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# Geoneutrino flux integration without underestimation of errors

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Following two talks on construction of stochastic crustal model, one by Takeuchi et al. focusing on Bayesian inference of lithology model and one by Ueki / Iizuka et al. focusing on bias-free composition model, we will discuss geoneutrino flux calculation using those models. As commonly done, Monte-Carlo integration was performed here, but we found that proper correlation modeling is necessary on this, which seems not commonly being done, presumably because the problem has not been widely noticed. We show that neglecting correlations, or neglecting crustal inhomogeneity for similar effects, will result in too small errors than deducible from inputs. To complete our calculation, we conservatively assumed maximum correlation, but the resultant flux prediction has too large errors to be usable. We also briefly discuss our on-going effort, as well as its prospects, to model the correlations in order to reduce the final uncertainty to a level comparable to observation errors.

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