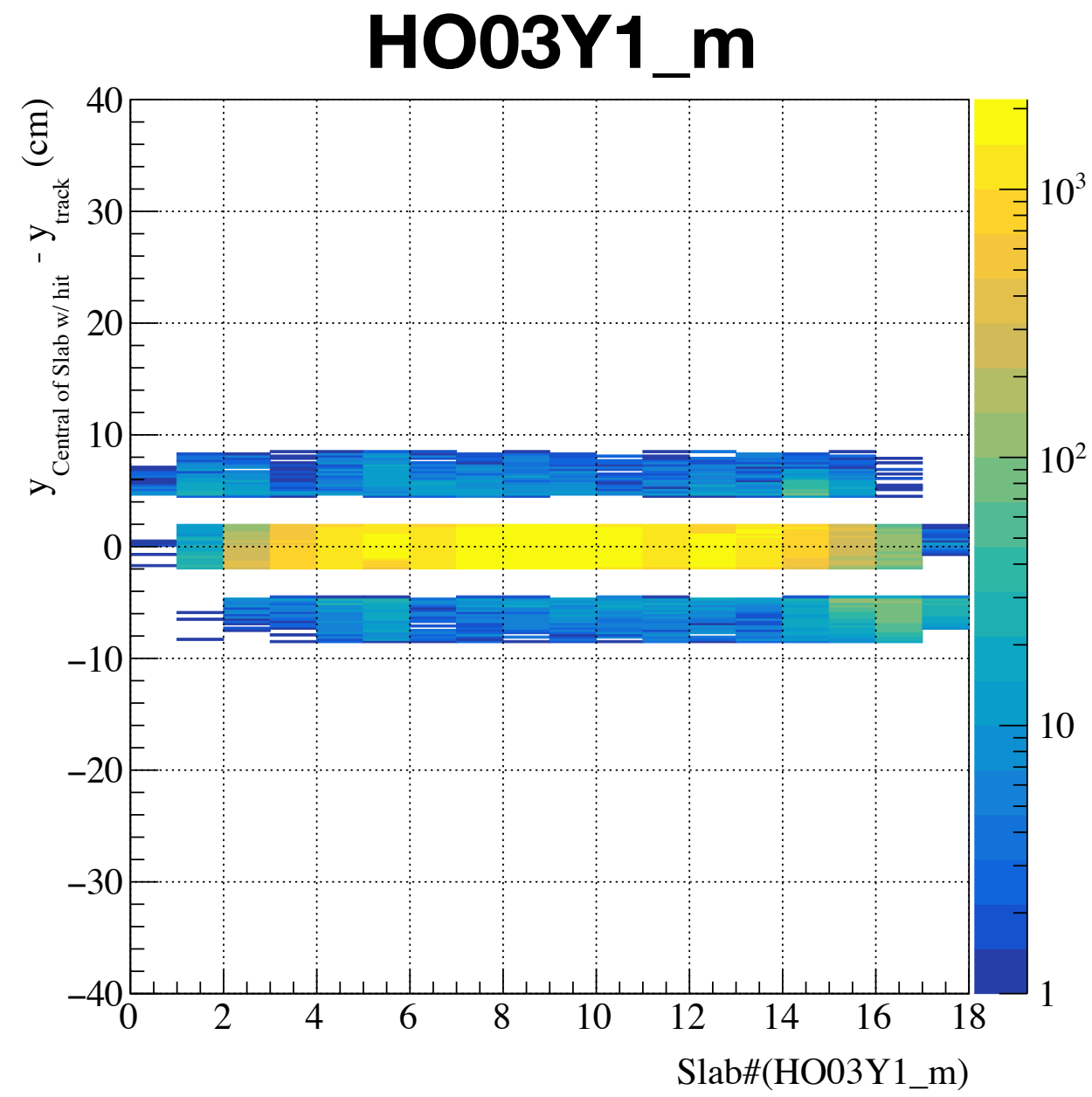
Residuals of Track Y position in HG (CaloDump)



Residuals of Track Y position in H0 (TrigRun)

