

Effect of new

Polyethylene shield

E. Nakano(O.C.U.)

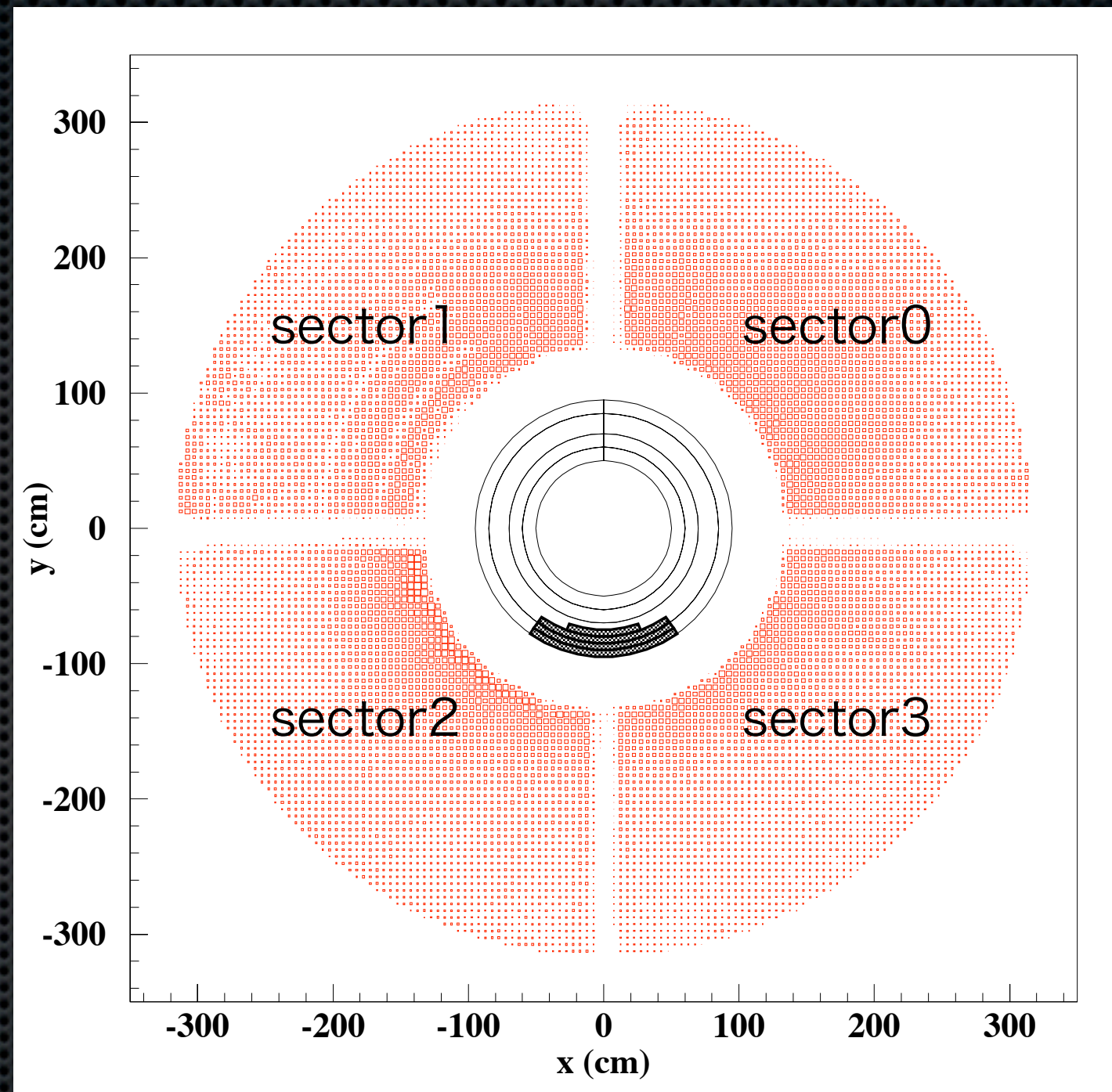
Mar.19, 2009



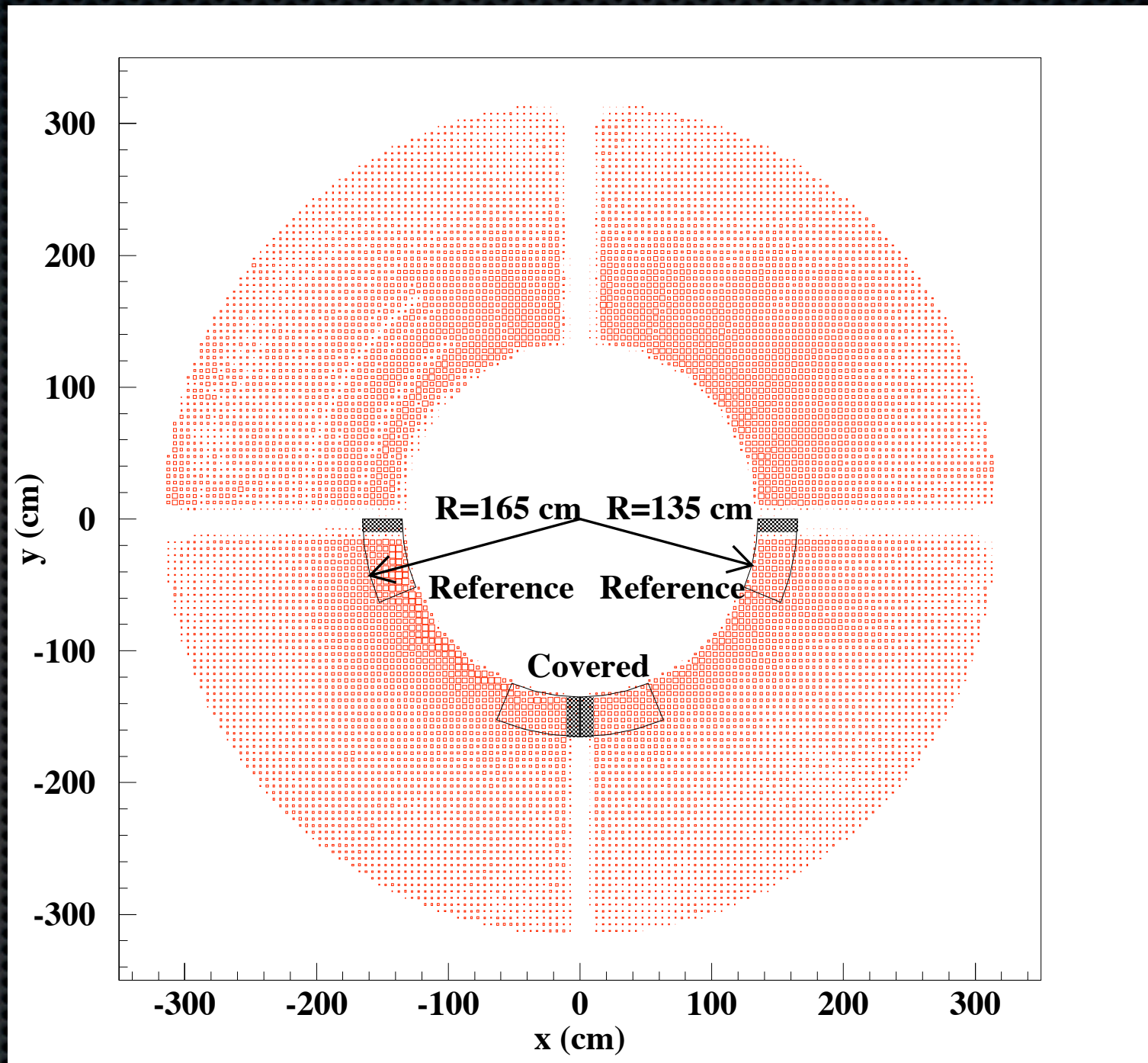
Test blocks

Stack Cd doped blocks forward region
spring, 2008.-> Exp.63, Exp65.

