

Unexpected chamber efficiency issues in LHC16n

Introduction

Goal: Make sure the realistic simulations are realistic enough. Otherwise Acc*Eff corrections will be biased for all analyses.

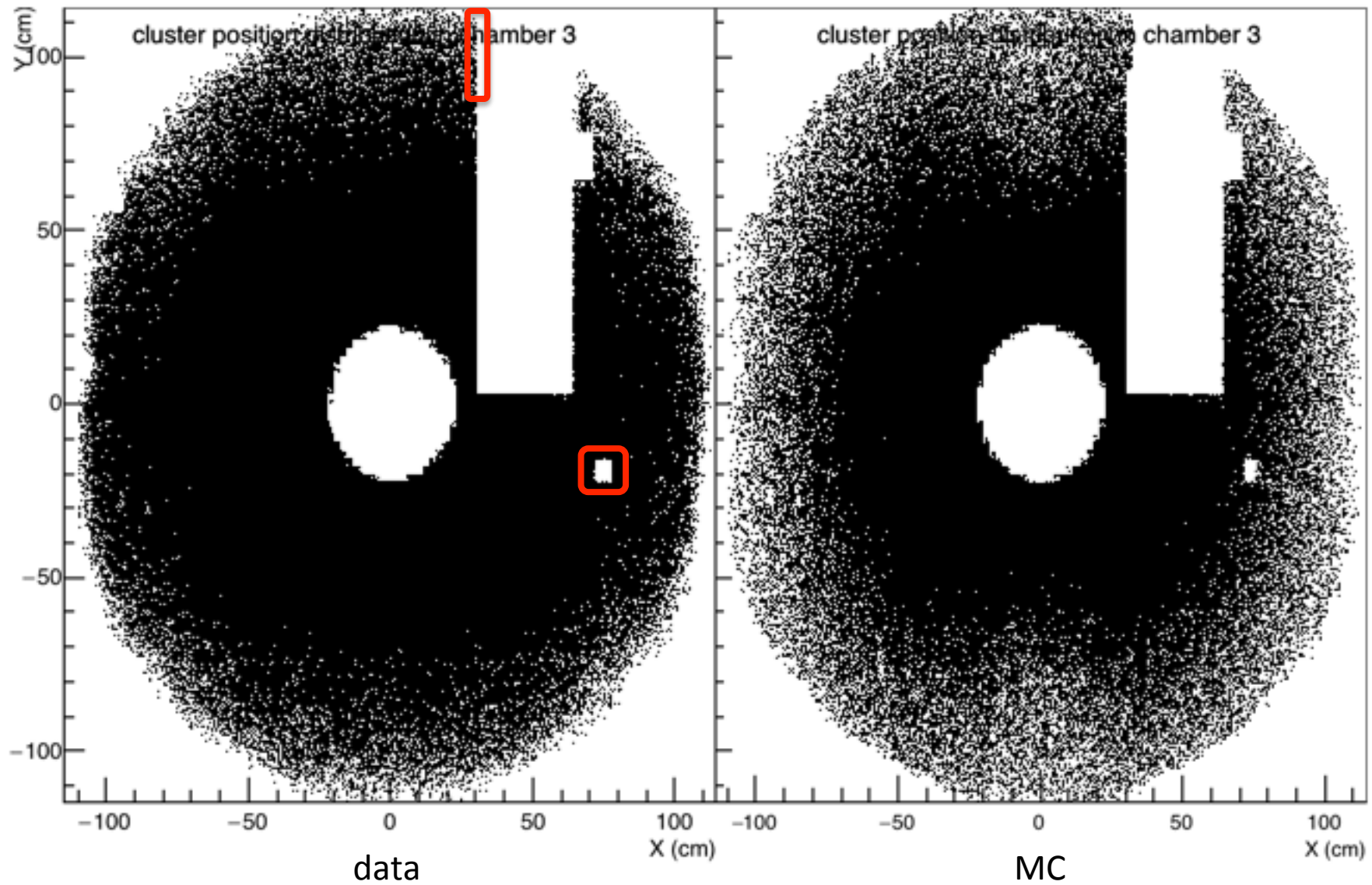
Method: Perform realistic simulation of single muons (roughly tuned to reproduce data). Get the maps of clusters attached to the reconstructed tracks from the reconstruction QA. Compare the maps between data and MC to spot differences.