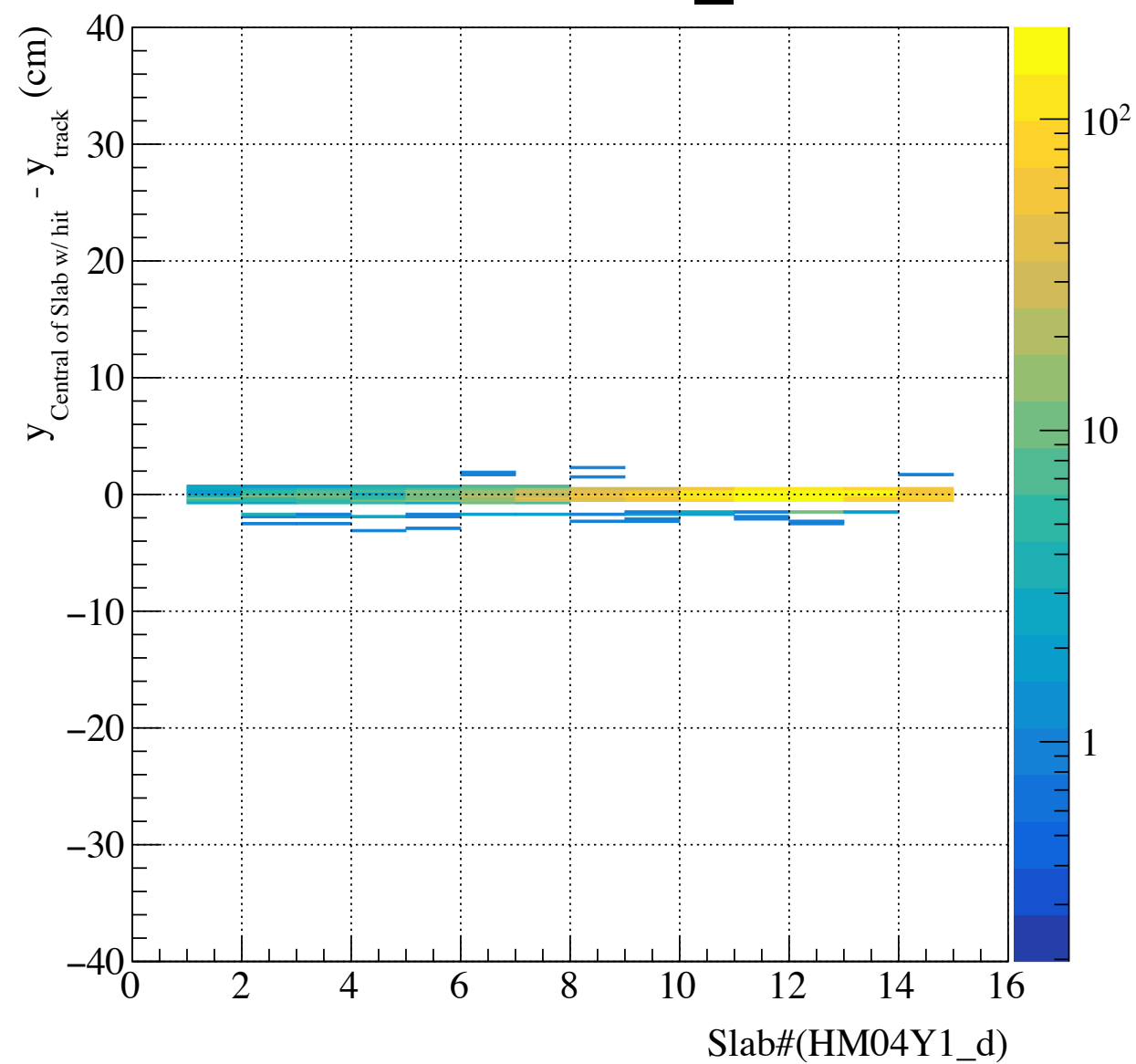


Residuals of Track Y position in HO (CaloDump)

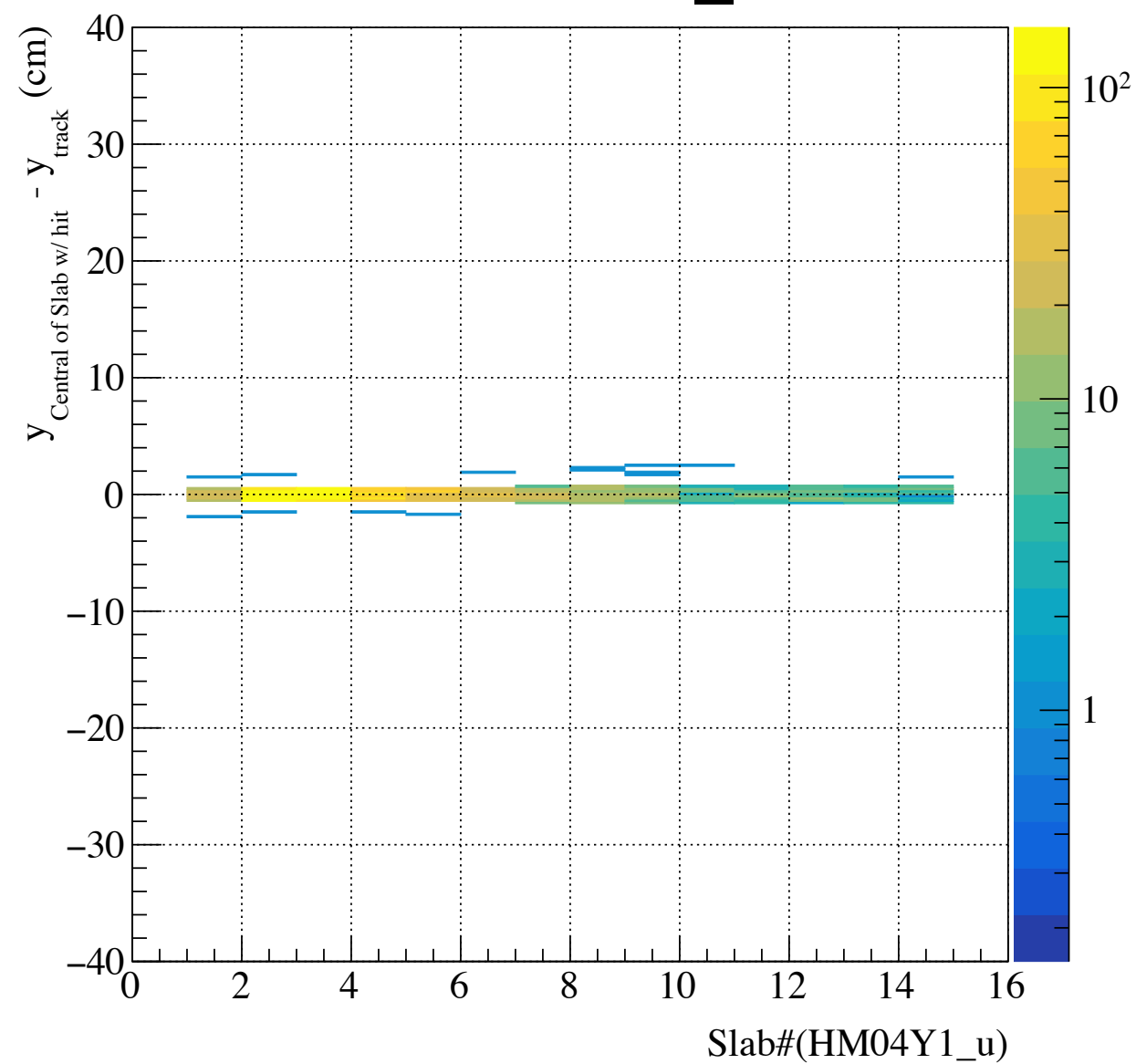


Residuals of Track Y position in HM (TrigRun)