Place of
test blocks
bottom of tapered
region
15~20 cm thick

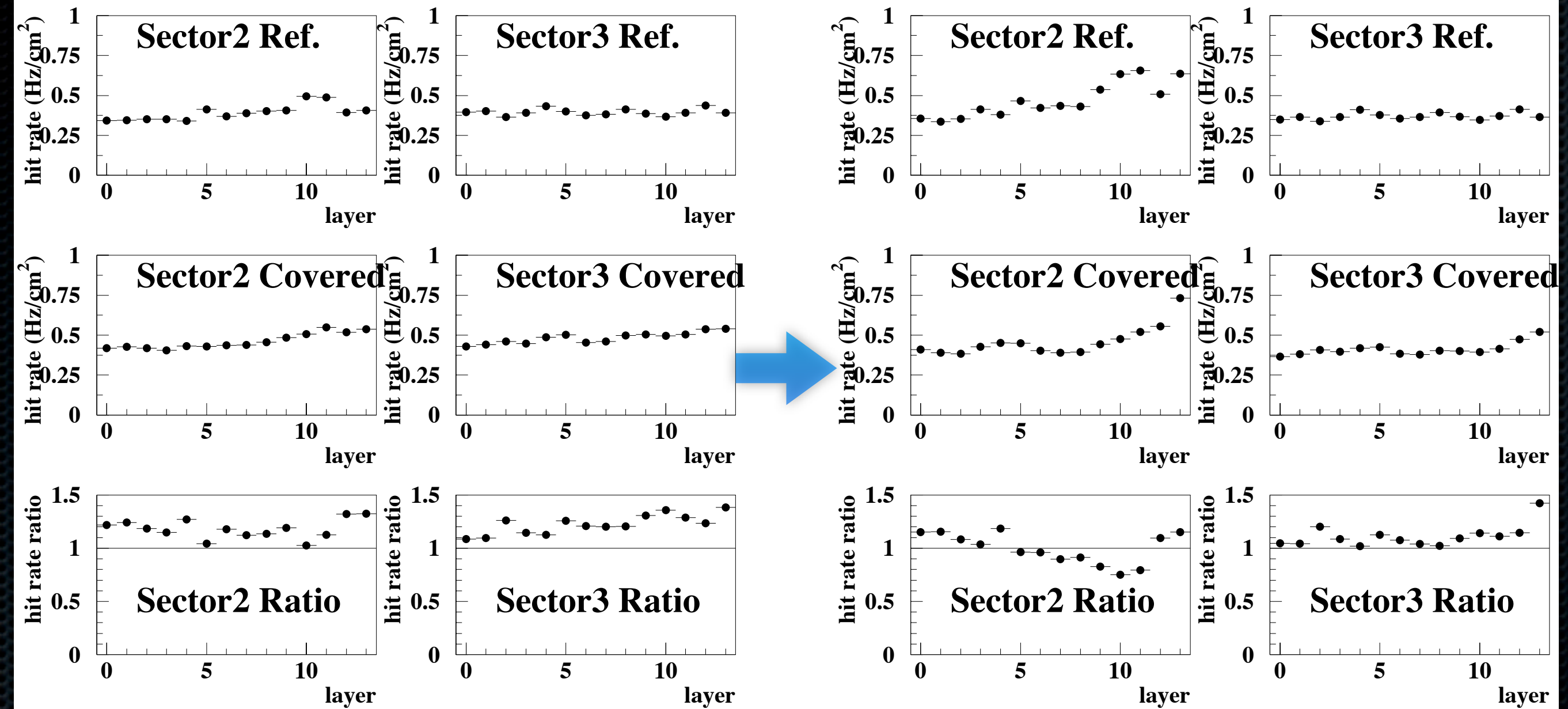


Compare
the rate
within same
sector.
Covered/Ref.



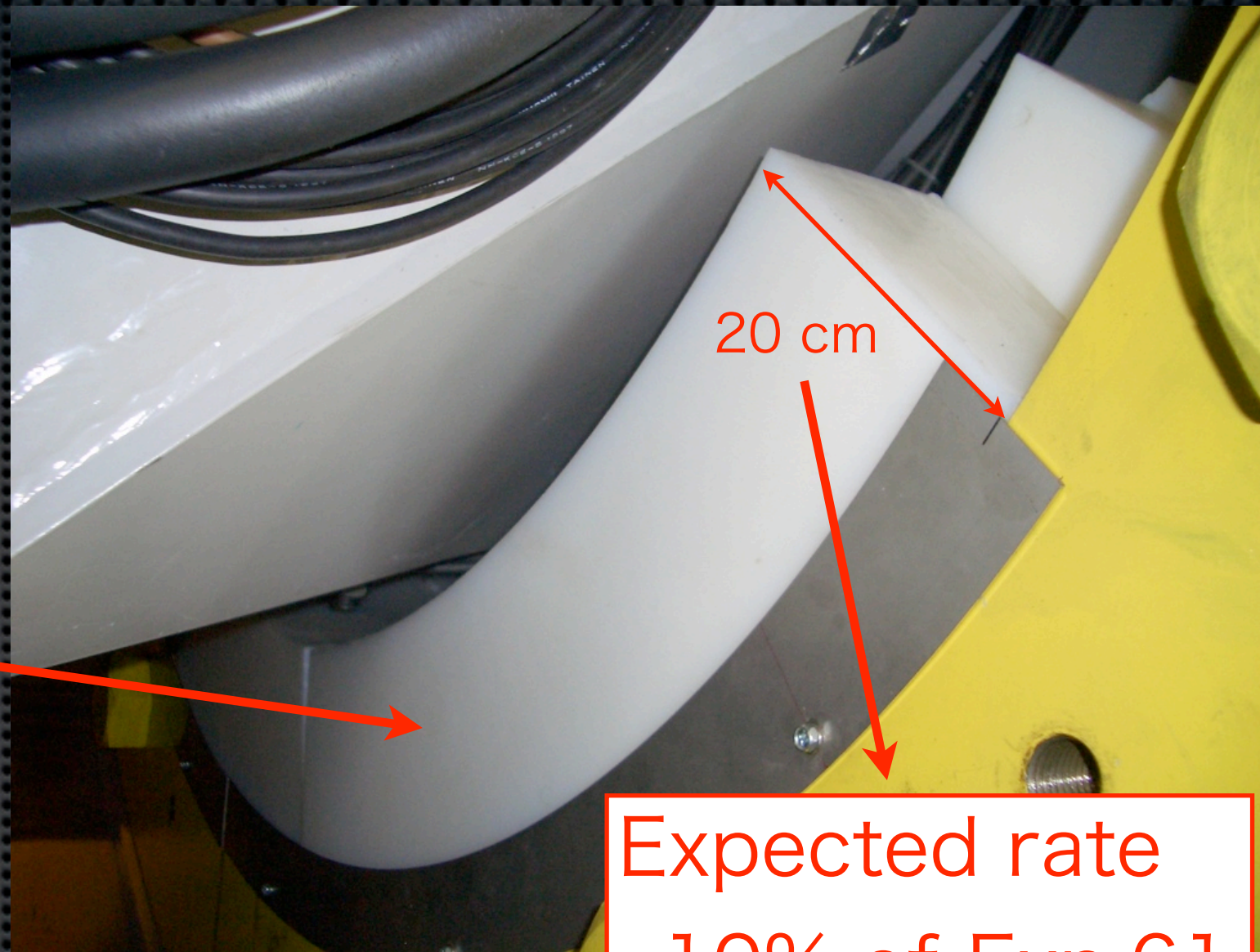
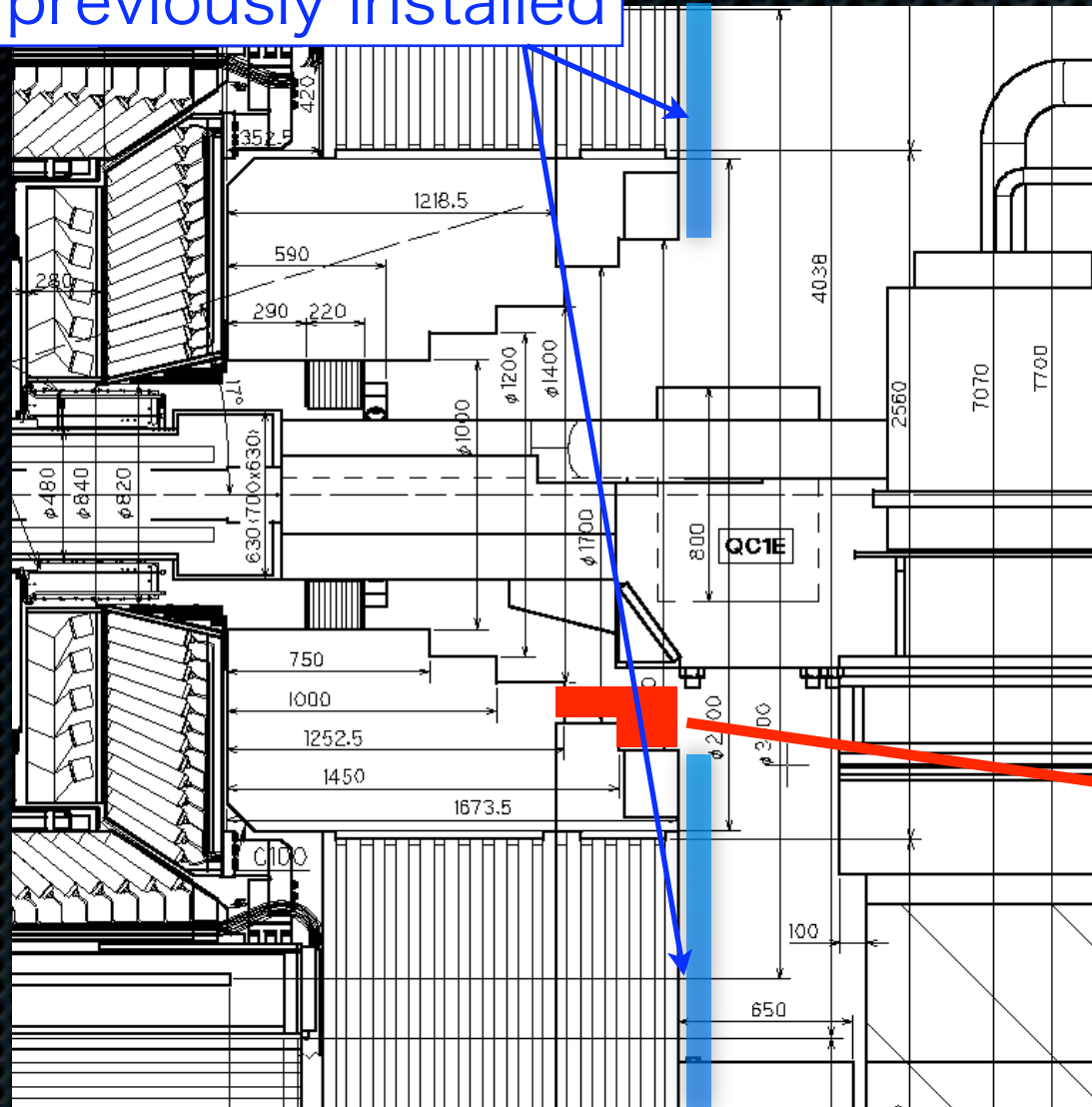
Exp.61

