

Augmented vegetation plot j

Vegetation plot i

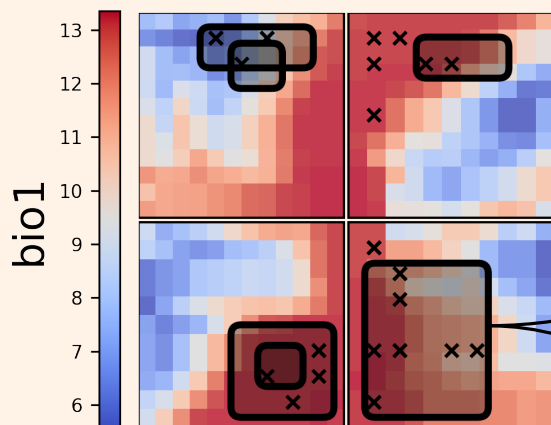
Habitat mask

$100 \times 100 \text{ km}^2$ Spatial block

$$SR_j = |\cup_i \text{Species}_i|$$

$$A_j = \sum_i \text{Area}_i$$

Raw environmental data



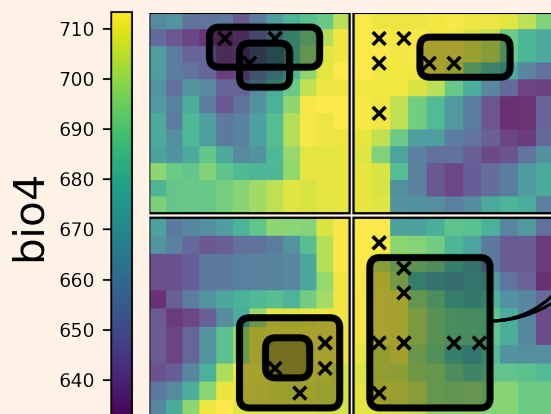
Mean(Bio1 $_j$)

Std(Bio1 $_j$)

\vdots

Mean(Bio4 $_j$)

Std(Bio4 $_j$)



Neural SAR model

$$\mathcal{M}(X_j) = \hat{S}R_j$$

Physics-informed constraint

$$\frac{\partial \mathcal{M}}{\partial A} > 0$$