

PS Room & RHR surface residual dose rates

histograms for 1 hour, 1 day, and 1 week cooling times

A. LEVELING

6/10/15

motivation

Three sets of residual dose rate profiles have been created for the remote handling room and production solenoid room surfaces

These dose rate histograms should be useful for target change out planners and for various upcoming reviews

The set of surfaces includes:

- PS_west_wall
- PS room & RHR floor
- PS room ceiling
- rhr_wall on the PS side
- rhr_west_wall
- rhr_north_wall
- rhr_door_PS_side
- rhr_door_rhr_side
- PS_room_south_wall
- north_yoke_wall_aisle
- south_yoke_wall_aisle
- rhr_south wall_inside_pump_maint (only 1hour and 1 day cooling time)

The incident beam power is 8 kW (8 GeV protons, 6E12 p/s)

365 days irradiation

1 hour, 1 day, and 1 week cooling times

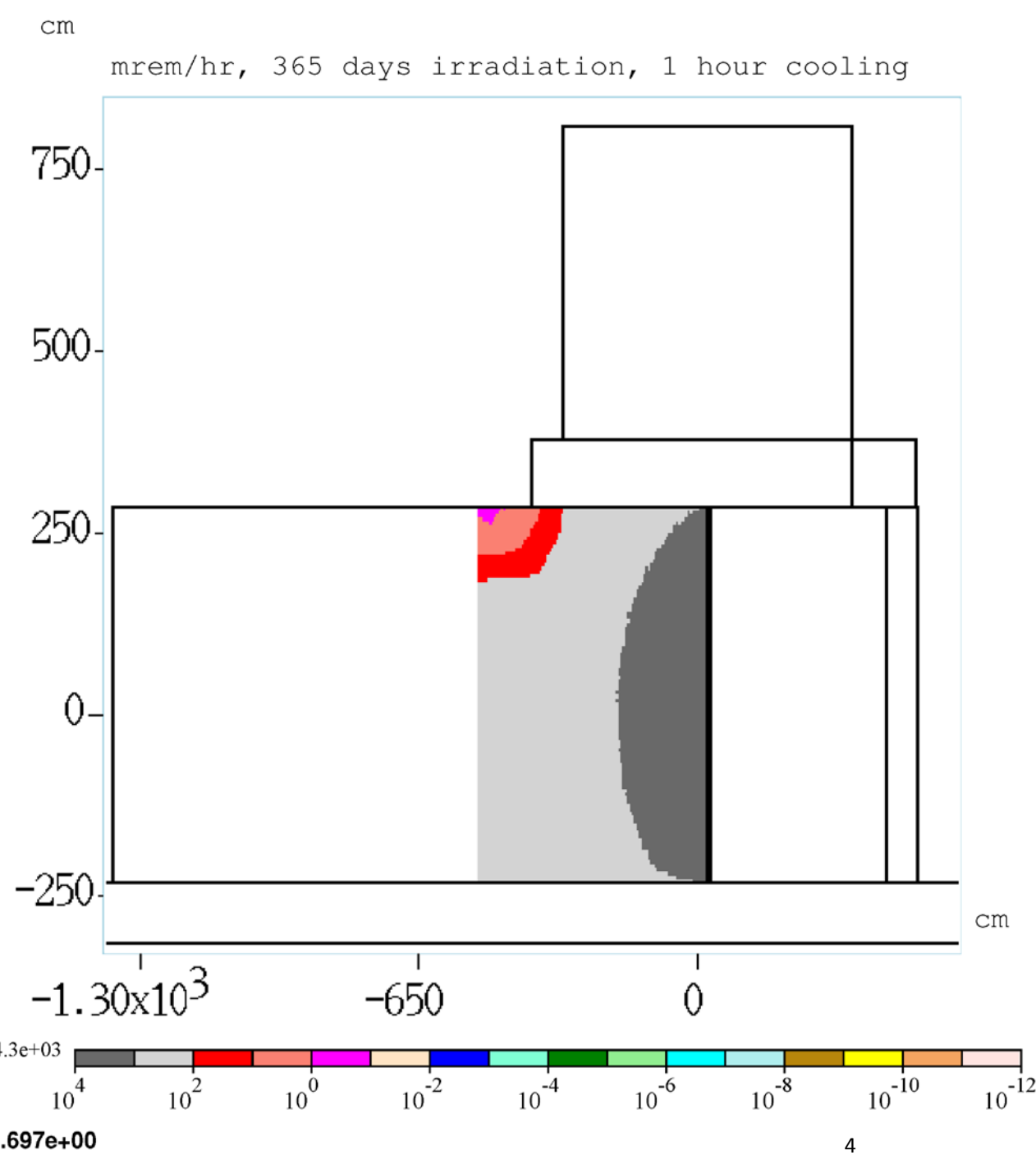
Model is repurposed from the PS room air activation simulation documented at mu2e doc #5569-v1