Exp.63



Effect of test blocks
 some effect is seen. But not so clear.
 -> Install new test shield.

polyethylene shield
previously installed

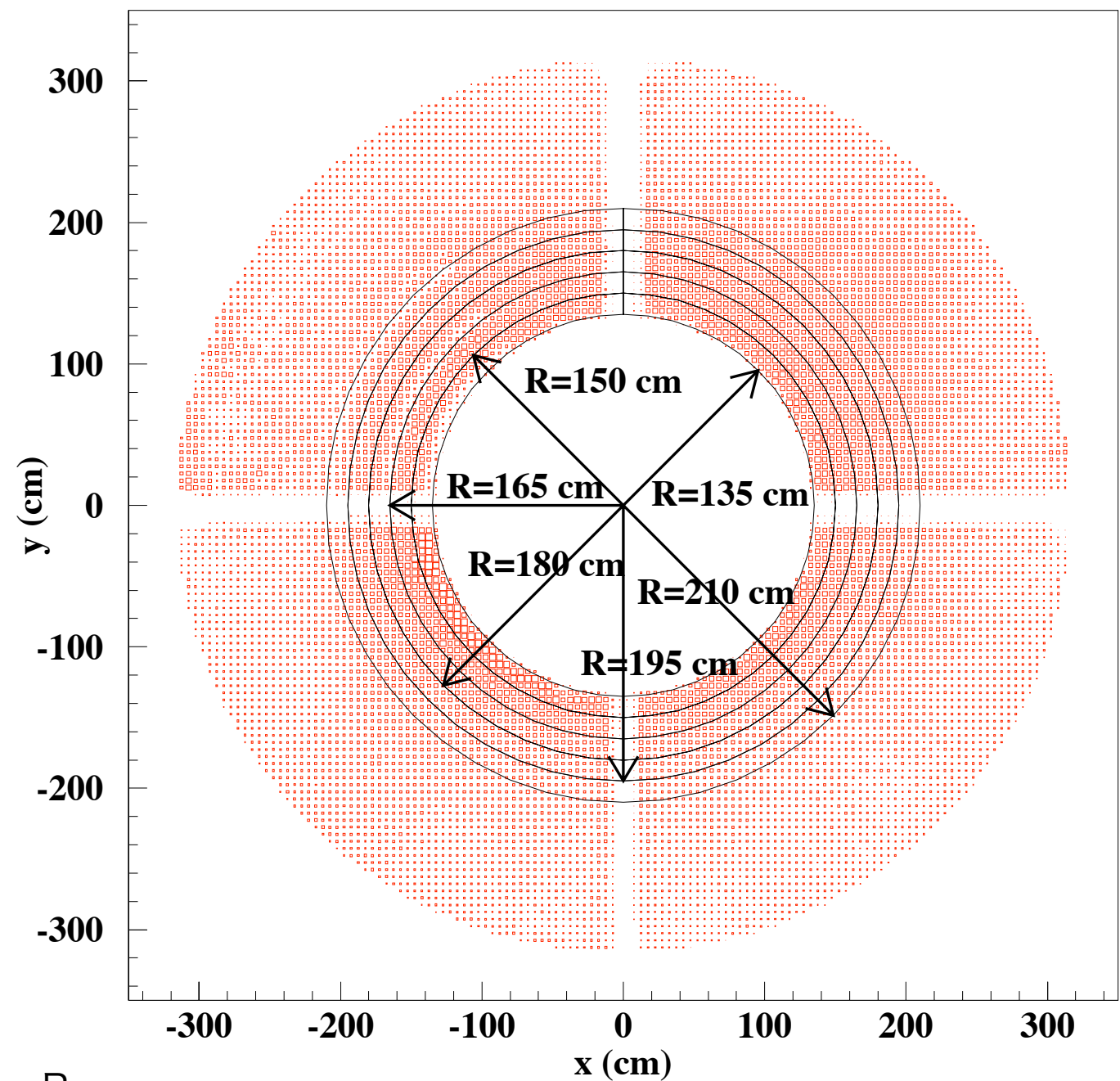


Place of test shield

$\phi = -150^{\circ} \sim -30^{\circ} (= -90^{\circ} \pm 60^{\circ})$

Installed 2008 summer. -> Exp.67

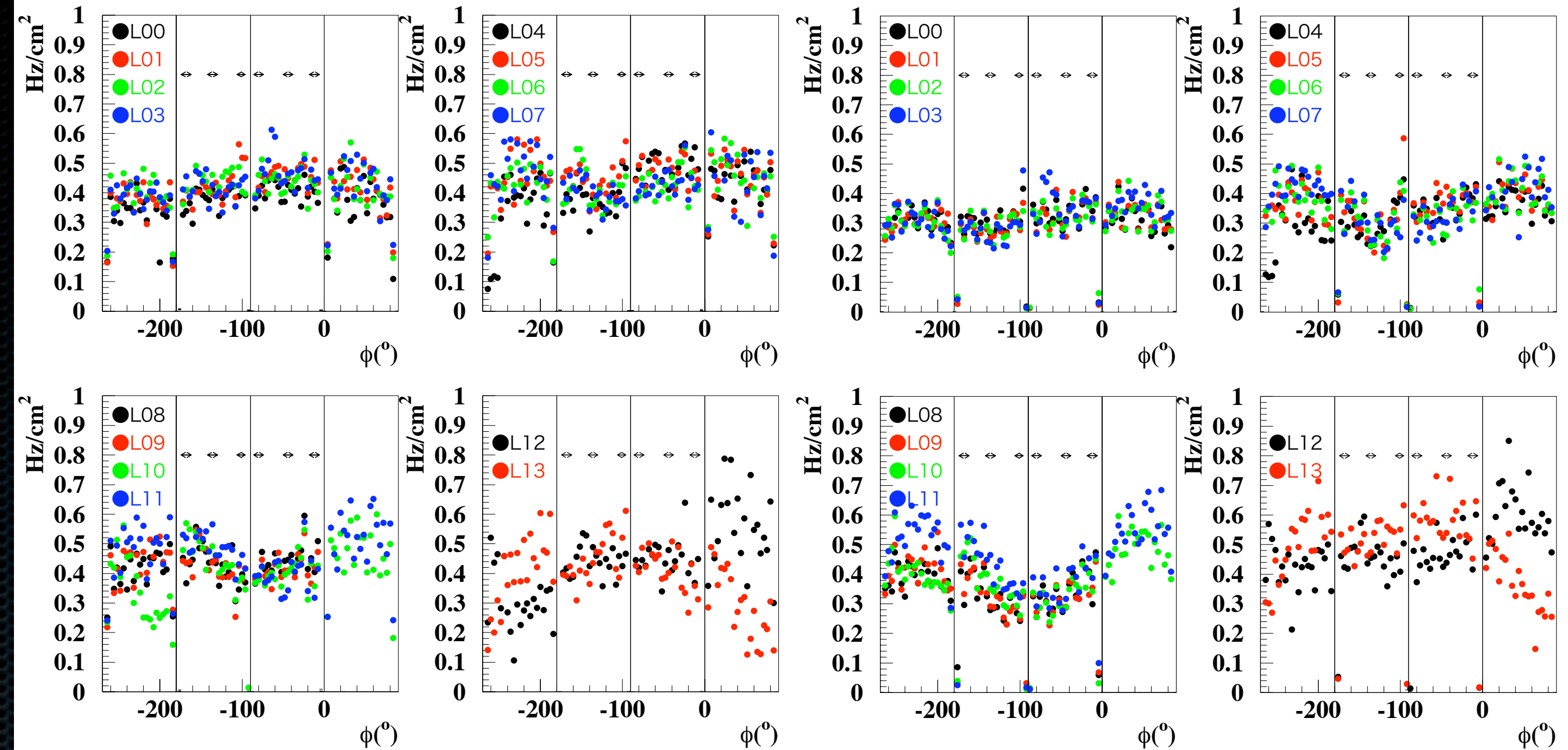
ϕ dep. of
rate
divided into 5
area. \rightarrow hit rate v.s.
 ϕ was checked.