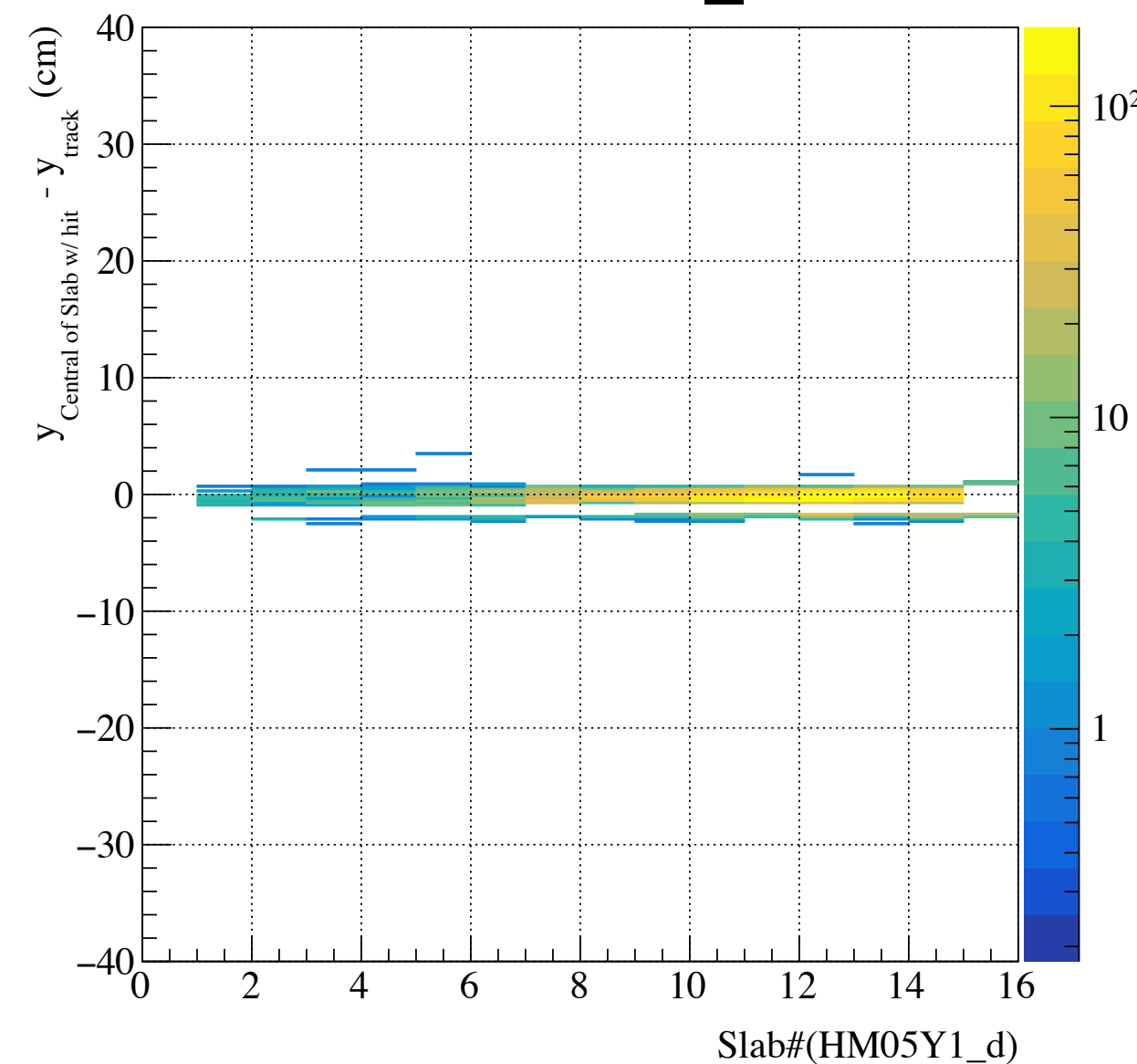
HM04Y1_d