Interpretation: During data and MC reconstruction, the actual status of the detector is summarized in the status map which is then used to discard problematic pads. This map is built out of information on pedestal, HV and occupancy stored in the OCDB, on which cuts are applied as defined in the recoParam (e.g. HV too low, Manu occupancy too high, etc...).

- If all the defects are spotted in this status map, we should observe no difference in the cluster maps between data and realistic MC
- If we see differences, it means that there are some additional “unexpected” defects

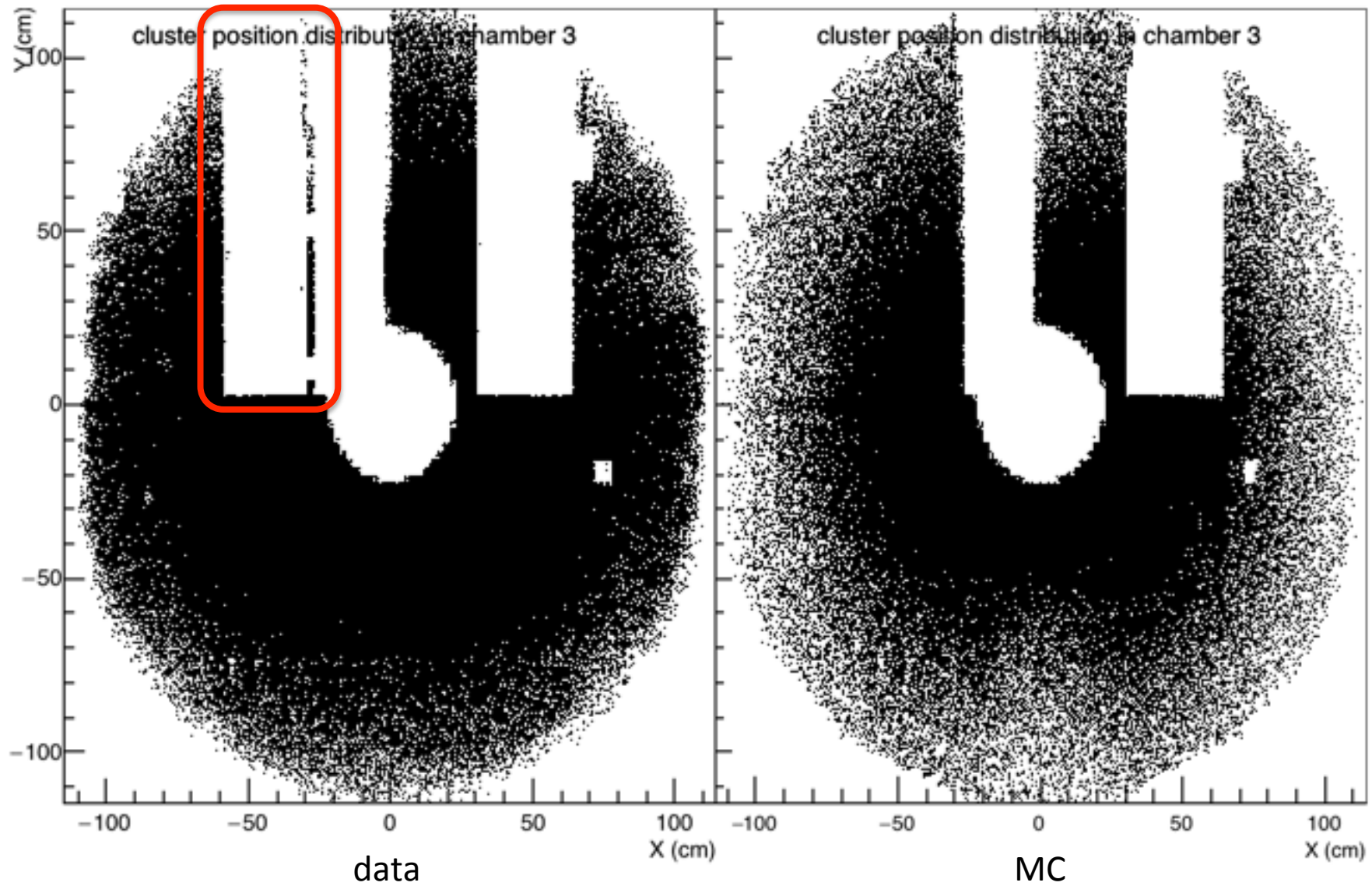
Chamber 3

Every runs



