



Fluka and Mars Energy Deposition Comparison

John Back

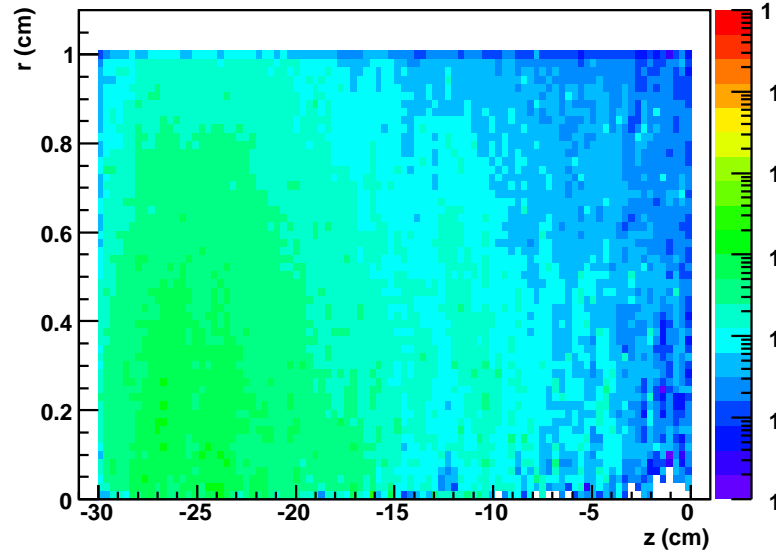
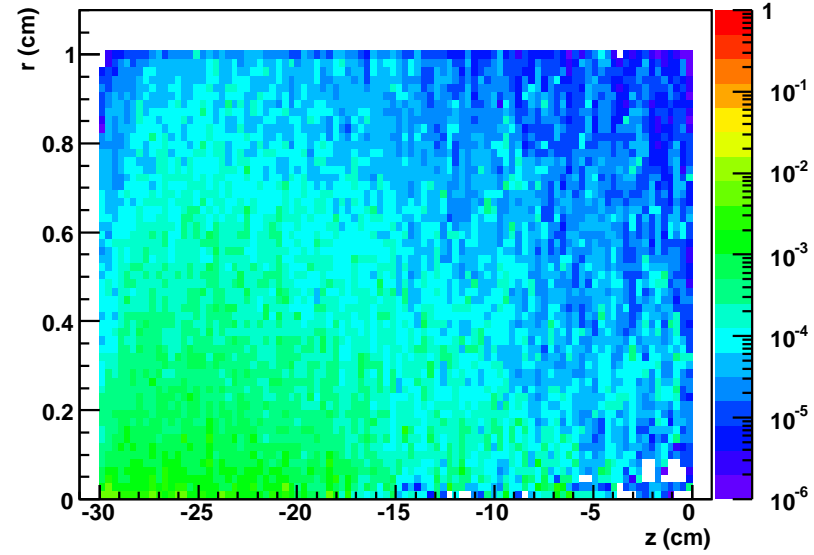
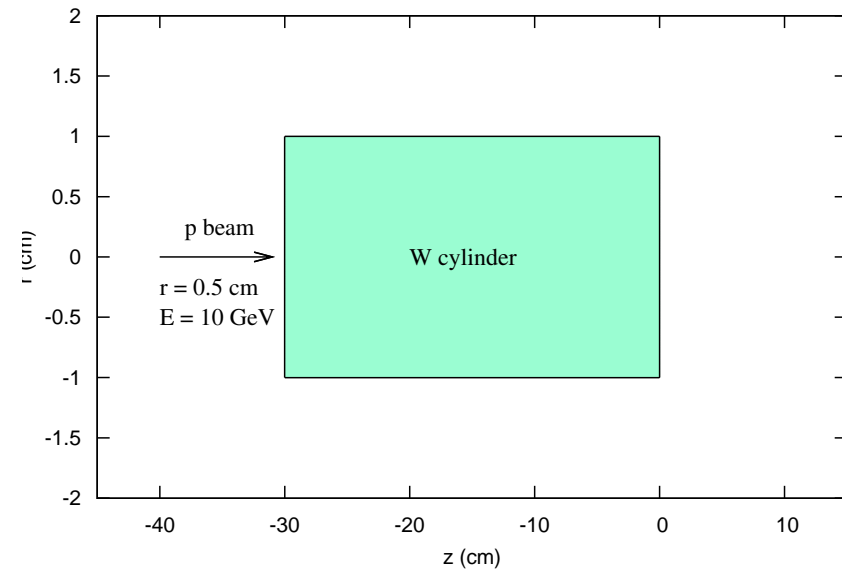
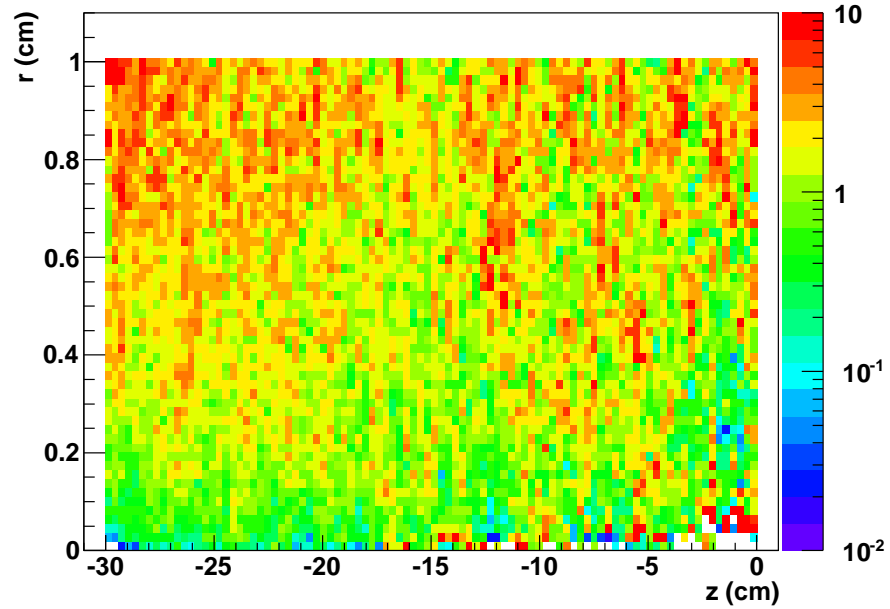
