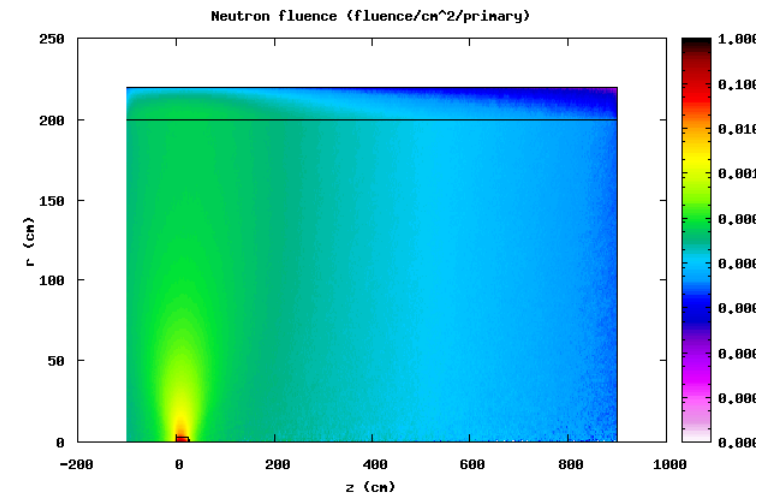
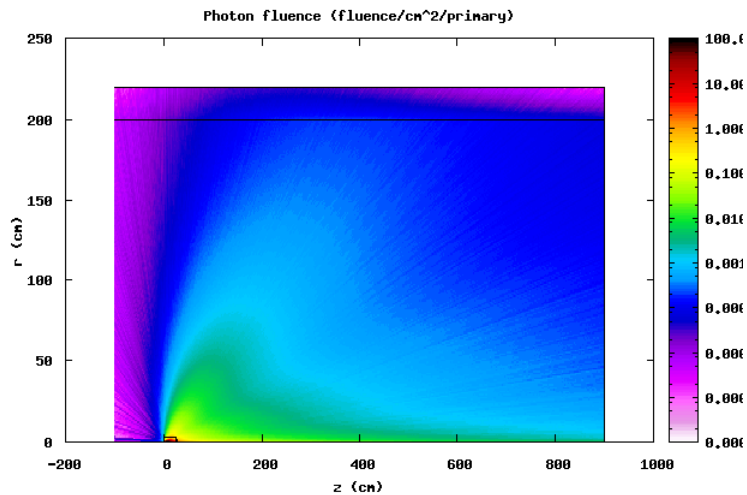
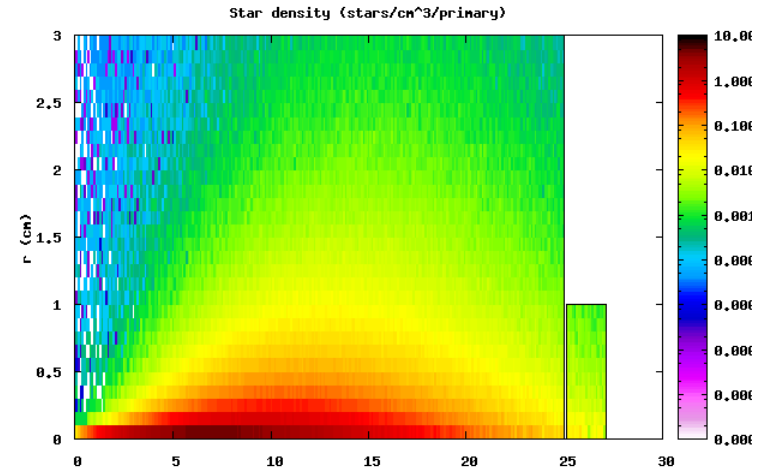


