$A_p := 0.2 \quad P_{atm} := 1 \quad L := 0.04 \quad V := 2 \quad W_s := 0.300$

$O_{2o} := 21.0 \quad V_{m1} := 22.71 \quad K_{m1} := 7.63 \quad K_{i1} := 14.42 \quad P_{O2} := 0.2$

$CO_{2o} := 0.03 \quad V_{m2} := 17.64 \quad K_{m2} := 5.08 \quad K_{i2} := 11.99 \quad P_{CO2} := 0.2$

$$dO\left(t, O_{2i}, r_{O2}\right) := \frac{1}{V} \cdot \left[\frac{A_p \cdot P_{O2} \cdot P_{atm}}{L} \cdot \left(0.01 \cdot \left(O_{2o} - O_{2i}\right)\right) - W_s \cdot r_{O2}\right]$$

100 replaced with 1

$$dCO\left(t, CO_{2i}, r_{CO2}\right) := \frac{1}{V} \cdot \left[\frac{A_p \cdot P_{CO2} \cdot P_{atm}}{L} \cdot \left(0.01 \cdot \left(CO_{2o} - CO_{2i}\right)\right) + W_s \cdot r_{CO2}\right]$$

$$r\left(O_{2i}, CO_{2i}, V_m, K_m, K_i\right) := V_m \cdot O_{2i} \cdot \left[K_m + \left(1 + \frac{CO_{2i}}{K_i}\right) \cdot O_{2i}\right]^{-1}$$

$oco_0 := \mathrm{stack}(21.0, 0.03) \quad t_{min} := 0 \quad t_{max} := 80 \quad steps := 80$

$$oco := \left\|\begin{array}{l}
\left[\,O_{2i}\ CO_{2i}\,\right] := oco_0^{\mathrm{T}} \\
t := t_{min} \\
\Delta t := \left(t_{max} - t_{min}\right) \cdot steps^{-1} \\
out := \left[\,t\ O_{2i}\ CO_{2i}\,\right] \\
\mathrm{for}\ \ n \in \left[1 \ldots steps\right] \\
\quad \left\|\begin{array}{l}
r_{O2} := r\left(O_{2i}, CO_{2i}, V_{m1}, K_{m1}, K_{i1}\right) \\
r_{CO2} := r\left(O_{2i}, CO_{2i}, V_{m2}, K_{m2}, K_{i2}\right) \\
O_{2i} := \mathrm{rkfixed}\left(O_{2i}, t, t+\Delta t, 1, dO\left(t, O_{2i}, r_{O2}\right)\right)_{2\,2} \\
CO_{2i} := \mathrm{rkfixed}\left(CO_{2i}, t, t+\Delta t, 1, dCO\left(t, CO_{2i}, r_{CO2}\right)\right)_{2\,2} \\
t := t + \Delta t \\
out := \mathrm{stack}\left(out, \left[\,t\ O_{2i}\ CO_{2i}\,\right]\right)
\end{array}\right. \\
out
\end{array}\right.$$

$O_{2i} := \mathrm{augment}\left(\mathrm{col}(oco, 1), \mathrm{col}(oco, 2)\right)$

$CO_{2i} := \mathrm{augment}\left(\mathrm{col}(oco, 1), \mathrm{col}(oco, 3)\right)$