1 hour cooling time histograms

PS room west wall

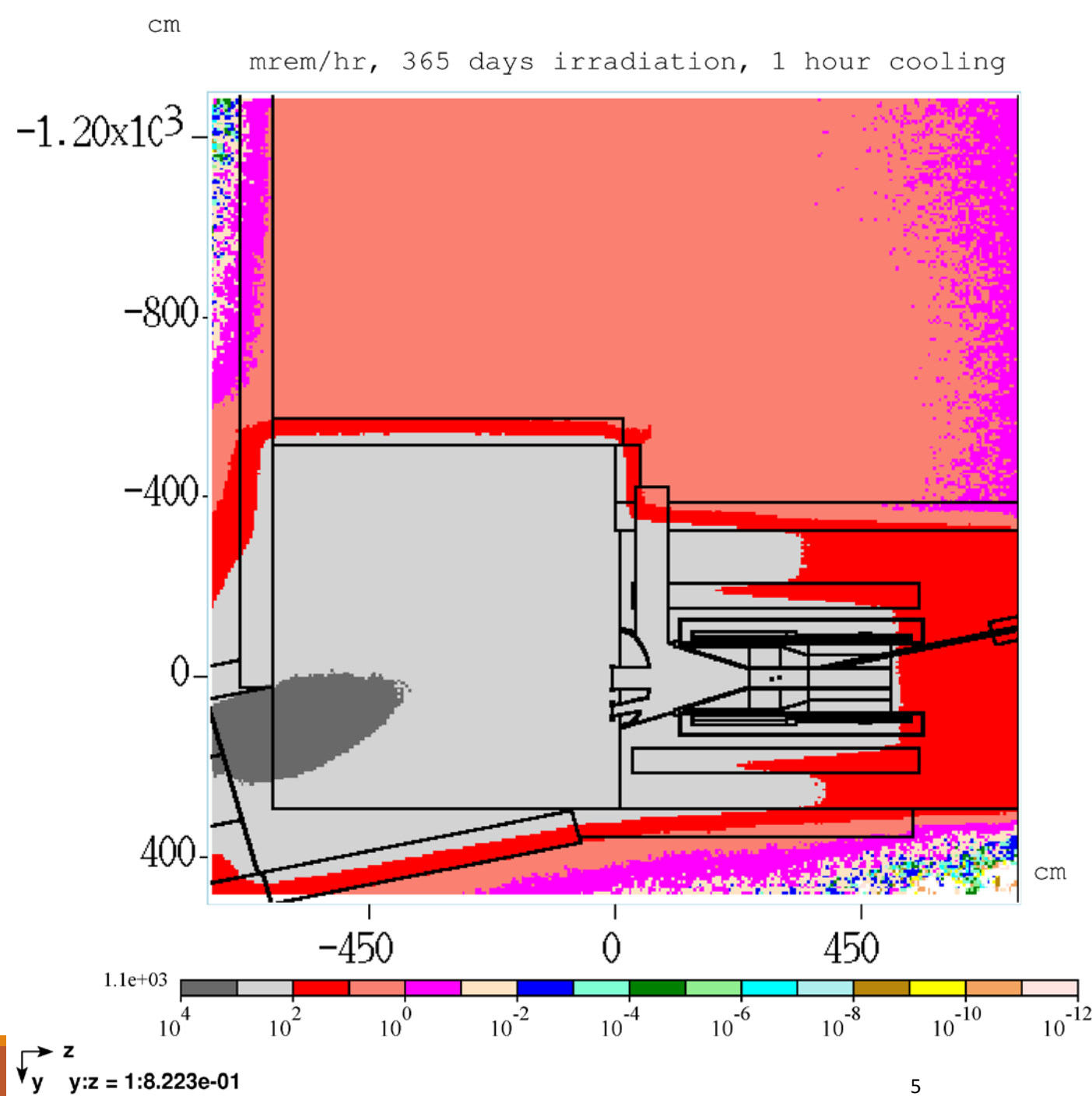
Peak dose rate: 4300 mrem/hr

1 hour cooling time



PS room and RHR floor

Peak dose rate: 1100 mrem/hr

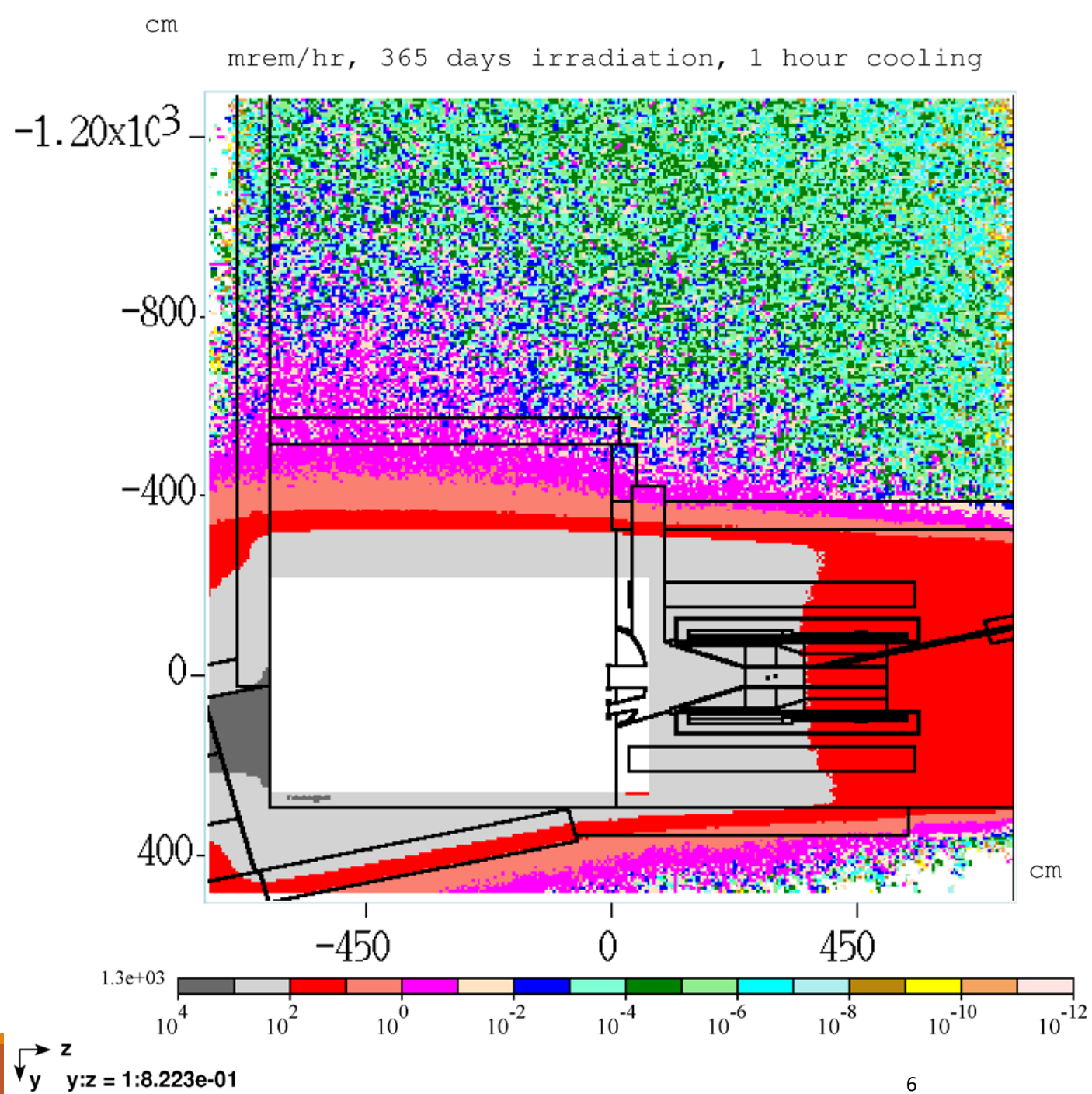


1 hour cooling time

PS room and RHR ceiling

Peak dose rate: 1300 mrem/hr

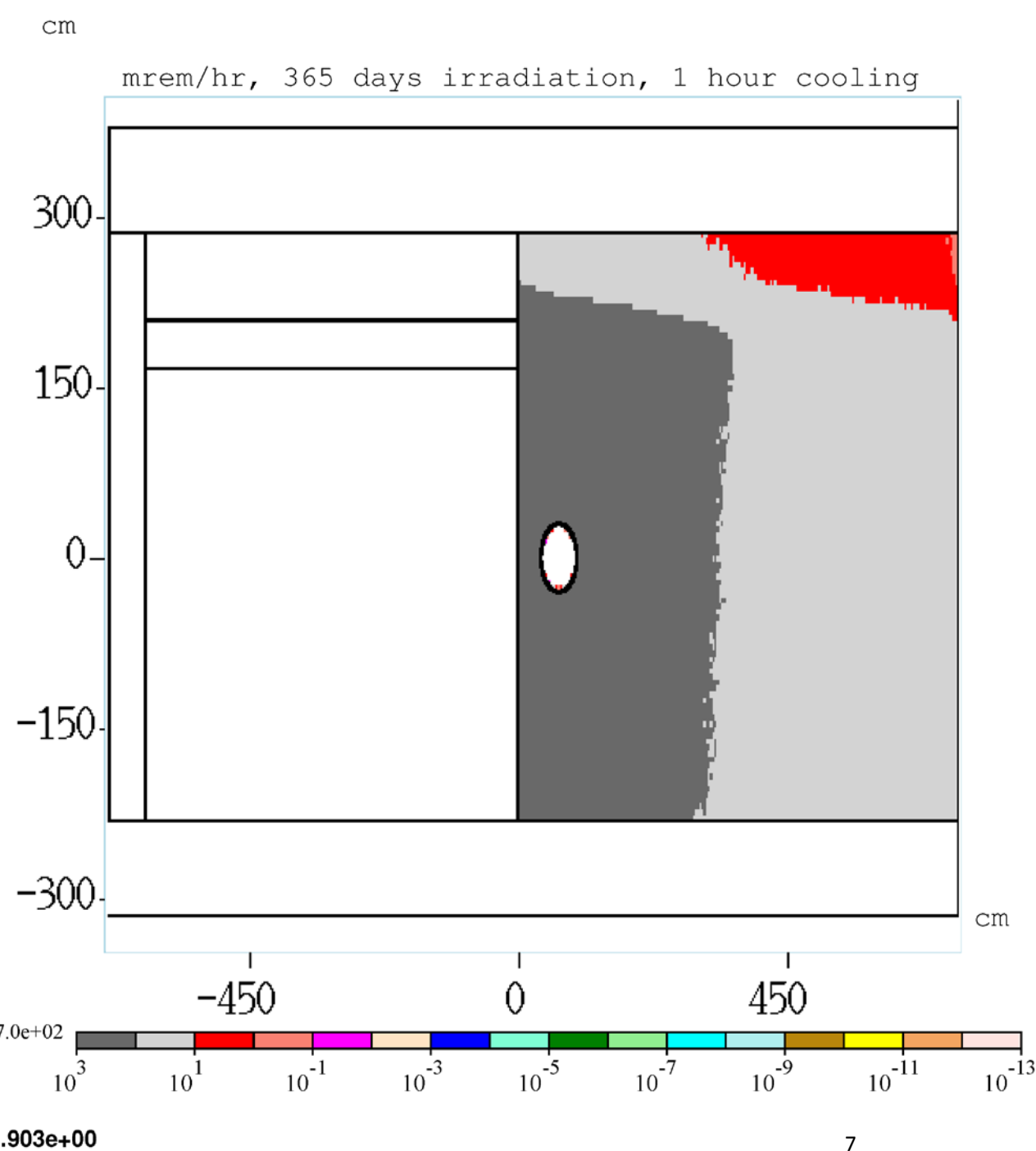
1 hour cooling time



RHR wall, PS room side

Peak dose rate: 700 mrem/hr

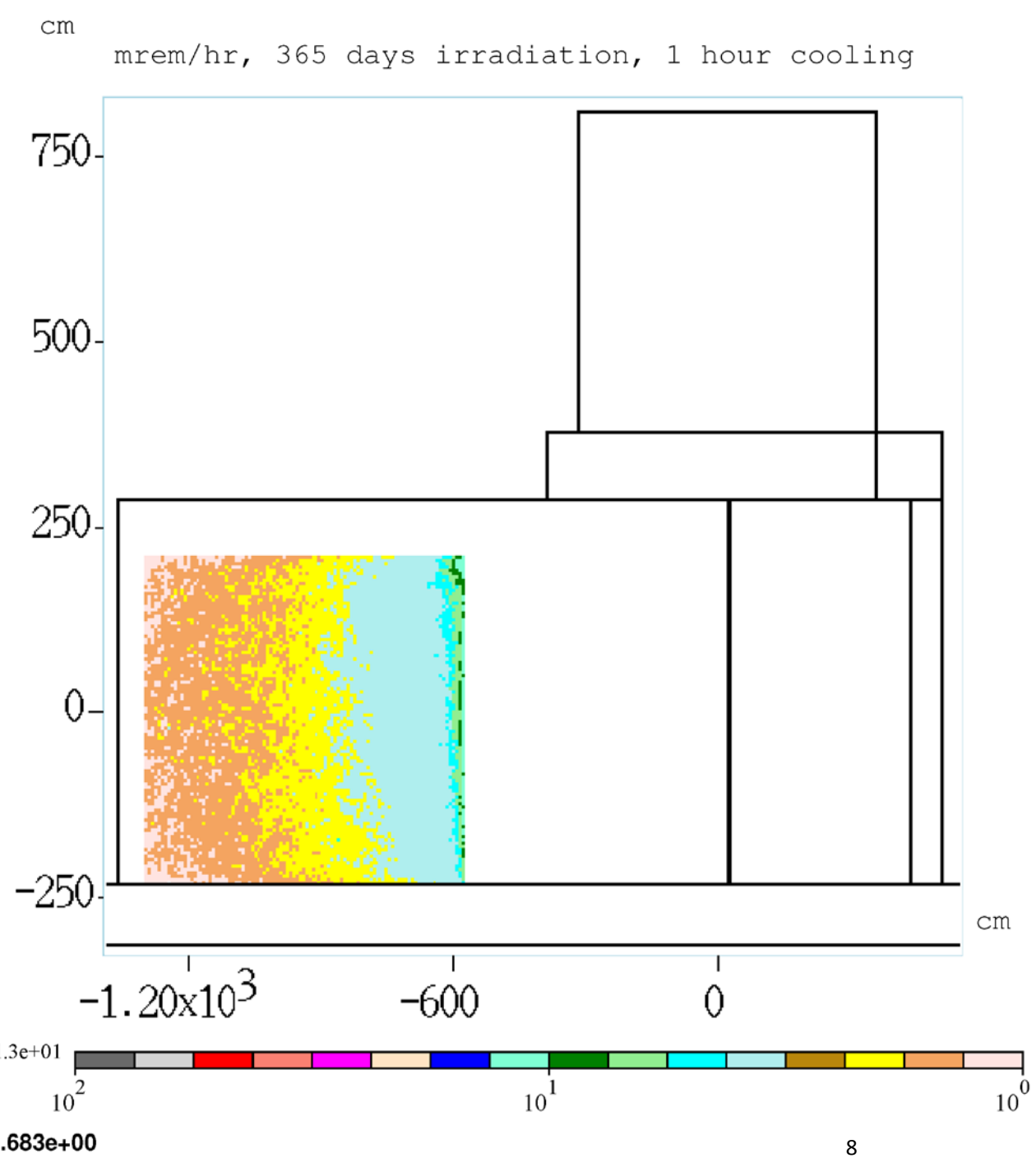
1 hour cooling time



RHR west wall

Peak dose rate: 13 mrem/hr

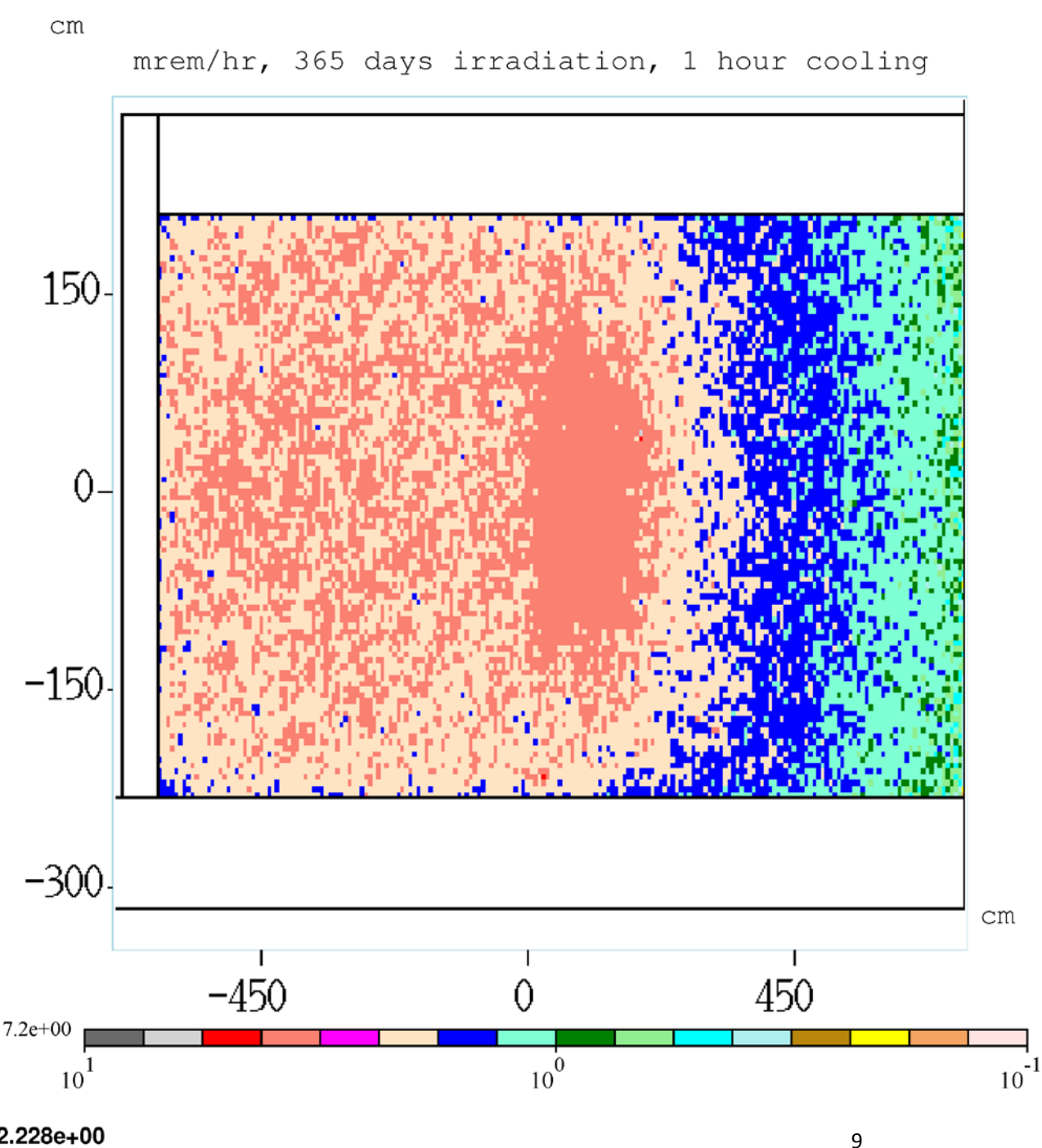