R
135 - 150 cm
150 - 165 cm
165 - 180 cm
180 - 195 cm
195 - 210 cm

R=135-150 cm

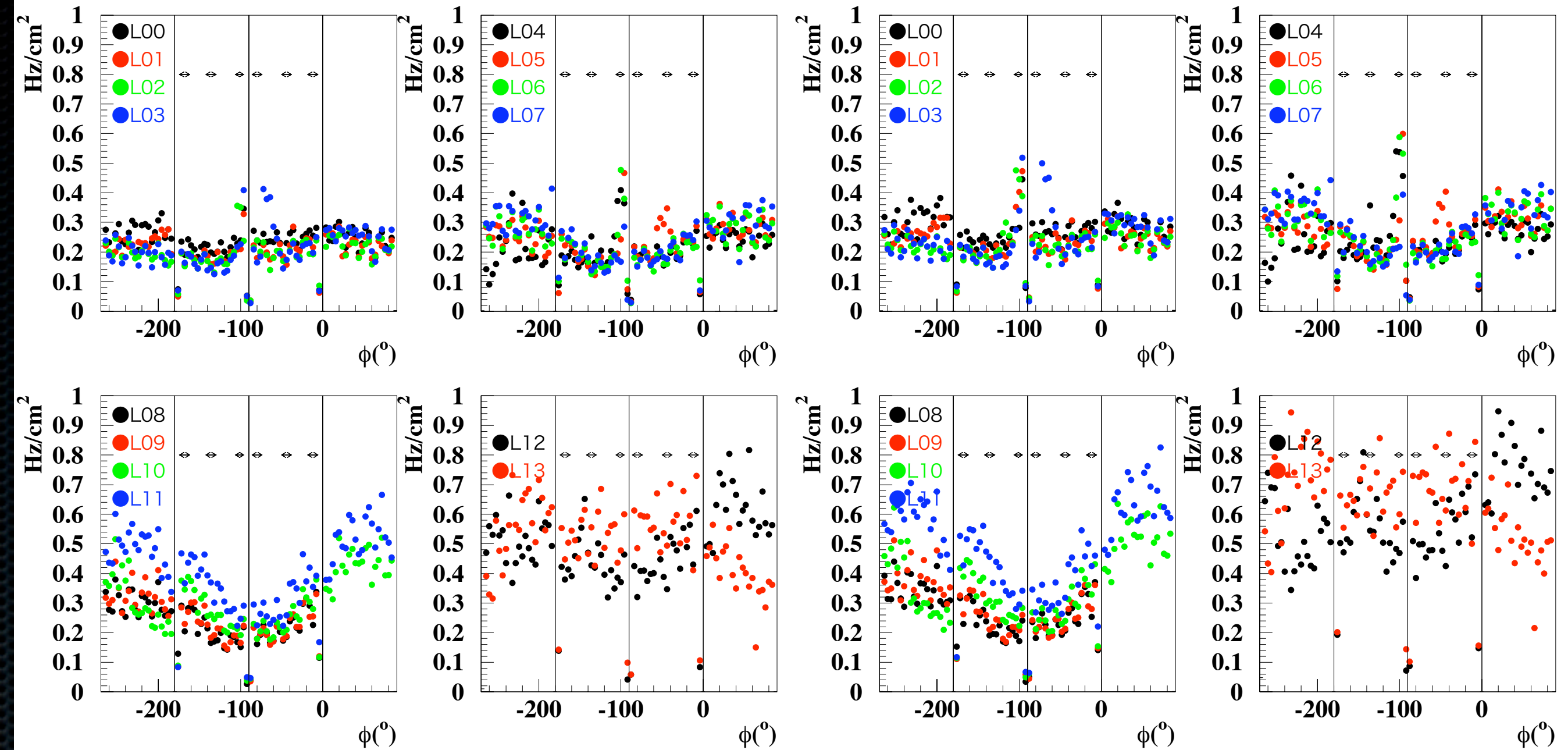
R=150-165 cm



R=135-150, 150-165
point = 4° (Exp.67)

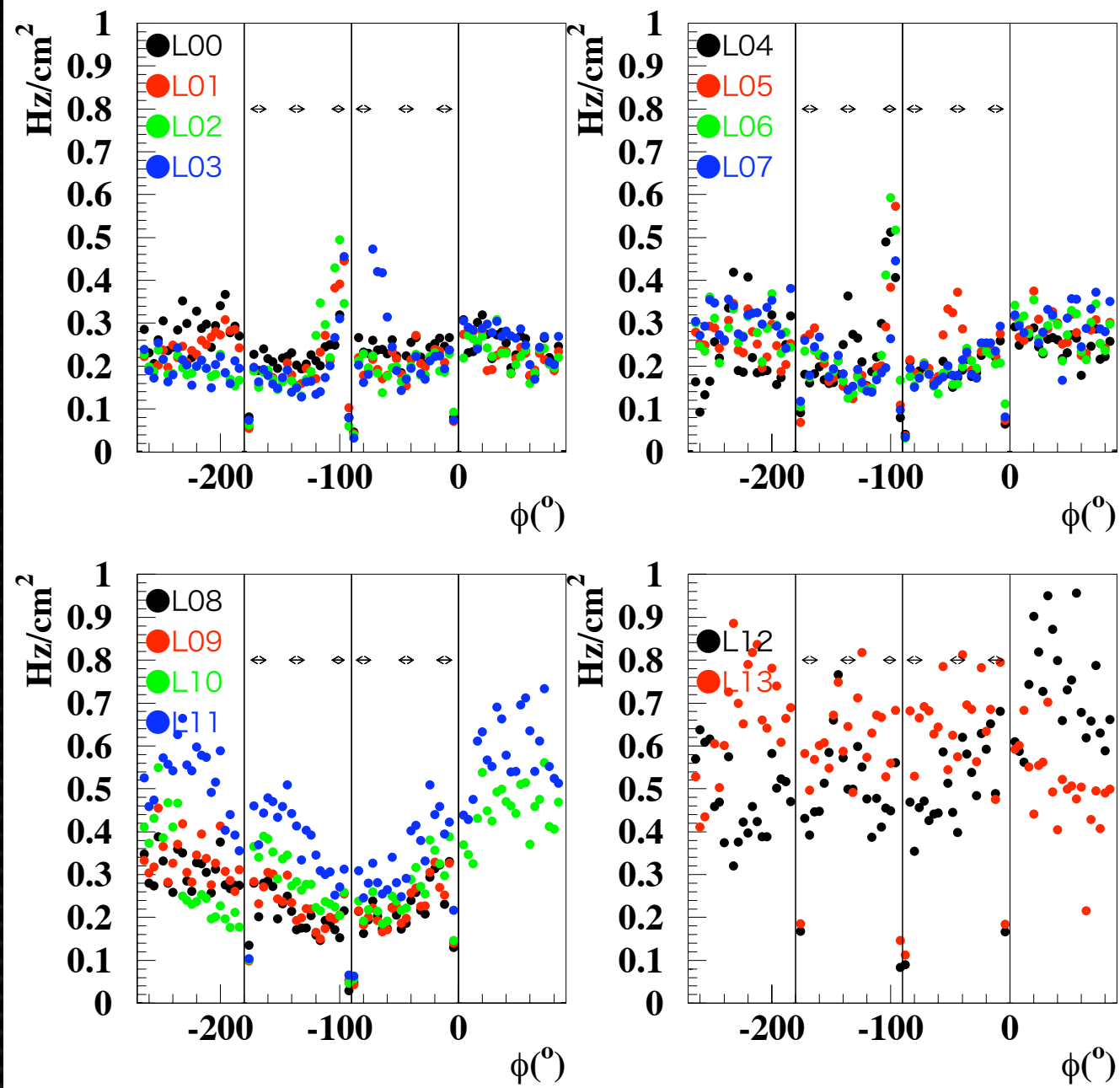
R=165-180 cm

R=180-195 cm



R=165-180, 180-195
point = 4° (Exp.67)

