Atatek Dry — Kurutma Modeli Kataloğu

262 model · 02.08.2026 13:02 · MR = nem oranı, t = zaman

Page ailesi

Lewis

MR = $\exp(-k \cdot t)$

$k \in [10^{-6}, 1000]$

Page

MR = $\exp(-k \cdot tn)$

$k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$

Modified Page-I

MR = $\exp((-k \cdot t)n)$

$k \in [-1000, -10^{-6}]$ $n \in [0.01, 6]$

Modified Page-II

MR = $\exp(-(k \cdot t)n)$

$k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$

Modified Page-III

MR = $\exp(-(-k \cdot t)n)$

$k \in [-1000, -10^{-6}]$ $n \in [0.01, 6]$

Modified Page-IV

MR = $a \cdot \exp(-(k \cdot tn))$

$a \in [-2, 3]$ $k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$

Modified Page-V

MR = $\exp(-(k \cdot tn))$

$k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$

Modified Page-VI

MR = $\exp(k \cdot tn)$

$k \in [-1000, -10^{-6}]$ $n \in [0.01, 6]$

Ademiluyi

MR = $a \cdot \exp(-(k \cdot t)n)$

$a \in [-2, 3]$ | $k \in [10^{-6}, 1000]$ | $n \in [0.01, 6]$

Otsura et al.-I

MR = $1 - \exp(-(k \cdot t^{(-n)}))$

$k \in [10^{-6}, 1000]$ | $n \in [0.01, 6]$

Otsura et al.-II

MR = $1 - \exp(-(c1 \cdot t)^{(-c2)})$

$c1 \in [10^{-6}, 1000]$ | $c2 \in [0.01, 6]$

Çok terimli

Henderson and Pabis

MR = $a \cdot \exp(-k \cdot t)$

$a \in [-2, 3]$ | $k \in [10^{-6}, 1000]$

Mod. Henderson and Pabis-I

MR = $a \cdot \exp(-k0 \cdot t) + b \cdot \exp(-k1 \cdot t) + c \cdot \exp(-k2 \cdot t)$

$a \in [-5, 5]$ | $k0 \in [10^{-6}, 1000]$ | $b \in [-200, 200]$ | $k1 \in [10^{-6}, 1000]$ | $c \in [-200, 200]$ | $k2 \in [10^{-6}, 1000]$

Mod. Henderson and Pabis-II

MR = $a \cdot \exp(-k \cdot tn) + b \cdot \exp(-g \cdot t) + c \cdot \exp(-h \cdot t)$

$a \in [-5, 5]$ | $k \in [10^{-6}, 1000]$ | $n \in [0.01, 6]$ | $b \in [-200, 200]$ | $g \in [10^{-6}, 1000]$ | $c \in [-200, 200]$ | $h \in [10^{-6}, 1000]$

Logarithmic

MR = $a \cdot \exp(-k \cdot t) + c$

$a \in [-2, 3]$ | $k \in [10^{-6}, 1000]$ | $c \in [-2, 2]$

Two-term

MR = $a \cdot \exp(-k0 \cdot t) + b \cdot \exp(-k1 \cdot t)$

$a \in [-2, 3]$ | $k0 \in [10^{-6}, 1000]$ | $b \in [-200, 200]$ | $k1 \in [10^{-6}, 1000]$

Modified two-term-I

MR = $a \cdot \exp(k0 \cdot t) + (1 - a) \cdot \exp(-k1 \cdot t)$

$a \in [-2, 3]$ | $k0 \in [-1000, -10^{-6}]$ | $k1 \in [10^{-6}, 1000]$

Modified two-term-II

MR = $a \cdot \exp(k0 \cdot t) + (1 - a) \cdot \exp(k1 \cdot t)$

$a \in [-2, 3]$ | $k0 \in [-1000, -10^{-6}]$ | $k1 \in [-1000, -10^{-6}]$

Modified two-term-III

MR = $a \cdot \exp(-k0 \cdot t) + a \cdot \exp(-k1 \cdot t)$

$a \in [-2, 3]$ | $k0 \in [10^{-6}, 1000]$ | $k1 \in [10^{-6}, 1000]$

Modified two-term-IV

MR = $a \cdot \exp(-k0 \cdot tn) + b \cdot \exp(-k1 \cdot t)$

$a \in [-2, 3]$ | $k0 \in [10^{-6}, 1000]$ | $n \in [0.01, 6]$ | $b \in [-200, 200]$ | $k1 \in [10^{-6}, 1000]$

Modified two-term-V

MR = $a \cdot \exp(-k0 \cdot t) + (1 - a) \cdot \exp(-k1 \cdot t)$

$a \in [-5, 5]$ | $k0 \in [10^{-6}, 1000]$ | $k1 \in [10^{-6}, 1000]$

Two-term exponential

MR = $a \cdot \exp(-k \cdot t) + (1 - a) \cdot \exp(-k \cdot a \cdot t)$

$a \in [10^{-6}, 1000]$ | $k \in [10^{-6}, 1000]$

Verma et al.

MR = $a \cdot \exp(-k \cdot t) + (1 - a) \cdot \exp(-g \cdot t)$

$a \in [-5, 5]$ | $k \in [10^{-6}, 1000]$ | $g \in [10^{-6}, 1000]$

Modified Verma

MR = $a \cdot \exp(-k0 \cdot tn) + (1 - a) \cdot \exp(-k1 \cdot tn)$

$a \in [-2, 3]$ | $k0 \in [10^{-6}, 1000]$ | $n \in [0.01, 6]$ | $k1 \in [10^{-6}, 1000]$

Diffusion approximation

MR = $a \cdot \exp(-k \cdot t) + (1 - a) \cdot \exp(-k \cdot b \cdot t)$

$a \in [-5, 5]$ | $k \in [10^{-6}, 1000]$ | $b \in [-200, 200]$

Midilli ailesi

Midilli et al.

MR = $a \cdot \exp(-k \cdot tn) + b \cdot t$

$a \in [-5, 5]$ | $k \in [10^{-6}, 1000]$ | $n \in [0.01, 6]$ | $b \in [-200, 200]$

Modified Midilli et al.-I

MR = $\exp(-k \cdot tn) + b \cdot t$

$k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$ $b \in [-200, 200]$

Modified Midilli et al.-II

MR = $\exp(-k \cdot t) + b \cdot t$

$k \in [10^{-6}, 1000]$ $b \in [-200, 200]$

Modified Midilli et al.-III

MR = $a \cdot \exp(-k \cdot t) + b \cdot t$

$a \in [-2, 3]$ $k \in [10^{-6}, 1000]$ $b \in [-200, 200]$

Ampirik

Wang and Singh-I

MR = $1 + a \cdot t + b \cdot t^2$

$a \in [-200, 200]$ $b \in [-200, 200]$

Wang and Singh-II

MR = $M0 + a \cdot t + b \cdot t^2$

$M0 \in [-5, 5]$ $a \in [-200, 200]$ $b \in [-200, 200]$

Thompson

MR = $\exp((-a - \sqrt{(}a^2 + 4 \cdot b \cdot t))/(2 \cdot b))$

$a \in [-3, 2]$ $b \in [10^{-6}, 1000]$

Hii et al.

MR = $a \cdot \exp(-k \cdot tn) + c \cdot \exp(-g \cdot tn)$

$a \in [-2, 3]$ $k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$ $c \in [-200, 200]$ $g \in [10^{-6}, 1000]$

Weibull distribution-I

MR = $a - b \cdot \exp(-(k \cdot tn))$

$a \in [-5, 5]$ $b \in [-200, 200]$ $k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$

Weibull distribution-II

MR = $a - b \cdot \exp(-k \cdot tn)$

$a \in [-5, 5]$ $b \in [-200, 200]$ $k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$

Weibull distribution-III

MR = $\exp(-(t/a)n)$

$a \in [0.01, 300]$ $n \in [0.01, 6]$

Weibull distribution-IV

MR = $a - b \cdot \exp((-k \cdot t)n)$

$a \in [-3, 3]$ $b \in [-200, 200]$ $k \in [-1000, -10^{-6}]$ $n \in [0.01, 6]$

Weibullian

MR = $10^{(-(t/_{delta})_n)}$

$delta \in [10^{-4}, 10^{6}]$ $n \in [0.01, 6]$

Vega-Galvez et al.-I

MR = $n + k \cdot \sqrt{(t)}$

$n \in [-1, 2]$ $k \in [-1000, -10^{-6}]$

Vega-Galvez et al.-II

MR = $\exp(n + k \cdot t)$

$n \in [-2, 1.3]$ $k \in [-1000, -10^{-6}]$

Vega-Galvez et al.-III

MR = $(a + b \cdot t)^2$

$a \in [0, 5]$ $b \in [-200, 200]$

Jena Das

MR = $a \cdot \exp(-k \cdot t + b \cdot \sqrt{(t)}) + c$

$a \in [-5, 5]$ $k \in [10^{-6}, 1000]$ $b \in [-200, 200]$ $c \in [-2, 2]$

Wang et al.– One term

MR = $a \cdot \exp(b \cdot k \cdot t) + (1 - a)$

$a \in [-2, 3]$ $b \in [-3, 0]$ $k \in [10^{-6}, 1000]$

Wang et al.– Two term

MR = $(1 - a) \cdot \exp(b \cdot k \cdot t) + a \cdot \exp(c \cdot k \cdot t)$

$a \in [-200, 200]$ $b \in [-3, 0]$ $c \in [-3, 0]$ $k \in [10^{-6}, 1000]$

Wang et al.– Three term

MR = $(1 - a - b)\cdot\exp(c\cdot k\cdot t) + a\cdot\exp(d\cdot k\cdot t) + b\cdot\exp(f\cdot k\cdot t)$

$a \in [-200, 200]$ $b \in [-200, 200]$ $c \in [-5, 5]$ $d \in [-5, 5]$ $f \in [-5, 5]$ $k \in [-200, 200]$

Demir et al.

