Test Sobol with correlation structure

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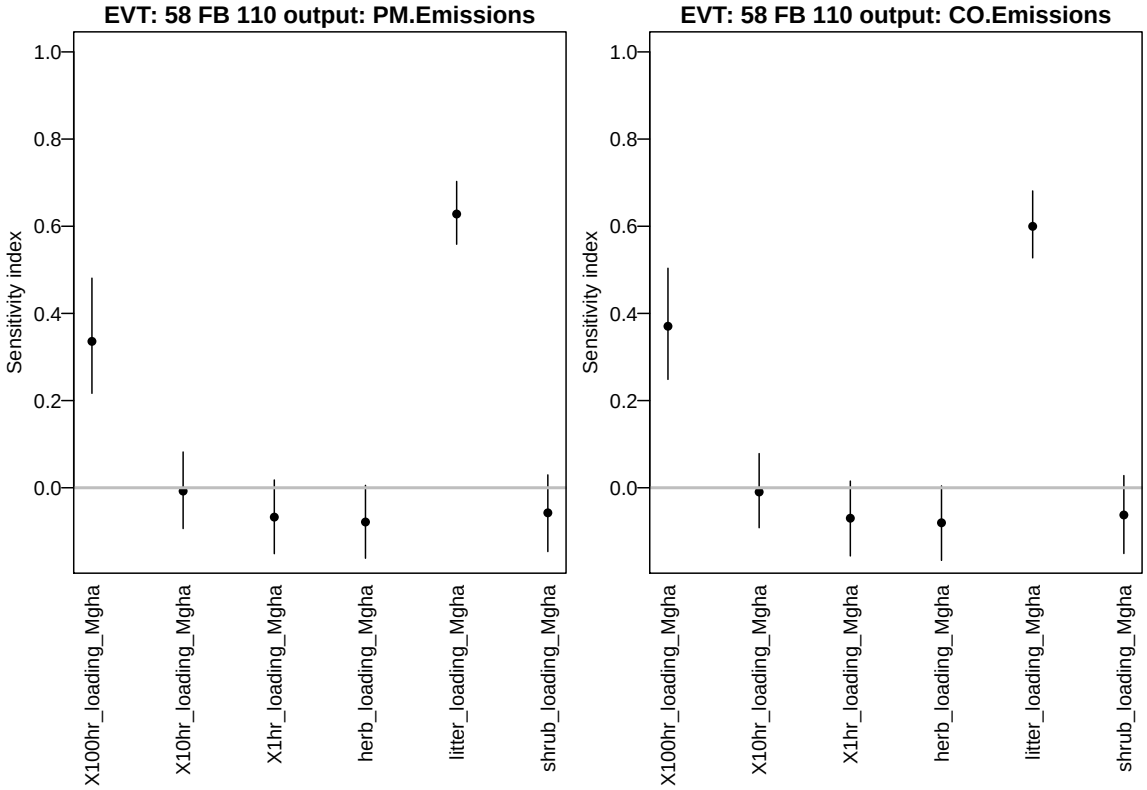
Introduction

This is to test whether the correlation structure created by the Iman method is conserved with a Sobol rearrangement, for global SA.

