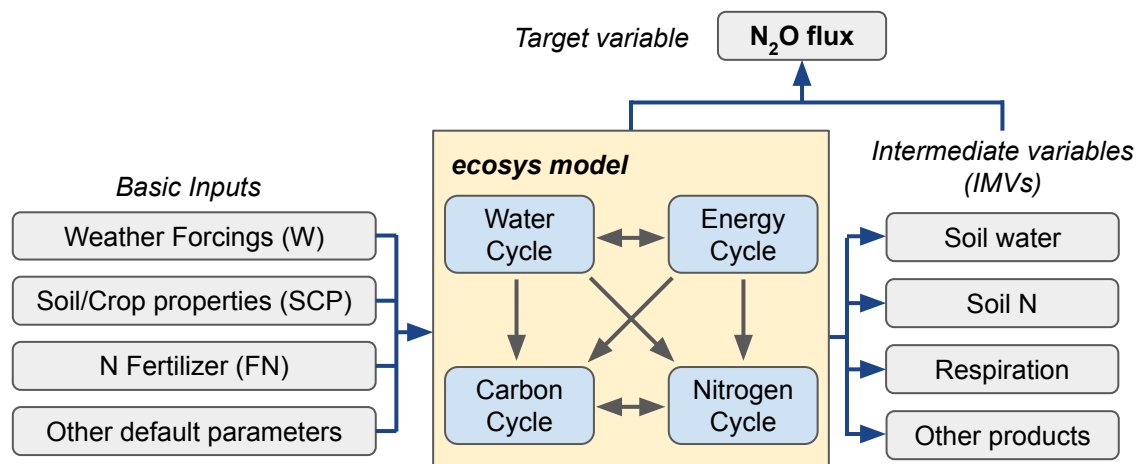
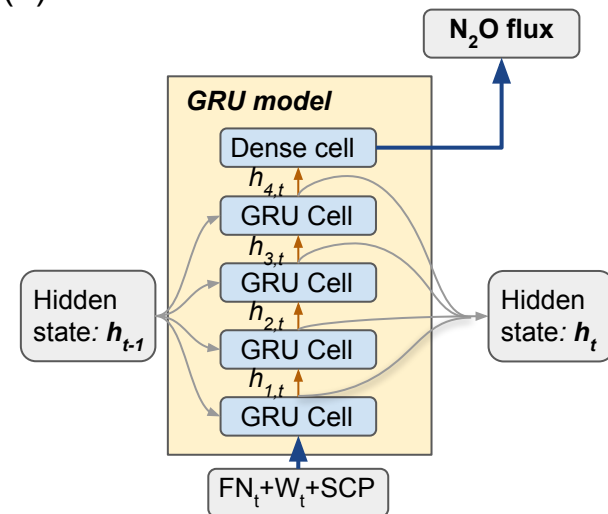


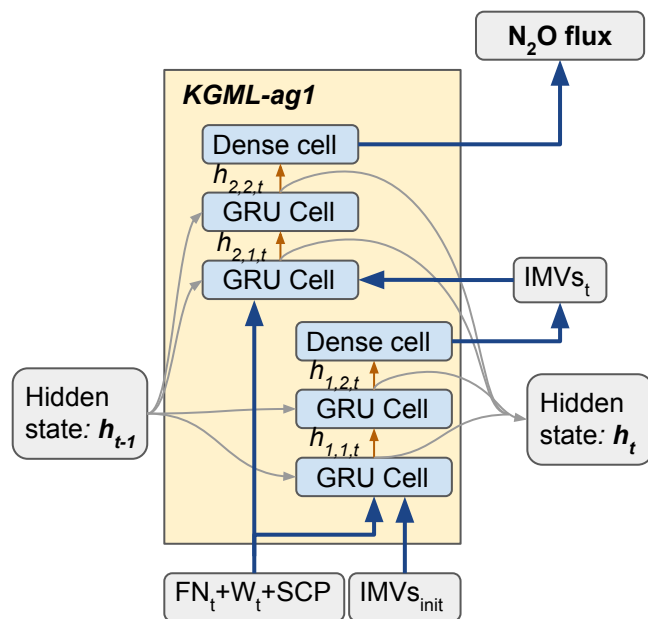
(a) PB model ecosys



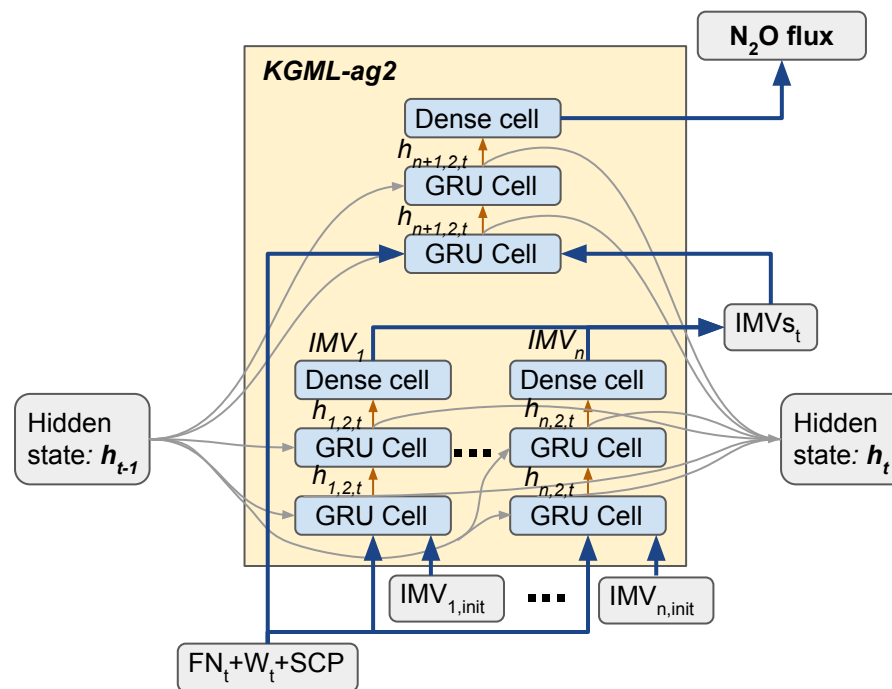
(b) GRU



(c) KGML-ag1



(d) KGML-ag2



Input/output (grey box) PB Module/ML cell (blue box) Model (yellow box)

Input/output transfer (blue arrow) PB module connection (grey arrow)  $h$  transfer between ML cells with 20% dropout (orange arrow)  $h$  input and output (grey arrow)