MR = $a\cdot\exp((-k\cdot t)n) + b$

$a \in [-5, 5]$ $k \in [-1000, -10^{-6}]$ $n \in [0.01, 6]$ $b \in [-2, 2]$

Diamente et al.

MR = $\exp(-\exp(a + b\cdot\ln(t) + c\cdot\ln(t)^2))$

$a \in [-8, 8]$ $b \in [0.05, 8]$ $c \in [-0.5, 0.5]$

Haghi and Angiz-I

MR = $a\cdot\exp(-b\cdot tc) + d\cdot t^2 + e2\cdot t + f$

$a \in [-2, 3]$ $b \in [10^{-6}, 1000]$ $c \in [0.01, 6]$ $d \in [-200, 200]$ $e2 \in [-200, 200]$ $f \in [-2, 2]$

Haghi and Angiz-II

MR = $a + b\cdot t + c\cdot t^2 + d\cdot t^3$

$a \in [-1, 3]$ $b \in [-200, 200]$ $c \in [-200, 200]$ $d \in [-200, 200]$

Haghi and Angiz-III

MR = $(a + b\cdot t)/(1 + c\cdot t + d\cdot t^2)$

$a \in [-5, 5]$ $b \in [-200, 200]$ $c \in [-200, 200]$ $d \in [-200, 200]$

Haghi and Angiz-IV

MR = $a\cdot\exp(-(t - b)^2/(2\cdot c^2))$

$a \in [-2, 500]$ $b \in [-500, 500]$ $c \in [0.01, 100]$

Sripinyowanich and Noomhorm

MR = $\exp(-k\cdot tn) + b\cdot t + c$

$k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$ $b \in [-200, 200]$ $c \in [-2, 2]$

Noomhorm and Verma

MR = $a\cdot\exp(-k\cdot t) + b\cdot\exp(-g\cdot t) + c$

$a \in [-5, 5]$ $k \in [10^{-6}, 1000]$ $b \in [-200, 200]$ $g \in [10^{-6}, 1000]$ $c \in [-2, 2]$

Hasibuan and Daud-I

MR = $1 - a \cdot tn \cdot \exp(-k \cdot tm)$

$a \in [-200, 200]$ $n \in [0.01, 6]$ $k \in [10^{-6}, 1000]$ $m \in [0.01, 6]$

Hasibuan and Daud-II

MR = $1 - a \cdot tn \cdot \exp(-k \cdot tn)$

$a \in [-200, 200]$ $n \in [0.01, 6]$ $k \in [10^{-6}, 1000]$

Sharaf-Eldeen et al.

MR = $a \cdot \exp(k \cdot t) + 1 - a \cdot \exp(-b \cdot k \cdot t)$

$a \in [-5, 5]$ $k \in [-200, 200]$ $b \in [-5, 5]$

Henderson and Henderson-I

MR = $c \cdot (\exp(-k \cdot t) + (1/9) \cdot \exp(-9 \cdot k \cdot t))$

$c \in [-2, 3]$ $k \in [10^{-6}, 1000]$

Henderson and Henderson-II

MR = $c \cdot \exp(-k \cdot t) + (1/9) \cdot \exp(-9 \cdot k \cdot t)$

$c \in [-2, 3]$ $k \in [10^{-6}, 1000]$

Parabolic

MR = $a + b \cdot t + c \cdot t^2$

$a \in [-2, 3]$ $b \in [-200, 200]$ $c \in [-200, 200]$

Geometric-I

MR = $a \cdot tn$

$a \in [-200, 200]$ $n \in [10^{-6}, 6]$

Geometric-II

MR = $a \cdot t^{(-n)}$

$a \in [10^{-9}, 10^5]$ $n \in [0.01, 6]$

Logistic

MR = $a0/(1 + a \cdot \exp(k \cdot t))$

$a0 \in [-5, 5]$ $a \in [-200, 200]$ $k \in [-200, 200]$

Regression-I

$\mathrm{MR} = \exp(-(a\cdot t^2 + b\cdot t))$

$a \in [-200, 200]$ $b \in [-200, 200]$

Regression-II

$\mathrm{MR} = (-b - \sqrt{}(b^2 - 4\cdot a\cdot(c - t)))/(2\cdot a)$

$a \in [-500, -1]$ $b \in [-500, 500]$ $c \in [1, 500]$

Chavez-Mendez et al.

$\mathrm{MR} = a + b\cdot\ln(t)$

$a \in [-5, 5]$ $b \in [-5, 5]$

Aghbashlo

$\mathrm{MR} = \exp(-k1\cdot t/(1 + k2\cdot t))$

$k1 \in [10^{-6}, 1000]$ $k2 \in [10^{-6}, 1000]$

Aghbashlo et al.

$\mathrm{MR} = \exp((k1\cdot t)/(1 + k2\cdot t))$

$k1 \in [-1000, -10^{-6}]$ $k2 \in [10^{-6}, 1000]$

Mod. Henderson and Perry

$\mathrm{MR} = a\cdot\exp(-k\cdot tn)$

$a \in [-5, 5]$ $k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$

Three-parameter

$\mathrm{MR} = a\cdot\exp(-(k\cdot t)n)$

$a \in [-2, 3]$ $k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$

Asymptotic

$\mathrm{MR} = a0 + a\cdot\exp(-k\cdot t)$

$a0 \in [-1, 1]$ $a \in [-200, 200]$ $k \in [10^{-6}, 1000]$

Alibas

$\mathrm{MR} = a\cdot\exp((-k\cdot t)n + b\cdot t) + g$

$a \in [-2, 3]$ $k \in [-1000, -10^{-6}]$ $n \in [0.01, 6]$ $b \in [-200, 200]$ $g \in [-2, 2]$

Khazaei and Daneshmandi

MR = $a + \exp(-b \cdot t) - c \cdot t$

$a \in [-0.5, 0.3]$ $b \in [10^{-6}, 1000]$ $c \in [-200, 200]$

Yeni modeller

Kulcu

MR = $ab \cdot \exp(-k \cdot tn)/ct + d$

$a \in [10^{-4}, 1000]$ $b \in [10^{-6}, 6]$ $k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$ $c \in [1, 3]$ $d \in [-2, 2]$

Süslü & Külcü

MR = $c1 \cdot \exp(-c2 \cdot tc3) \cdot (1 + c4 \cdot \sin(c5 \cdot t)) + c6 \cdot (1 - \exp(-c7 \cdot \sqrt{(t)}))$

$c1 \in [-2, 3]$ $c2 \in [10^{-6}, 1000]$ $c3 \in [0.01, 6]$ $c4 \in [-1, 1]$ $c5 \in [10^{-6}, 1000]$ $c6 \in [-0.5, 1]$ $c7 \in [10^{-6}, 1000]$

Two-term Gaussian

MR = $a \cdot \exp(-((t - b)/c)^2) + d \cdot \exp(-((t - e2)/f)^2)$

$a \in [-4, 4]$ $b \in [-500, 2000]$ $c \in [10^{-4}, 2000]$ $d \in [-200, 200]$ $e2 \in [-500, 2000]$ $f \in [10^{-4}, 2000]$

Chabane et al.