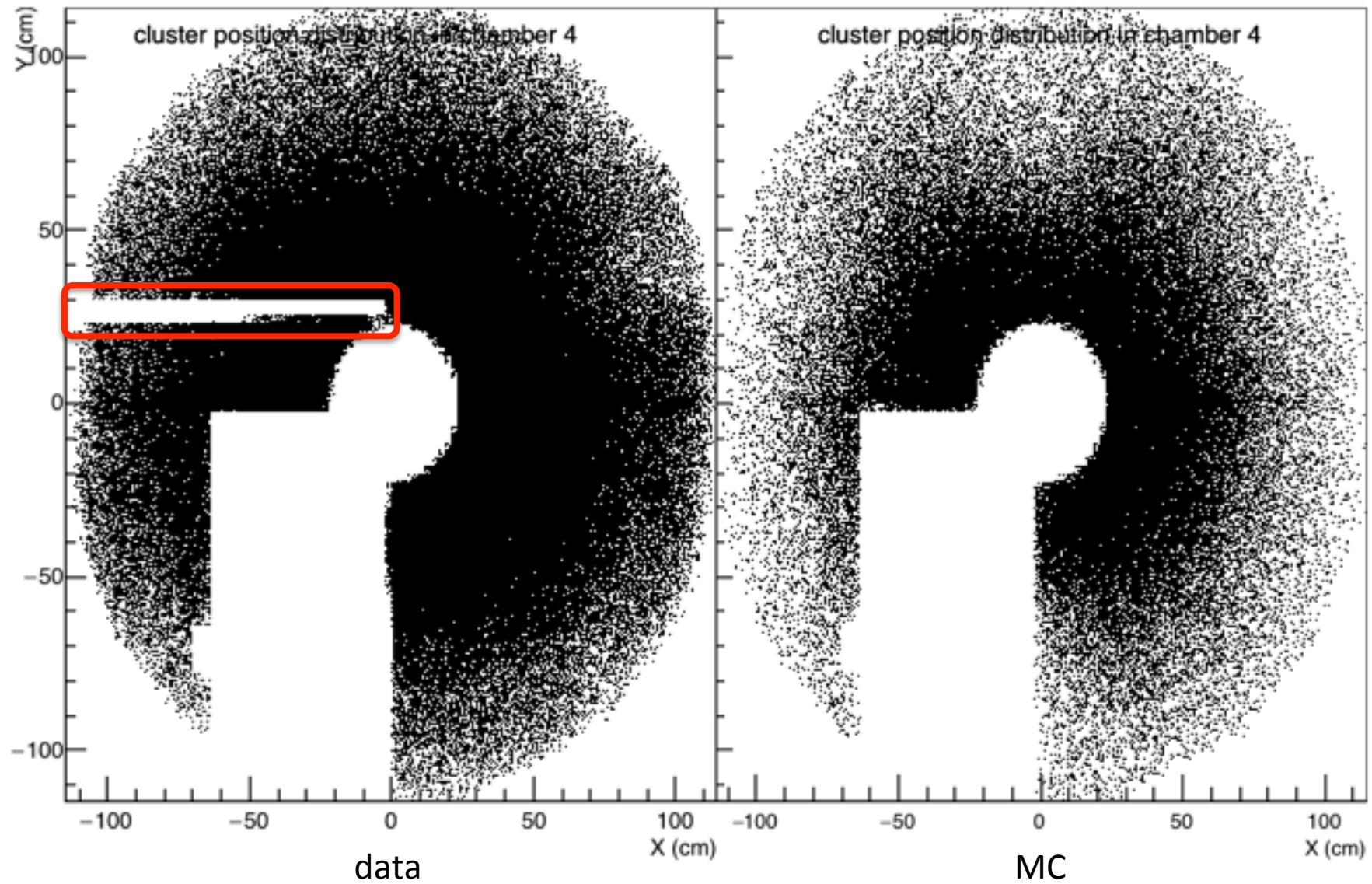
Chamber 3

runs 260700, 704, 710, 713, 719, 722, 723, 727, 728



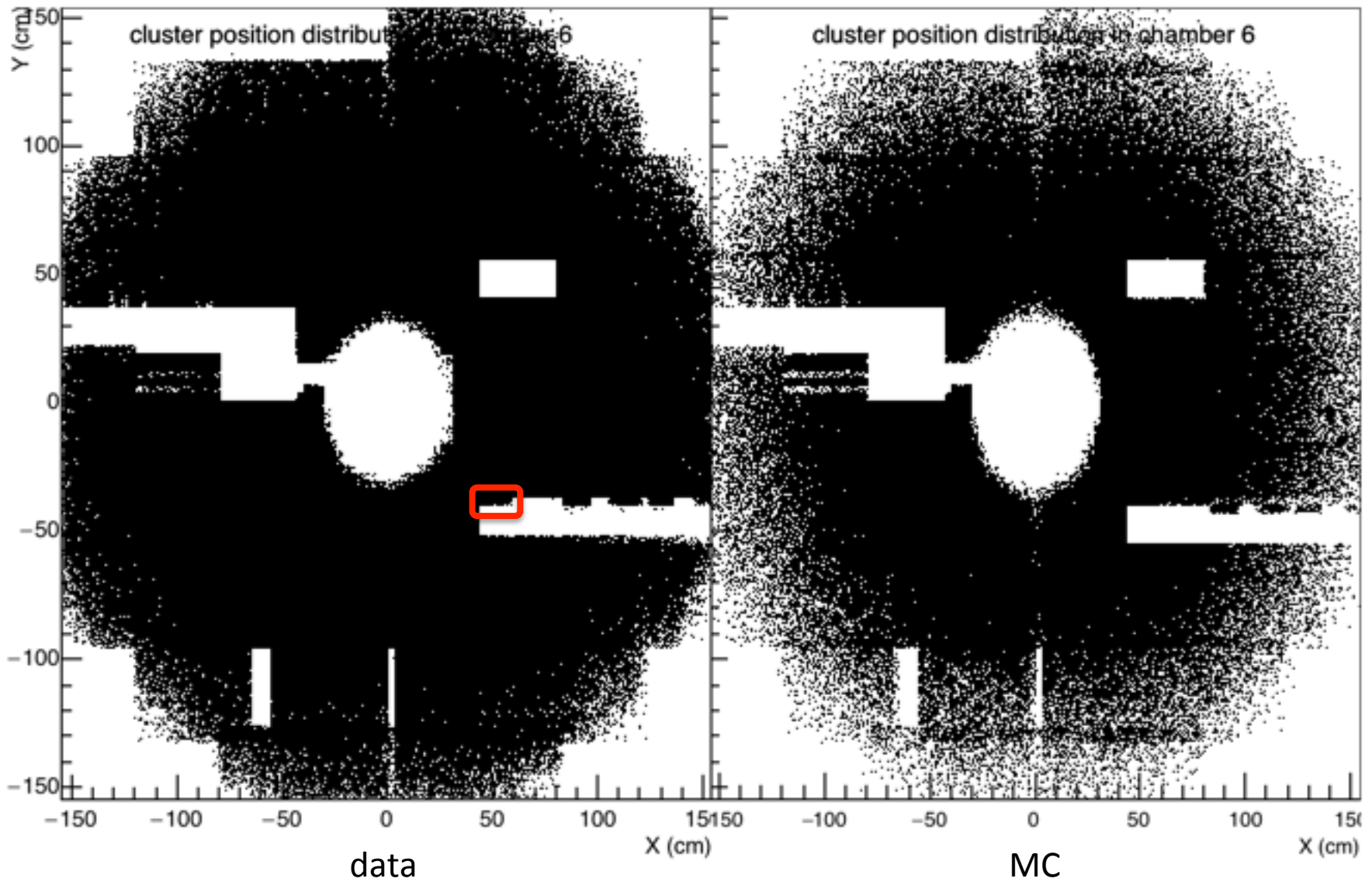
Chamber 4

runs 261095