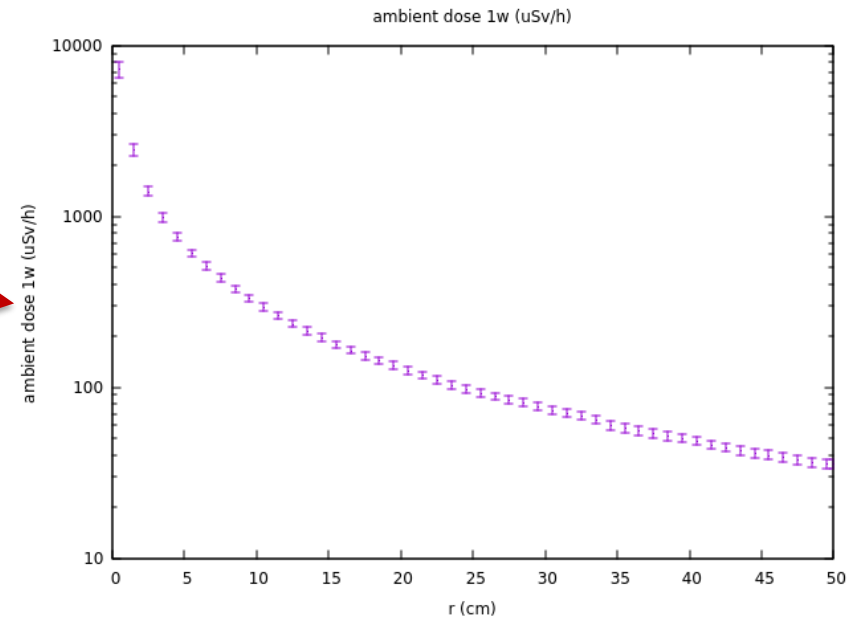
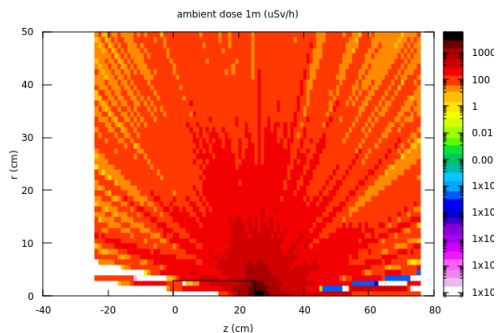
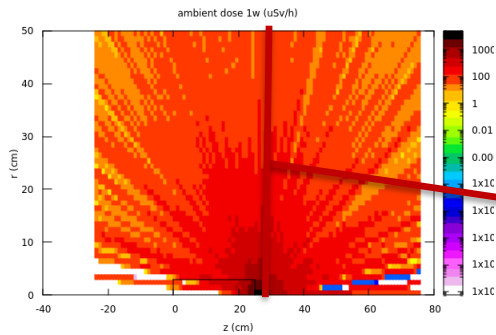
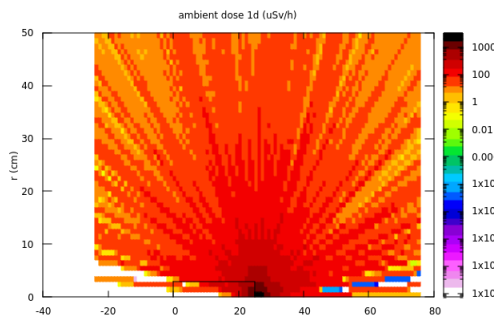
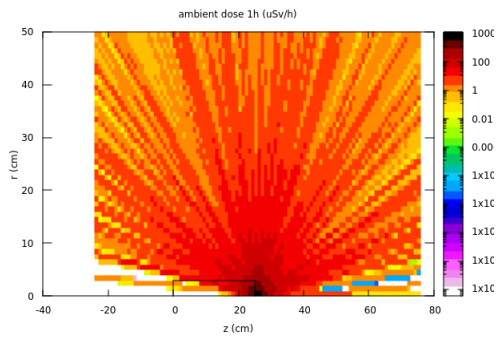
Fluence and star density

Always convince yourself on statistical uncertainties with contour plots!