MR = $c + a \cdot \sin(\pi \cdot (t - k)/g)$

$c \in [-1, 2]$ $a \in [-1, 1]$ $k \in [-1000, 10^5]$ $g \in [10^{-4}, 10^5]$

Kidane et al.-I

MR = $1 - \exp((-a/t) - b \cdot \ln(t) + c)$

$a \in [10^{-4}, 100]$ $b \in [-10, 10]$ $c \in [-5, 5]$

Kidane et al.-II

MR = $a \cdot \exp(-k1 \cdot tn)/(1 + b \cdot \exp(-k2 \cdot tm))p$

$a \in [-2, 100]$ $k1 \in [10^{-6}, 1000]$ $n \in [0.01, 6]$ $b \in [-200, 200]$ $k2 \in [10^{-6}, 1000]$ $m \in [0.01, 6]$ $p \in [0.01, 20]$

Gokhale and Lele

MR = $\exp(-k \cdot tn - g \cdot t)$

$k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$ $g \in [10^{-6}, 1000]$

Ahmad and Prakash

MR = $a \cdot \exp(-k \cdot tn) + b \cdot t^2$

$a \in [-5, 5]$ $k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$ $b \in [-200, 200]$

Singh et al.

MR = exp($-k \cdot t$) + $a \cdot k \cdot t$

$k \in [10^{-6}, 1000]$ $a \in [-5, 5]$

Silva et al.

MR = exp($-a \cdot t - b \cdot \sqrt{(t)}$)

$a \in [10^{-6}, 1000]$ $b \in [-0.5, 2]$

Djebli et al.-I

MR = (1 + $a \cdot tn \cdot$exp($-k1 \cdot tn$))/(1 + $a \cdot tm \cdot$exp($-k2 \cdot tm$))p

$a \in [-200, 200]$ $n \in [0.01, 6]$ $k1 \in [10^{-6}, 1000]$ $m \in [0.01, 6]$ $k2 \in [10^{-6}, 1000]$ $p \in [0.01, 20]$

Djebli et al.-II

MR = (1 + $a \cdot tn \cdot$ln(1 + $k1 \cdot tn$))/(1 + $a \cdot tm \cdot$ln(1 + $k2 \cdot tm$))p

$a \in [10^{-6}, 1000]$ $n \in [0.01, 6]$ $k1 \in [10^{-6}, 1000]$ $m \in [0.01, 6]$ $k2 \in [10^{-6}, 1000]$ $p \in [0.01, 20]$

Peleg

MR = 1 − $t/(a + b \cdot t)$

$a \in [10^{-3}, 10^{5}]$ $b \in [10^{-6}, 1000]$

Balbay and Sahin

MR = (1 − a)·exp($-k \cdot tn$) + b

$a \in [-2, 2]$ $k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$ $b \in [-2, 2]$

Combined two-term & Page

MR = $a \cdot$exp($-k \cdot tn$) + (1 − a)·exp($-k1 \cdot t$)

$a \in [-2, 3]$ $k \in [10^{-6}, 1000]$ $n \in [0.01, 6]$ $k1 \in [10^{-6}, 1000]$

Grigoras

MR = $a \cdot$(1 − exp($-b \cdot t$))

$a \in [-2, 3]$ $b \in [10^{-6}, 1000]$

Büyüme eğrisi

Baroreflex 5-param. (baro5)

MR = $c + (d - c)/(1 + f \cdot \exp(b1 \cdot (\ln(t) - \ln(e2))) + (1 - f) \cdot \exp(b2 \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $f \in [-20, 20]$ $b1 \in [-50, 50]$ $b2 \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

Brain-Cousens BC.4

MR = $(d + f \cdot t)/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

Brain-Cousens BC.5

MR = $c + (d - c + f \cdot t)/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

CRS.4a ()

MR = $(d + f \cdot \exp(-1/t^{1}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

CRS.4b ()

MR = $(d + f \cdot \exp(-1/t^{0.5}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

CRS.4c ()

MR = $(d + f \cdot \exp(-1/t^{0.25}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

UCRS.4a ()

MR = $d - (d + f \cdot \exp(-1/t^{1}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

UCRS.4b ()

MR = $d - (d + f \cdot \exp(-1/t^{0.5}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

UCRS.4c ()

MR = $d - (d + f \cdot \exp(-1/t^{0.25}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

CRS.5a ()

MR = $c + (d - c + f \cdot \exp(-1/t^{1}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

CRS.5b ()

MR = $c + (d - c + f \cdot \exp(-1/t^{0.5}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

CRS.5c ()

MR = $c + (d - c + f \cdot \exp(-1/t^{0.25}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

UCRS.5a ()

MR = $c + d - (d - c + f \cdot \exp(-1/t^{1}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

UCRS.5b ()

MR = $c + d - (d - c + f \cdot \exp(-1/t^{0.5}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

UCRS.5c ()

MR = $c + d - (d - c + f \cdot \exp(-1/t^{0.25}))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $f \in [-20, 20]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

CRS.6 (six-parameter)

MR = $c + (d - c + f \cdot \exp(-1/t alpha))/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $f \in [-20, 20]$ $alpha \in [0.01, 15]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

Logistic L3

MR = $d/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$d \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

Logistic L4

MR = $c + (d - c)/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

Logistic L5

MR = $c + (d - c)/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))f$

$c \in [-2, 2]$ $d \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$ $f \in [-20, 20]$

Exponential decay EXD.2

MR = $a \cdot (1 + b)t$

$a \in [-2, 3]$ $b \in [-2, 2]$

Exponential decay EXD.3

MR = $c + (d - c) \cdot \exp(-t/e2)$

$c \in [-2, 2]$ $d \in [-2, 2]$ $e2 \in [10^{-4}, 10^{6}]$

Gompertz G.4

MR = $c + (d - c) \cdot \exp(-\exp(b \cdot (\ln(t) - e2)))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-6}, 10^{6}]$

Log-logistic LL.2

MR = $1/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

Log-logistic LL.2 (diğer form)

MR = $1/(1 + \exp(b \cdot (\ln(t) - e2)))$

$b \in [-50, 50]$ $e2 \in [10^{-6}, 10^{6}]$

Log-logistic LL.3

MR = $d/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$d \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

Log-logistic LL.3 (diğer form)

MR = $d/(1 + \exp(b \cdot (\ln(t) - e2)))$

$d \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-6}, 10^{6}]$

Log-logistic LL.3u (üst sınır)

MR = $c + (1 - c)/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

Log-logistic LL.3u (diğer form)

MR = $c + (1 - c)/(1 + \exp(b \cdot (\ln(t) - e2)))$

$c \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-6}, 10^{6}]$

Log-logistic LL.4

MR = $c + (d - c)/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ | $d \in [-2, 2]$ | $b \in [-50, 50]$ | $e2 \in [10^{-4}, 10^{6}]$

Log-logistic LL.4 (diğer form)

MR = $c + (d - c)/(1 + \exp(b \cdot (\ln(t) - e2)))$

$c \in [-2, 2]$ | $d \in [-2, 2]$ | $b \in [-50, 50]$ | $e2 \in [10^{-6}, 10^{6}]$

Log-logistic LL.5

MR = $c + (d - c)/(1 + \exp(b \cdot (\ln(t) - \ln(e2))))f$

$c \in [-2, 2]$ | $d \in [-2, 2]$ | $b \in [-50, 50]$ | $e2 \in [10^{-4}, 10^{6}]$ | $f \in [-20, 20]$

Log-logistic LL.5 (diğer form)

MR = $c + (d - c)/(1 + \exp(b \cdot (\ln(t) - e2)))f$

$c \in [-2, 2]$ | $d \in [-2, 2]$ | $b \in [-50, 50]$ | $e2 \in [10^{-6}, 10^{6}]$ | $f \in [-20, 20]$

Log-normal LN.2

MR = $1/(t \cdot sigma \cdot \sqrt{(2 \cdot \pi)}) \cdot \exp(-(\ln(t) - mu)^2/(2 \cdot sigma^2))$

$sigma \in [10^{-3}, 100]$ | $mu \in [-50, 50]$

Log-normal LN.3

MR = $1/((t - gamma) \cdot sigma \cdot \sqrt{(2 \cdot \pi)}) \cdot \exp(-(\ln(t - gamma) - mu)^2/(2 \cdot sigma^2))$

$gamma \in [-500, 200]$ | $sigma \in [10^{-3}, 100]$ | $mu \in [-50, 50]$

Log-normal LN.3u ()

MR = $1/((t - gamma) \cdot \sqrt{(2 \cdot \pi)}) \cdot \exp(-(\ln(t - gamma) - mu)^2/2)$

$gamma \in [-1000, -10^{-4}]$ | $mu \in [-50, 50]$

Log-normal LN.4

MR = $1/(((t - beta)/(alpha - t)) \cdot sigma \cdot \sqrt{(2 \cdot \pi)}) \cdot \exp(-(\ln((t - beta)/(alpha - t)) - mu)^2/(2 \cdot sigma^2))$

$beta \in [-1000, -10^{-4}]$ | $alpha \in [10^{-4}, 10^{5}]$ | $sigma \in [10^{-3}, 100]$ | $mu \in [-50, 50]$

Weibull W1.2 (two-param.)