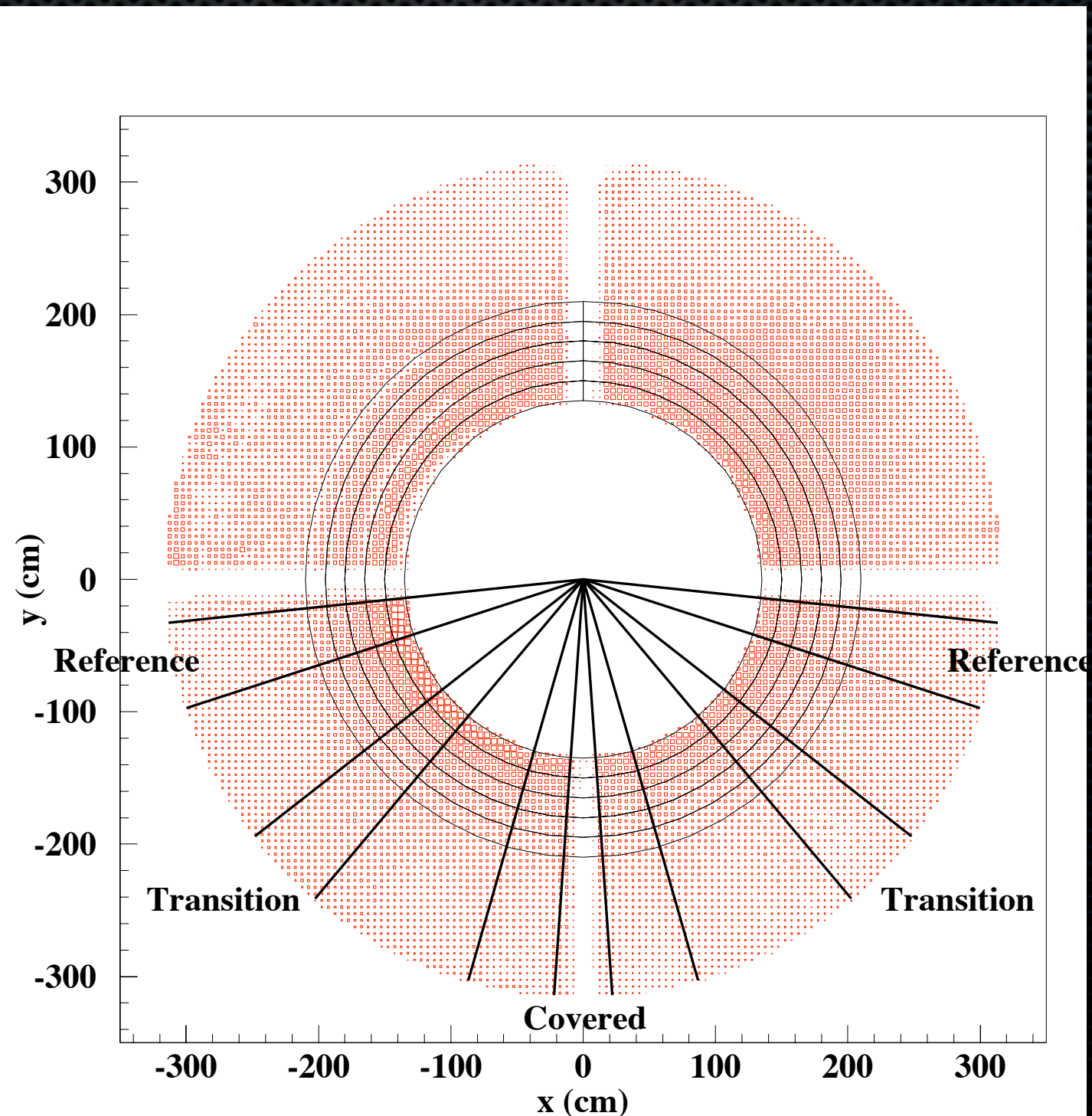
R=195-210 cm



R=195-210
point = 4° (Exp.67)

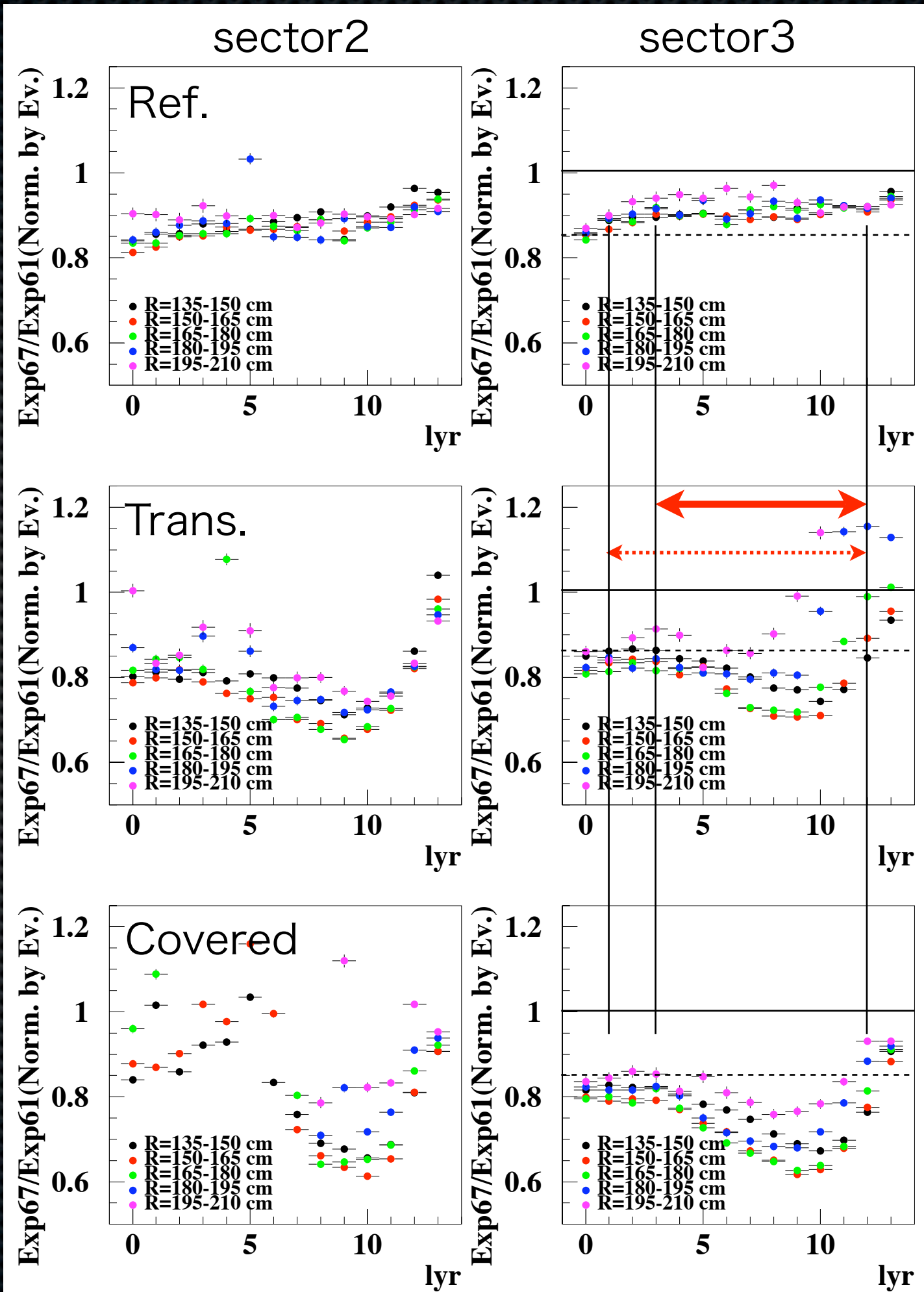
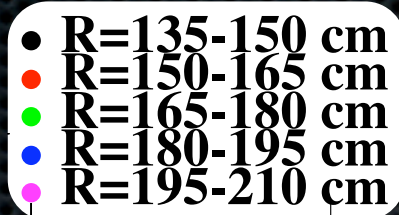
Check layer dependence

- Effect is confirmed
- How much reduced?
- Where is source?
- Compare hit rate with Exp.61 (before installation). 3 places x 5 R ranges