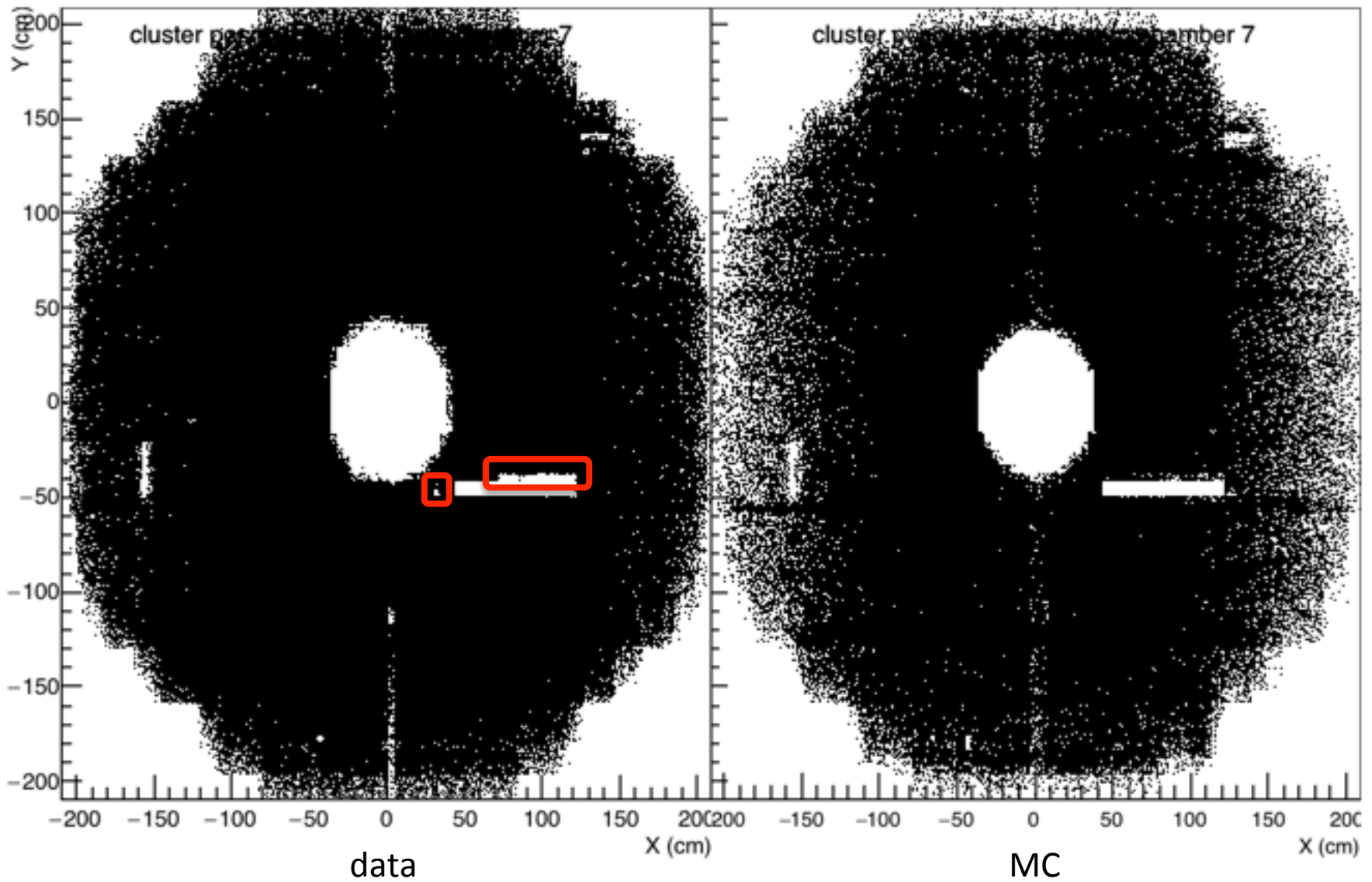
Chamber 6

Every runs



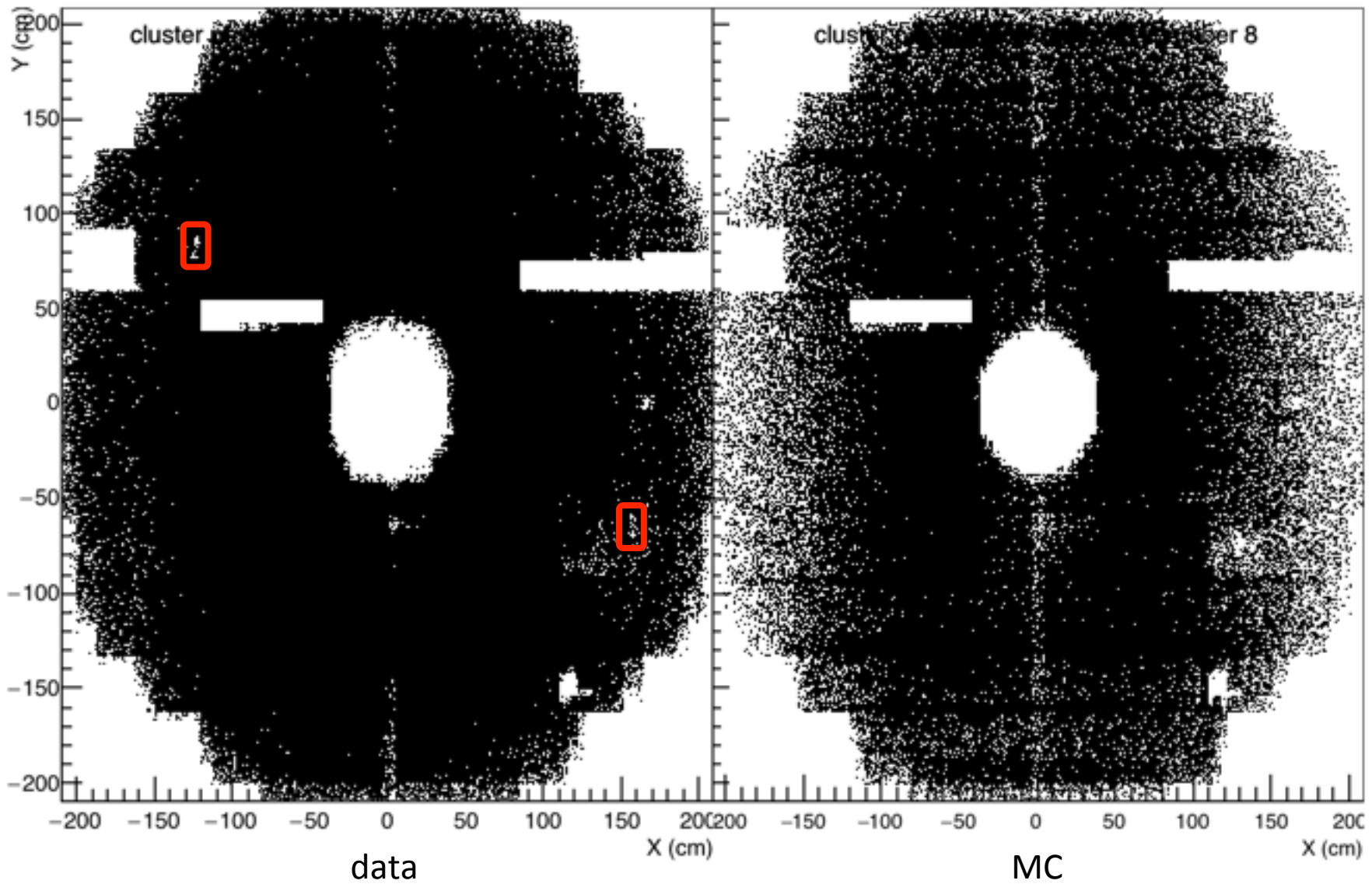
Chamber 7

Every runs



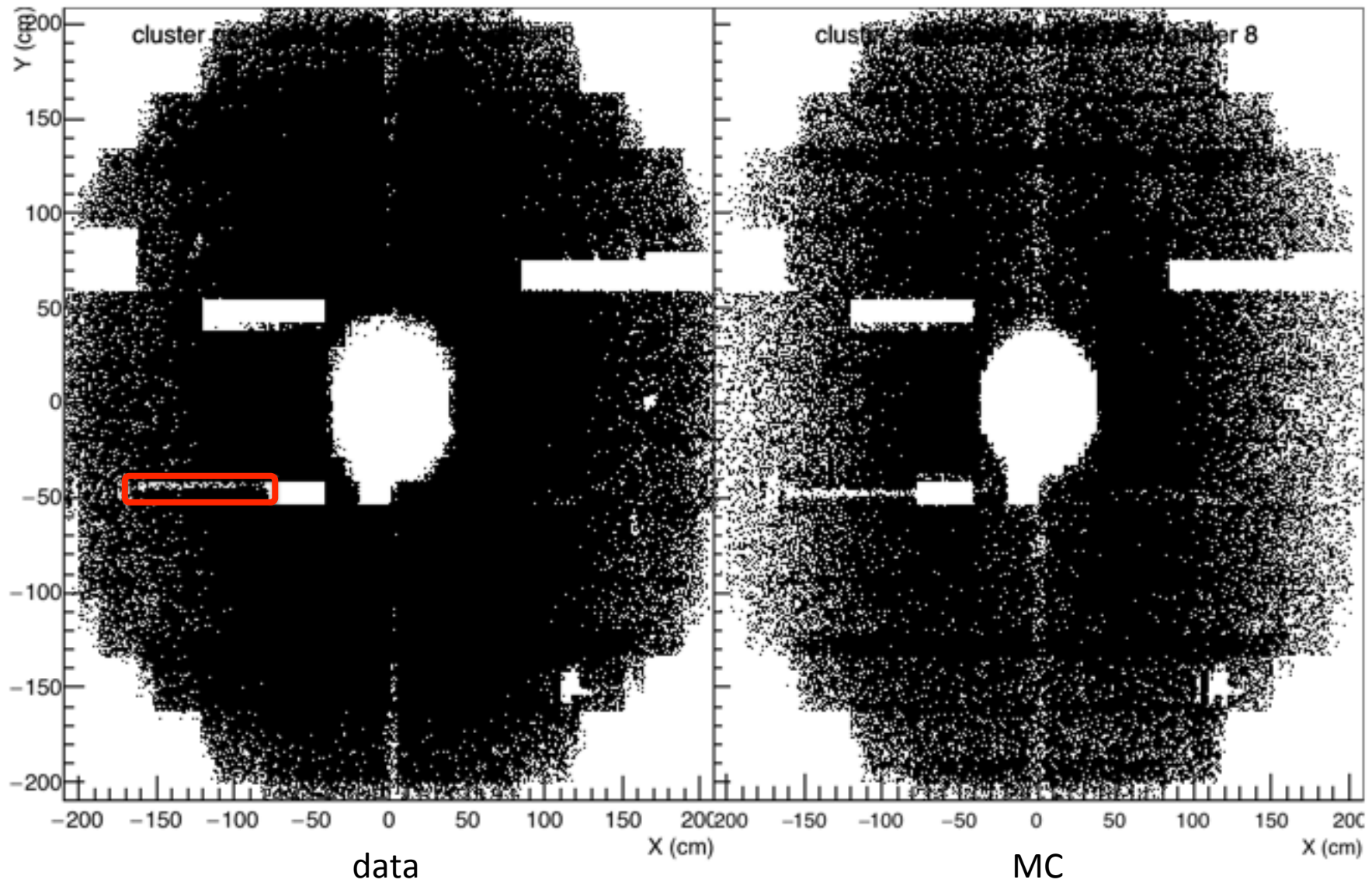