1 hour cooling time



RHR north wall

Peak dose rate: 7.2 mrem/hr

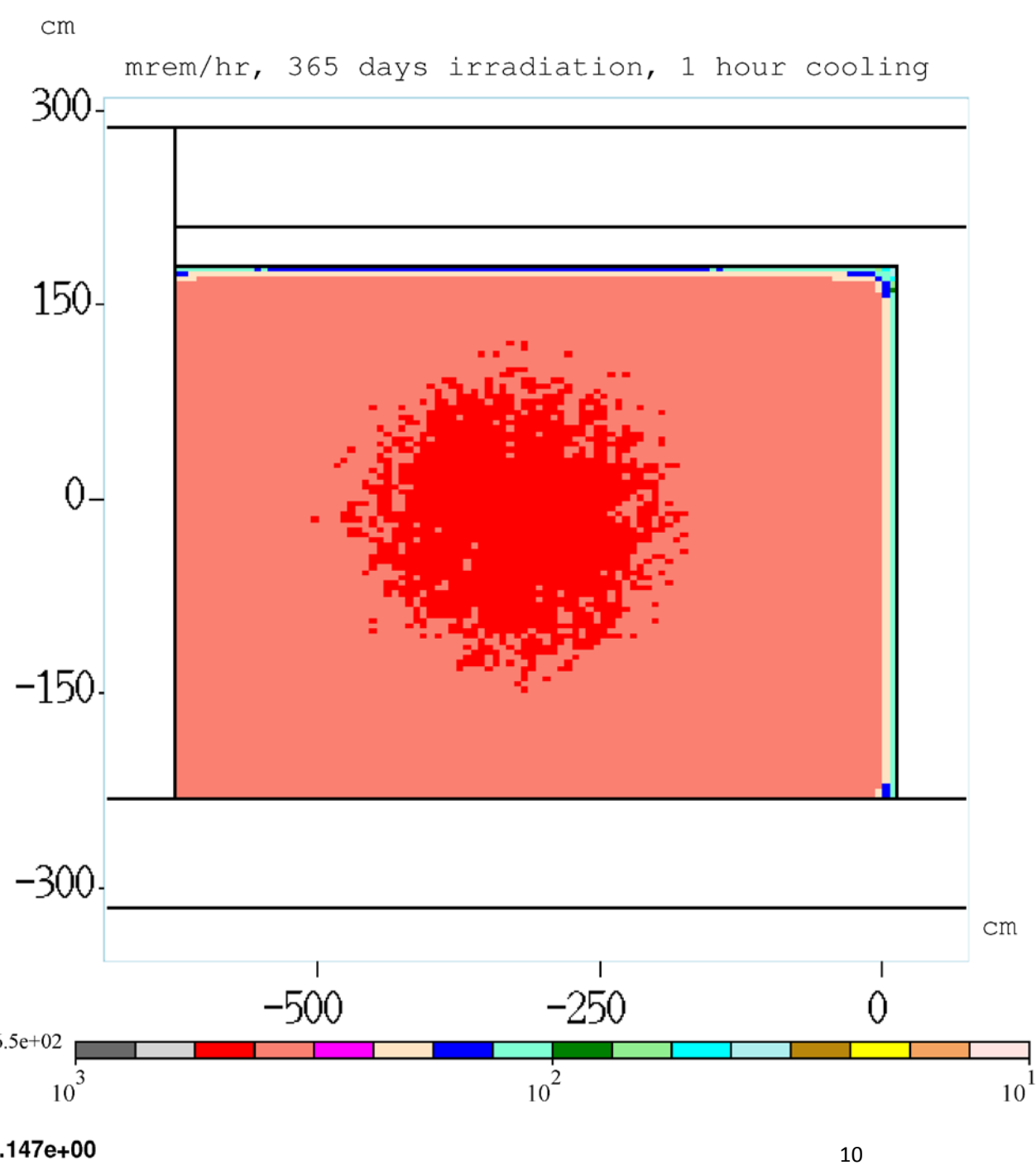
1 hour cooling time



RHR door, PS room side

Peak dose rate: 650 mrem/hr

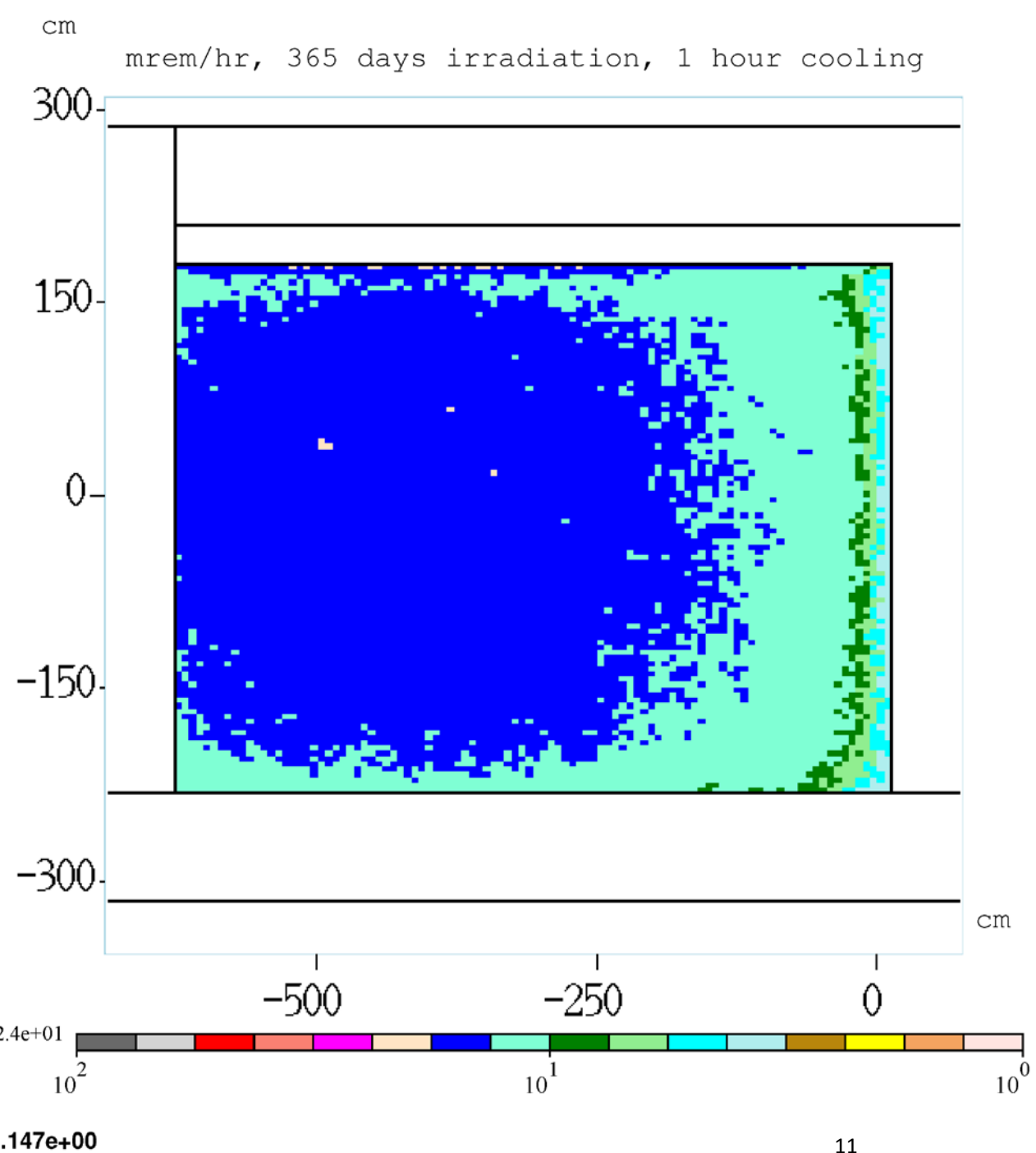
1 hour cooling time



RHR door, RHR side

Peak dose rate: 24 mrem/hr

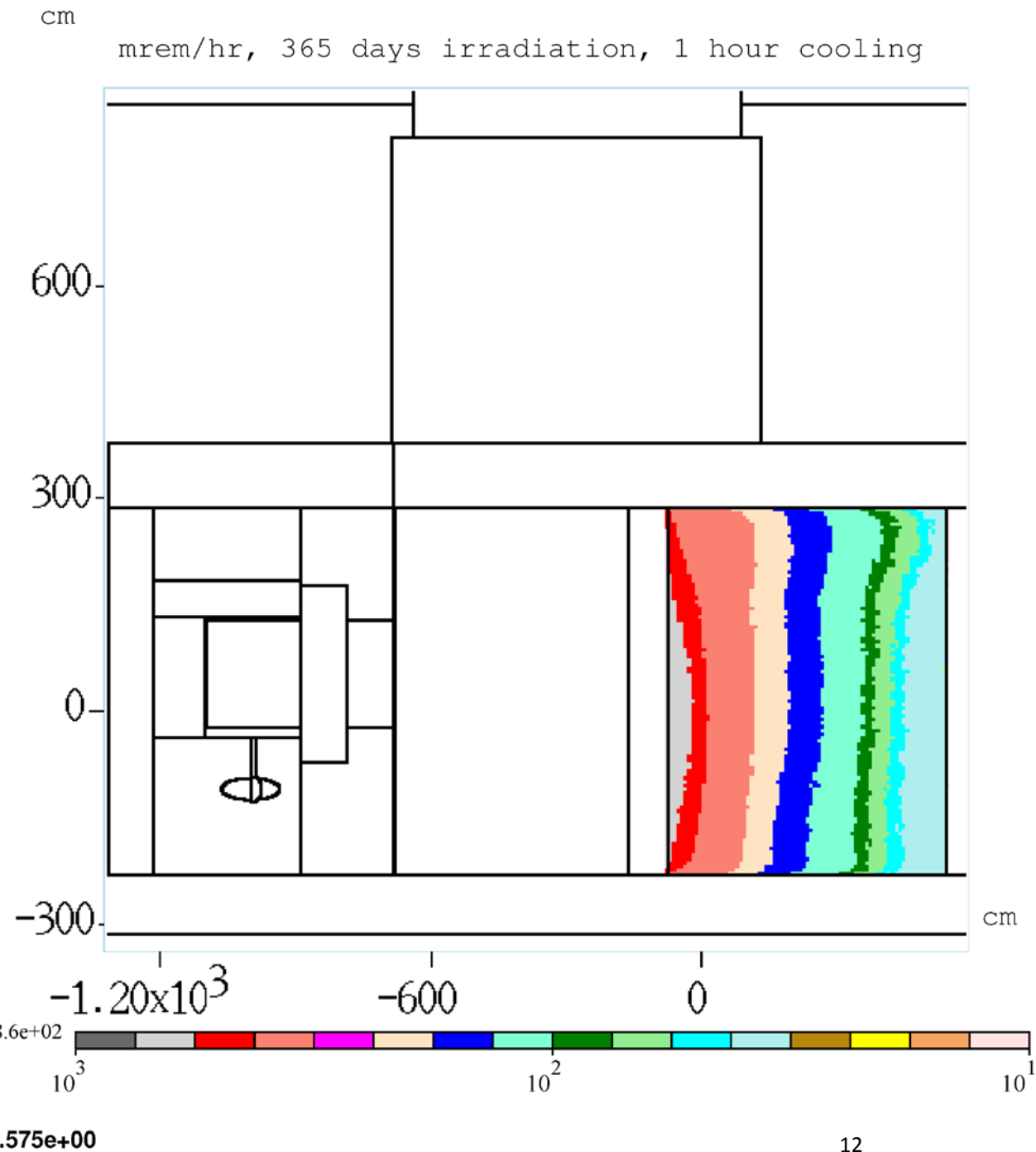
1 hour cooling time



PS room, south wall

Peak dose rate: 860 mrem/hr

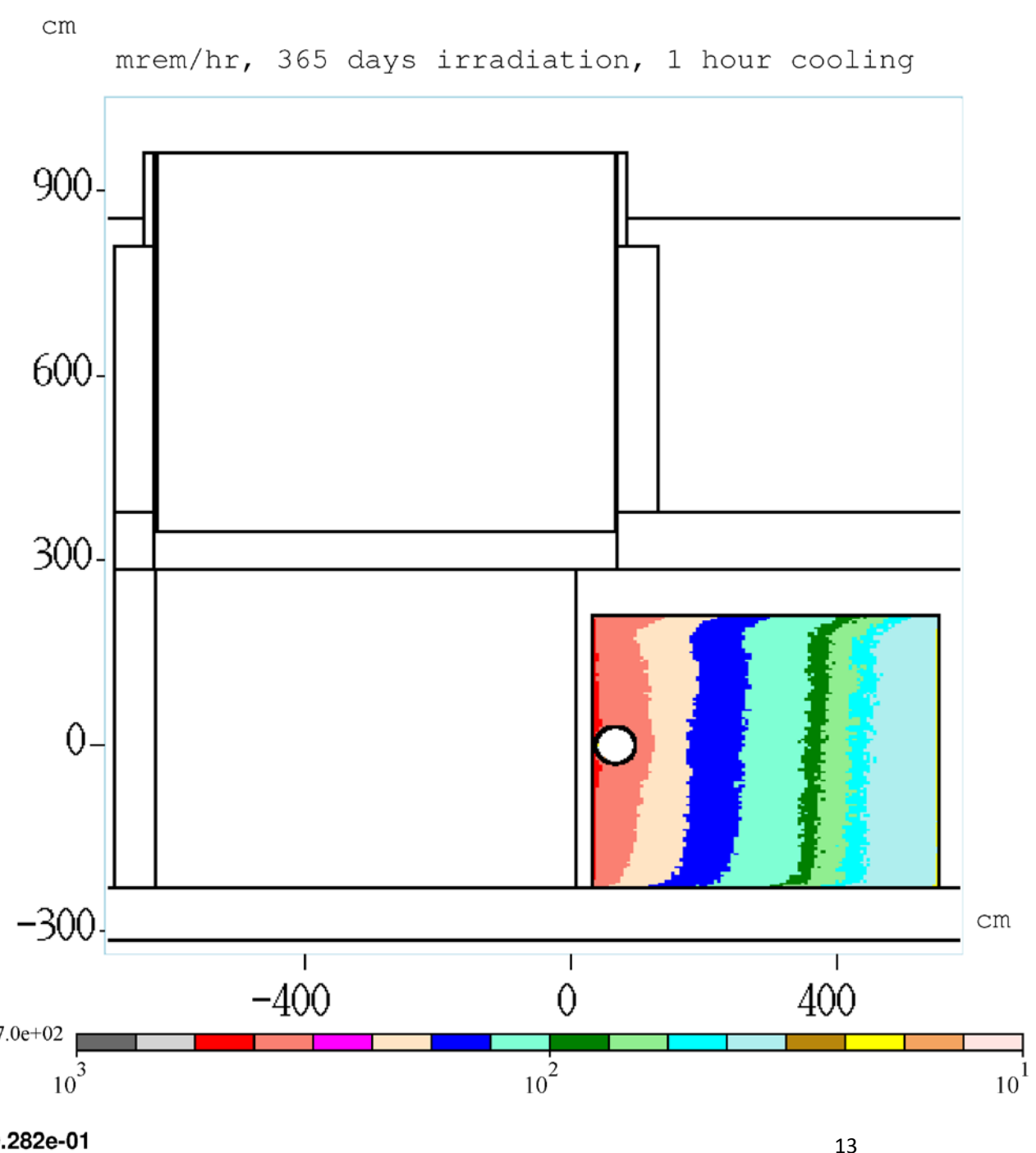
1 hour cooling time



North yoke wall, aisle side

Peak dose rate: 700 mrem/hr

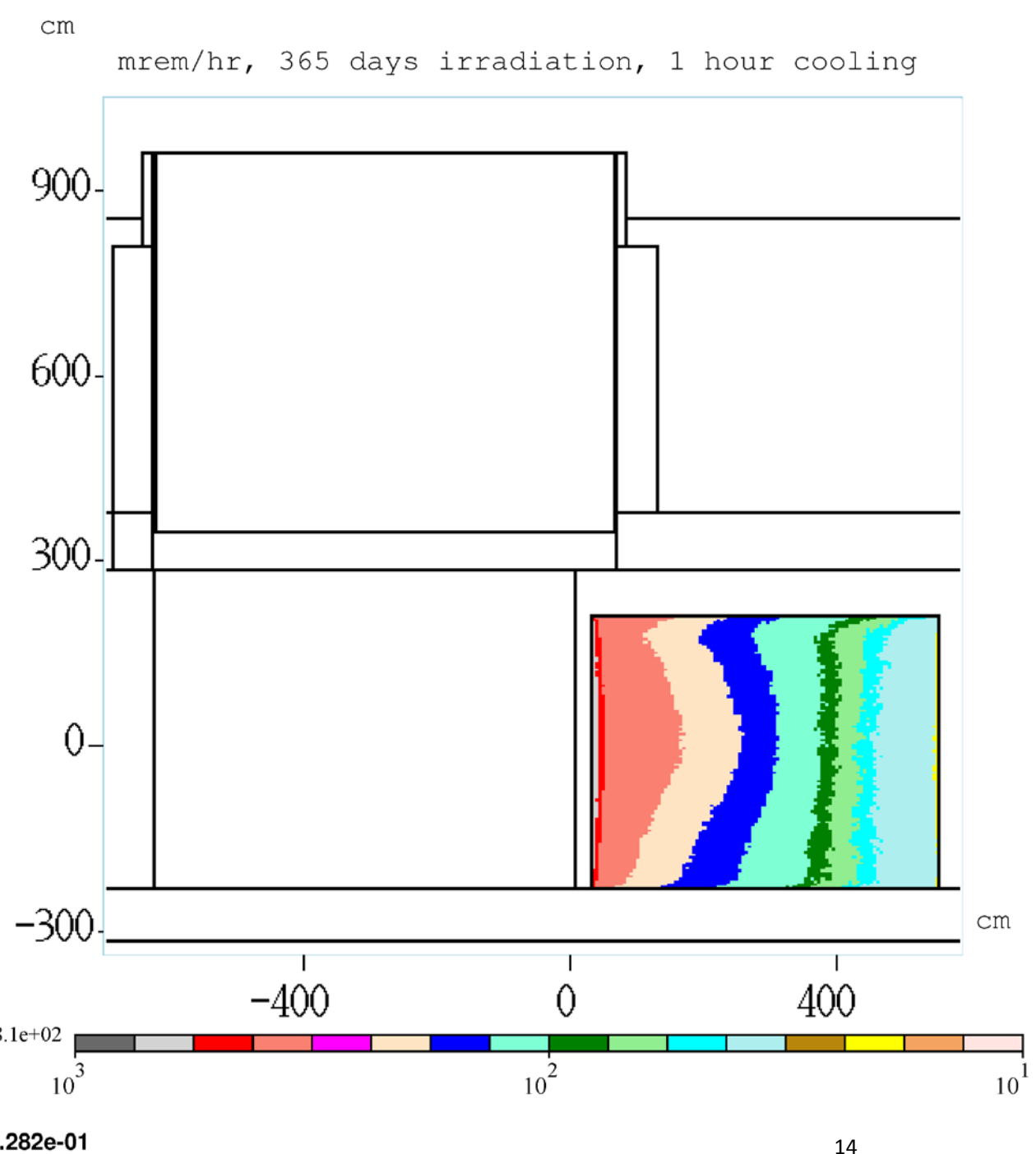
1 hour cooling time