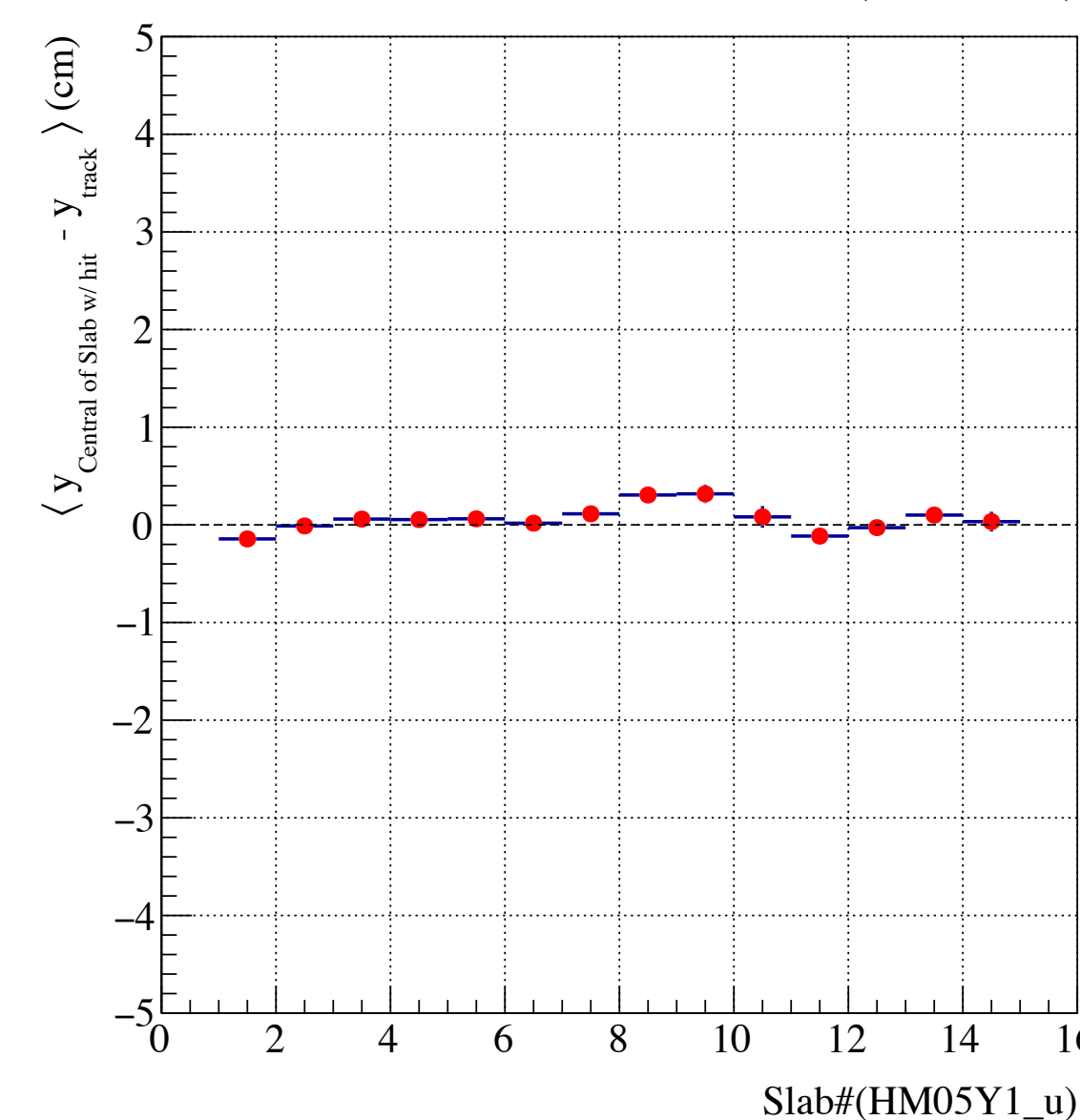
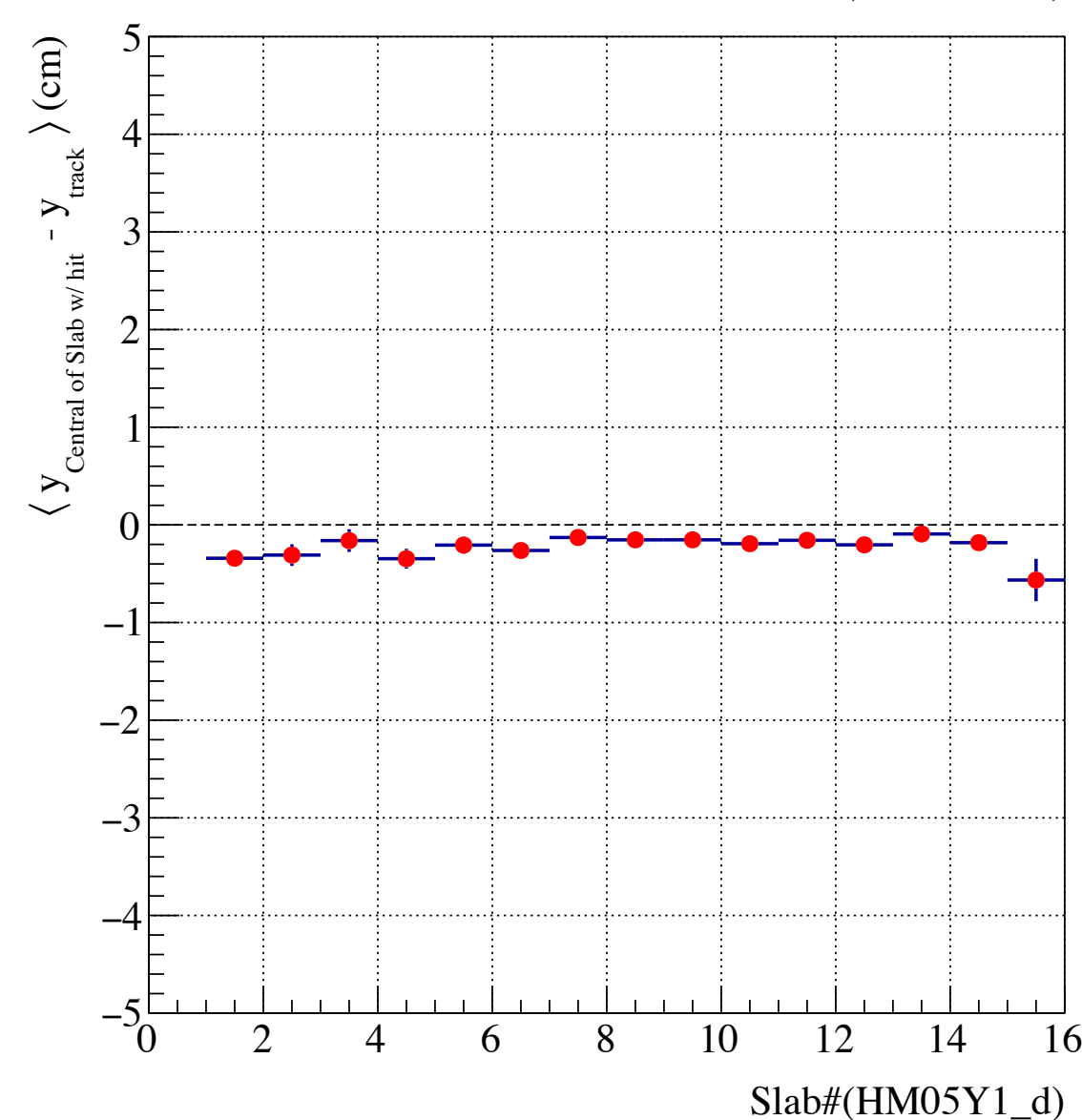