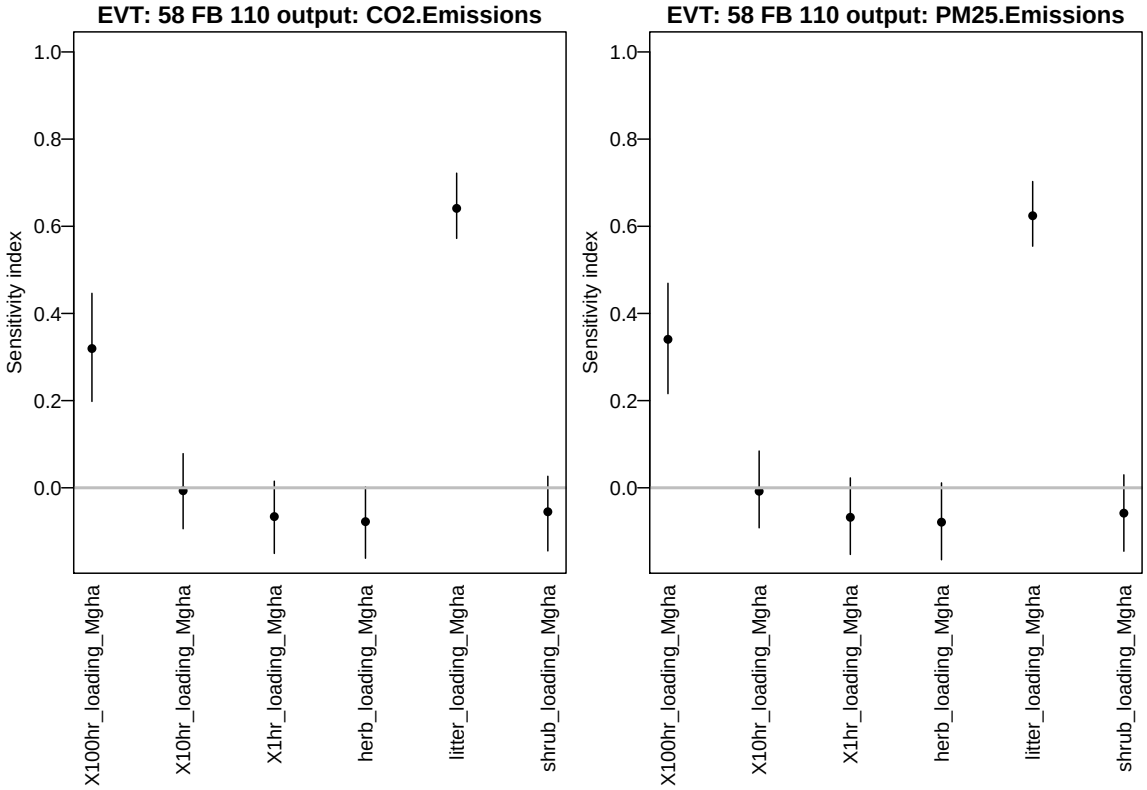
First generate the correlated sample, and then create the sobol object. Identify baseline values for all other necessary fuel types, and add as constant to final dataframe. Call consume (or fofem), then evaluate results. we will do this with an example evt

Next we call the consume batch processor. We can do this from R.

And now we calculate the sensitivity metrics


EVT: 58 FB 110 output: PM.Emissions
Sensitivity index
1.0
0.8
0.6
0.4
0.2
0.0
X100hr_loading_Mgha
X10hr_loading_Mgha
X1hr_loading_Mgha
herb_loading_Mgha
litter_loading_Mgha
shrub_loading_Mgha

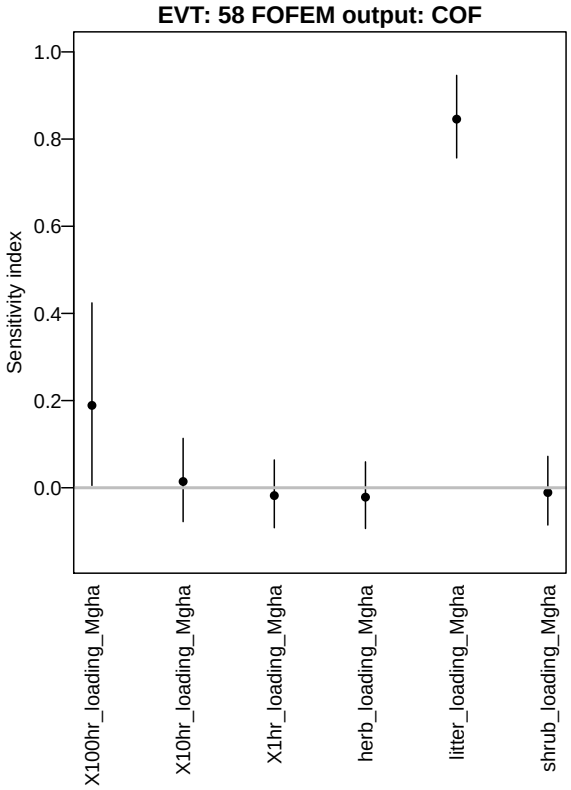
EVT: 58 FB 110 output: CO.Emissions
Sensitivity index
1.0
0.8
0.6
0.4
0.2
0.0
X100hr_loading_Mgha
X10hr_loading_Mgha
X1hr_loading_Mgha
herb_loading_Mgha
litter_loading_Mgha
shrub_loading_Mgha