South yoke wall, aisle side

Peak dose rate: 810 mrem/hr

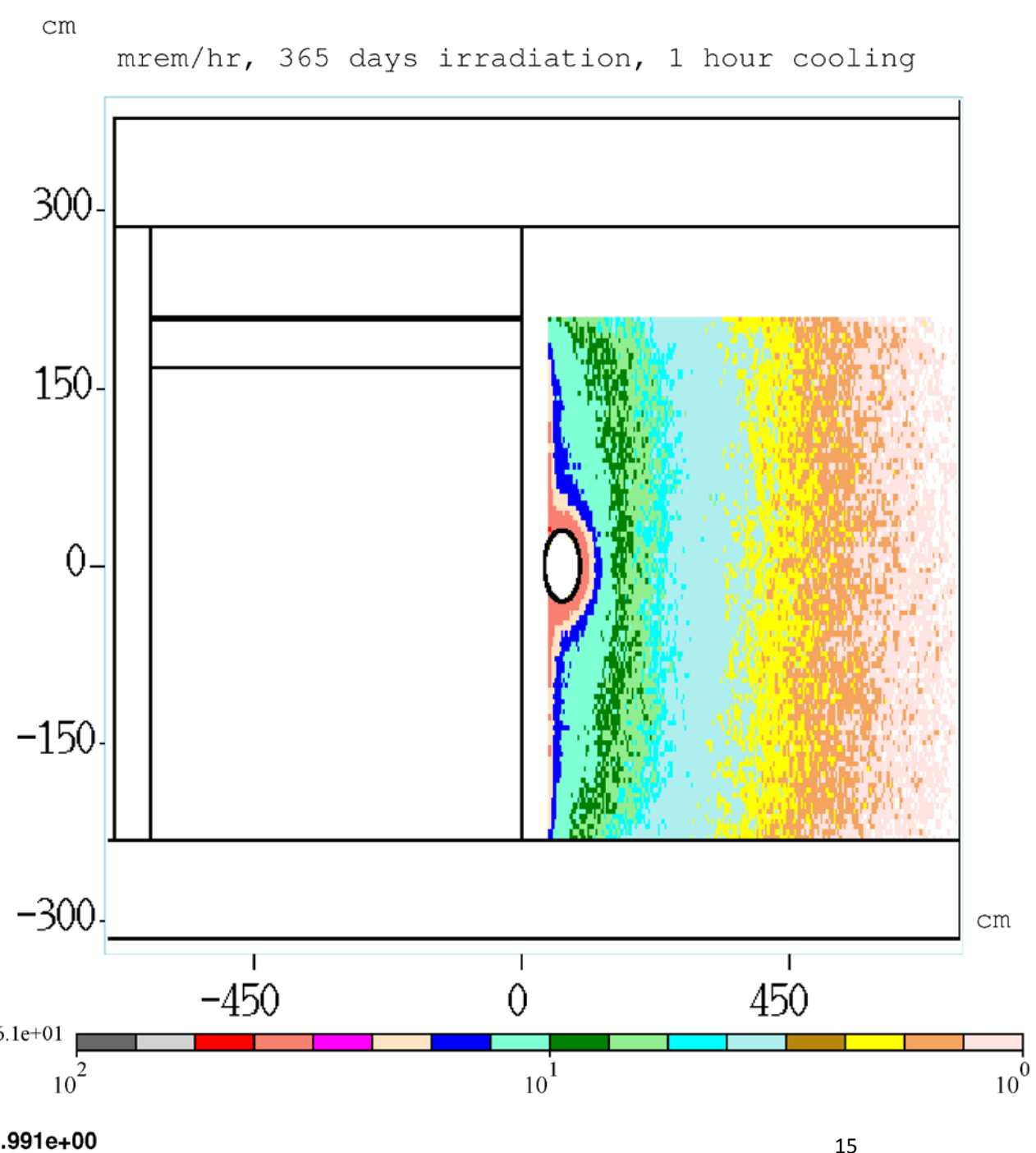
1 hour cooling time



RHR wall, rhr side for pump maintenance

Peak dose rate: 61 mrem/hr

1 hour cooling time

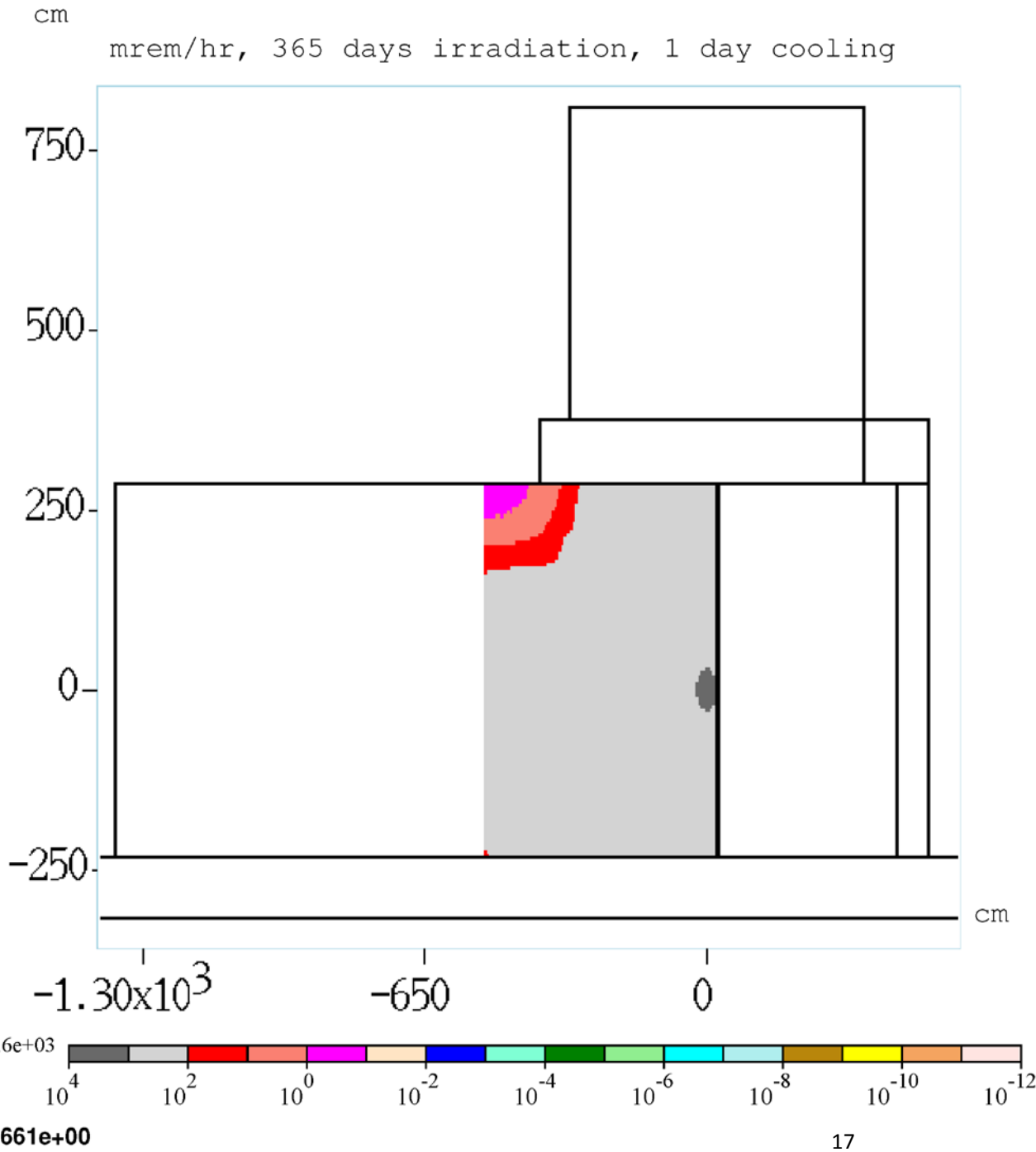


1 day cooling time histograms

PS room west wall

Peak dose rate: 1600 mrem/hr

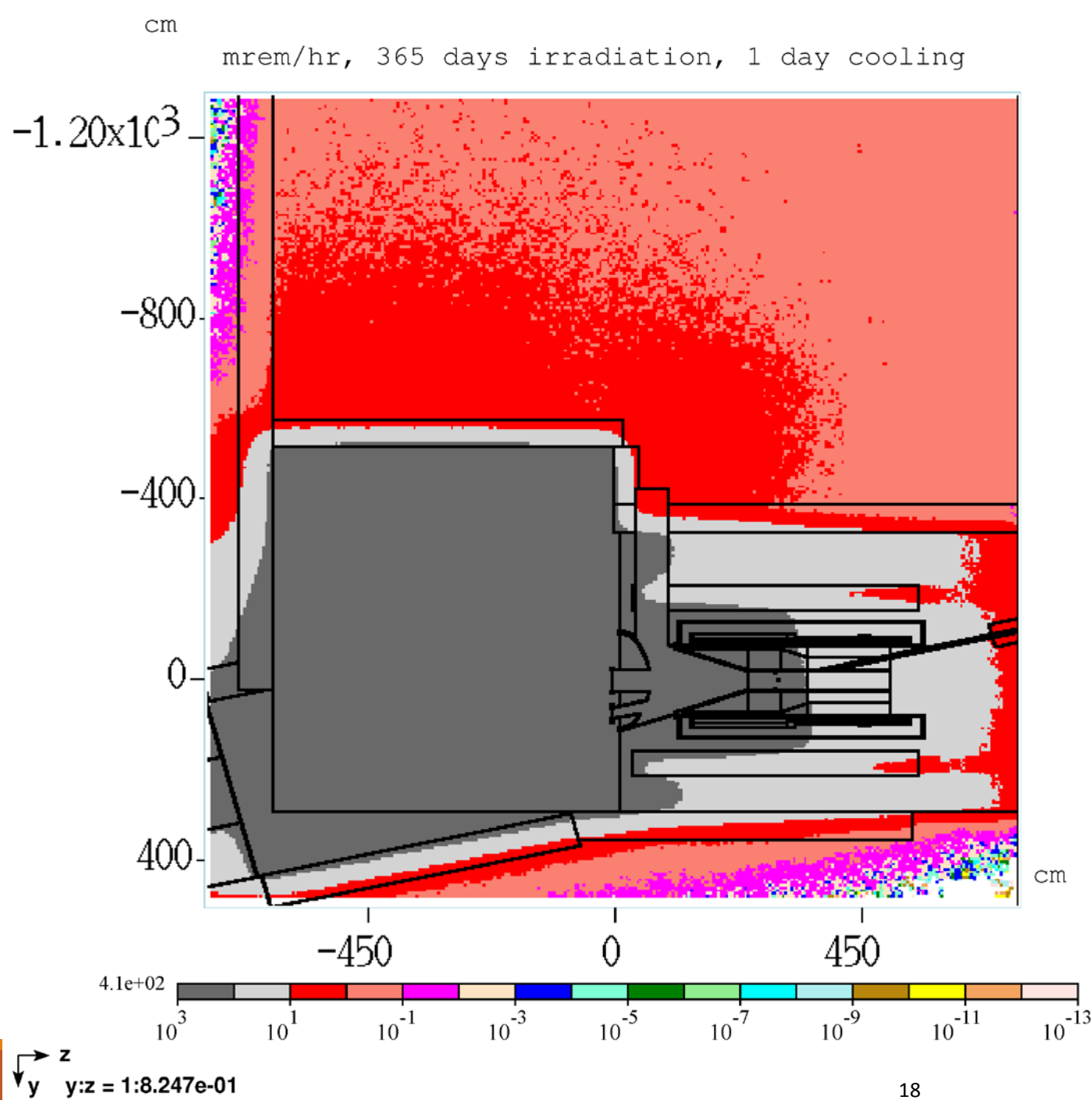
1 day cooling time



PS room and RHR floor

Peak dose rate: 410 mrem/hr

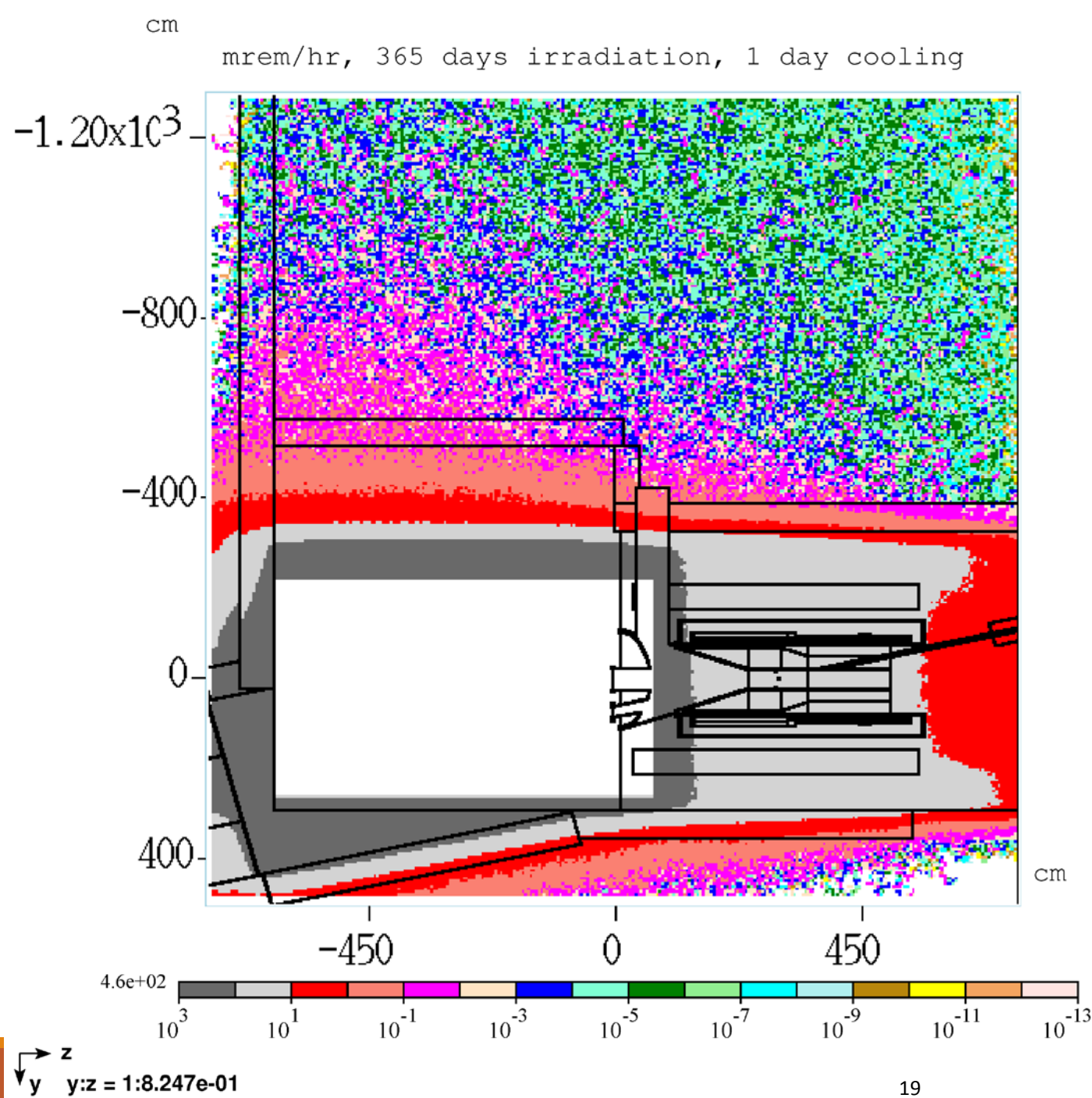
1 day cooling time



PS room and RHR ceiling

Peak dose rate: 460 mrem/hr

