



Bundesamt für Strahlenschutz

Probabilistic assessment of the effect of sheltering and evacuation on the exposure of the population

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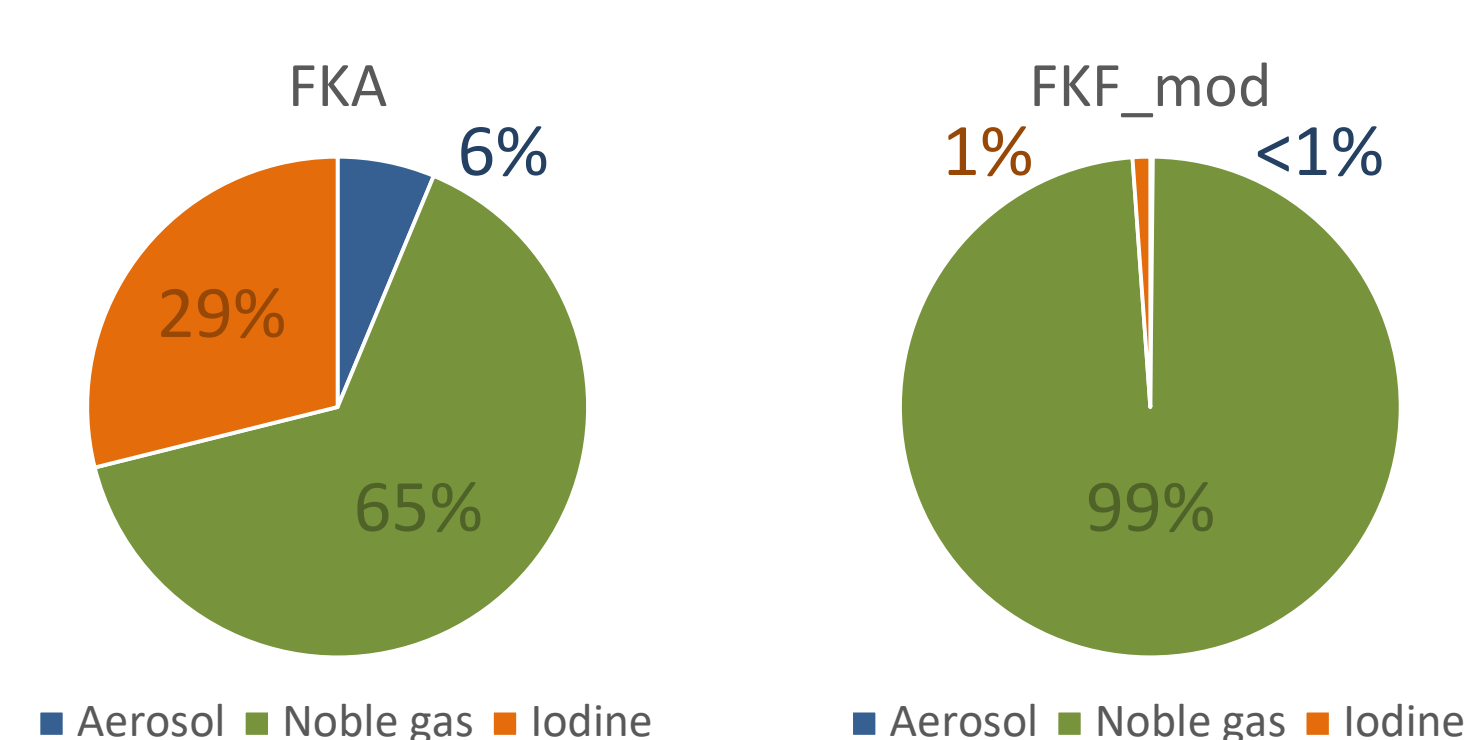
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Motivation

The dose saving is the main characteristic during emergency planning from the radio-logical point of view. The aim of this study is to investigate whether sheltering or evacuation is consistently better for reducing radiation doses. Still, decision-makers would need to balance this benefit against other factors, such as societal impact, economic cost and other hazards.