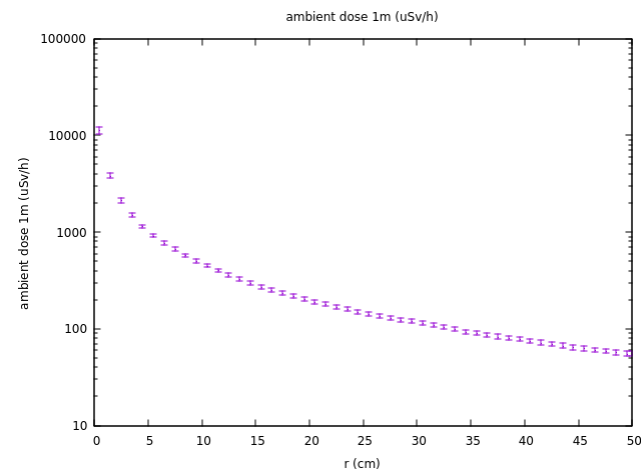
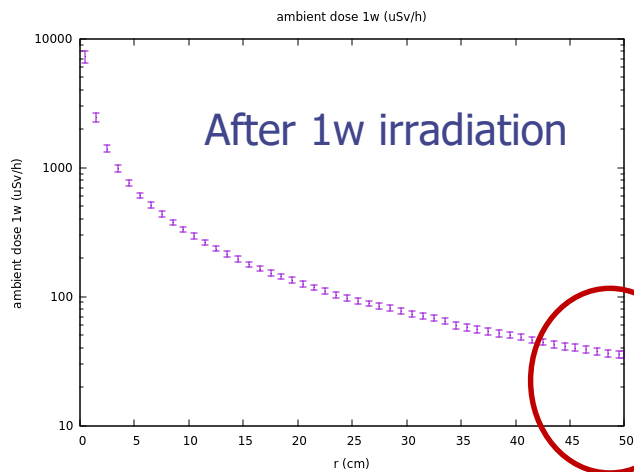
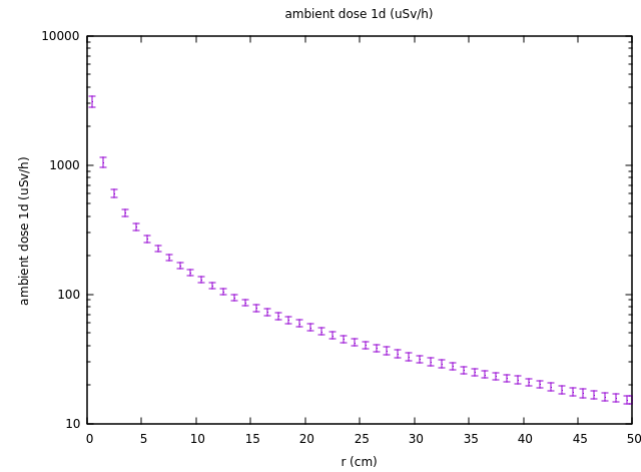
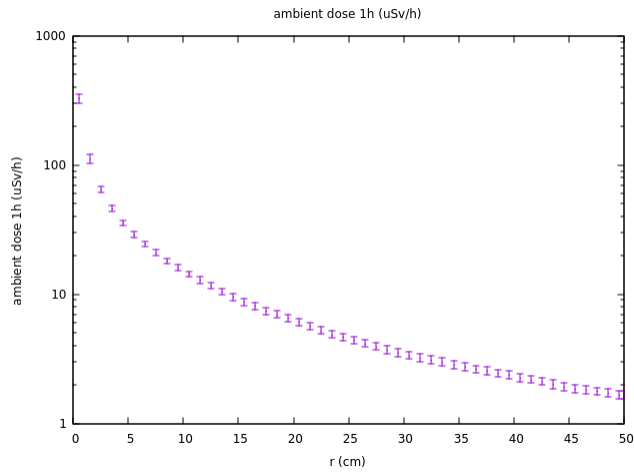


Ambient dose equivalent around sample

This is for only 1000 primaries (we have only one hour for the exercise..) with biasing active on the EM component (LPB) and thus statistics is terrible. Nevertheless, it is sufficient to roughly determine the irradiation duration.