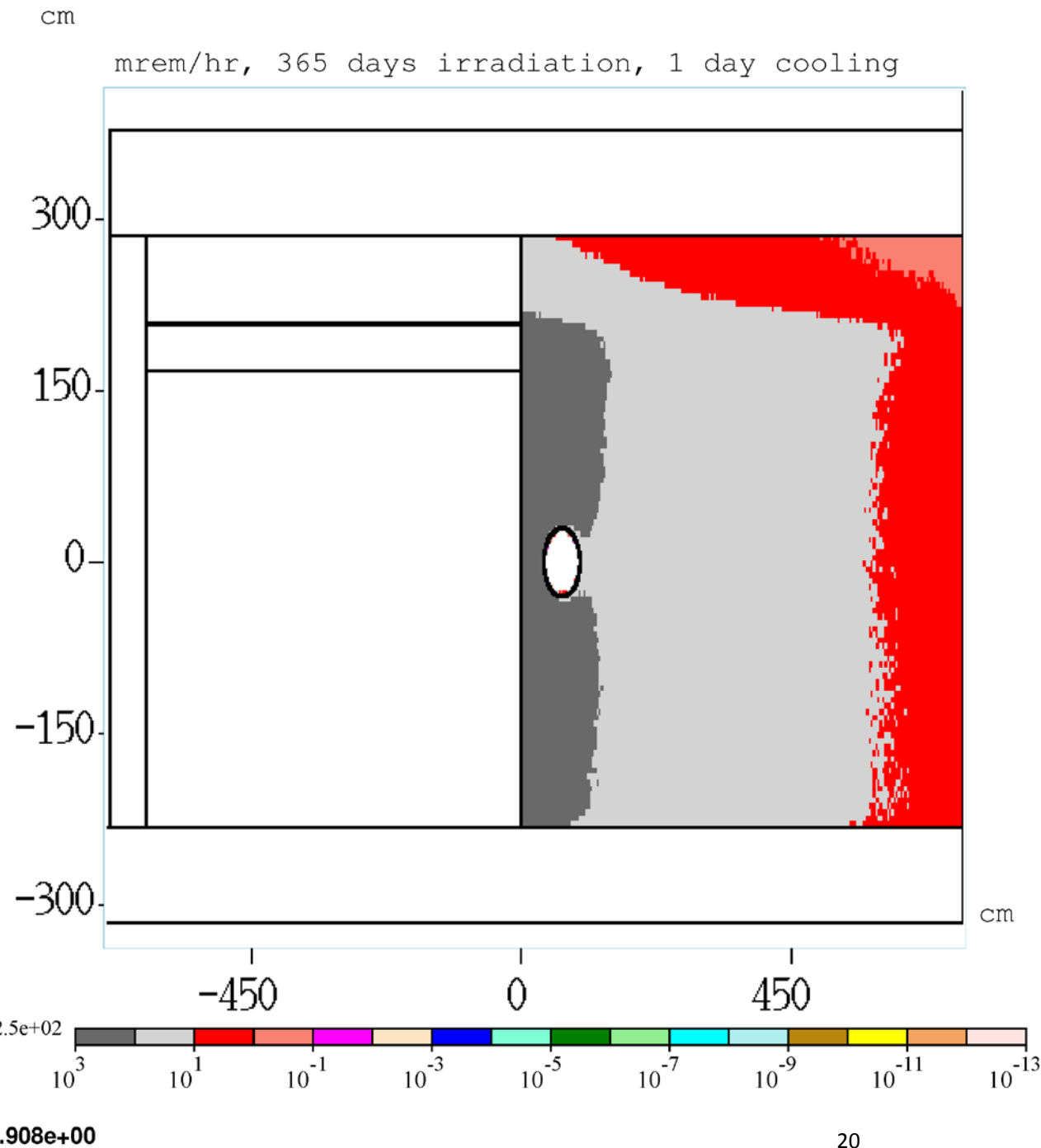
1 day cooling time



RHR wall, PS room side

Peak dose rate: 250 mrem/hr

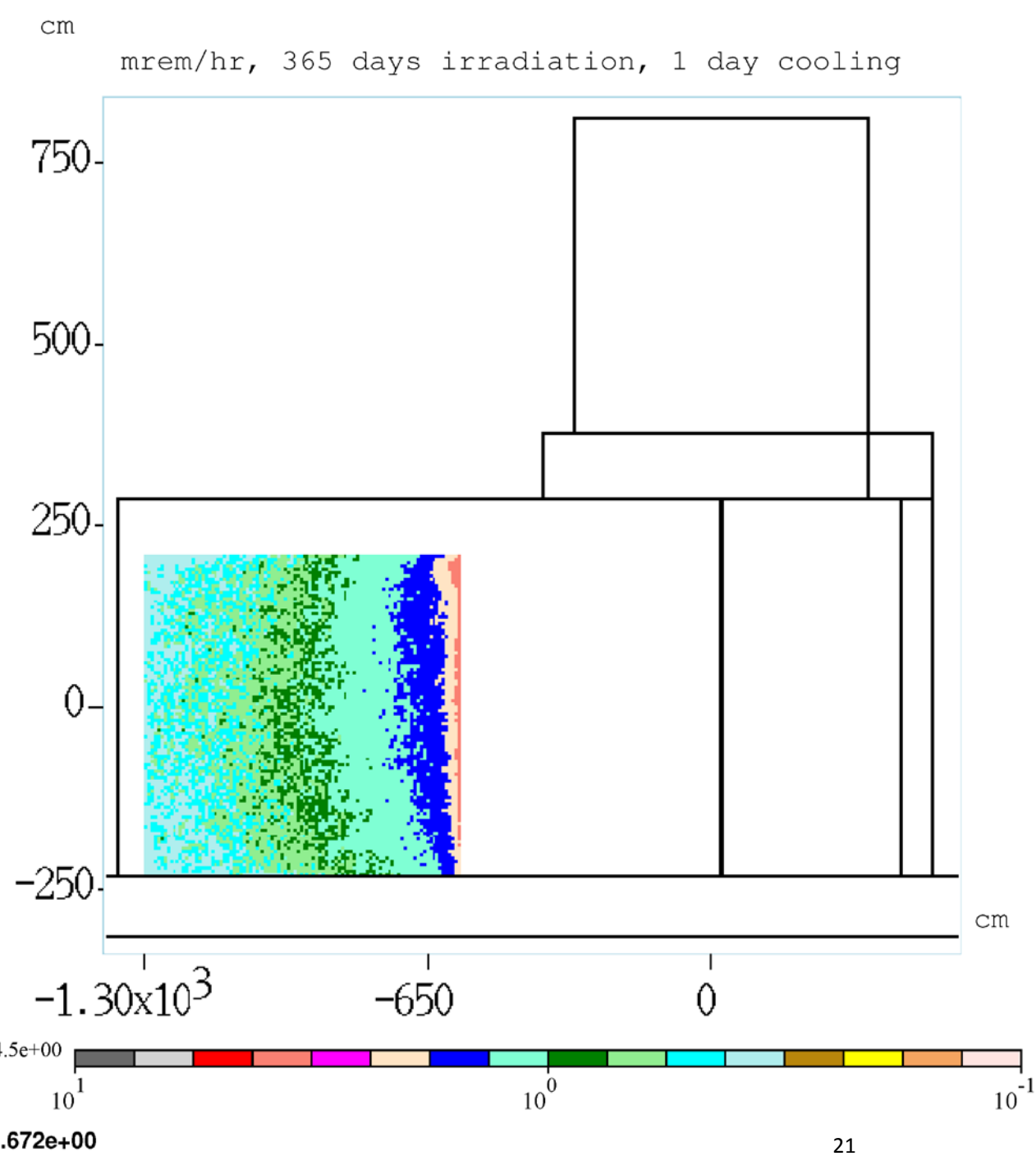
1 day cooling time



RHR west wall

Peak dose rate: 4.5 mrem/hr

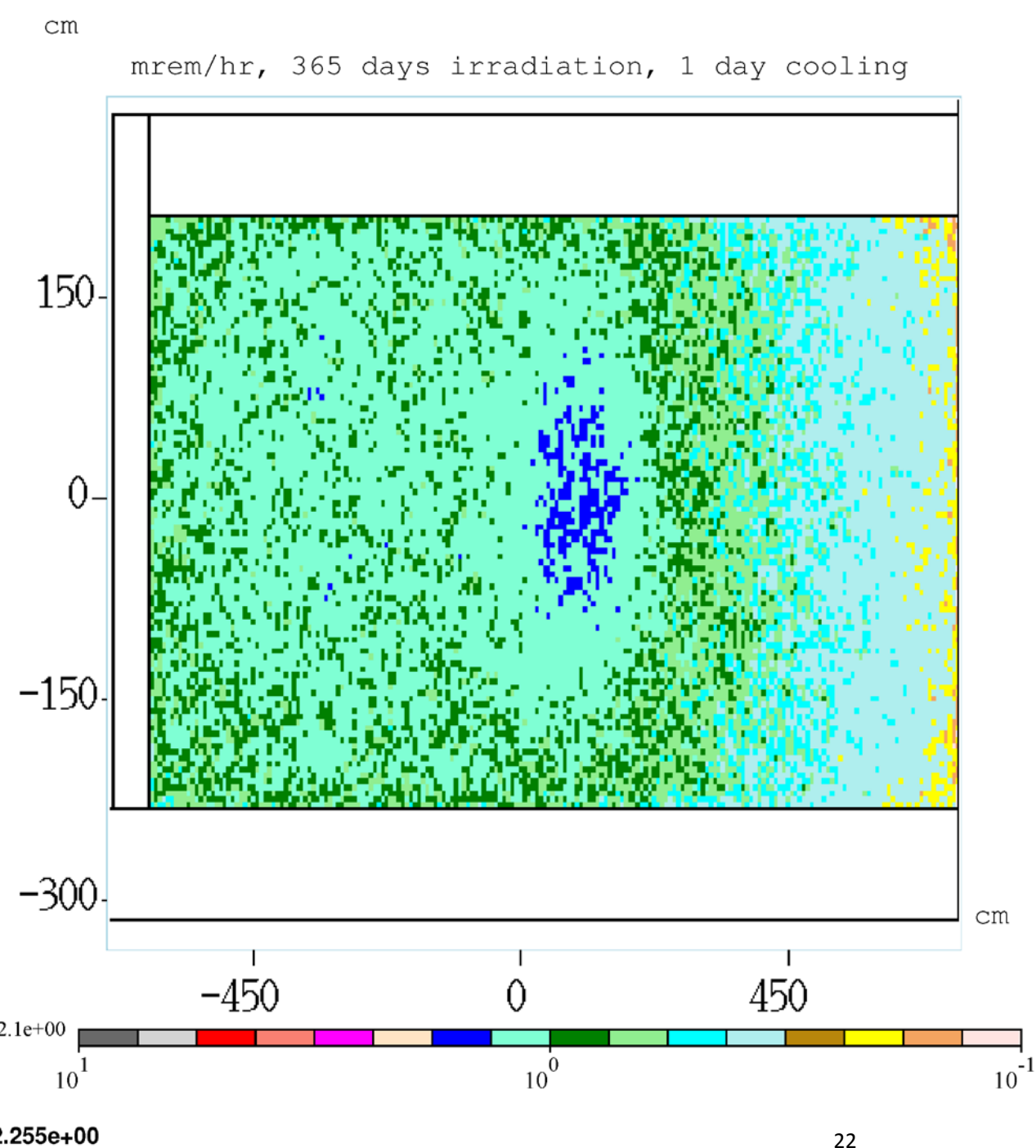
1 day cooling time



RHR north wall

Peak dose rate: 2.1 mrem/hr

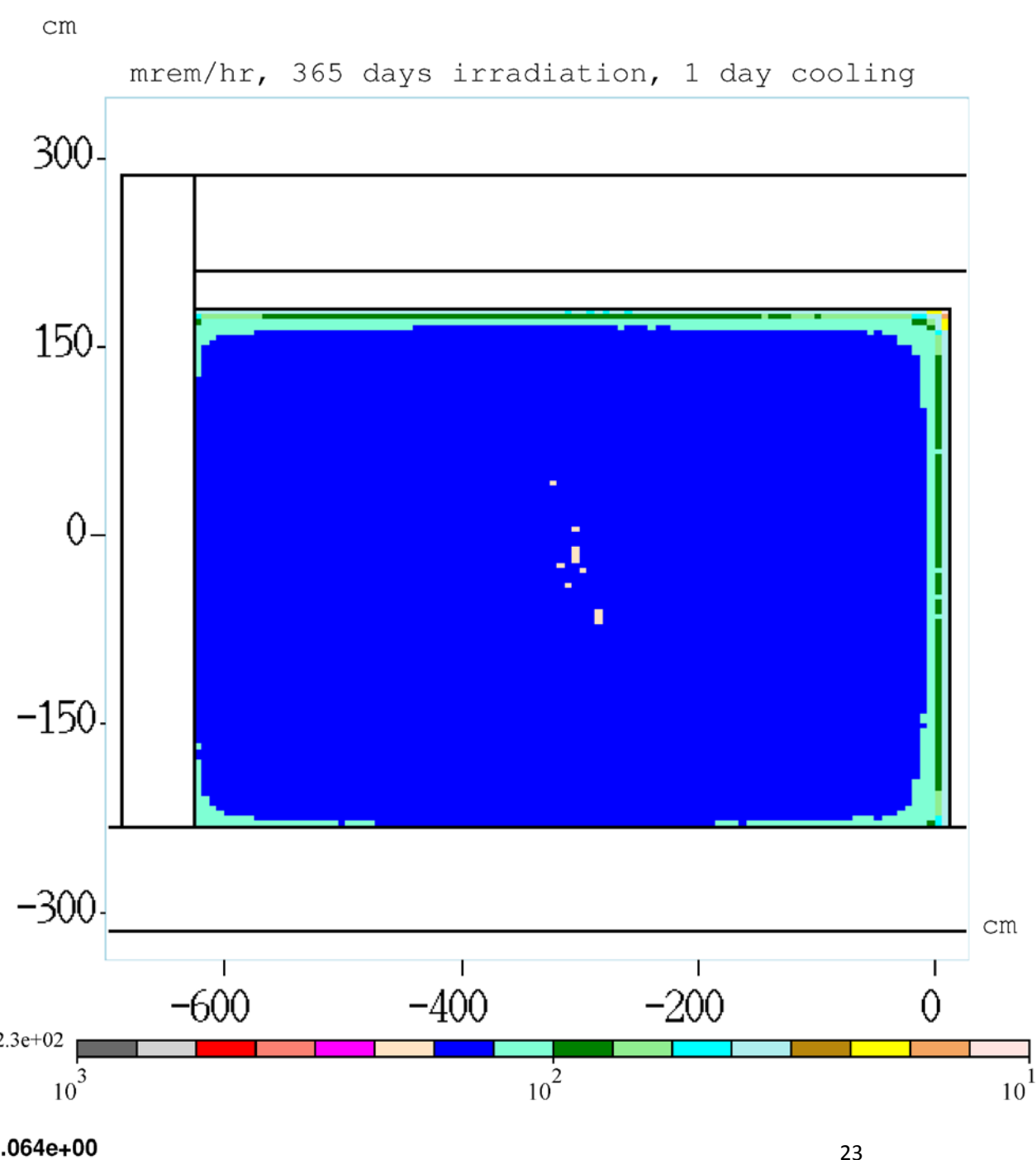
1 day cooling time



RHR door, PS room side

Peak dose rate: 230 mrem/hr

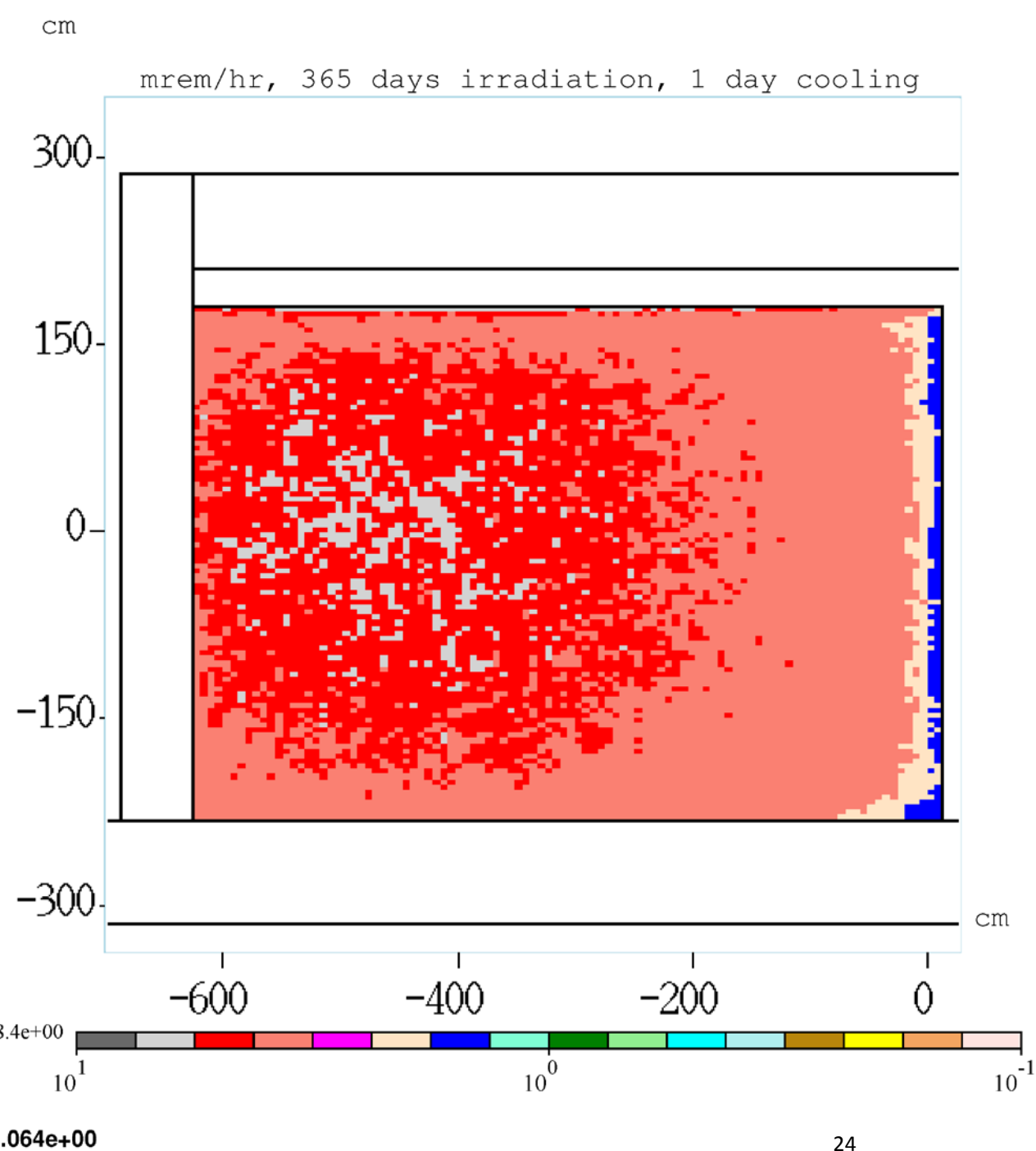
1 day cooling time



RHR door, RHR side

Peak dose rate: 8.4 mrem/hr

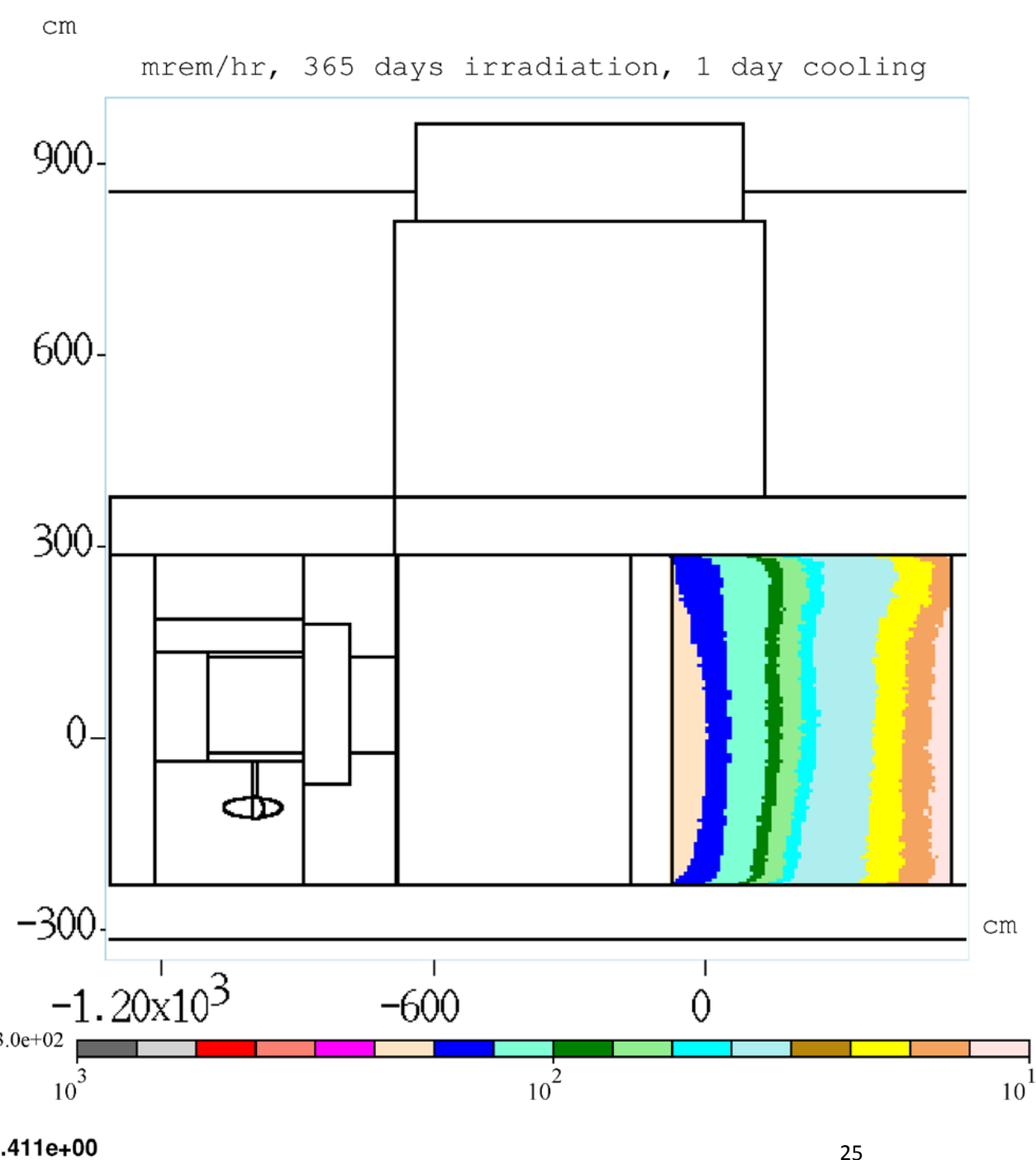