MR = $\exp(-\exp(b \cdot (\ln(t) - e2)))$

$b \in [-50, 50]$ | $e2 \in [10^{-6}, 10^{6}]$

Weibull W2.2

MR = $(b/a)\cdot(t/a)^{(b-1)}\cdot\exp(-(t/a)^{b})$

$b \in [-50, 50]$ $a \in [10^{-4}, 10^{5}]$

Weibull W1.3 (three-param.)

MR = $d\cdot\exp(-\exp(b\cdot(\ln(t) - e2)))$

$d \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-6}, 10^{6}]$

Weibull W2.3

MR = $(a/b)\cdot((t - m)/b)^{(a-1)}\cdot\exp(-((t - m)/b)^{a})$

$a \in [0.01, 20]$ $b \in [-50, 10^{5}]$ $m \in [-500, 0]$

Weibull W1.4 (four-param.)

MR = $c + (d - c)\cdot\exp(-\exp(b\cdot(\ln(t) - \ln(e2))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

Weibull W1.4 (diğer form)

MR = $c + (d - c)\cdot(1 - \exp(-\exp(b\cdot(\ln(t) - \ln(e2)))))$

$c \in [-2, 2]$ $d \in [-2, 2]$ $b \in [-50, 50]$ $e2 \in [10^{-4}, 10^{6}]$

Weibull W2.4

MR = $(k/theta)\cdot((t - alpha)/(2\cdot beta\cdot theta))^{(k-1)}\cdot t^{(-1)}\cdot\exp(-((t - alpha)/(2\cdot beta\cdot theta))^{k})$

$k \in [0.01, 20]$ $theta \in [10^{-4}, 500]$ $alpha \in [-1000, 0]$ $beta \in [10^{-4}, 10^{5}]$

Modified by Atatek

Kırmızı: sıcaklık/hava hızı ile modifiye edilen kısımlar · kısaltmalar: T = (T−60)/30, $\tilde{v}$ = (v−1.5)/1.5

Lewis — Modified by Atatek

MR = $\exp(-(k_0\cdot\exp(k_{aT}\cdot T + k_{av}\cdot\tilde{v}))\cdot t)$

$k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$

Page — Modified by Atatek

MR = $\exp(-(k_0\cdot\exp(k_{aT}\cdot T + k_{av}\cdot\tilde{v}))\cdot t^{(n_0\cdot\exp(n_{aT}\cdot T + n_{av}\cdot\tilde{v}))})$

$k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_{aT} \in [-3, 3]$ $n_{av} \in [-3, 3]$

Modified Page-I — Modified by Atatek

$MR = \exp((-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t)^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v}))})$

$k_0 \in [-1000, -10^{-6}]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$

Modified Page-II — Modified by Atatek

$MR = \exp(-((k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t)^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v}))})$

$k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$

Modified Page-III — Modified by Atatek

$MR = \exp(-(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t)^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v}))})$

$k_0 \in [-1000, -10^{-6}]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$

Modified Page-IV — Modified by Atatek

$MR = (a_0 + a_T \cdot T + a_v \cdot \vec{v}) \cdot \exp(-((k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v}))}))$

$a_0 \in [-2, 3]$ | $a_T \in [-5, 5]$ | $a_v \in [-5, 5]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$

Modified Page-V — Modified by Atatek

$MR = \exp(-((k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v}))}))$

$k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$

Modified Page-VI — Modified by Atatek

$MR = \exp((k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v}))})$

$k_0 \in [-1000, -10^{-6}]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$

Ademiluyi — Modified by Atatek

$MR = (a_0 + a_T \cdot T + a_v \cdot \vec{v}) \cdot \exp(-((k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t)^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v}))})$

$a_0 \in [-2, 3]$ | $a_T \in [-5, 5]$ | $a_v \in [-5, 5]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$

Otsura et al.-I — Modified by Atatek

$MR = 1 - \exp(-((k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t^{(-(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v})))}))$

$k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$

Otsura et al.-II — Modified by Atatek

$MR = 1 - \exp(-(((c1_0 \cdot \exp(c1_{aT} \cdot T + c1_{av} \cdot \vec{v})) \cdot t)^{(-(c2_0 \cdot \exp(c2_{aT} \cdot T + c2_{av} \cdot \vec{v})))}))$

$c1_0 \in [10^{-6}, 1000]$ | $c1_{aT} \in [-3, 3]$ | $c1_{av} \in [-3, 3]$ | $c2_0 \in [0.01, 6]$ | $c2_{aT} \in [-3, 3]$ | $c2_{av} \in [-3, 3]$

Henderson and Pabis — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t)$$

$a_0 \in [-2, 3]$ $a_T \in [-5, 5]$ $a_v \in [-5, 5]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$

Mod. Henderson and Pabis-I — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot \exp(-(k0_0 \cdot \exp(k0_{aT} \cdot T + k0_{av} \cdot \bar{v})) \cdot t) + b_0 \cdot \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \bar{v})) \cdot t) + c_0 \cdot \exp(-(k2_0 \cdot \exp(k2_{aT} \cdot T + k2_{av} \cdot \bar{v})) \cdot t)$$

$a_0 \in [-5, 5]$ $a_T \in [-10, 10]$ $a_v \in [-10, 10]$ $k0_0 \in [10^{-6}, 1000]$ $k0_{aT} \in [-3, 3]$ $k0_{av} \in [-3, 3]$ $b_0 \in [-200, 200]$ $k1_0 \in [10^{-6}, 1000]$ $k1_{aT} \in [-3, 3]$ $k1_{av} \in [-3, 3]$ $c_0 \in [-200, 200]$ $k2_0 \in [10^{-6}, 1000]$ $k2_{aT} \in [-3, 3]$ $k2_{av} \in [-3, 3]$

Mod. Henderson and Pabis-II — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \bar{v}))}) + b_0 \cdot \exp(-(g_0 \cdot \exp(g_{aT} \cdot T + g_{av} \cdot \bar{v})) \cdot t) + c_0 \cdot \exp(-(h_0 \cdot \exp(h_{aT} \cdot T + h_{av} \cdot \bar{v})) \cdot t)$$

$a_0 \in [-5, 5]$ $a_T \in [-10, 10]$ $a_v \in [-10, 10]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_{aT} \in [-3, 3]$ $n_{av} \in [-3, 3]$ $b_0 \in [-200, 200]$ $g_0 \in [10^{-6}, 1000]$ $g_{aT} \in [-3, 3]$ $g_{av} \in [-3, 3]$ $c_0 \in [-200, 200]$ $h_0 \in [10^{-6}, 1000]$ $h_{aT} \in [-3, 3]$ $h_{av} \in [-3, 3]$

Logarithmic — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t) + (c_0 + c_T \cdot T + c_v \cdot \bar{v})$$

$a_0 \in [-2, 3]$ $a_T \in [-5, 5]$ $a_v \in [-5, 5]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $c_0 \in [-2, 2]$ $c_T \in [-4, 4]$ $c_v \in [-4, 4]$

Two-term — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot \exp(-(k0_0 \cdot \exp(k0_{aT} \cdot T + k0_{av} \cdot \bar{v})) \cdot t) + b_0 \cdot \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \bar{v})) \cdot t)$$

$a_0 \in [-2, 3]$ $a_T \in [-5, 5]$ $a_v \in [-5, 5]$ $k0_0 \in [10^{-6}, 1000]$ $k0_{aT} \in [-3, 3]$ $k0_{av} \in [-3, 3]$ $b_0 \in [-200, 200]$ $k1_0 \in [10^{-6}, 1000]$ $k1_{aT} \in [-3, 3]$ $k1_{av} \in [-3, 3]$

Modified two-term-I — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot \exp(-(k0_0 \cdot \exp(k0_{aT} \cdot T + k0_{av} \cdot \bar{v})) \cdot t) + (1 - (a_0 + a_T \cdot T + a_v \cdot \bar{v})) \cdot \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \bar{v})) \cdot t)$$

$a_0 \in [-2, 3]$ $a_T \in [-5, 5]$ $a_v \in [-5, 5]$ $k0_0 \in [10^{-6}, 1000]$ $k0_{aT} \in [-3, 3]$ $k0_{av} \in [-3, 3]$ $k1_0 \in [10^{-6}, 1000]$ $k1_{aT} \in [-3, 3]$ $k1_{av} \in [-3, 3]$

Modified two-term-II — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot \exp(-(k0_0 \cdot \exp(k0_{aT} \cdot T + k0_{av} \cdot \bar{v})) \cdot t) + (1 - (a_0 + a_T \cdot T + a_v \cdot \bar{v})) \cdot \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \bar{v})) \cdot t)$$