Exp.67

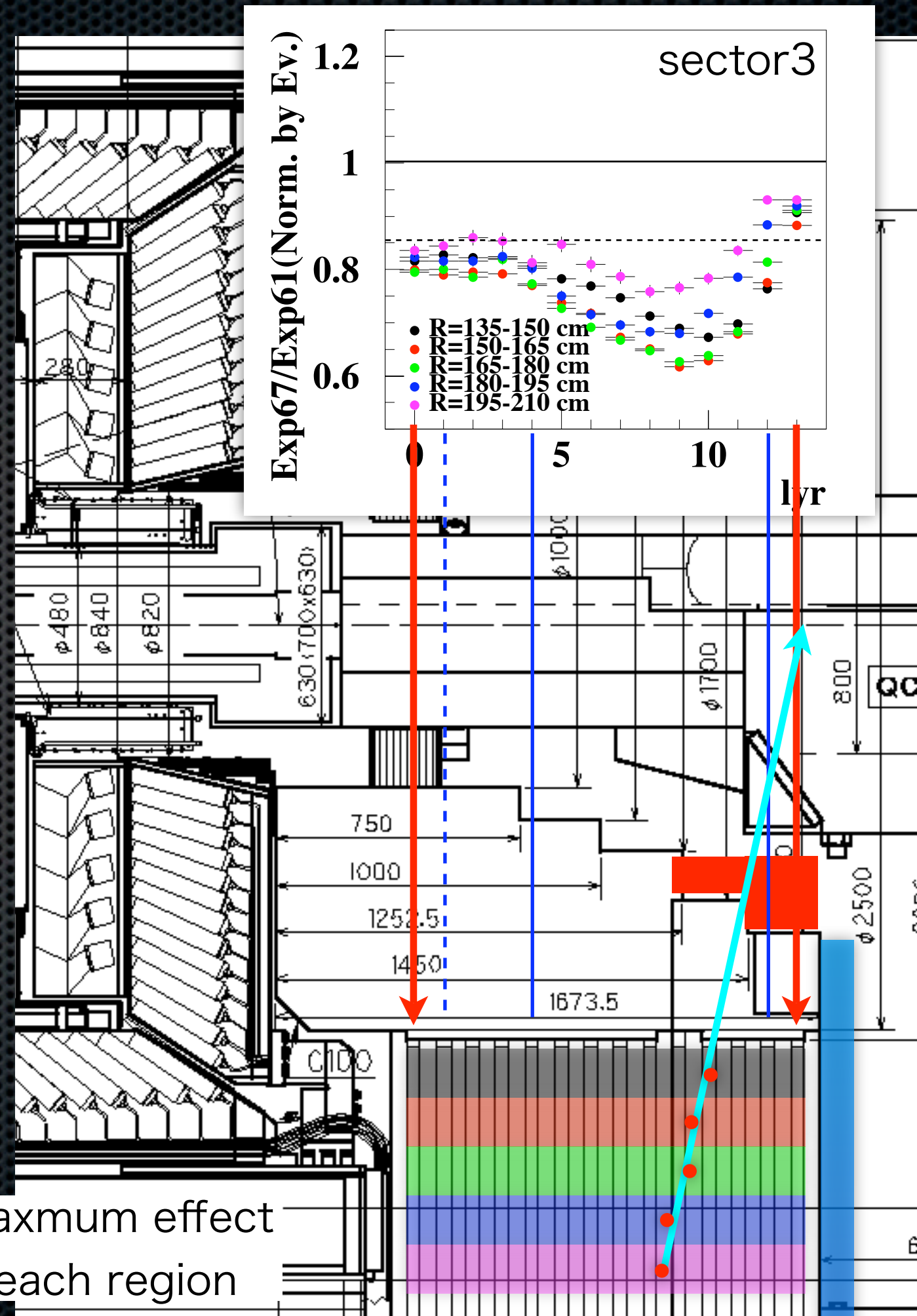
- ~90% of Exp.61.
- Clear effect is seen btw lyr4-12.
- Large effect btw 150-180 cm



Exp.67

- clear effect ~ outer layers (except L13)
- inner layer : smaller effect
- rough estimation of neutron source : close to Belle(S3)