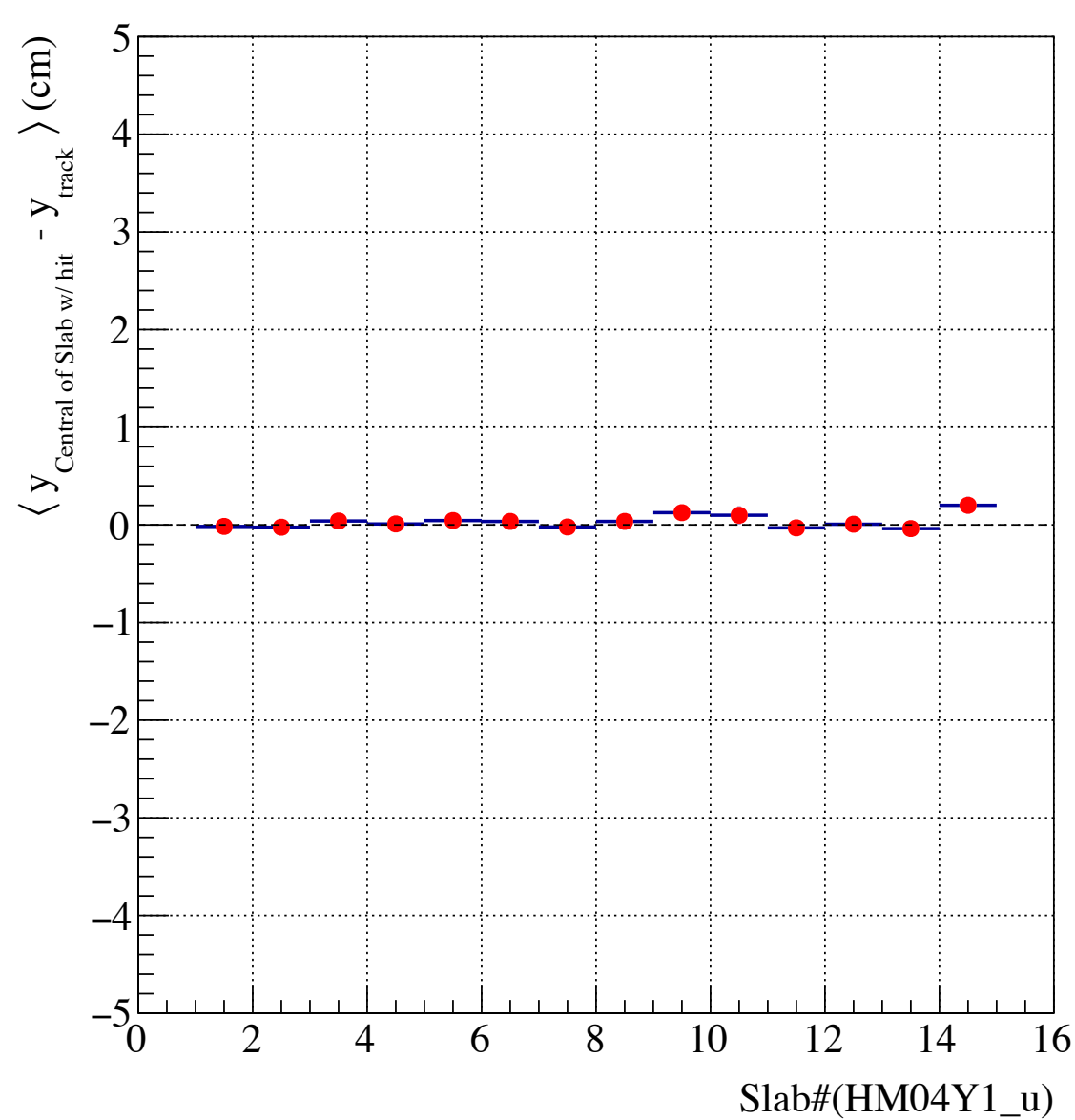
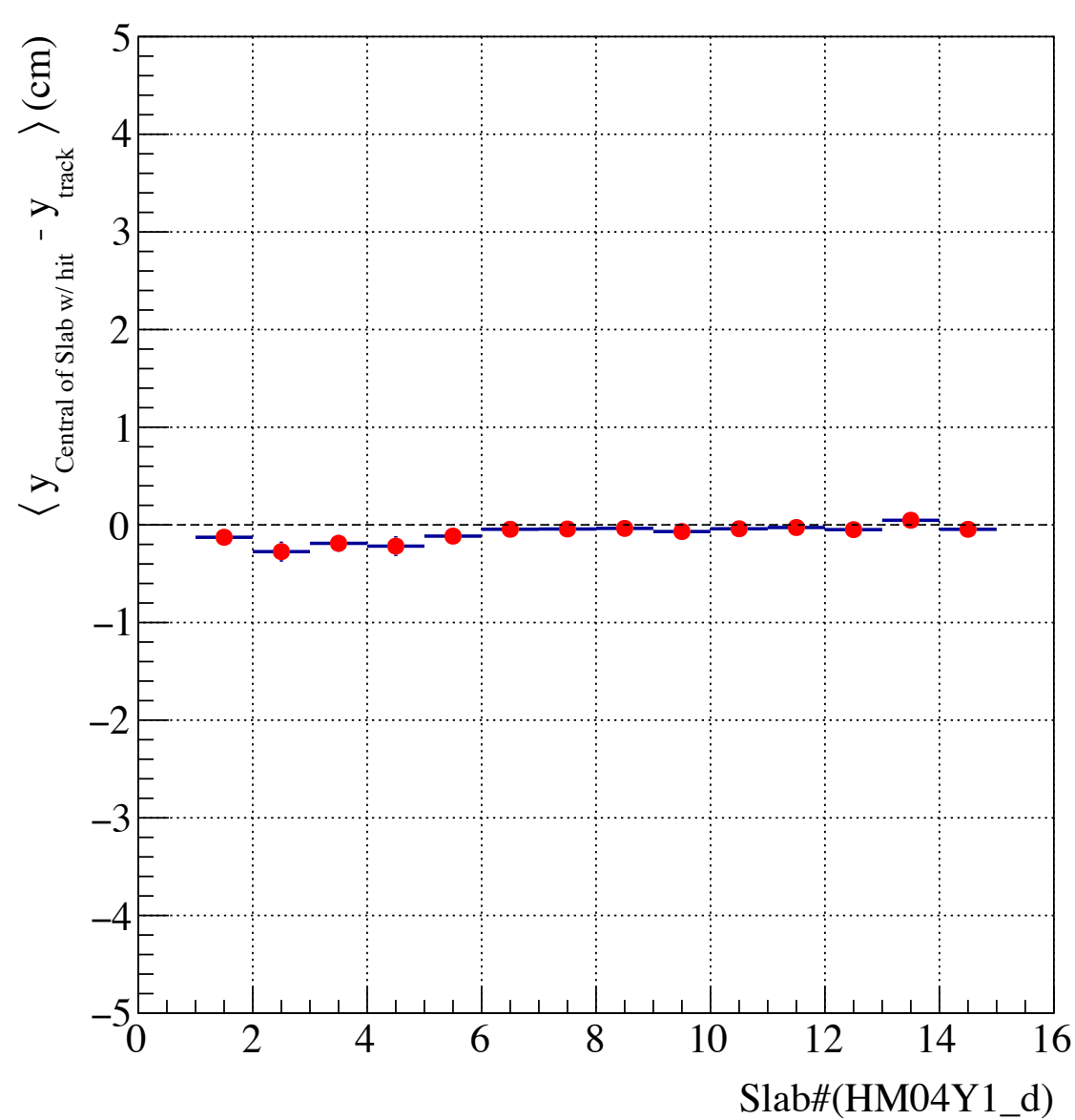