University of Warwick

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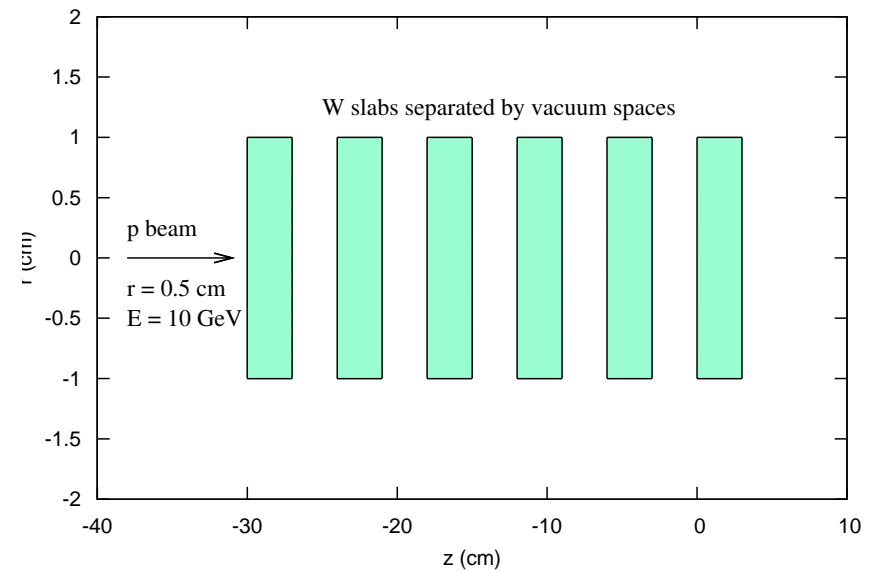
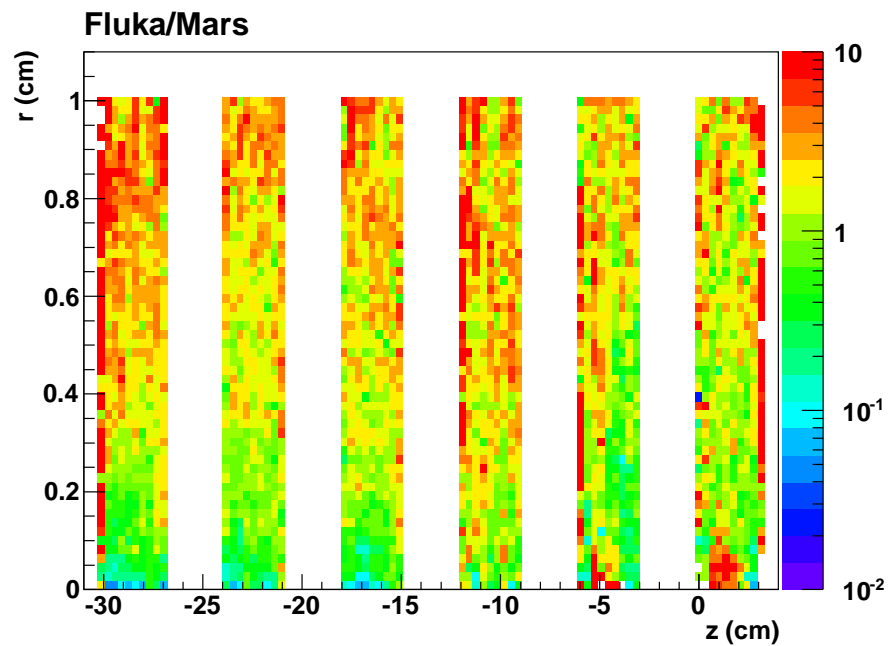
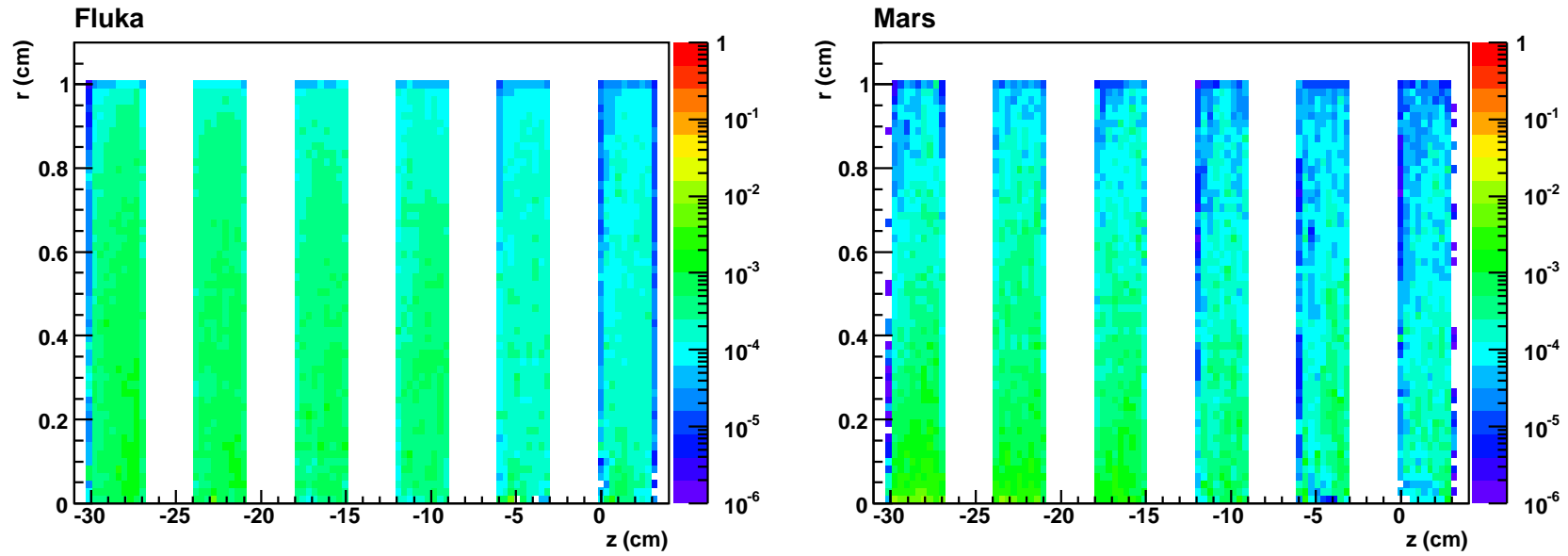
Introduction