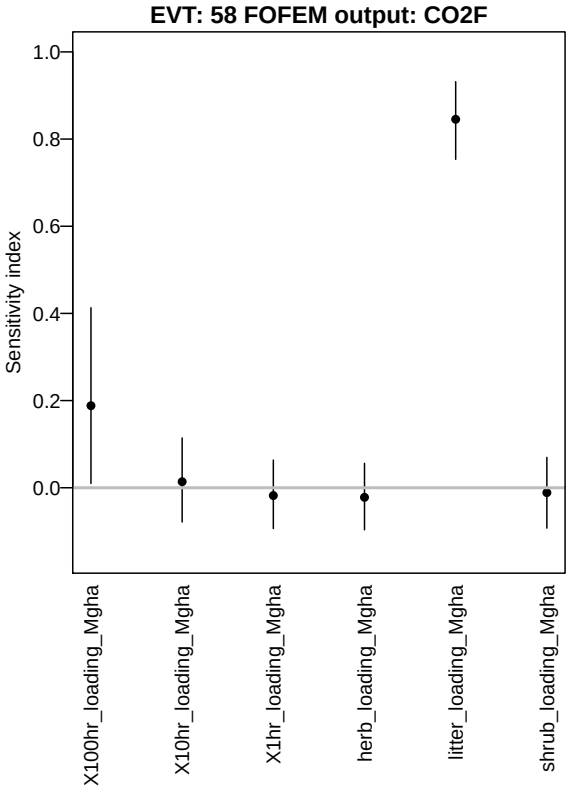

EVT: 58 FB 110 output: CO2.Emissions
Sensitivity index
1.0
0.8
0.6
0.4
0.2
0.0
X100hr_loading_Mgha
X10hr_loading_Mgha
X1hr_loading_Mgha
herb_loading_Mgha
litter_loading_Mgha
shrub_loading_Mgha

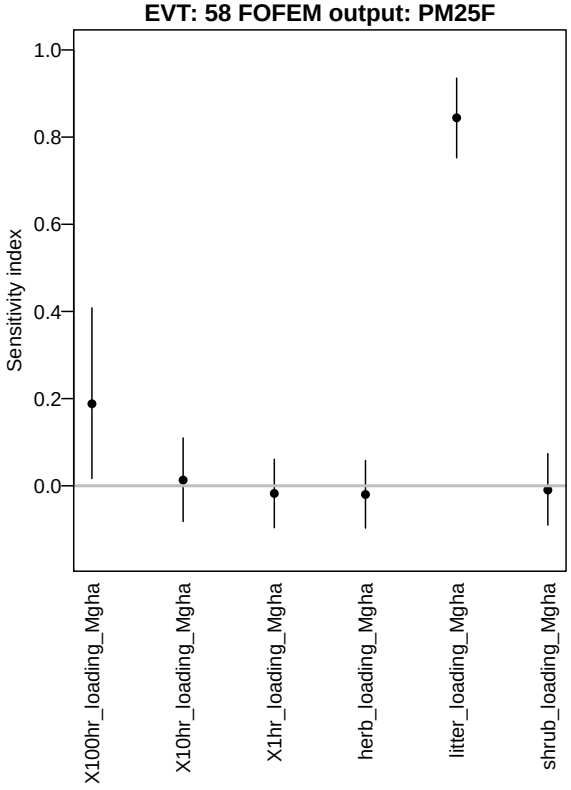
EVT: 58 FB 110 output: PM25.Emissions
Sensitivity index
1.0
0.8
0.6
0.4
0.2
0.0
X100hr_loading_Mgha
X10hr_loading_Mgha
X1hr_loading_Mgha
herb_loading_Mgha
litter_loading_Mgha
shrub_loading_Mgha

Now let's try to create a FOFEM input file from the Sobol sample, with the switch indicated large fuel loads by size class.

Note: we're getting a warning that no ignition simulated for some of the stands. Need to look into that. I think it was because of the relatively high fuel moistures. Goes away when the fm's match the consume environmental inputs.


EVT: 58 FOFEM output: COF
Sensitivity index
1.0
0.8
0.6
0.4
0.2
0.0
X100hr_loading_Mgha
X10hr_loading_Mgha
X1hr_loading_Mgha
herb_loading_Mgha
litter_loading_Mgha
shrub_loading_Mgha


EVT: 58 FOFEM output: CO2F
Sensitivity index
1.0
0.8
0.6
0.4
0.2
0.0
X100hr_loading_Mgha
X10hr_loading_Mgha
X1hr_loading_Mgha
herb_loading_Mgha
litter_loading_Mgha
shrub_loading_Mgha


EVT: 58 FOFEM output: PM25F
Sensitivity index
1.0
0.8
0.6
0.4
0.2
0.0
X100hr_loading_Mgha
X10hr_loading_Mgha
X1hr_loading_Mgha
herb_loading_Mgha
litter_loading_Mgha
shrub_loading_Mgha