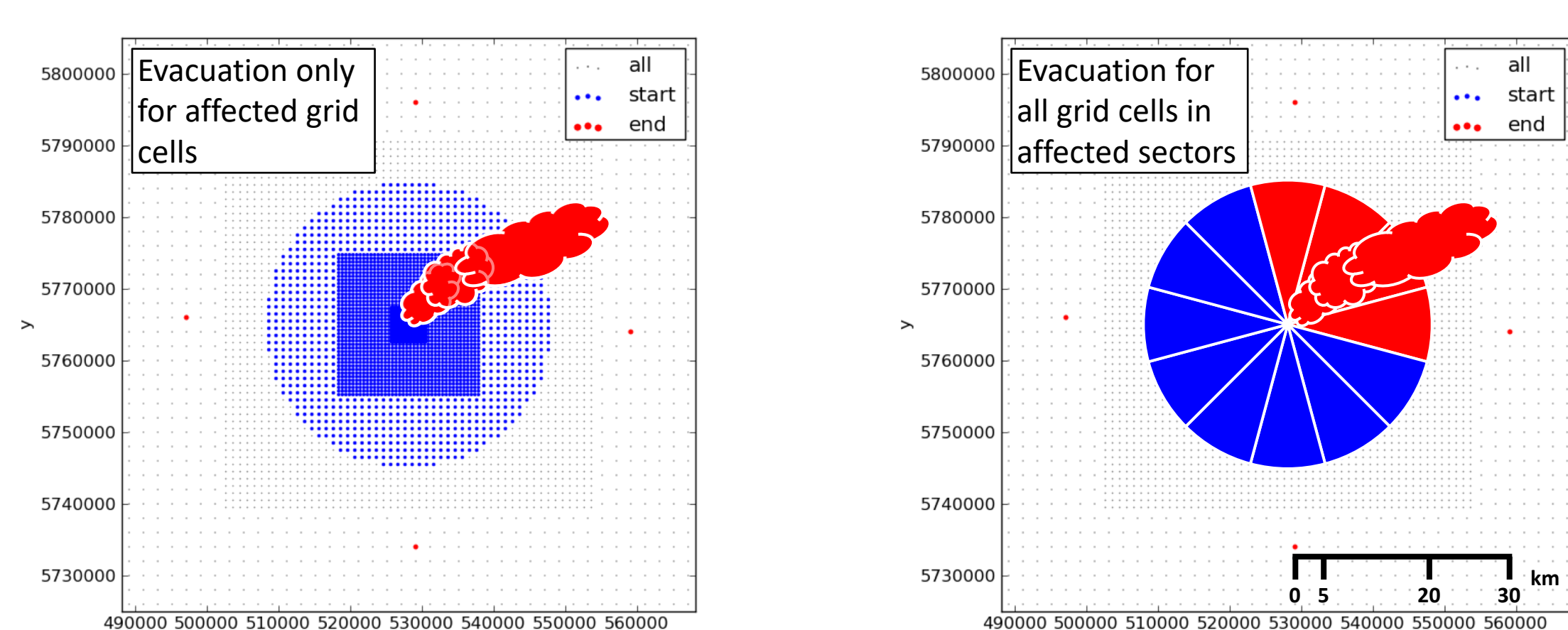
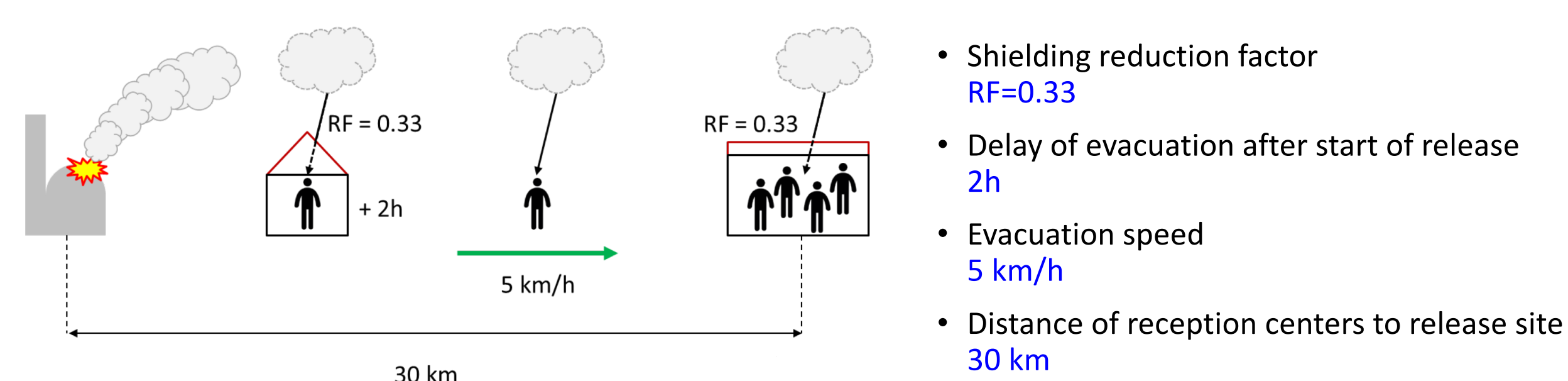
Method