- Mars and Fluka energy deposition studies for NuFact target:
 - Similar energy deposition (E_{dep}) in the Hg jet target and shielding
 - However, Fluka gives higher E_{dep} values in the SC coils
- Short study to investigate differences between the two codes:
 - Proton beam: parabolic beam $r = 0.5$ or 1 cm, $E = 10$ GeV
 - Simple tungsten target, no B field, nor complicated geometries
- Fluka/Mars E_{dep} ratio shows Fluka energy showers are more “penetrating”
 - Fluka E_{dep} higher as we move away from the initial proton beam
 - Explains higher E_{dep} values for SC coils in Fluka
- Following plots show normalised energy (per unit mass) deposition & the Fluka/Mars ratio for a few simple case studies

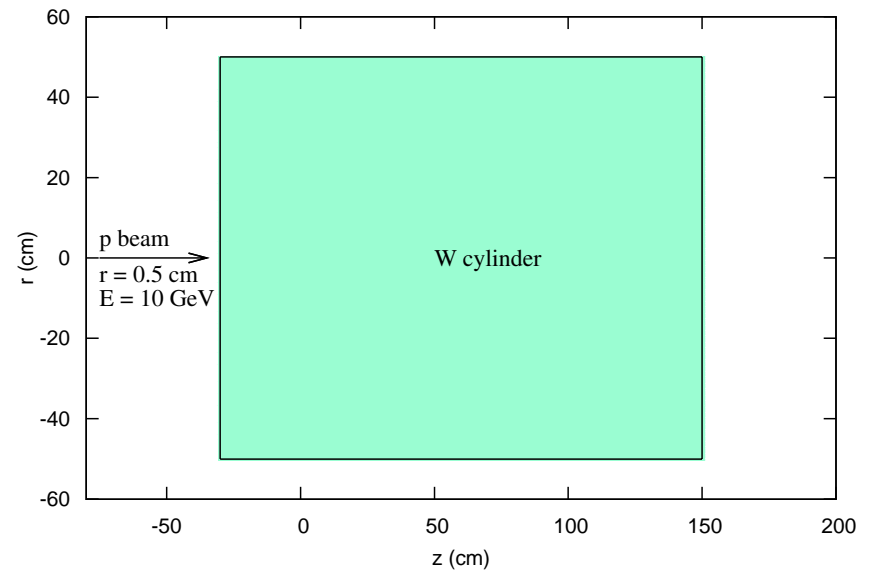
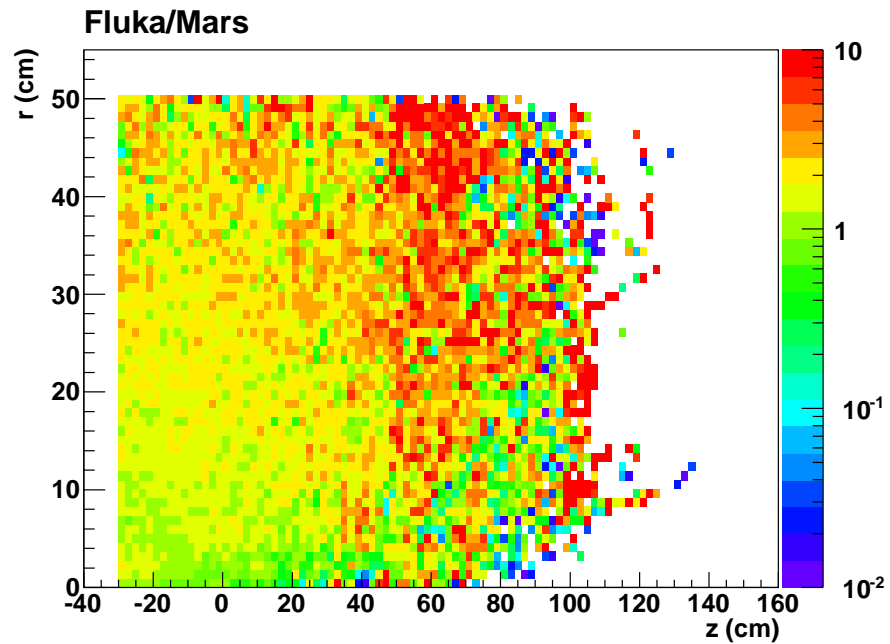
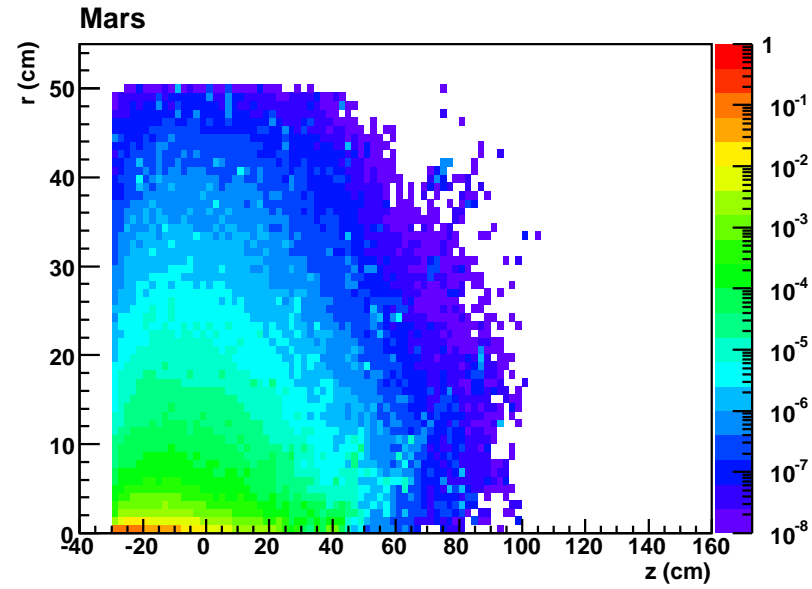
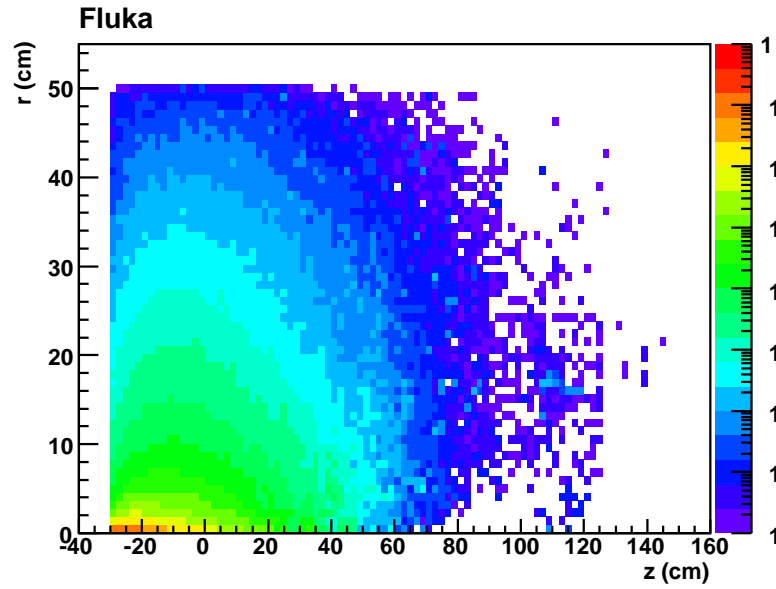
Study Case I

Fluka**Mars****Fluka/Mars**