1 day cooling time



PS room, south wall

Peak dose rate: 300 mrem/hr

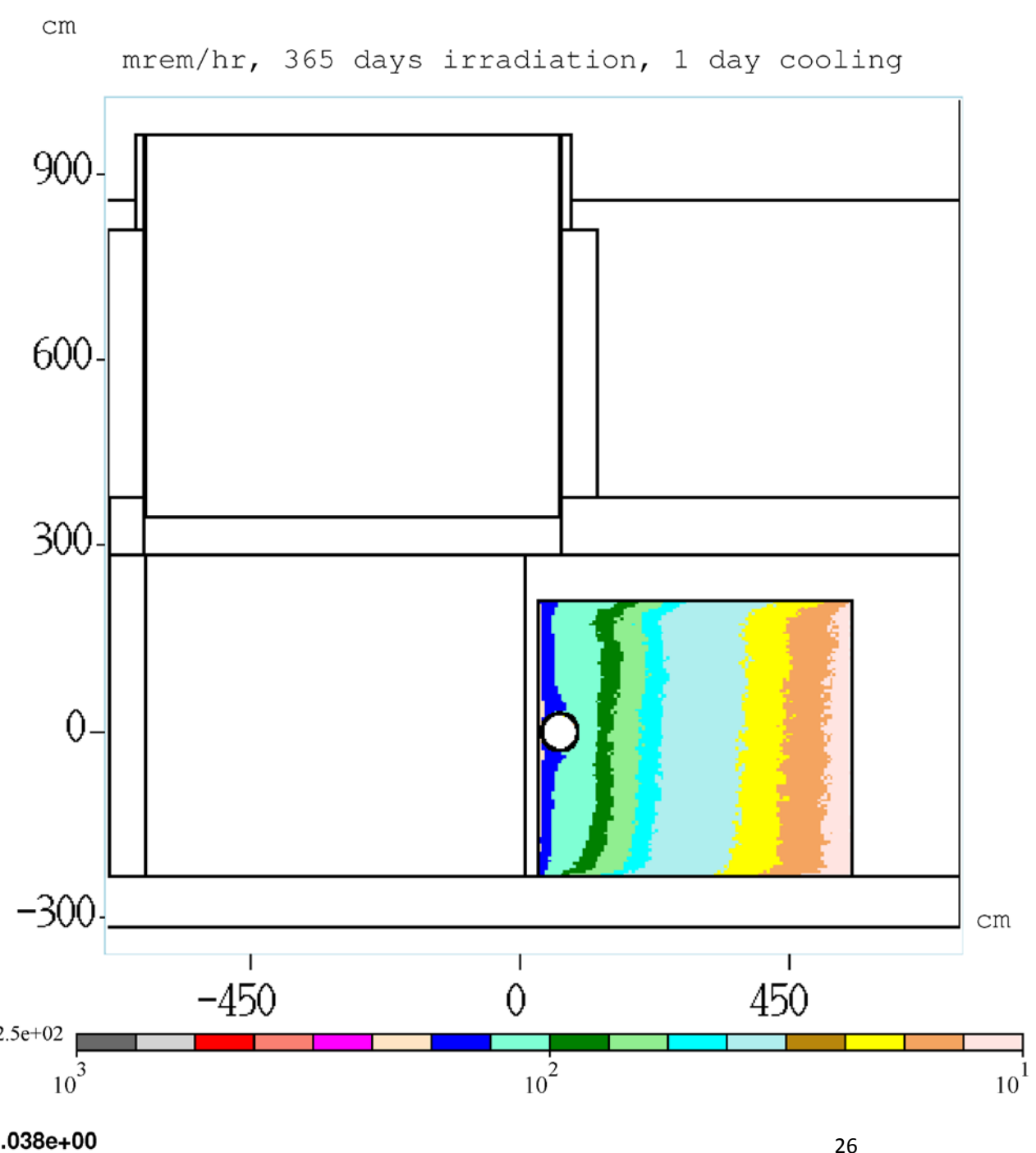
1 day cooling time



North yoke wall, aisle side

Peak dose rate: 250 mrem/hr

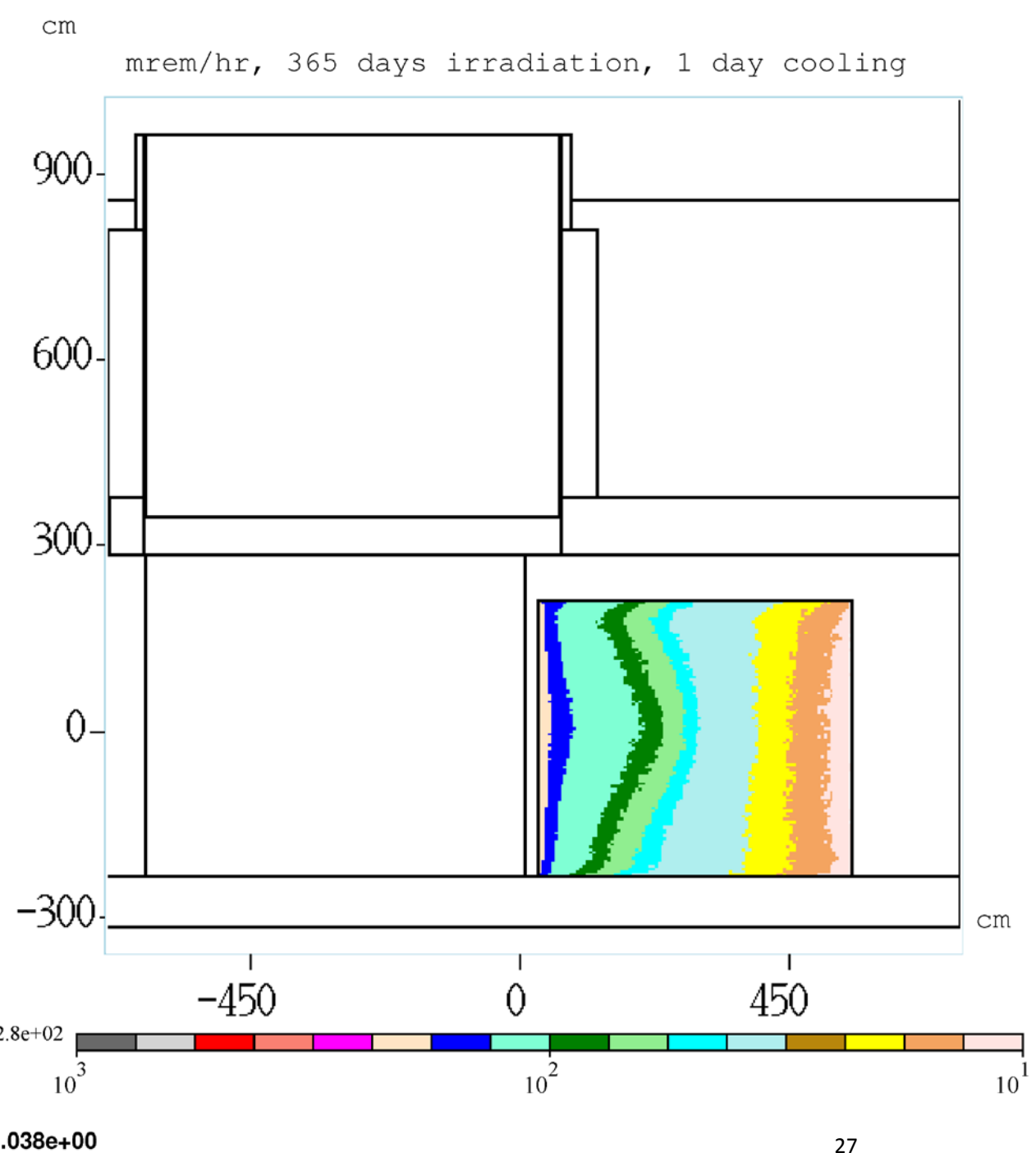
1 day cooling time



South yoke wall, aisle side

Peak dose rate: 280 mrem/hr

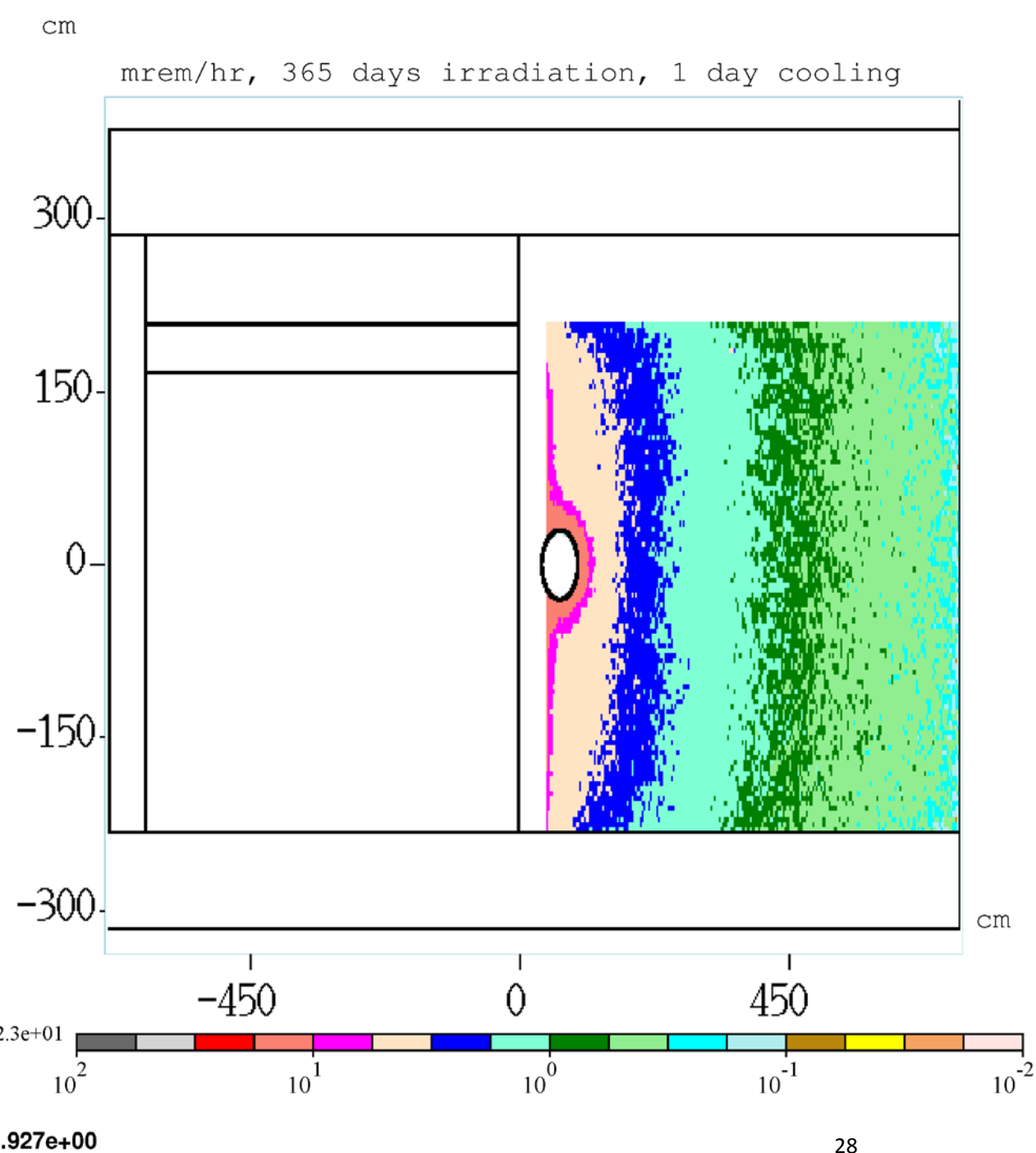
1 day cooling time



RHR wall, rhr side for pump maintenance

Peak dose rate: 23 mrem/hr

1 day cooling time

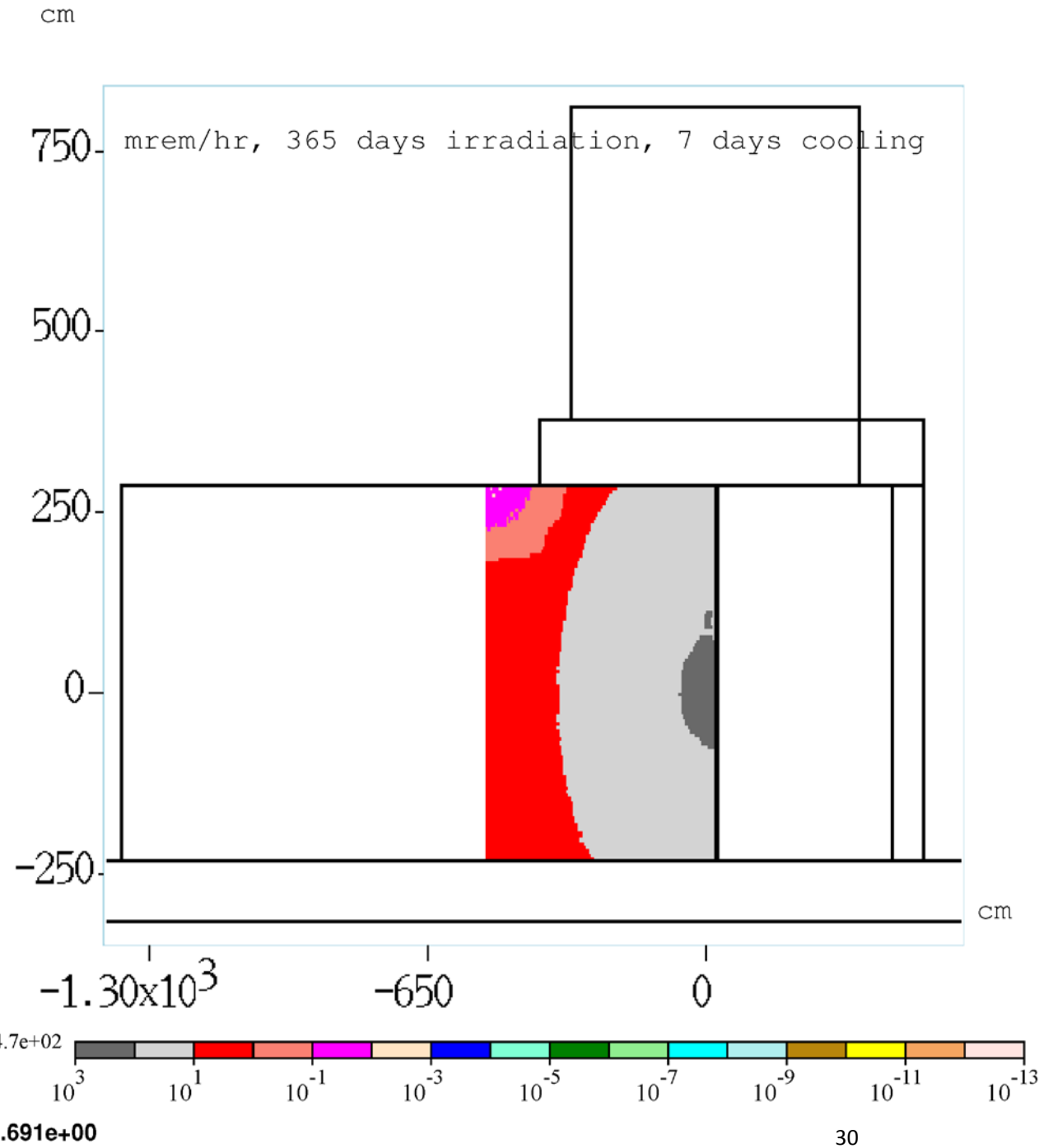


1 week cooling time histograms

PS room west wall

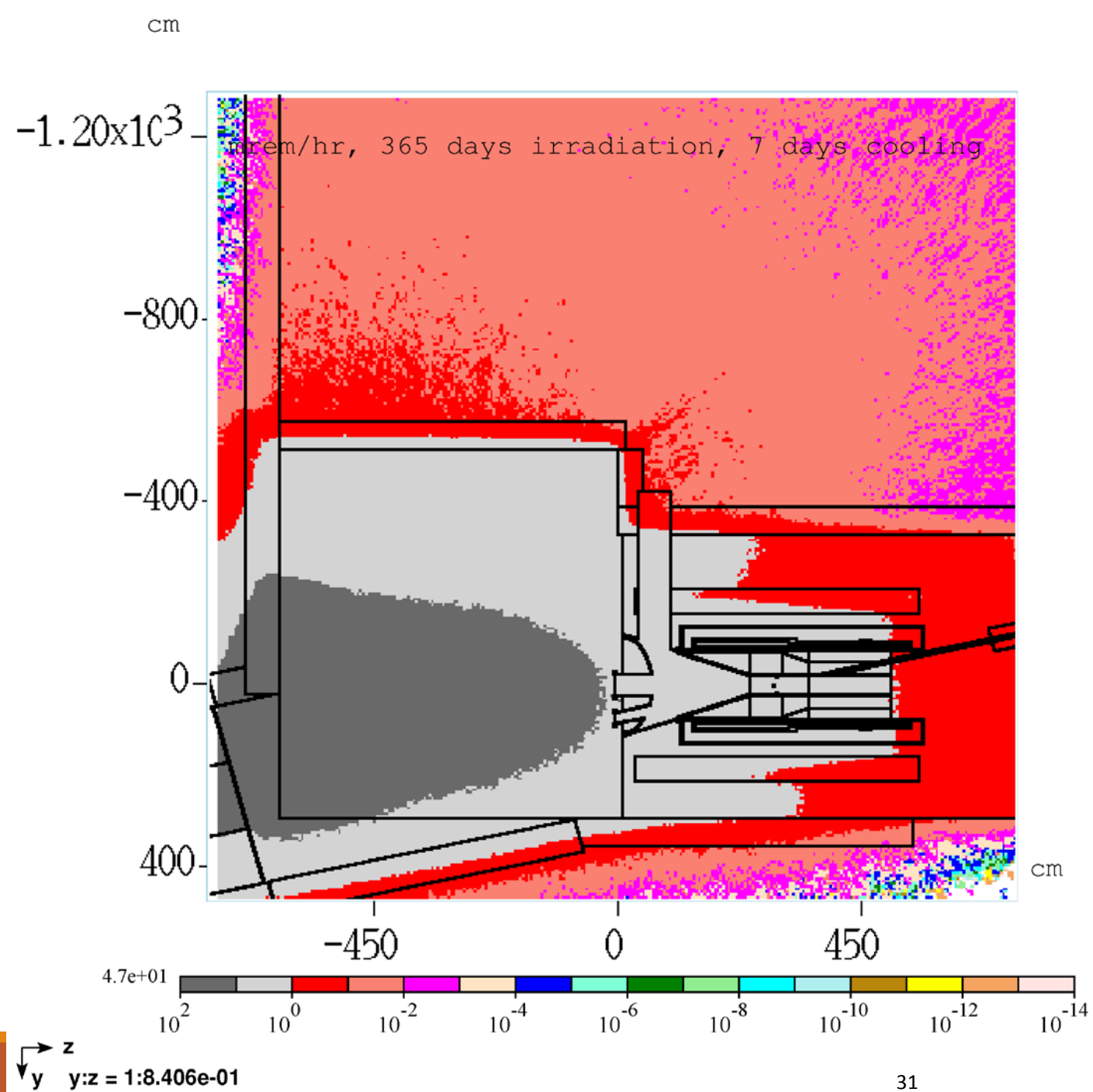