- RODOS System (365 days of met. data)
- 6 source terms



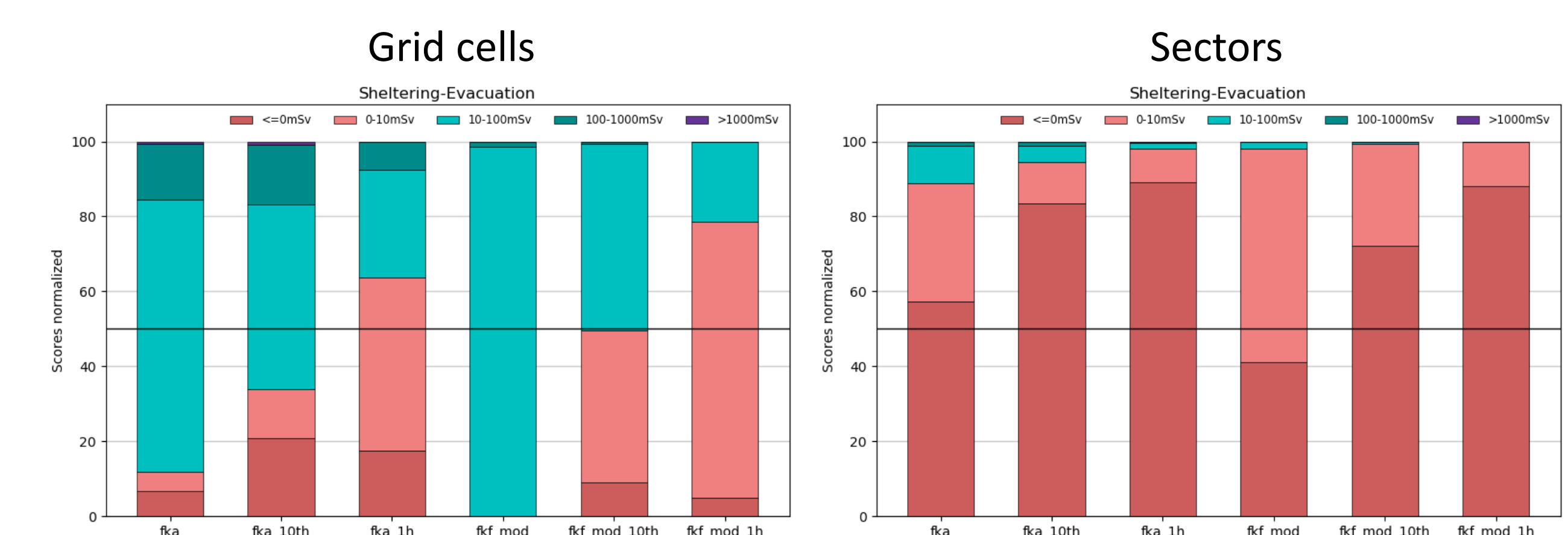
Source term	Release time
FKA	50 h
FKA_10th	5 h
FKA_1h	1 h
FKF_mod	41 h
FKF_mod_10th	4.1 h
FKF_mod_1h	1 h