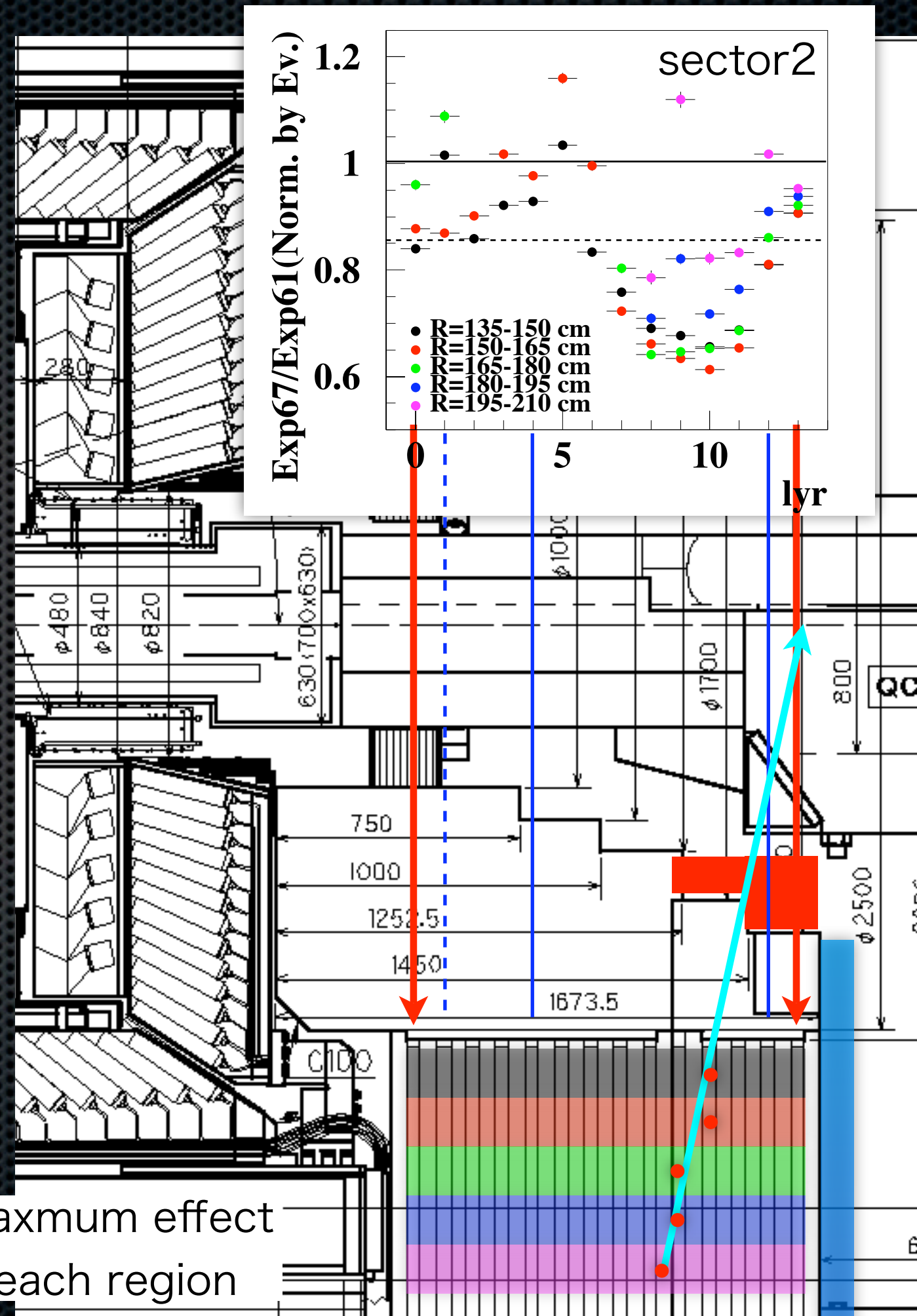
● maximum effect in each region

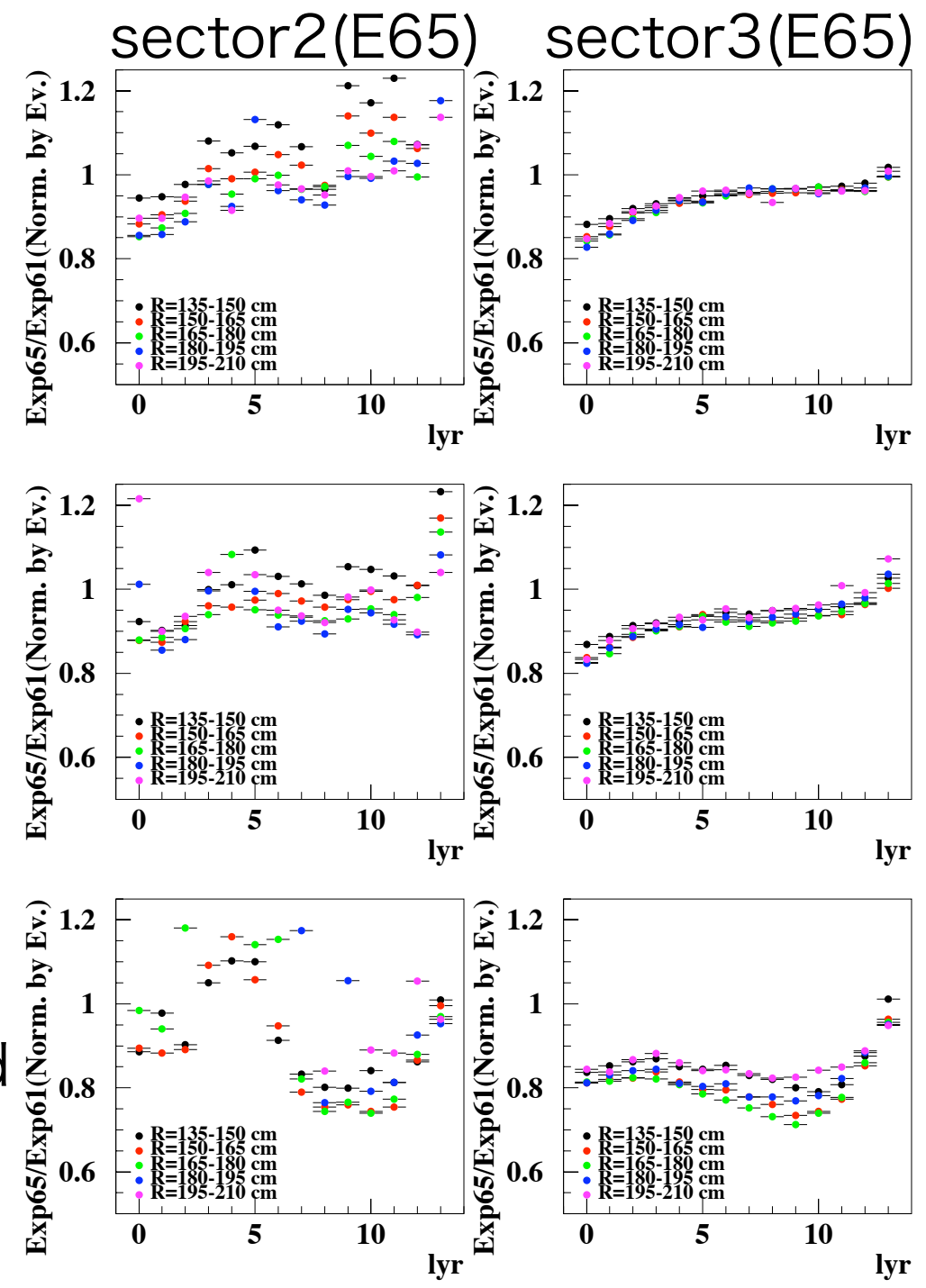
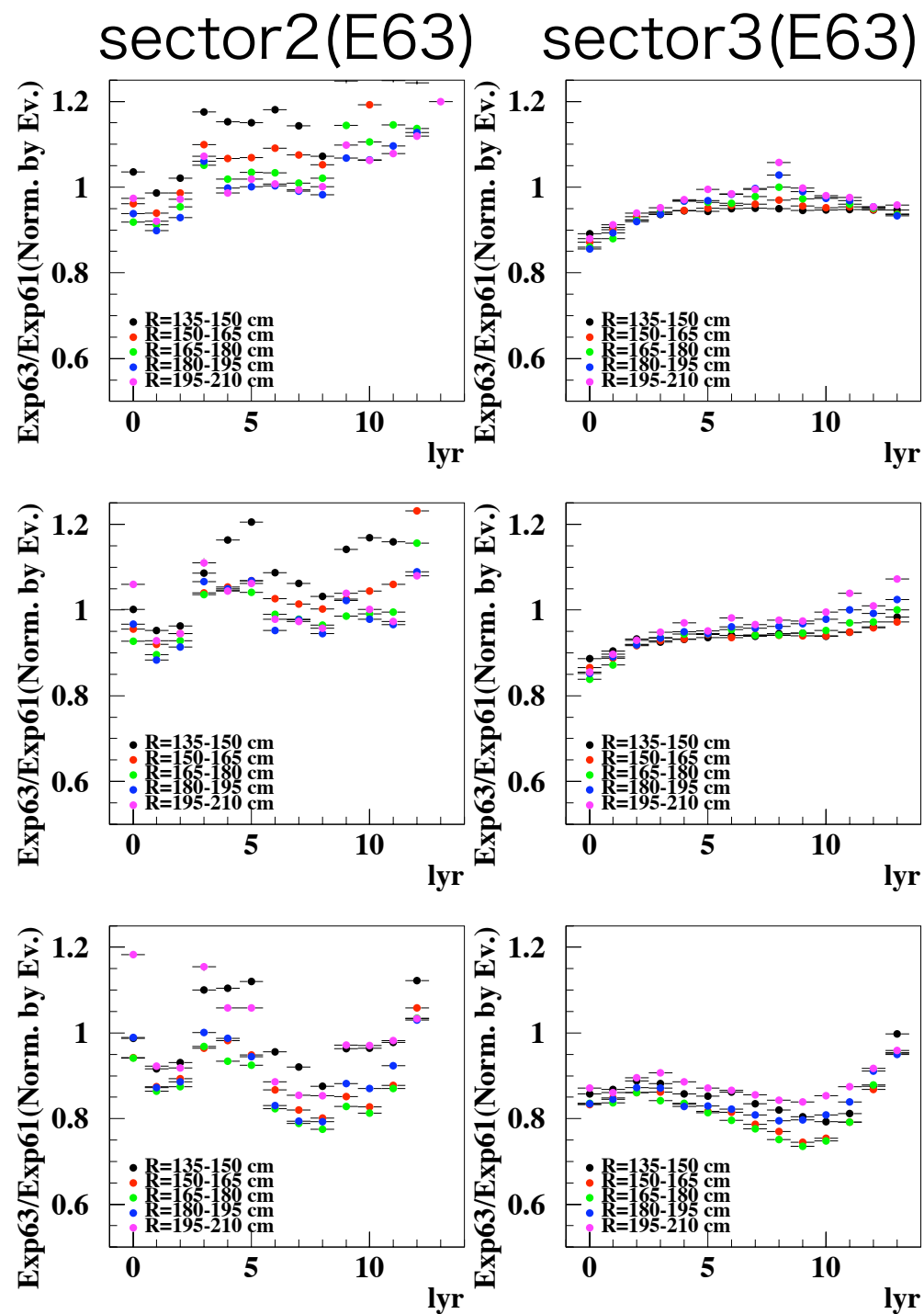


Exp.67

- Same tendency is seen in S2
- rough estimation of neutron source : close to Belle

● maximum effect in each region





Exp.63,65

Trans. region was not covered -> no effect.

Effect of new shield is confirmed

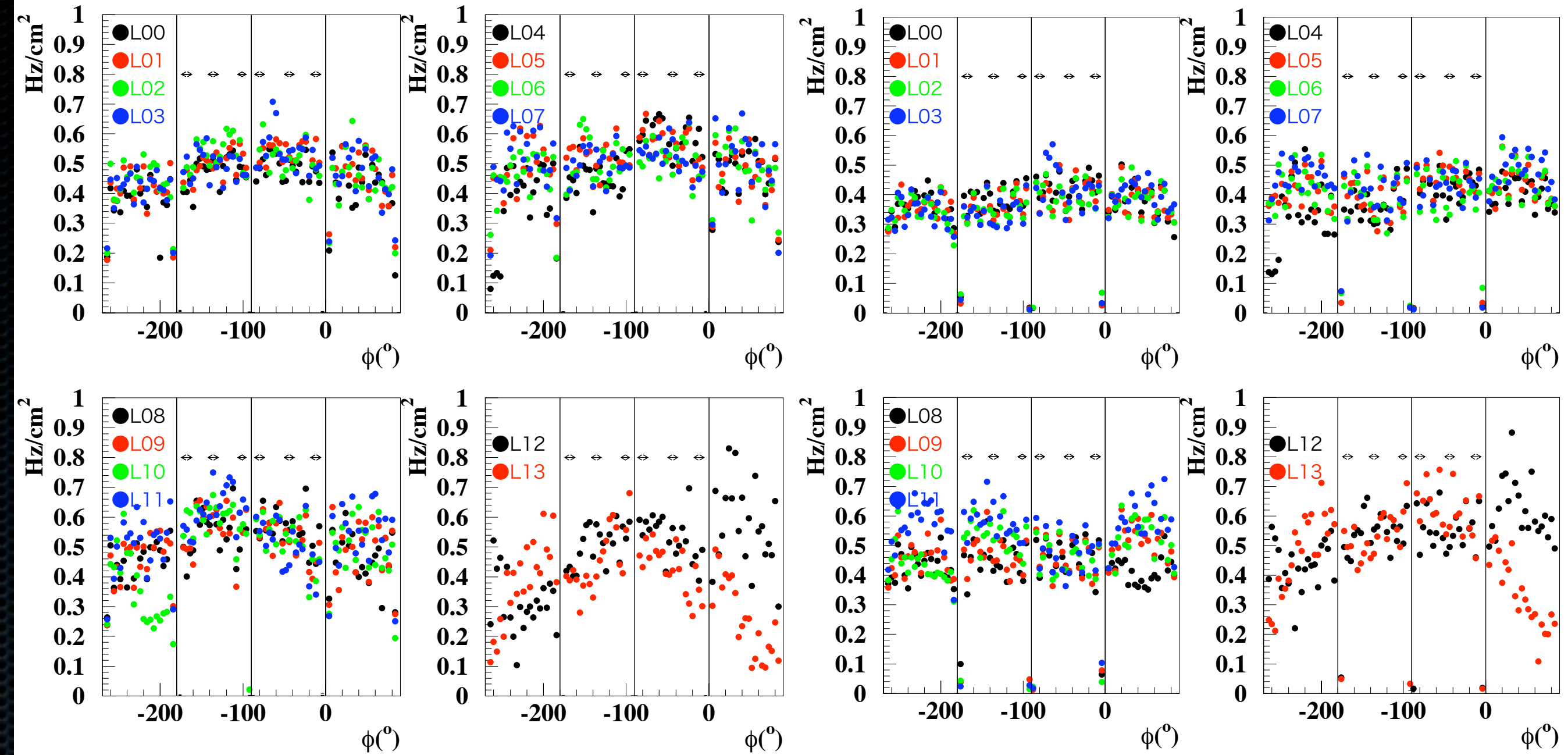
Conclusion

- effect of new shield is clear
- $t=20$ cm : hit rate should be 10% of Exp.61
- observed reduction is 70~80%
 - efficiency is recovered by lower rate?
 - check eff. x rate is same? (saturated?)
- neutron source is close to Belle