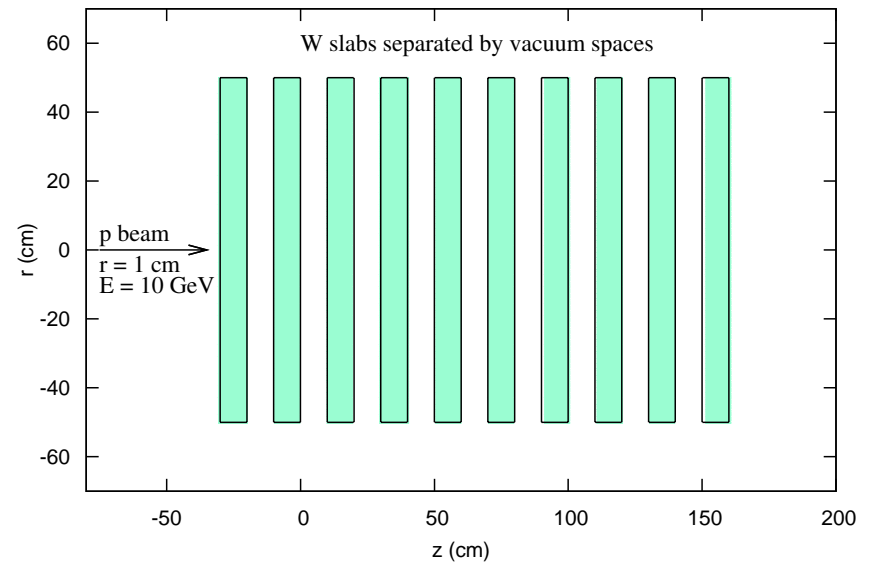
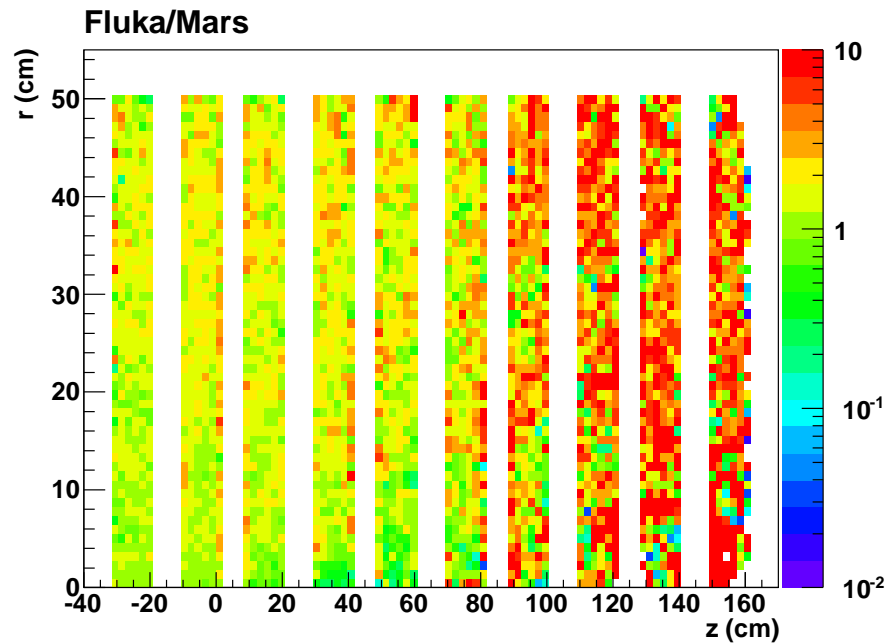
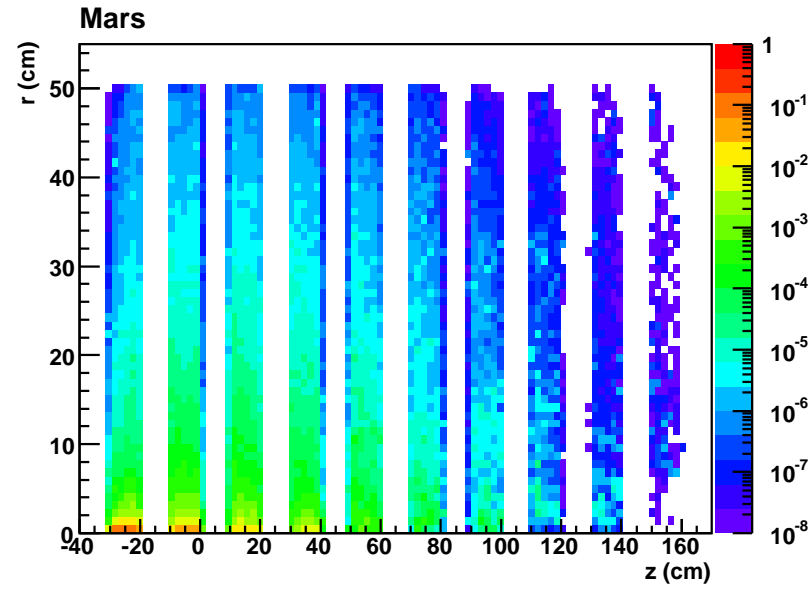
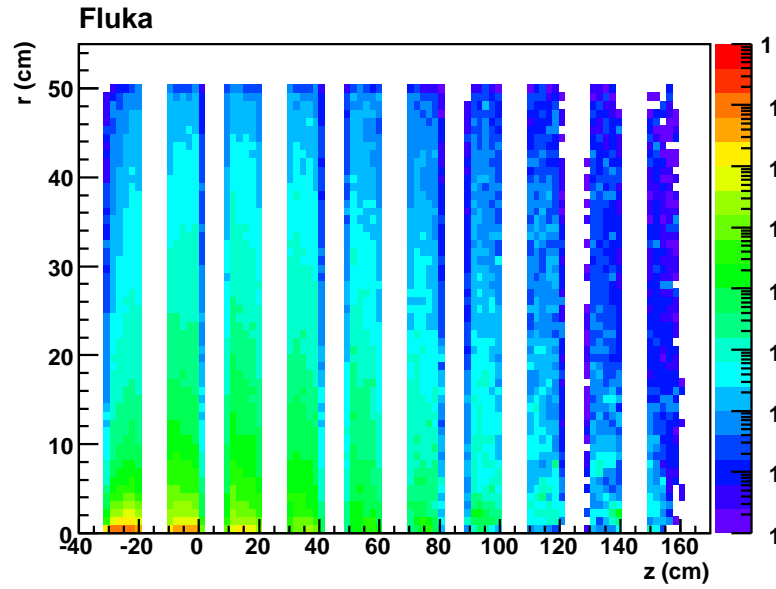
Study Case II



Study Case III



Study Case IV



Study Case V (shield only)