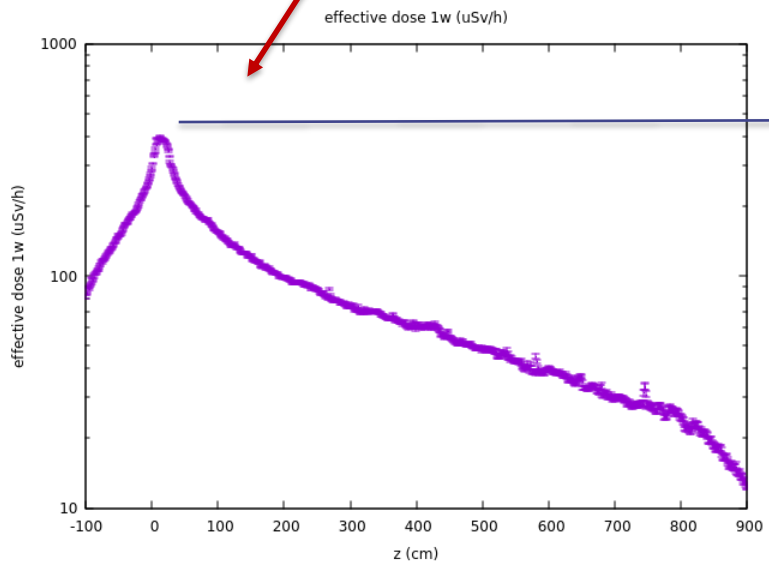
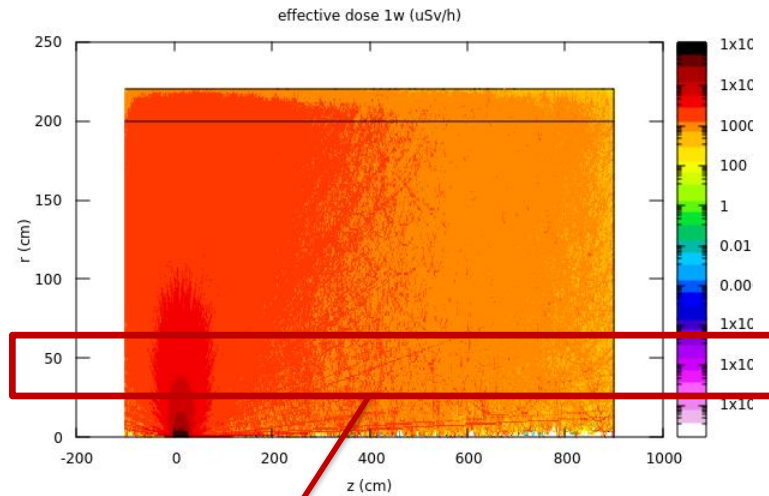


Ambient dose equivalent around sample



$r \sim 50$ cm dose ~ 50 uSv/h

Effective dose next to target



$\sim 340 \mu\text{Sv/h}$
 $11 \mu\text{Sv}$ during two minutes

DOSE-EQ units

- Using DOSE-EQ gives results in pSv/primary.
- By means of DCYSCORE option, all results are expressed per unit time.
- Because we set a number of primaries in the IRRPROFILE card, the result is in pSv/s.
- The conversion in uSv/h is by multiplication with:
 $1e-6*3600$

Check RESNUCLEI with/without heavy fragments evaporation

- Need to override the internal logic of FLUKA that prevents the use of obsolete models (available in the development version only)

```
*** Predictions for residual nuclei production and ***
*** decays require the activation of heavy fragment ***
*** evaporation by means of the PHYSICS/EVAPORAT card ***
*** look at the manual and release notes for further ***
*** details ***
```

- Create new executable with link to additional .o file: prchck.o

```
$FLUPRO/flutil/ldpmqmd -o af prchck.o
```

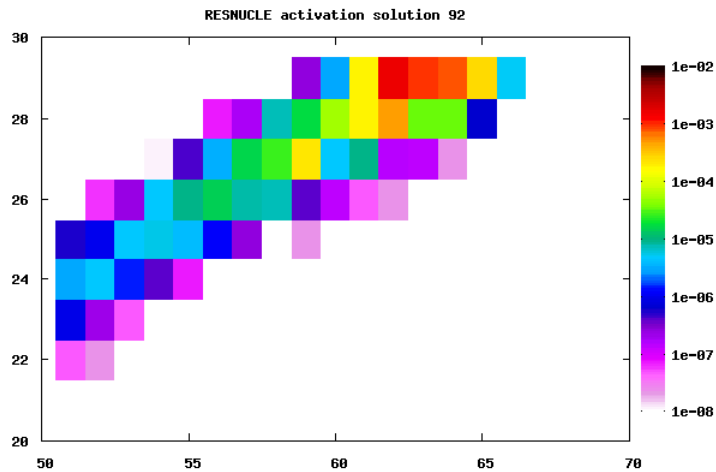
- This allows to disable heavy fragment evaporation:

PHYSICS

2.