$a_0 \in [-2, 3]$ $a_T \in [-5, 5]$ $a_v \in [-5, 5]$ $k0_0 \in [10^{-6}, 1000]$ $k0_{aT} \in [-3, 3]$ $k0_{av} \in [-3, 3]$ $k1_0 \in [10^{-6}, 1000]$ $k1_{aT} \in [-3, 3]$ $k1_{av} \in [-3, 3]$

Modified two-term-III — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot \exp(-(k0_0 \cdot \exp(k0_{aT} \cdot T + k0_{av} \cdot \bar{v})) \cdot t) + (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \bar{v})) \cdot t)$$

$a_0 \in [-2, 3]$ $a_T \in [-5, 5]$ $a_v \in [-5, 5]$ $k0_0 \in [10^{-6}, 1000]$ $k0_{aT} \in [-3, 3]$ $k0_{av} \in [-3, 3]$ $k1_0 \in [10^{-6}, 1000]$ $k1_{aT} \in [-3, 3]$ $k1_{av} \in [-3, 3]$

Modified two-term-IV — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \tilde{v}) \cdot \exp(-(k0_0 \cdot \exp(k0_{aT} \cdot T + k0_{av} \cdot \tilde{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \tilde{v}))}) + b_0 \cdot \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \tilde{v})) \cdot t)$$

$a_0 \in [-2, 3]$ | $a_T \in [-5, 5]$ | $a_v \in [-5, 5]$ | $k0_0 \in [10^{-6}, 1000]$ | $k0_{aT} \in [-3, 3]$ | $k0_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$ | $b_0 \in [-200, 200]$ | $k1_0 \in [10^{-6}, 1000]$ | $k1_{aT} \in [-3, 3]$ | $k1_{av} \in [-3, 3]$

Modified two-term-V — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \tilde{v}) \cdot \exp(-(k0_0 \cdot \exp(k0_{aT} \cdot T + k0_{av} \cdot \tilde{v})) \cdot t) + (1 - (a_0 + a_T \cdot T + a_v \cdot \tilde{v})) \cdot \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \tilde{v})) \cdot t)$$

$a_0 \in [-5, 5]$ | $a_T \in [-10, 10]$ | $a_v \in [-10, 10]$ | $k0_0 \in [10^{-6}, 1000]$ | $k0_{aT} \in [-3, 3]$ | $k0_{av} \in [-3, 3]$ | $k1_0 \in [10^{-6}, 1000]$ | $k1_{aT} \in [-3, 3]$ | $k1_{av} \in [-3, 3]$

Two-term exponential — Modified by Atatek

$$MR = (a_0 \cdot \exp(a_{aT} \cdot T + a_{av} \cdot \tilde{v})) \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot t) + (1 - (a_0 \cdot \exp(a_{aT} \cdot T + a_{av} \cdot \tilde{v}))) \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot (a_0 \cdot \exp(a_{aT} \cdot T + a_{av} \cdot \tilde{v})) \cdot t)$$

$a_0 \in [10^{-6}, 1000]$ | $a_{aT} \in [-3, 3]$ | $a_{av} \in [-3, 3]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$

Verma et al. — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \tilde{v}) \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot t) + (1 - (a_0 + a_T \cdot T + a_v \cdot \tilde{v})) \cdot \exp(-(g_0 \cdot \exp(g_{aT} \cdot T + g_{av} \cdot \tilde{v})) \cdot t)$$

$a_0 \in [-5, 5]$ | $a_T \in [-10, 10]$ | $a_v \in [-10, 10]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $g_0 \in [10^{-6}, 1000]$ | $g_{aT} \in [-3, 3]$ | $g_{av} \in [-3, 3]$

Modified Verma — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \tilde{v}) \cdot \exp(-(k0_0 \cdot \exp(k0_{aT} \cdot T + k0_{av} \cdot \tilde{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \tilde{v}))}) + (1 - (a_0 + a_T \cdot T + a_v \cdot \tilde{v})) \cdot \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \tilde{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \tilde{v}))})$$

$a_0 \in [-2, 3]$ | $a_T \in [-5, 5]$ | $a_v \in [-5, 5]$ | $k0_0 \in [10^{-6}, 1000]$ | $k0_{aT} \in [-3, 3]$ | $k0_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$ | $k1_0 \in [10^{-6}, 1000]$ | $k1_{aT} \in [-3, 3]$ | $k1_{av} \in [-3, 3]$

Diffusion approximation — Modified by Atatek

$$MR = (a_0 + a_T \cdot T + a_v \cdot \tilde{v}) \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot t) + (1 - (a_0 + a_T \cdot T + a_v \cdot \tilde{v})) \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot b_0 \cdot t)$$

$a_0 \in [-5, 5]$ | $a_T \in [-10, 10]$ | $a_v \in [-10, 10]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $b_0 \in [10^{-6}, 200]$

Midilli et al. — Modified by Atatek

$$MR = a_0 \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \tilde{v}))}) + (b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot t$$

$a_0 \in [-5, 5]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$ | $b_0 \in [-200, 200]$ | $b_T \in [-400, 400]$ | $b_v \in [-400, 400]$

Modified Midilli et al.-I — Modified by Atatek

$$MR = \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \tilde{v}))}) + (b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot t$$

$k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$ | $b_0 \in [-200, 200]$ | $b_T \in [-400, 400]$ | $b_v \in [-400, 400]$

Modified Midilli et al.-II — Modified by Atatek

$$MR = \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot t) + (b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot t$$

$k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $b_0 \in [-200, 200]$ | $b_T \in [-400, 400]$ | $b_v \in [-400, 400]$

Modified Midilli et al.-III — Modified by Atatek

$$MR = a_0 \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t) + (b_0 + b_T \cdot T + b_v \cdot \bar{v}) \cdot t$$

$a_0 \in [-2, 3]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $b_0 \in [-200, 200]$ $b_T \in [-400, 400]$ $b_v \in [-400, 400]$

Wang and Singh-I — Modified by Atatek

$$MR = 1 + (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot t + (b_0 + b_T \cdot T + b_v \cdot \bar{v}) \cdot t^2$$

$a_0 \in [-200, 200]$ $a_T \in [-400, 400]$ $a_v \in [-400, 400]$ $b_0 \in [-200, 200]$ $b_T \in [-400, 400]$ $b_v \in [-400, 400]$

Wang and Singh-II — Modified by Atatek

$$MR = M0_0 + (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot t + (b_0 + b_T \cdot T + b_v \cdot \bar{v}) \cdot t^2$$

$M0_0 \in [-5, 5]$ $a_0 \in [-200, 200]$ $a_T \in [-400, 400]$ $a_v \in [-400, 400]$ $b_0 \in [-200, 200]$ $b_T \in [-400, 400]$ $b_v \in [-400, 400]$

Thompson — Modified by Atatek

$$MR = \exp((-(a_0 + a_T \cdot T + a_v \cdot \bar{v}) - \sqrt{((a_0 + a_T \cdot T + a_v \cdot \bar{v})^2 + 4 \cdot (b_0 \cdot \exp(b_{aT} \cdot T + b_{av} \cdot \bar{v})) \cdot t)})/(2 \cdot (b_0 \cdot \exp(b_{aT} \cdot T + b_{av} \cdot \bar{v}))))$$

$a_0 \in [-3, 2]$ $a_T \in [-5, 5]$ $a_v \in [-5, 5]$ $b_0 \in [10^{-6}, 1000]$ $b_{aT} \in [-3, 3]$ $b_{av} \in [-3, 3]$

Hii et al. — Modified by Atatek

$$MR = a_0 \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \bar{v}))}) + c_0 \cdot \exp(-(g_0 \cdot \exp(g_{aT} \cdot T + g_{av} \cdot \bar{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \bar{v}))})$$

$a_0 \in [-2, 3]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_{aT} \in [-3, 3]$ $n_{av} \in [-3, 3]$ $c_0 \in [-200, 200]$ $g_0 \in [10^{-6}, 1000]$ $g_{aT} \in [-3, 3]$ $g_{av} \in [-3, 3]$

Weibull distribution-I — Modified by Atatek

$$MR = a_0 - b_0 \cdot \exp(-((k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \bar{v}))}))$$

$a_0 \in [-5, 5]$ $b_0 \in [-200, 200]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_{aT} \in [-3, 3]$ $n_{av} \in [-3, 3]$

Weibull distribution-II — Modified by Atatek

$$MR = a_0 - b_0 \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \bar{v}))})$$

$a_0 \in [-5, 5]$ $b_0 \in [-200, 200]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_{aT} \in [-3, 3]$ $n_{av} \in [-3, 3]$

