symbols: m = moisture index (growing-season) — MI

D = vapour pressure deficit (daytime; growing-season)

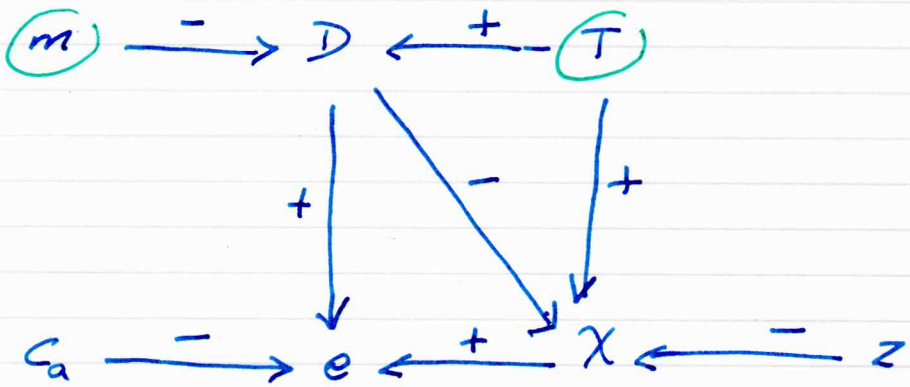
T = temperature (daytime, growing-season)

χ = c_i / c_a ratio : formula below

z = elevation

C_a = ambient CO_2

e = ratio of water use to C assimilation



$$e = 1.6 \frac{D}{C_a(1-\chi)}$$

T_{rec} = reconstructed temperature

m = actual MI

C_a = actual CO_2

T_0 = present temperature

m_{rec} = reconstructed MI

C_{a0} = recent CO_2

To solve:

$$e(T_{rec}, m, C_a) = e(T_0, m_{rec}, C_{a0})$$

$$\chi = \frac{\xi}{\xi + \sqrt{D}} \cdot \left(1 - \frac{\Gamma_*}{C_a}\right) + \frac{\Gamma_*}{C_a}, \quad \xi = \sqrt{\frac{\beta(K+\Gamma_*)}{1.6\eta^*}}$$