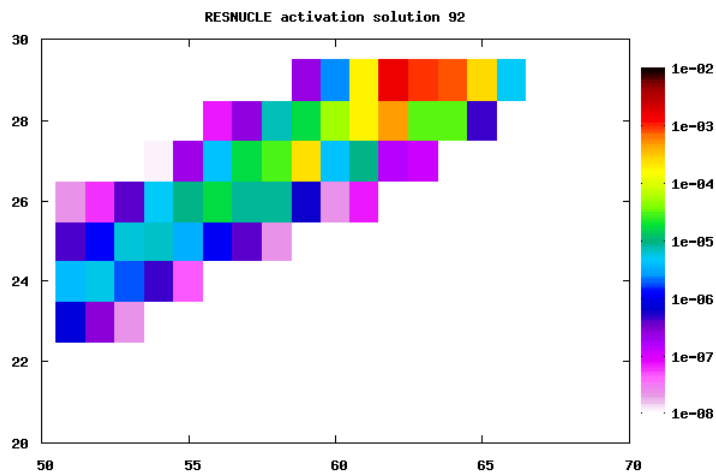
EVAPORAT

Check RESNUCLEI with/without heavy fragments evaporation



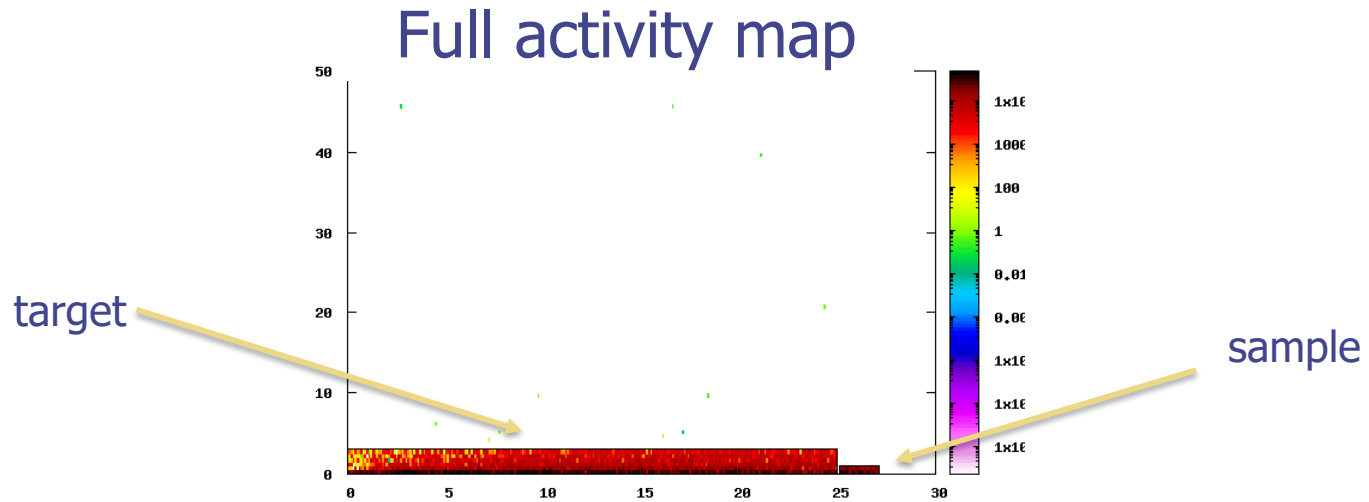
With heavy fragments
(PHYSICS EVAP=3)

Recommended!



Without heavy fragments
(PHYSICS EVAP=2)

"FILTER" : AUXSCORE



^{60}Co activity map