Weibull distribution-III — Modified by Atatek

$$MR = \exp(-(t/(a_0 \cdot \exp(a_{aT} \cdot T + a_{av} \cdot \bar{v})))^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \bar{v}))})$$

$a_0 \in [0.01, 300]$ $a_{aT} \in [-3, 3]$ $a_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_{aT} \in [-3, 3]$ $n_{av} \in [-3, 3]$

Weibull distribution-IV — Modified by Atatek

$$MR = a - b \cdot \exp((-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t)^{(n_0 + n_T \cdot T + n_v \cdot \bar{v})})$$

$a \in [-3, 3]$ $b \in [-200, 200]$ $k_0 \in [-1000, -10^{-6}]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_T \in [-3, 3]$ $n_v \in [-3, 3]$

Weibullian — Modified by Atatek

$$MR = 10^{\left(-\left(t/(delta_0 \cdot \exp(delta_{aT} \cdot \tilde{T} + delta_{av} \cdot \tilde{v}))\right)^{(n_0 \cdot \exp(n_{aT} \cdot \tilde{T} + n_{av} \cdot \tilde{v}))}\right)}$$

$delta_0 \in [10^{-4}, 10^6]$ | $delta_{aT} \in [-3, 3]$ | $delta_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $n_{av} \in [-3, 3]$

Vega-Galvez et al.-I — Modified by Atatek

$$MR = (n_0 + n_T \cdot \tilde{T} + n_v \cdot \tilde{v}) + (k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot \sqrt{(t)}$$

$n_0 \in [-1, 2]$ | $n_T \in [-3, 3]$ | $n_v \in [-3, 3]$ | $k_0 \in [-1000, -10^{-6}]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$

Vega-Galvez et al.-II — Modified by Atatek

$$MR = \exp((n_0 + n_T \cdot \tilde{T} + n_v \cdot \tilde{v}) + (k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot t)$$

$n_0 \in [-2, 1.3]$ | $n_T \in [-3.3, 3.3]$ | $n_v \in [-3.3, 3.3]$ | $k_0 \in [-1000, -10^{-6}]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$

Vega-Galvez et al.-III — Modified by Atatek

$$MR = (a + (b_0 + b_T \cdot \tilde{T} + b_v \cdot \tilde{v}) \cdot t)^2$$

$a \in [0, 5]$ | $b_0 \in [-200, 200]$ | $b_T \in [-400, 400]$ | $b_v \in [-400, 400]$

Jena Das — Modified by Atatek

$$MR = a \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot t + (b_0 + b_T \cdot \tilde{T} + b_v \cdot \tilde{v}) \cdot \sqrt{(t)}) + c$$

$a \in [-5, 5]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $b_0 \in [-200, 200]$ | $b_T \in [-400, 400]$ | $b_v \in [-400, 400]$ | $c \in [-2, 2]$

Wang et al.- One term — Modified by Atatek

$$MR = a \cdot \exp(b \cdot (k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot t) + (1 - a)$$

$a \in [-2, 3]$ | $b \in [-3, 0]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$

Wang et al.- Two term — Modified by Atatek

$$MR = (1 - a) \cdot \exp(b \cdot (k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot t) + a \cdot \exp(c \cdot (k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot t)$$

$a \in [-200, 200]$ | $b \in [-3, 0]$ | $c \in [-3, 0]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$

Wang et al.- Three term — Modified by Atatek

$$MR = (1 - a - b) \cdot \exp(c \cdot (k_0 + k_T \cdot \tilde{T} + k_v \cdot \tilde{v}) \cdot t) + a \cdot \exp(d \cdot (k_0 + k_T \cdot \tilde{T} + k_v \cdot \tilde{v}) \cdot t) + b \cdot \exp(f \cdot (k_0 + k_T \cdot \tilde{T} + k_v \cdot \tilde{v}) \cdot t)$$

$a \in [-200, 200]$ | $b \in [-200, 200]$ | $c \in [-5, 5]$ | $d \in [-5, 5]$ | $f \in [-5, 5]$ | $k_0 \in [-200, 200]$ | $k_T \in [-200, 200]$ | $k_v \in [-200, 200]$

Demir et al. — Modified by Atatek

$$MR = a \cdot \exp((-(k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot t)^{(n_0 + n_T \cdot \tilde{T} + n_v \cdot \tilde{v})}) + b$$

$a \in [-5, 5]$ | $k_0 \in [-1000, -10^{-6}]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_T \in [-3, 3]$ | $n_v \in [-3, 3]$ | $b \in [-2, 2]$

Diamente et al. — Modified by Atatek

$MR = \exp(-\exp((a_0 + a_T \cdot \tilde{T} + a_v \cdot \tilde{v}) + (b_0 \cdot \exp(b_{aT} \cdot \tilde{T} + b_{av} \cdot \tilde{v})) \cdot \ln(t) + c \cdot \ln(t)^2))$

$a_0 \in [-8, 8]$ | $a_T \in [-16, 16]$ | $a_v \in [-16, 16]$ | $b_0 \in [0.05, 8]$ | $b_{aT} \in [-3, 3]$ | $b_{av} \in [-3, 3]$ | $c \in [-0.5, 0.5]$

Haghi and Angiz-I — Modified by Atatek

$MR = a \cdot \exp(-(b_0 \cdot \exp(b_{aT} \cdot \tilde{T} + b_{av} \cdot \tilde{v})) \cdot t^{(c_0 \cdot \exp(c_{aT} \cdot \tilde{T} + c_{av} \cdot \tilde{v}))}) + d \cdot t^2 + e2 \cdot t + f$

$a \in [-2, 3]$ | $b_0 \in [10^{-6}, 1000]$ | $b_{aT} \in [-3, 3]$ | $b_{av} \in [-3, 3]$ | $c_0 \in [0.01, 6]$ | $c_{aT} \in [-3, 3]$ | $c_{av} \in [-3, 3]$ | $d \in [-200, 200]$ | $e2 \in [-200, 200]$ | $f \in [-2, 2]$

Haghi and Angiz-II — Modified by Atatek

$MR = a_0 + (b_0 + b_T \cdot \tilde{T} + b_v \cdot \tilde{v}) \cdot t + (c_0 + c_T \cdot \tilde{T} + c_v \cdot \tilde{v}) \cdot t^2 + d_0 \cdot t^3$

$a_0 \in [-1, 3]$ | $b_0 \in [-200, 200]$ | $b_T \in [-400, 400]$ | $b_v \in [-400, 400]$ | $c_0 \in [-200, 200]$ | $c_T \in [-400, 400]$ | $c_v \in [-400, 400]$ | $d_0 \in [-200, 200]$

Haghi and Angiz-III — Modified by Atatek

$MR = (a_0 + (b_0 + b_T \cdot \tilde{T} + b_v \cdot \tilde{v}) \cdot t)/(1 + (c_0 + c_T \cdot \tilde{T} + c_v \cdot \tilde{v}) \cdot t + d_0 \cdot t^2)$

$a_0 \in [-5, 5]$ | $b_0 \in [-200, 200]$ | $b_T \in [-400, 400]$ | $b_v \in [-400, 400]$ | $c_0 \in [-200, 200]$ | $c_T \in [-400, 400]$ | $c_v \in [-400, 400]$ | $d_0 \in [-200, 200]$

Haghi and Angiz-IV — Modified by Atatek

$MR = a_0 \cdot \exp(-(t - (b_0 + b_T \cdot \tilde{T} + b_v \cdot \tilde{v}))^2/(2 \cdot (c_0 \cdot \exp(c_{aT} \cdot \tilde{T} + c_{av} \cdot \tilde{v}))^2))$

$a_0 \in [-2, 500]$ | $b_0 \in [-500, 500]$ | $b_T \in [-1000, 1000]$ | $b_v \in [-1000, 1000]$ | $c_0 \in [0.01, 100]$ | $c_{aT} \in [-3, 3]$ | $c_{av} \in [-3, 3]$

Sripinyowanich and Noomhorm — Modified by Atatek

$MR = \exp(-(k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot t^{(n_0 + n_T \cdot \tilde{T} + n_v \cdot \tilde{v})}) + b_0 \cdot t + c_0$

$k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_T \in [-5.99, 5.99]$ | $n_v \in [-5.99, 5.99]$ | $b_0 \in [-200, 200]$ | $c_0 \in [-2, 2]$

Noomhorm and Verma — Modified by Atatek

$MR = a_0 \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot t) + b_0 \cdot \exp(-(g_0 \cdot \exp(g_{aT} \cdot \tilde{T} + g_{av} \cdot \tilde{v})) \cdot t) + c_0$

$a_0 \in [-5, 5]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $b_0 \in [-200, 200]$ | $g_0 \in [10^{-6}, 1000]$ | $g_{aT} \in [-3, 3]$ | $g_{av} \in [-3, 3]$ | $c_0 \in [-2, 2]$