- Dose calculation for evacuation

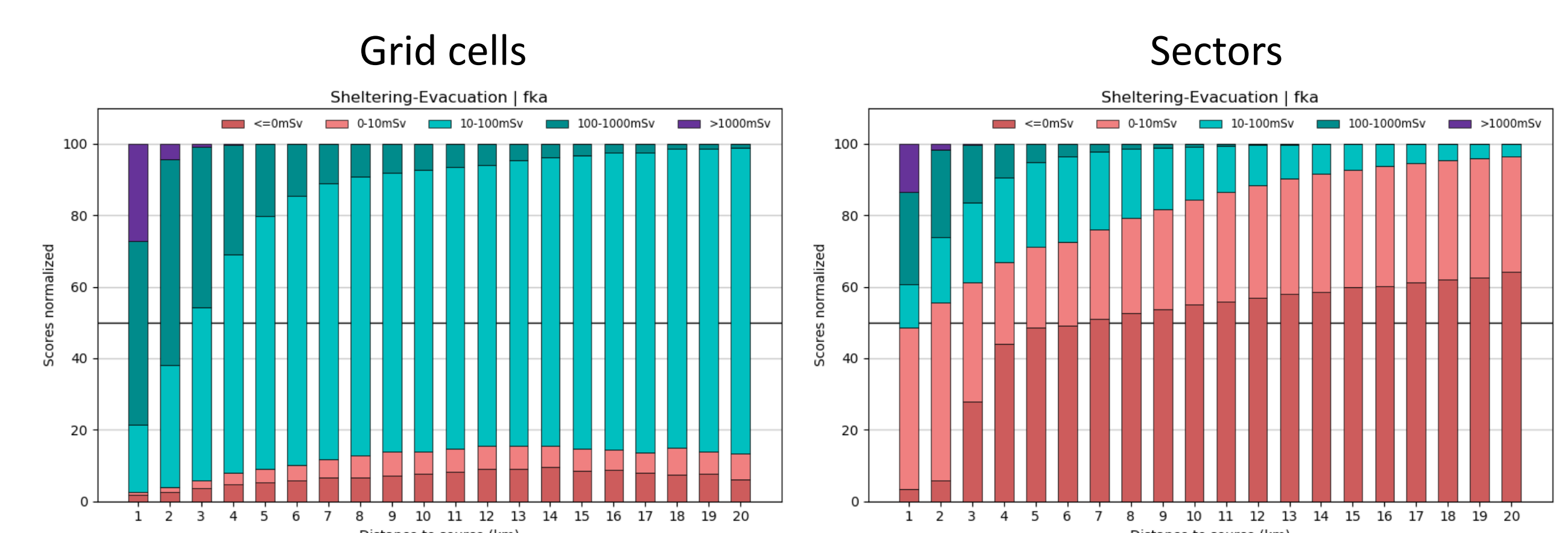


Results (dose when sheltering minus dose when evacuating)

- Comparison of source terms



- Dependence on distance to release site



Conclusions

The comparison of sheltering versus evacuation, and the question which one of the two countermeasures is preferable, largely depends on the selected source term, duration of the release, distance to the release site, and if individual samples are considered for a countermeasure or a whole collective within an affected section. For example, the probabilistic analysis showed that evacuation has a larger benefit for long releases and samples close to the release site and vice versa for sheltering.