Backup

R=135-150 cm

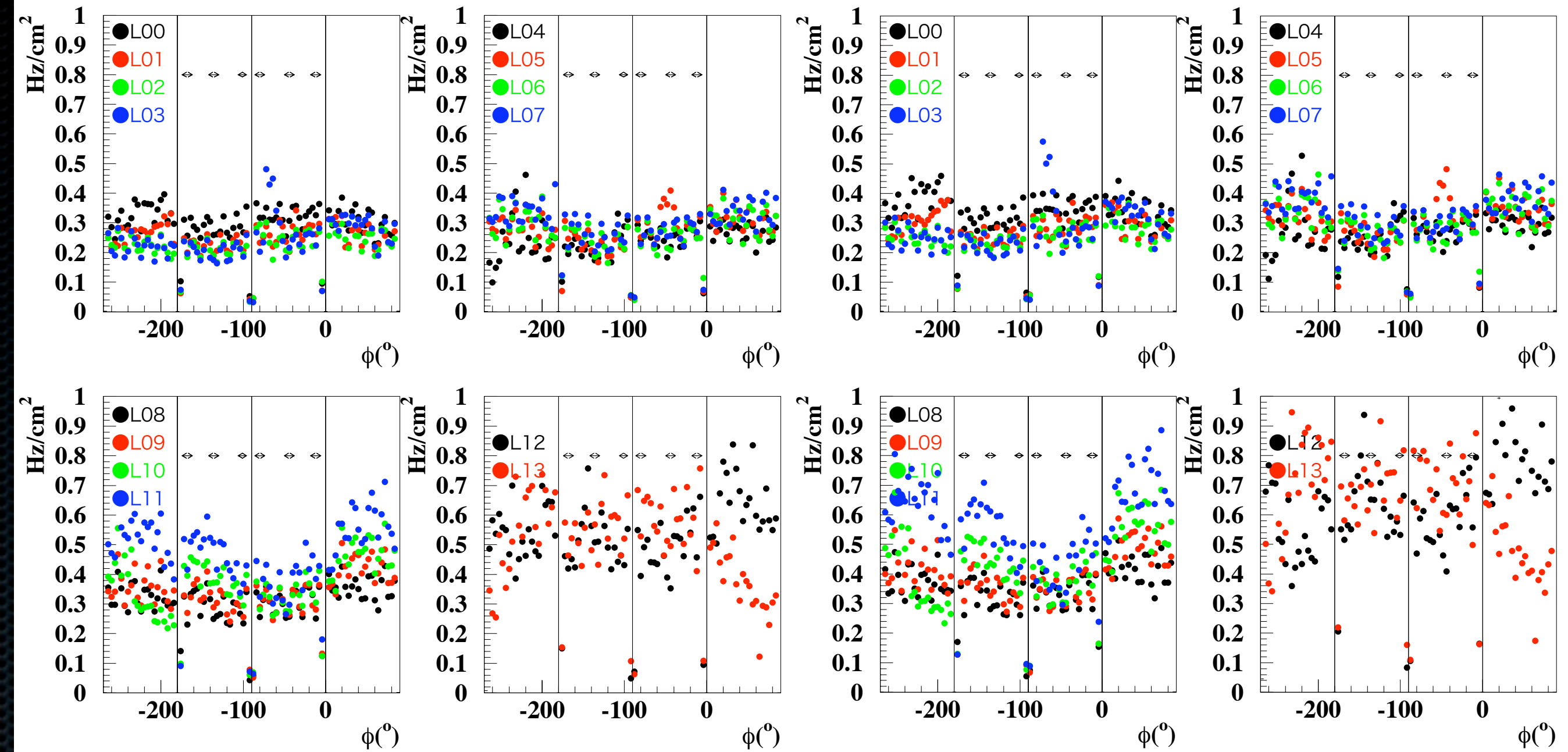
R=150-165 cm



R=135-150, 150-165
point = 4° (Exp.61)

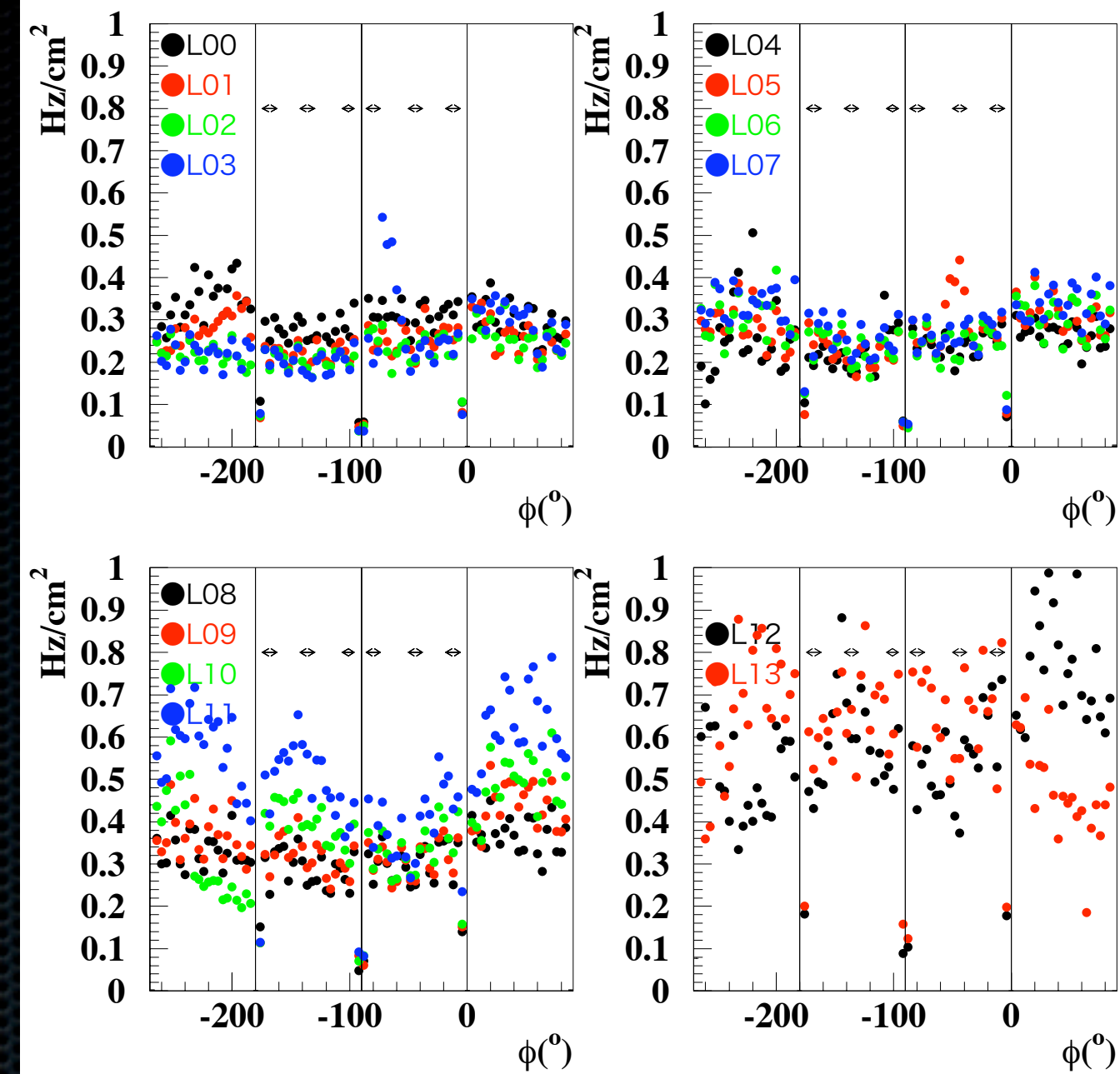
R=165-180 cm

R=180-195 cm



R=165-180, 180-195
point = 4° (Exp.61)

R=195-210 cm



R=195-210
point = 4° (Exp.61)