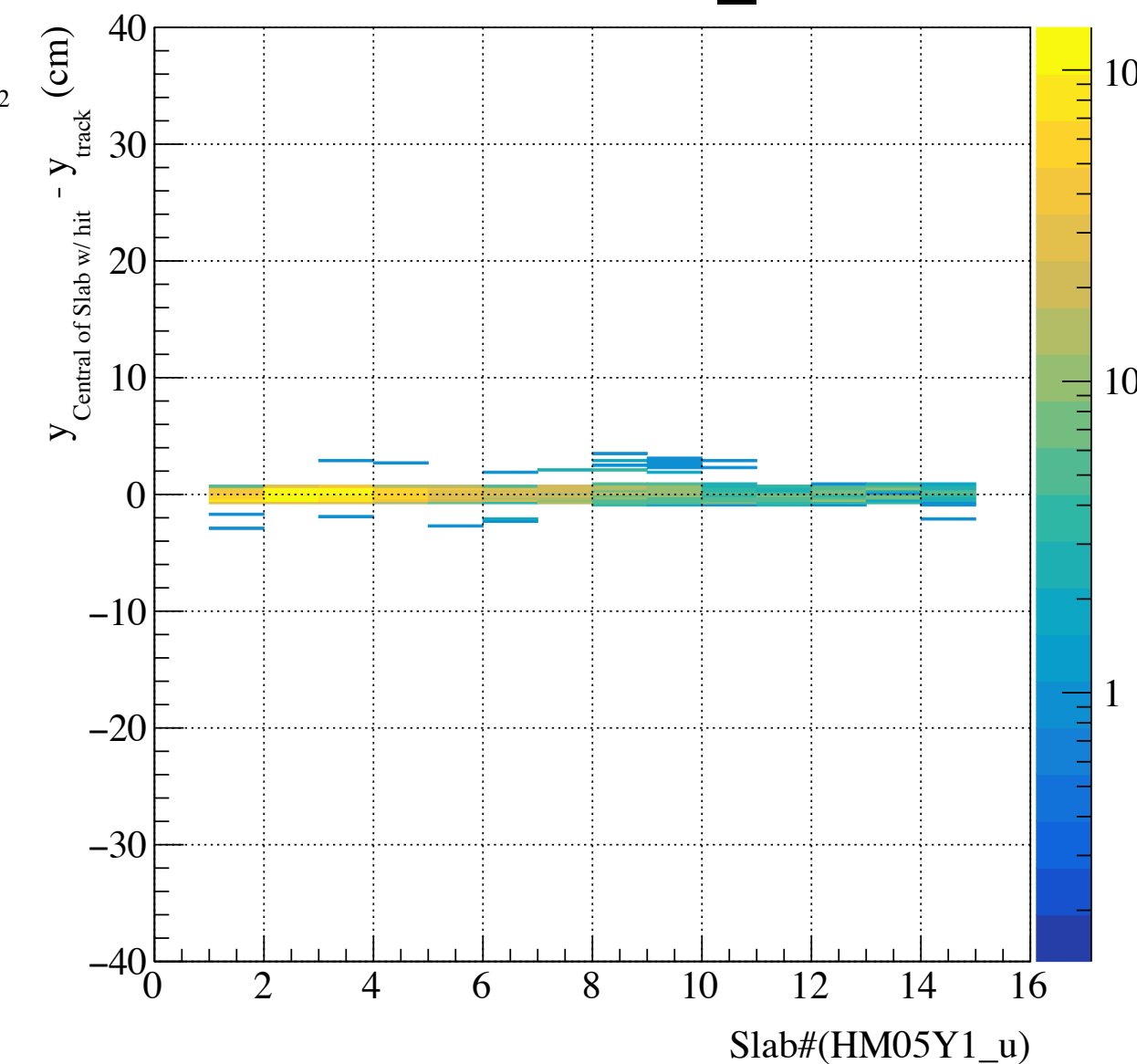
HM04Y1_u



