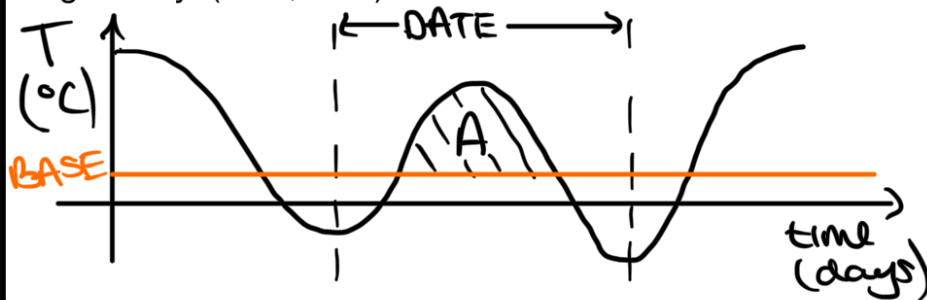
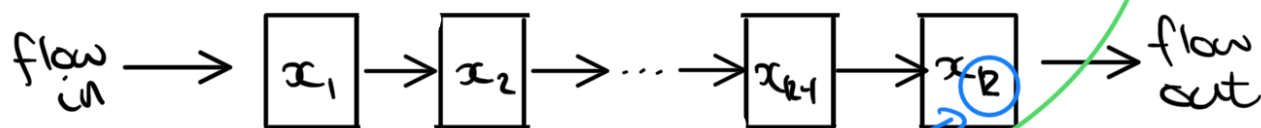


DegreeDays(date,base)

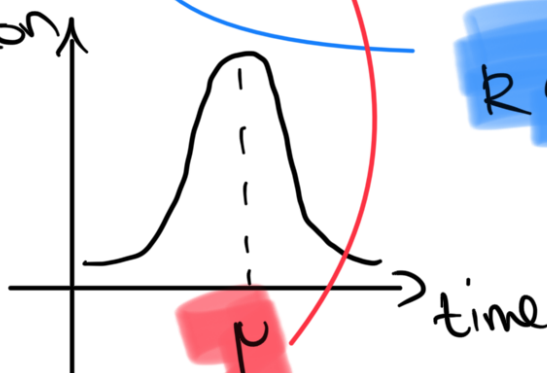


Single Distributed Development Time Model (DDTM)



$$\frac{dx_i}{dt} = \frac{R \Delta a}{N} (x_{i-1} - x_i) - m_i x_i$$

maturation
time
dist.



$$R \propto \frac{1}{\text{var}^2}$$

mortality rate

Example parameters

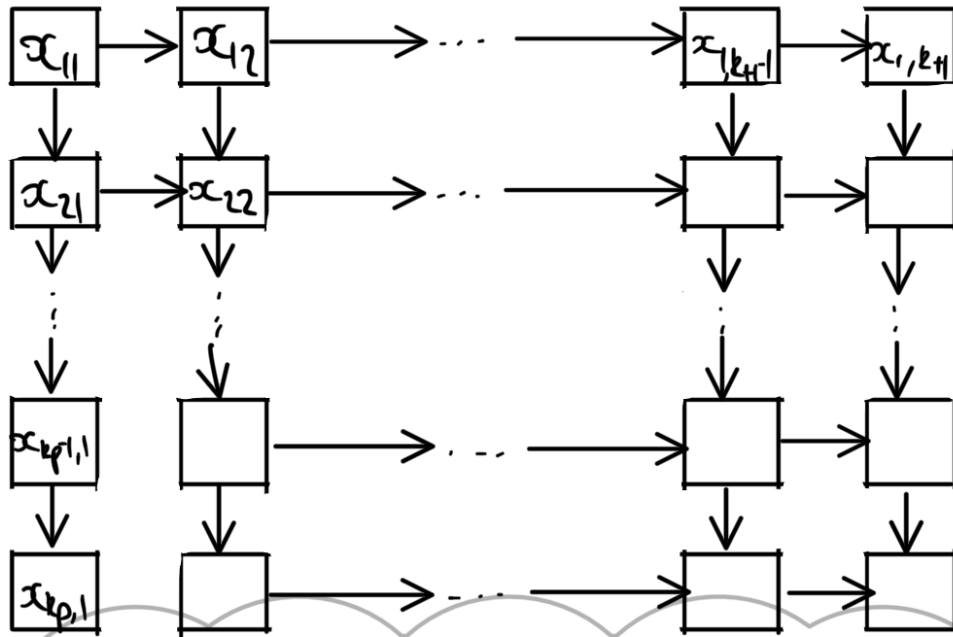
name	R	μ	Δa (7-21°C)
olive fly eggs		47.2	9.8 (> 9.1)
olive fly adults	40	500	9.8 (> 9.1)
olive fruit		1500	11 (> 8)

2D DDTM

host development H

input destr.

pest development P



$$\frac{dx_{ij}}{dt} = \frac{k_H (\Delta a)_H}{P_H} (x_{i,j-1} - x_{i,j}) + \frac{k_P (\Delta a)_P}{P_P} (x_{i-1,j} - x_{i,j}) - m_{ij} x_{i,j}$$