Chamber 8

Every runs



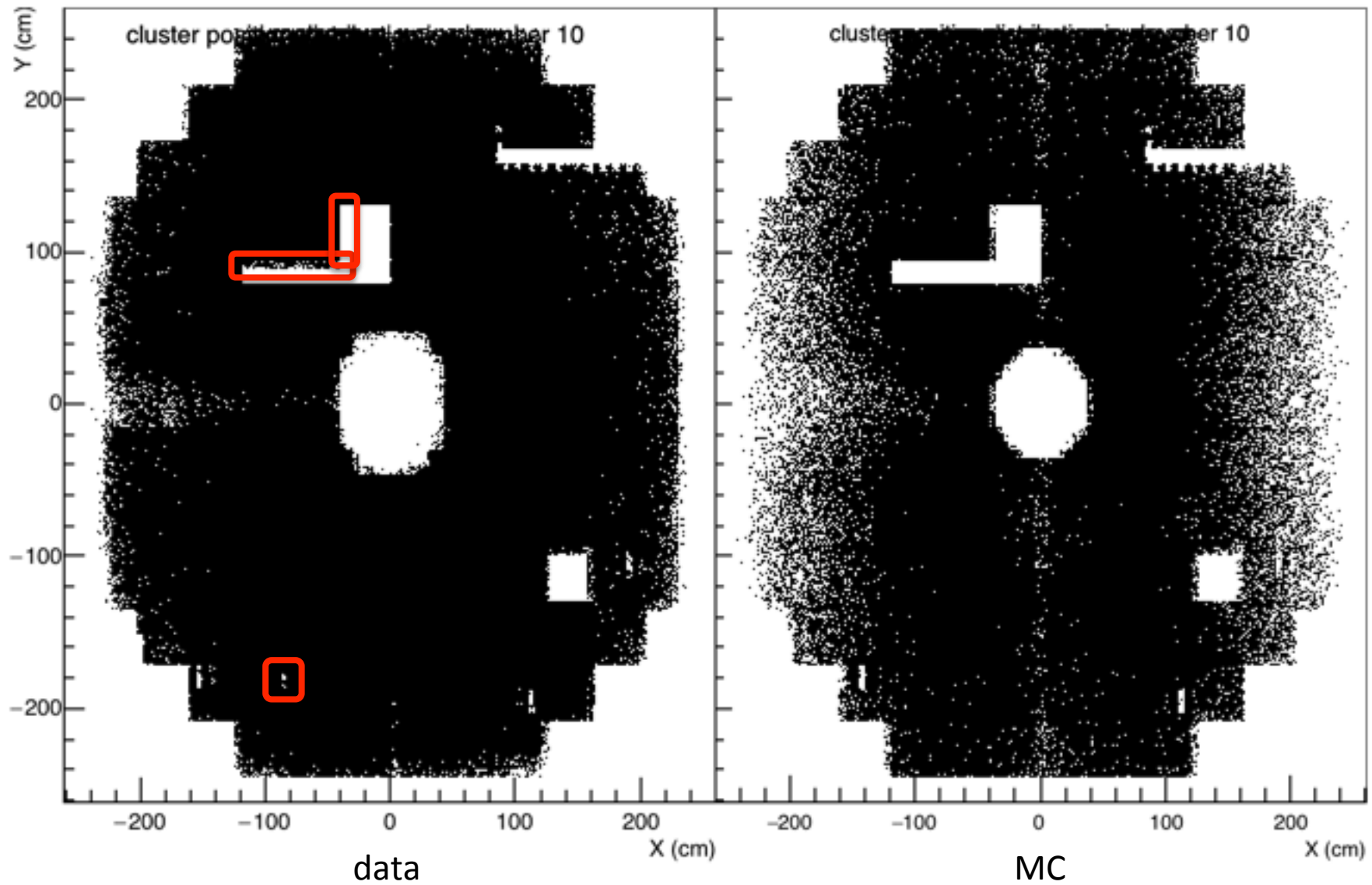
Chamber 8

Several runs



Chamber 10

Every runs



Chamber 10

Runs 261020, 022