HM05Y1_d

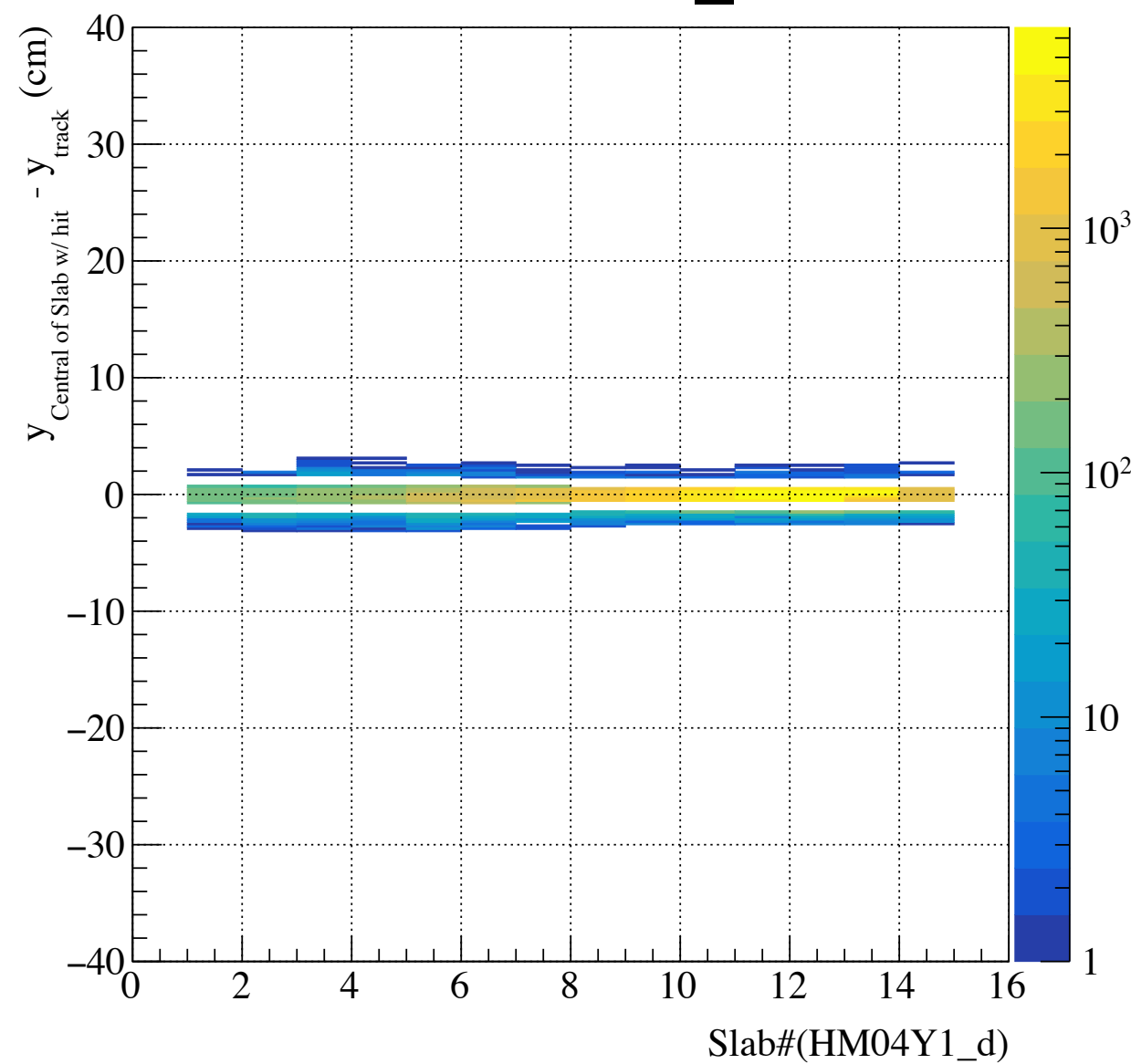


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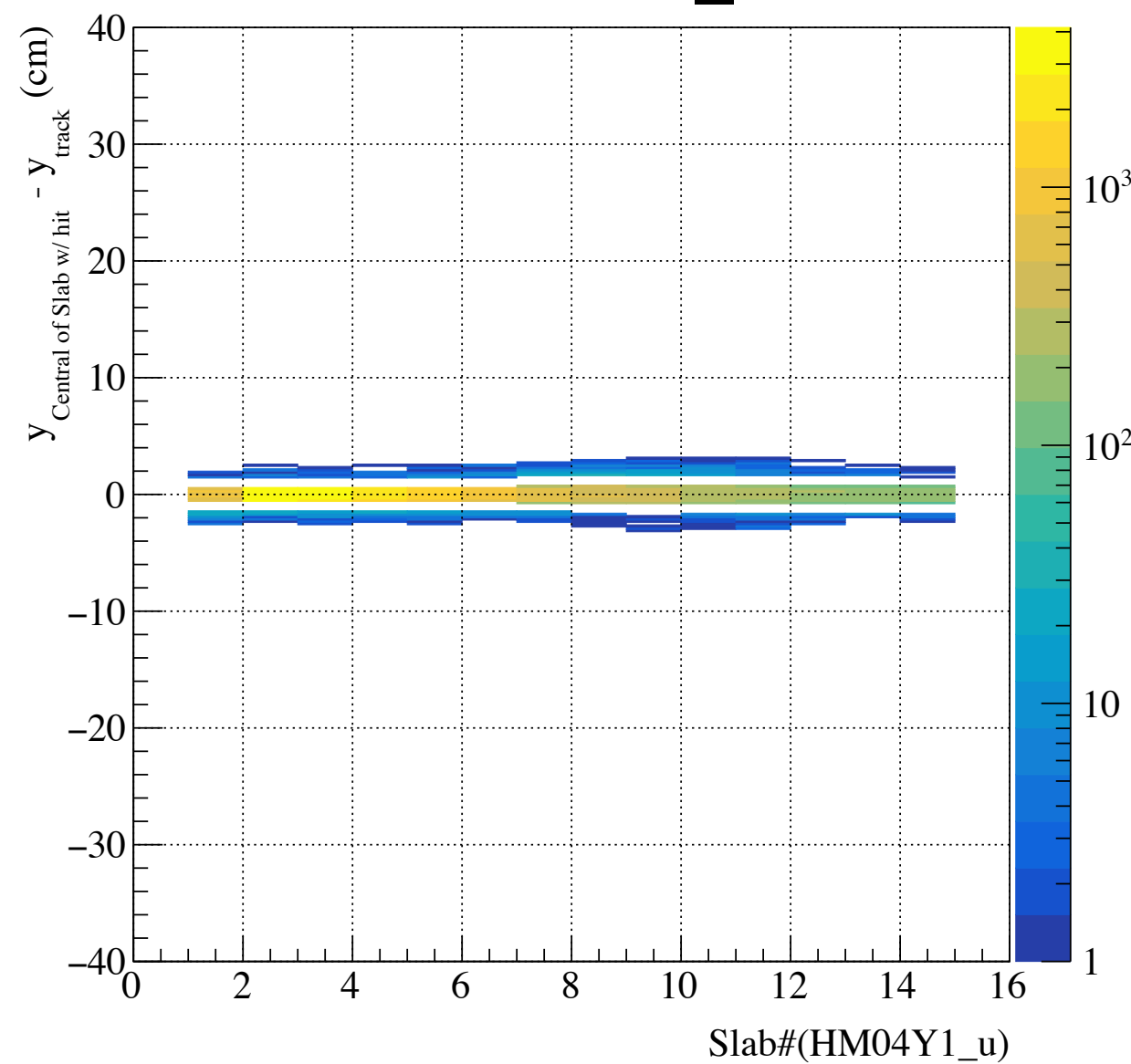