Peak dose rate: 470 mrem/hr

1 week cooling time



PS room and RHR floor

Peak dose rate: 47 mrem/hr

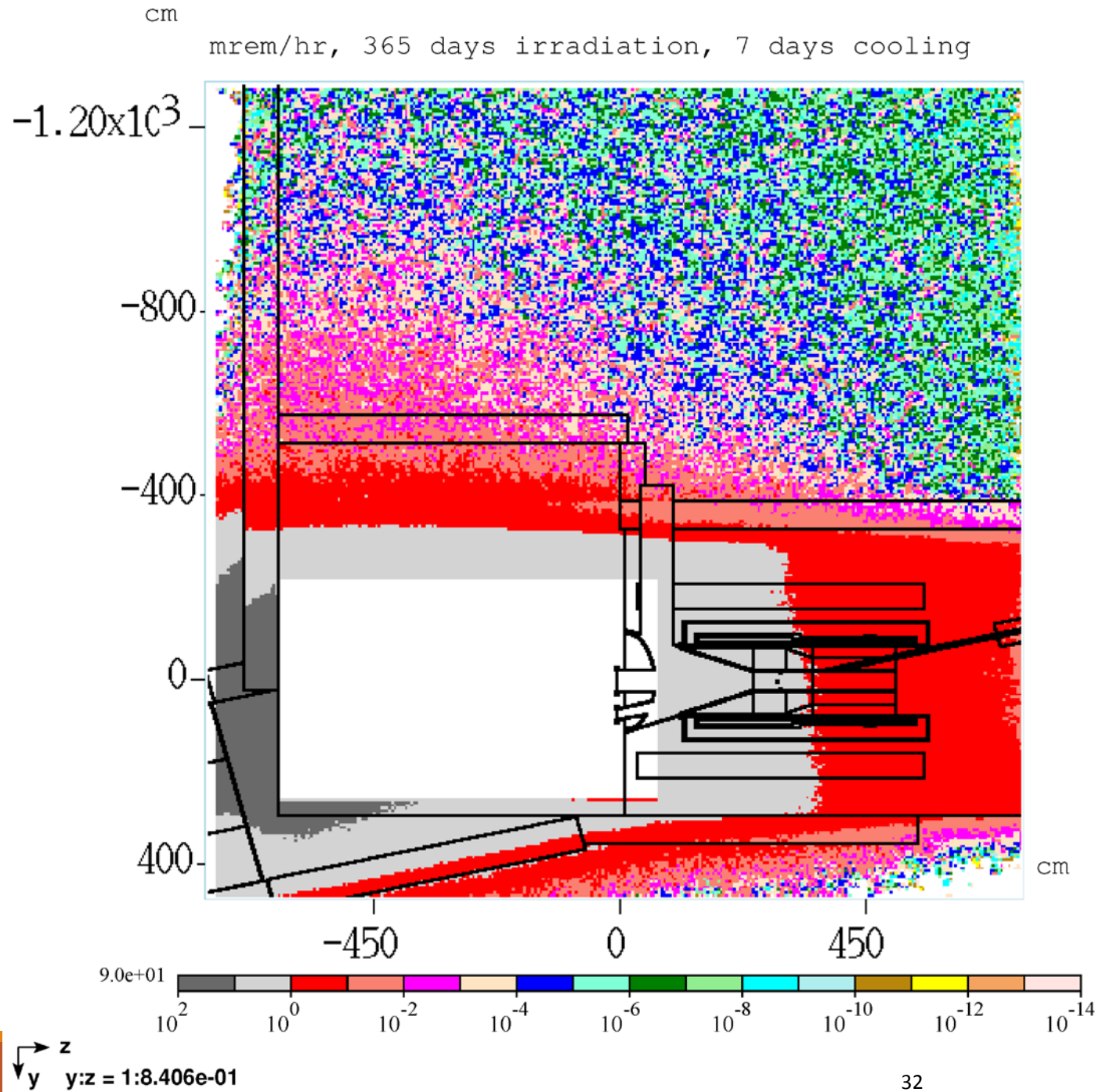


1 week cooling time

PS room and RHR ceiling

Peak dose rate: 90 mrem/hr

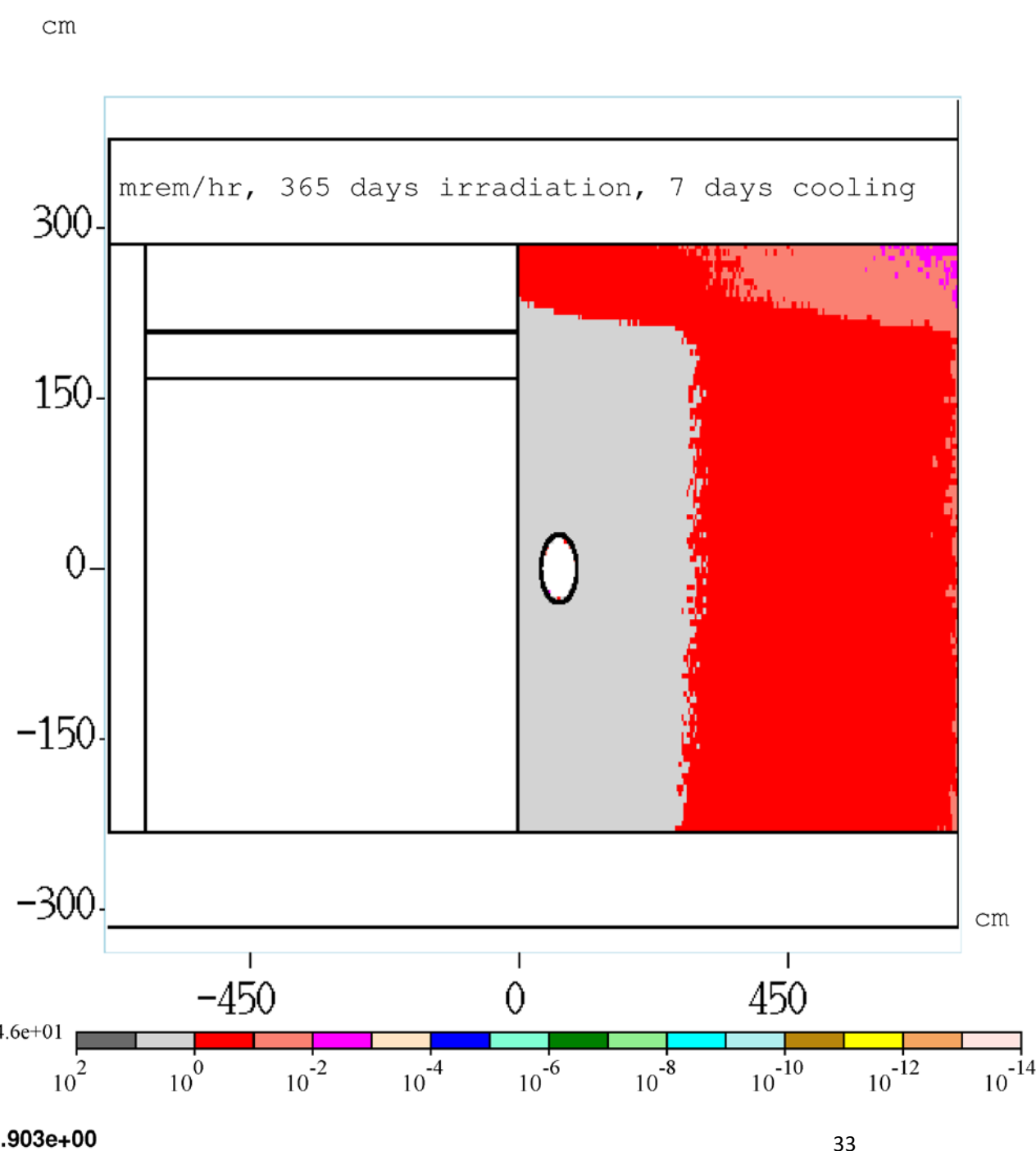
1 week cooling time



RHR wall, PS room side

Peak dose rate: 46 mrem/hr

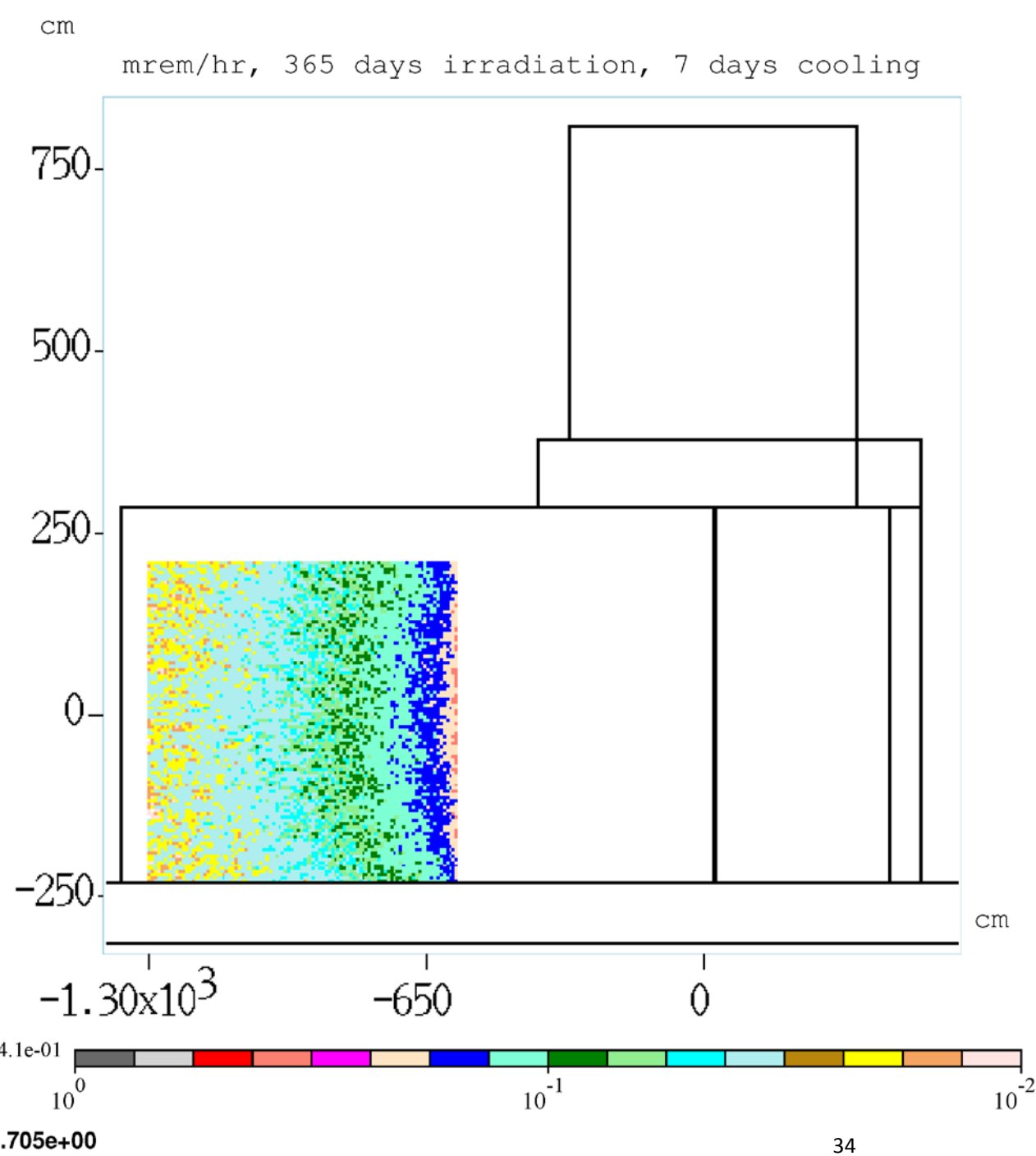
1 week cooling time



RHR west wall

Peak dose rate: 0.4 mrem/hr

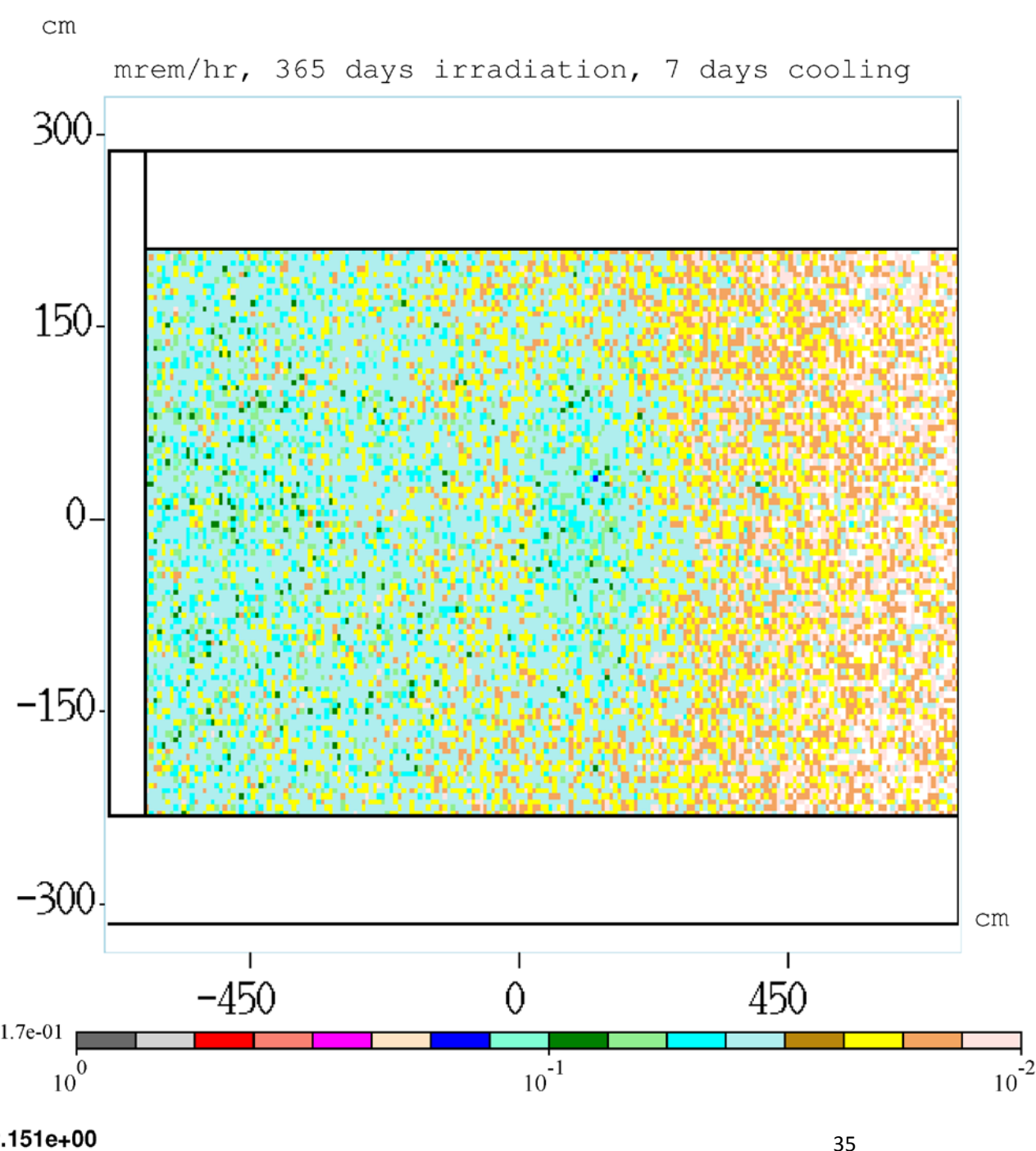
1 week cooling time



RHR north wall

Peak dose rate: <0.2 mrem/hr

1 week cooling time