Hasibuan and Daud-I — Modified by Atatek

$MR = 1 - a_0 \cdot t^{(n_0)} \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot t^{(m_0 + m_T \cdot \tilde{T} + m_v \cdot \tilde{v})})$

$a_0 \in [-200, 200]$ | $n_0 \in [0.01, 6]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $m_0 \in [0.01, 6]$ | $m_T \in [-5.99, 5.99]$ | $m_v \in [-5.99, 5.99]$

Hasibuan and Daud-II — Modified by Atatek

$MR = 1 - a_0 \cdot t^{(n_0 + n_T \cdot \tilde{T} + n_v \cdot \tilde{v})} \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v})) \cdot t^{(n_0 + n_T \cdot \tilde{T} + n_v \cdot \tilde{v})})$

$a_0 \in [-200, 200]$ | $n_0 \in [0.01, 6]$ | $n_T \in [-3, 3]$ | $n_v \in [-3, 3]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$

Sharaf-Eldeen et al. — Modified by Atatek

$\mathrm{MR} = a_0 \cdot \exp((k_0 + k_T \cdot T + k_v \cdot \tilde{v}) \cdot t) + 1 - a_0 \cdot \exp(-b_0 \cdot (k_0 + k_T \cdot T + k_v \cdot \tilde{v}) \cdot t)$

$a_0 \in [-5, 5]$ $k_0 \in [-200, 200]$ $k_T \in [-400, 400]$ $k_v \in [-400, 400]$ $b_0 \in [10^{-6}, 5]$

Henderson and Henderson-I — Modified by Atatek

$\mathrm{MR} = c_0 \cdot (\exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot t) + (1/9) \cdot \exp(-9 \cdot (k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot t))$

$c_0 \in [-2, 3]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$

Henderson and Henderson-II — Modified by Atatek

$\mathrm{MR} = c_0 \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot t) + (1/9) \cdot \exp(-9 \cdot (k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \tilde{v})) \cdot t)$

$c_0 \in [-2, 3]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$

Parabolic — Modified by Atatek

$\mathrm{MR} = a_0 + (b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot t + (c_0 + c_T \cdot T + c_v \cdot \tilde{v}) \cdot t^2$

$a_0 \in [-2, 3]$ $b_0 \in [-200, 200]$ $b_T \in [-400, 400]$ $b_v \in [-400, 400]$ $c_0 \in [-200, 200]$ $c_T \in [-400, 400]$ $c_v \in [-400, 400]$

Geometric-I — Modified by Atatek

$\mathrm{MR} = a_0 \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \tilde{v}))}$

$a_0 \in [-200, 200]$ $n_0 \in [10^{-6}, 6]$ $n_{aT} \in [-3, 3]$ $n_{av} \in [-3, 3]$

Geometric-II — Modified by Atatek

$\mathrm{MR} = (a_0 \cdot \exp(a_{aT} \cdot T + a_{av} \cdot \tilde{v})) \cdot t^{(-(n_0 + n_T \cdot T + n_v \cdot \tilde{v}))}$

$a_0 \in [10^{-9}, 10^5]$ $a_{aT} \in [-3, 3]$ $a_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_T \in [-5.99, 5.99]$ $n_v \in [-5.99, 5.99]$

Logistic — Modified by Atatek

$\mathrm{MR} = a0_0/(1 + a_0 \cdot \exp((k_0 + k_T \cdot T + k_v \cdot \tilde{v}) \cdot t))$

$a0_0 \in [-5, 5]$ $a_0 \in [-200, 200]$ $k_0 \in [-200, 200]$ $k_T \in [-400, 400]$ $k_v \in [-400, 400]$

Regression-I — Modified by Atatek

$\mathrm{MR} = \exp(-((a_0 + a_T \cdot T + a_v \cdot \tilde{v}) \cdot t^2 + (b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot t))$

$a_0 \in [-200, 200]$ $a_T \in [-400, 400]$ $a_v \in [-400, 400]$ $b_0 \in [-200, 200]$ $b_T \in [-400, 400]$ $b_v \in [-400, 400]$

Regression-II — Modified by Atatek

$\mathrm{MR} = (-(b_0 + b_T \cdot T + b_v \cdot \tilde{v}) - \sqrt{(|(b_0 + b_T \cdot T + b_v \cdot \tilde{v})^2 - 4 \cdot a_0 \cdot ((c_0 + c_T \cdot T + c_v \cdot \tilde{v}) - t)|)})/(2 \cdot a_0)$

$a_0 \in [-500, -1]$ $b_0 \in [-500, 500]$ $b_T \in [-400, 400]$ $b_v \in [-400, 400]$ $c_0 \in [1, 500]$ $c_T \in [-400, 400]$ $c_v \in [-400, 400]$

Chavez-Mendez et al. — Modified by Atatek

$MR = (a_0 + a_T \cdot T + a_v \cdot \vec{v}) + (b_0 + b_T \cdot T + b_v \cdot \vec{v}) \cdot \ln(t)$

$a_0 \in [-5, 5]$ $a_T \in [-10, 10]$ $a_v \in [-10, 10]$ $b_0 \in [-5, 5]$ $b_T \in [-10, 10]$ $b_v \in [-10, 10]$

Aghbashlo — Modified by Atatek

$MR = \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \vec{v})) \cdot t / (1 + (k2_0 \cdot \exp(k2_{aT} \cdot T + k2_{av} \cdot \vec{v})) \cdot t))$

$k1_0 \in [10^{-6}, 1000]$ $k1_{aT} \in [-3, 3]$ $k1_{av} \in [-3, 3]$ $k2_0 \in [10^{-6}, 1000]$ $k2_{aT} \in [-3, 3]$ $k2_{av} \in [-3, 3]$

Aghbashlo et al. — Modified by Atatek

$MR = \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \vec{v})) \cdot t / (1 + (k2_0 \cdot \exp(k2_{aT} \cdot T + k2_{av} \cdot \vec{v})) \cdot t))$

$k1_0 \in [10^{-6}, 1000]$ $k1_{aT} \in [-3, 3]$ $k1_{av} \in [-3, 3]$ $k2_0 \in [10^{-6}, 1000]$ $k2_{aT} \in [-3, 3]$ $k2_{av} \in [-3, 3]$

Mod. Henderson and Perry — Modified by Atatek

$MR = a_0 \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v}))})$

$a_0 \in [-5, 5]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_{aT} \in [-3, 3]$ $n_{av} \in [-3, 3]$

Three-parameter — Modified by Atatek

$MR = a_0 \cdot \exp(-((k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t)^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v}))})$

$a_0 \in [-2, 3]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_{aT} \in [-3, 3]$ $n_{av} \in [-3, 3]$

Asymptotic — Modified by Atatek

$MR = (a0_0 + a0_T \cdot T + a0_v \cdot \vec{v}) + a_0 \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t)$

$a0_0 \in [-1, 1]$ $a0_T \in [-2, 2]$ $a0_v \in [-2, 2]$ $a_0 \in [-200, 200]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$

Alibas — Modified by Atatek

$MR = a_0 \cdot \exp(((k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t)^{(n_0 \cdot \exp(n_{aT} \cdot T + n_{av} \cdot \vec{v}))} + (b_0 + b_T \cdot T + b_v \cdot \vec{v}) \cdot t) + g_0$

$a_0 \in [-2, 3]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_{aT} \in [-3, 3]$ $n_{av} \in [-3, 3]$ $b_0 \in [-200, 200]$ $b_T \in [-400, 400]$ $b_v \in [-400, 400]$ $g_0 \in [-2, 2]$

Khazaei and Daneshmandi — Modified by Atatek

$MR = (a_0 + a_T \cdot T + a_v \cdot \vec{v}) + \exp(-(b_0 \cdot \exp(b_{aT} \cdot T + b_{av} \cdot \vec{v})) \cdot t) - (c_0 + c_T \cdot T + c_v \cdot \vec{v}) \cdot t$

$a_0 \in [-0.5, 0.3]$ $a_T \in [-0.8, 0.8]$ $a_v \in [-0.8, 0.8]$ $b_0 \in [10^{-6}, 1000]$ $b_{aT} \in [-3, 3]$ $b_{av} \in [-3, 3]$ $c_0 \in [-200, 200]$ $c_T \in [-400, 400]$ $c_v \in [-400, 400]$

Kulcu — Modified by Atatek

$MR = a_0 b_0 \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \vec{v})) \cdot t^{(n_0 + n_T \cdot T + n_v \cdot \vec{v})}) / c_0 t + d_0$