Residuals of Track Y position in HM (CaloDump)

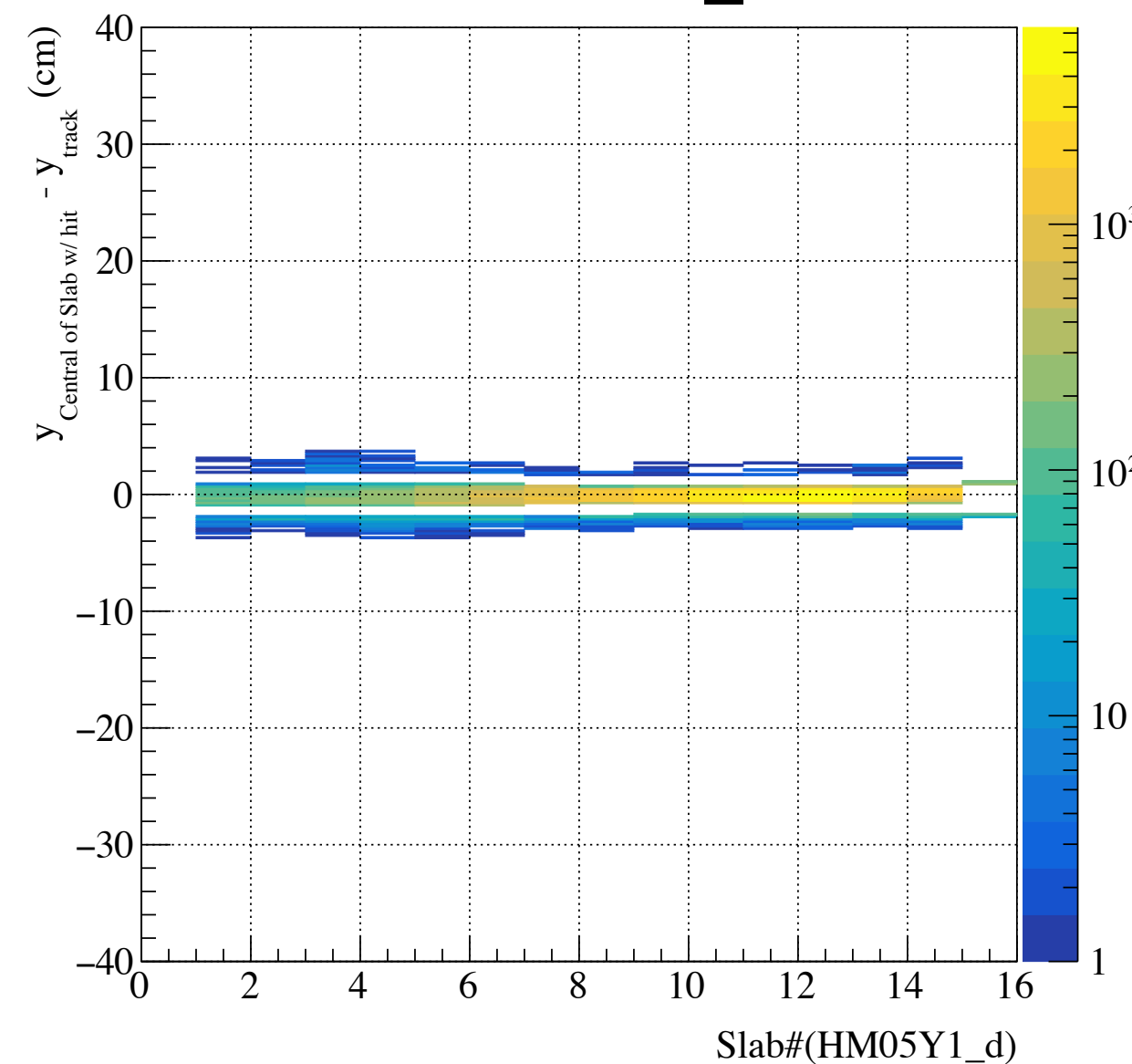
HM04Y1_d



HM04Y1_u



HM05Y1_d



HM05Y1_u