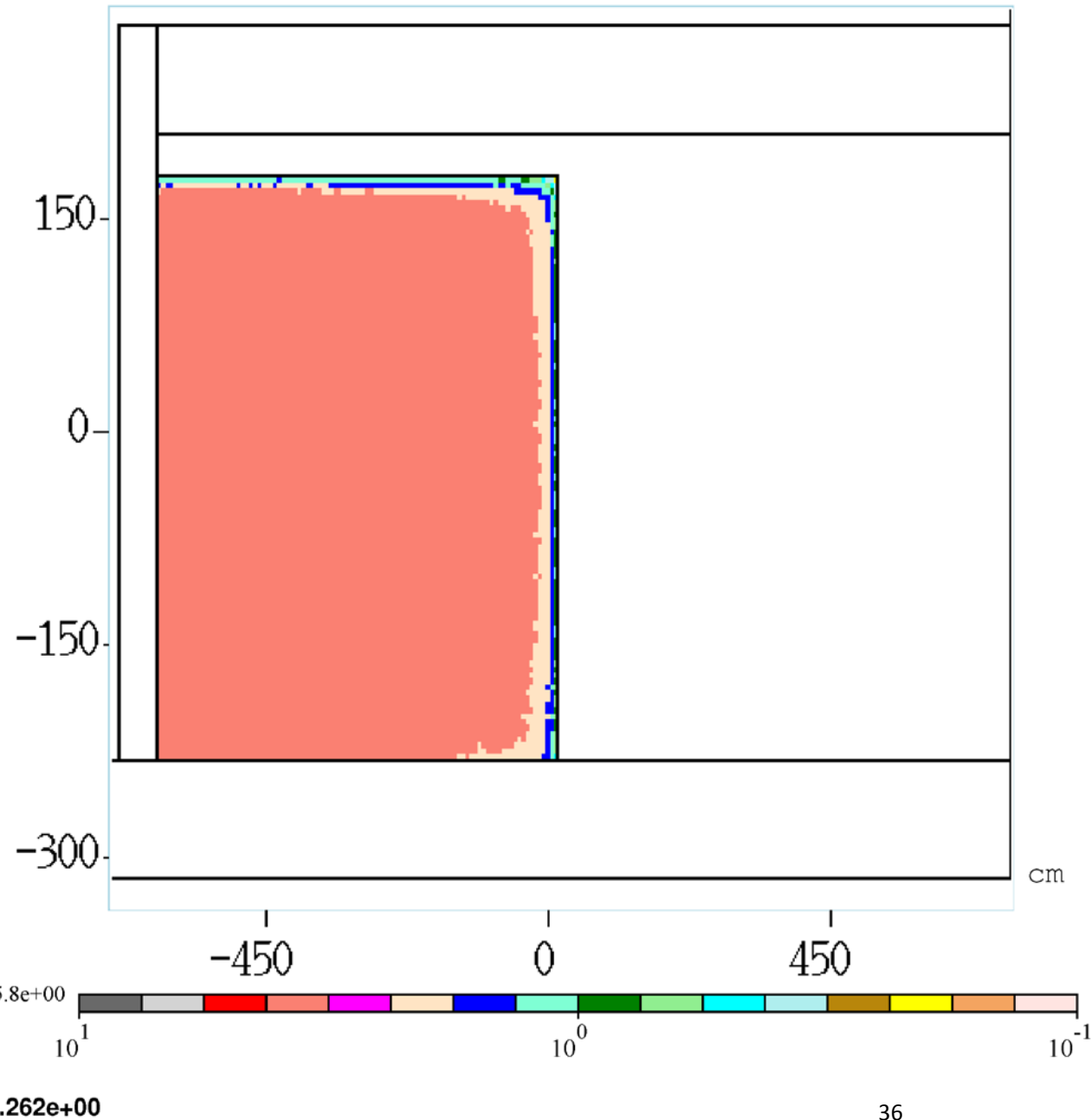


RHR door, PS room side

Peak dose rate: 5.8 mrem/hr

1 week cooling time

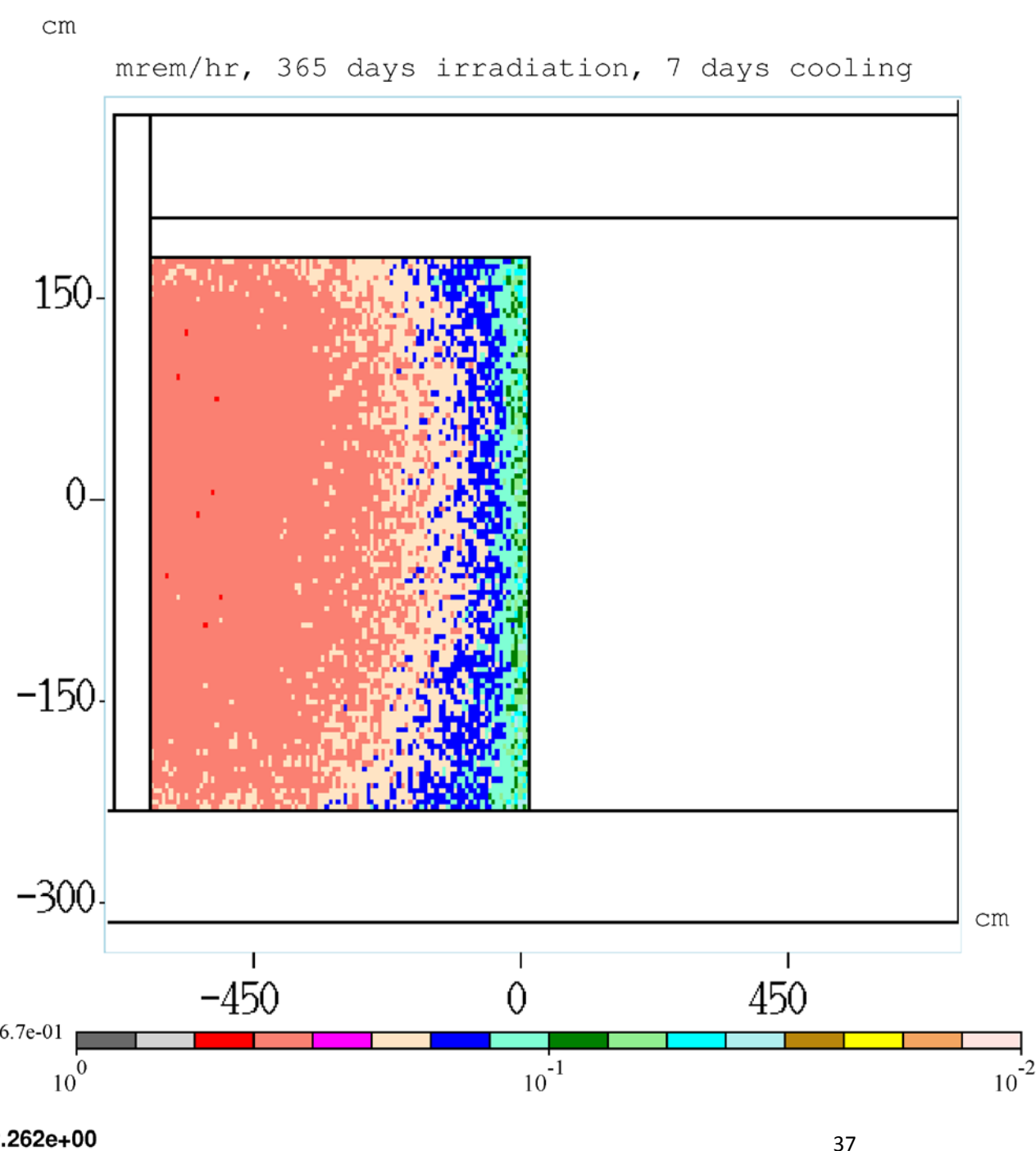
cm
mrem/hr, 365 days irradiation, 7 days cooling



RHR door, RHR side

Peak dose rate: 0.7 mrem/hr

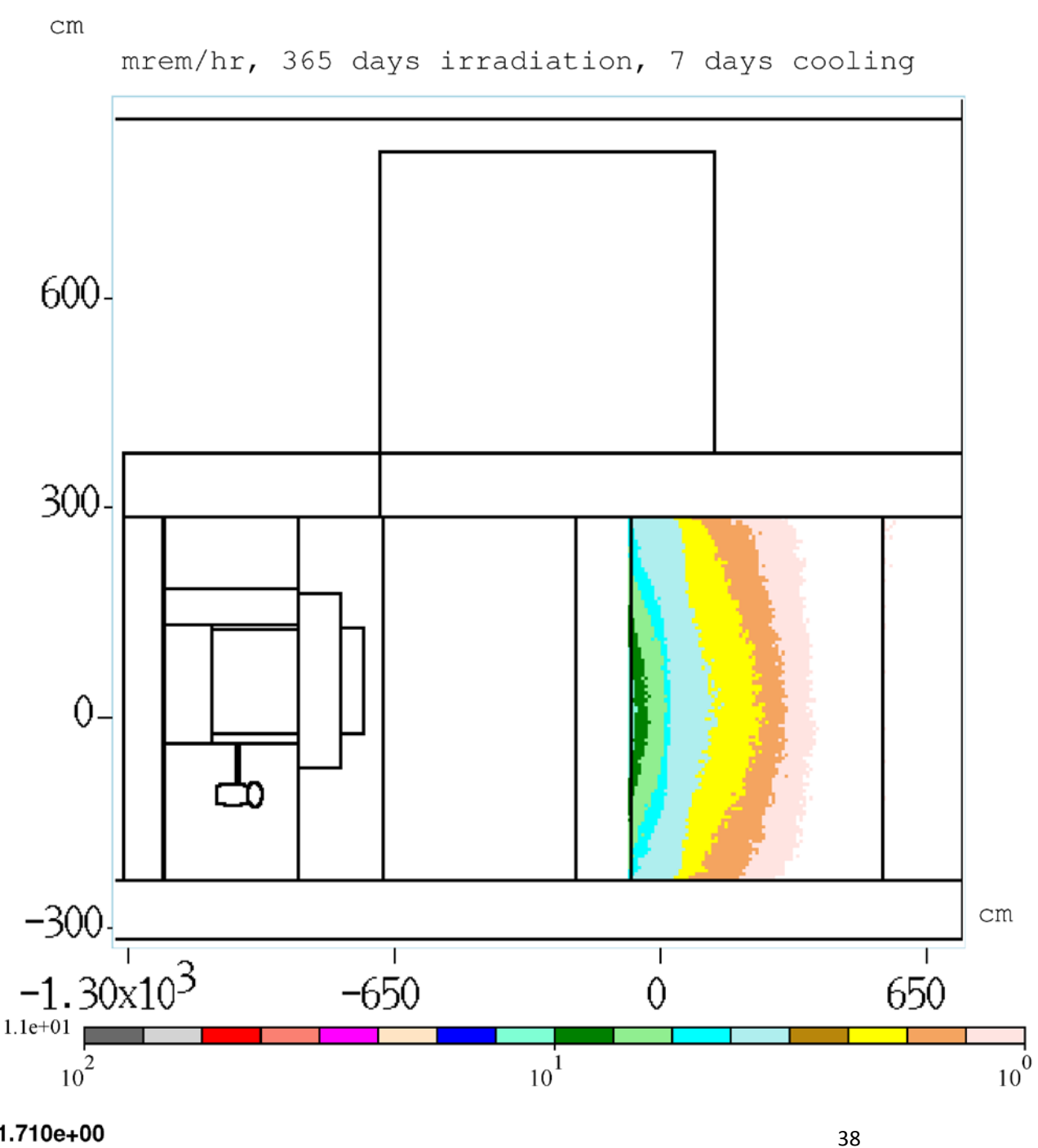
1 week cooling time



PS room, south wall

Peak dose rate: 11 mrem/hr

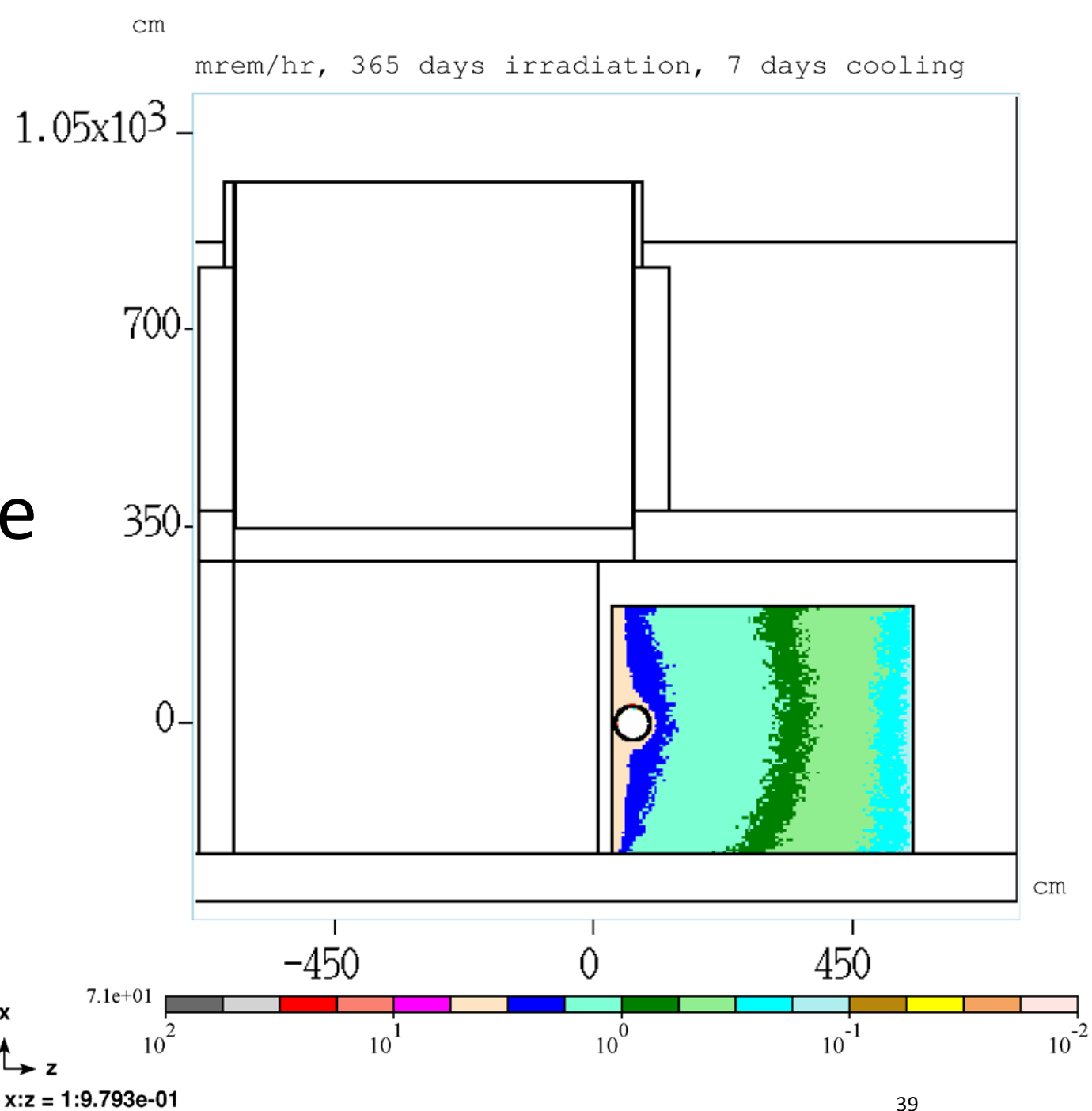
1 week cooling time



North yoke wall, aisle side

Peak dose rate: 71 mrem/hr

1 week cooling time



South yoke wall, aisle side

Peak dose rate: 9.8 mrem/hr

1 week cooling time