$a_0 \in [10^{-4}, 1000]$ $b_0 \in [10^{-6}, 6]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_T \in [-5.99, 5.99]$ $n_v \in [-5.99, 5.99]$ $c_0 \in [1, 3]$ $d_0 \in [-2, 2]$

Süslü & Külcü — Modified by Atatek

$\mathrm{MR} = c1_0 \cdot \exp(-(c2_0 \cdot \exp(c2_{aT} \cdot T + c2_{av} \cdot \bar{v})) \cdot t^{(c3_0 + c3_T \cdot T + c3_v \cdot \bar{v})}) \cdot (1 + c4_0 \cdot \sin(c5_0 \cdot t)) + c6_0 \cdot (1 - \exp(-(c7_0 \cdot \exp(c7_{aT} \cdot T + c7_{av} \cdot \bar{v})) \cdot \sqrt{(t)})))$

$c1_0 \in [-2, 3]$ $c2_0 \in [10^{-6}, 1000]$ $c2_{aT} \in [-3, 3]$ $c2_{av} \in [-3, 3]$ $c3_0 \in [0.01, 6]$ $c3_T \in [-5.99, 5.99]$ $c3_v \in [-5.99, 5.99]$ $c4_0 \in [-1, 1]$ $c5_0 \in [10^{-6}, 1000]$ $c6_0 \in [-0.5, 1]$ $c7_0 \in [10^{-6}, 1000]$ $c7_{aT} \in [-3, 3]$ $c7_{av} \in [-3, 3]$

Two-term Gaussian — Modified by Atatek

$\mathrm{MR} = a_0 \cdot \exp(-((t - b_0)/(c_0 \cdot \exp(c_{aT} \cdot T + c_{av} \cdot \bar{v})))^2) + d_0 \cdot \exp(-((t - e2_0)/(f_0 \cdot \exp(f_{aT} \cdot T + f_{av} \cdot \bar{v})))^2)$

$a_0 \in [-4, 4]$ $b_0 \in [-500, 2000]$ $c_0 \in [10^{-4}, 2000]$ $c_{aT} \in [-3, 3]$ $c_{av} \in [-3, 3]$ $d_0 \in [-200, 200]$ $e2_0 \in [-500, 2000]$ $f_0 \in [10^{-4}, 2000]$ $f_{aT} \in [-3, 3]$ $f_{av} \in [-3, 3]$

Chabane et al. — Modified by Atatek

$\mathrm{MR} = (c_0 + c_T \cdot T + c_v \cdot \bar{v}) + (a_0 + a_T \cdot T + a_v \cdot \bar{v}) \cdot \sin(\pi \cdot (t - k_0)/g_0)$

$c_0 \in [-1, 2]$ $c_T \in [-3, 3]$ $c_v \in [-3, 3]$ $a_0 \in [-1, 1]$ $a_T \in [-2, 2]$ $a_v \in [-2, 2]$ $k_0 \in [-1000, 10^5]$ $g_0 \in [10^{-4}, 10^5]$

Kidane et al.-I — Modified by Atatek

$\mathrm{MR} = 1 - \exp((-(a_0 \cdot \exp(a_{aT} \cdot T + a_{av} \cdot \bar{v}))/t) - (b_0 + b_T \cdot T + b_v \cdot \bar{v}) \cdot \ln(t) + c_0)$

$a_0 \in [10^{-4}, 100]$ $a_{aT} \in [-3, 3]$ $a_{av} \in [-3, 3]$ $b_0 \in [-10, 10]$ $b_T \in [-20, 20]$ $b_v \in [-20, 20]$ $c_0 \in [-5, 5]$

Kidane et al.-II — Modified by Atatek

$\mathrm{MR} = a_0 \cdot \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot T + k1_{av} \cdot \bar{v})) \cdot t^{(n_0 + n_T \cdot T + n_v \cdot \bar{v})})/|1 + b_0 \cdot \exp(-(k2_0 \cdot \exp(k2_{aT} \cdot T + k2_{av} \cdot \bar{v})) \cdot tm_0)|p_0$

$a_0 \in [-2, 100]$ $k1_0 \in [10^{-6}, 1000]$ $k1_{aT} \in [-3, 3]$ $k1_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_T \in [-5.99, 5.99]$ $n_v \in [-5.99, 5.99]$ $b_0 \in [-200, 200]$ $k2_0 \in [10^{-6}, 1000]$ $k2_{aT} \in [-3, 3]$ $k2_{av} \in [-3, 3]$ $m_0 \in [0.01, 6]$ $p_0 \in [0.01, 20]$

Gokhale and Lele — Modified by Atatek

$\mathrm{MR} = \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t^{(n_0 + n_T \cdot T + n_v \cdot \bar{v})} - (g_0 \cdot \exp(g_{aT} \cdot T + g_{av} \cdot \bar{v})) \cdot t)$

$k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_T \in [-5.99, 5.99]$ $n_v \in [-5.99, 5.99]$ $g_0 \in [10^{-6}, 1000]$ $g_{aT} \in [-3, 3]$ $g_{av} \in [-3, 3]$

Ahmad and Prakash — Modified by Atatek

$\mathrm{MR} = a_0 \cdot \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t^{(n_0 + n_T \cdot T + n_v \cdot \bar{v})}) + b_0 \cdot t^2$

$a_0 \in [-5, 5]$ $k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $n_0 \in [0.01, 6]$ $n_T \in [-5.99, 5.99]$ $n_v \in [-5.99, 5.99]$ $b_0 \in [-200, 200]$

Singh et al. — Modified by Atatek

$\mathrm{MR} = \exp(-(k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t) + a_0 \cdot (k_0 \cdot \exp(k_{aT} \cdot T + k_{av} \cdot \bar{v})) \cdot t$

$k_0 \in [10^{-6}, 1000]$ $k_{aT} \in [-3, 3]$ $k_{av} \in [-3, 3]$ $a_0 \in [-5, 5]$

Silva et al. — Modified by Atatek

$\mathrm{MR} = \exp(-(a_0 \cdot \exp(a_{aT} \cdot T + a_{av} \cdot \bar{v})) \cdot t - (b_0 + b_T \cdot T + b_v \cdot \bar{v}) \cdot \sqrt{(t)})$

$a_0 \in [10^{-6}, 1000]$ $a_{aT} \in [-3, 3]$ $a_{av} \in [-3, 3]$ $b_0 \in [-0.5, 2]$ $b_T \in [-2.5, 2.5]$ $b_v \in [-2.5, 2.5]$

Djebli et al.-I — Modified by Atatek

$MR = (1 + a_0 \cdot t^{(n_0 + n_T \cdot \tilde{T} + n_v \cdot \tilde{v})} \cdot \exp(-(k1_0 \cdot \exp(k1_{aT} \cdot \tilde{T} + k1_{av} \cdot \tilde{v})) \cdot t^{(n_0 + n_T \cdot \tilde{T} + n_v \cdot \tilde{v})}))/|1 + a_0 \cdot tm_0 \cdot \exp(-(k2_0 \cdot \exp(k2_{aT} \cdot \tilde{T} + k2_{av} \cdot \tilde{v})) \cdot tm_0)|p_0$

$a_0 \in [-200, 200]$ | $n_0 \in [0.01, 6]$ | $n_T \in [-5.99, 5.99]$ | $n_v \in [-5.99, 5.99]$ | $k1_0 \in [10^{-6}, 1000]$ | $k1_{aT} \in [-3, 3]$ | $k1_{av} \in [-3, 3]$ | $m_0 \in [0.01, 6]$ | $k2_0 \in [10^{-6}, 1000]$ | $k2_{aT} \in [-3, 3]$ | $k2_{av} \in [-3, 3]$ | $p_0 \in [0.01, 20]$

Djebli et al.-II — Modified by Atatek

$MR = (1 + a_0 \cdot t^{(n_0 + n_T \cdot \tilde{T} + n_v \cdot \tilde{v})} \cdot \ln(1 + (k1_0 \cdot \exp(k1_{aT} \cdot \tilde{T} + k1_{av} \cdot \tilde{v})) \cdot t^{(n_0 + n_T \cdot \tilde{T} + n_v \cdot \tilde{v})}))/(1 + a_0 \cdot tm_0 \cdot \ln(1 + (k2_0 \cdot \exp(k2_{aT} \cdot \tilde{T} + k2_{av} \cdot \tilde{v})) \cdot tm_0))p_0$

$a_0 \in [10^{-6}, 1000]$ | $n_0 \in [0.01, 6]$ | $n_T \in [-5.99, 5.99]$ | $n_v \in [-5.99, 5.99]$ | $k1_0 \in [10^{-6}, 1000]$ | $k1_{aT} \in [-3, 3]$ | $k1_{av} \in [-3, 3]$ | $m_0 \in [0.01, 6]$ | $k2_0 \in [10^{-6}, 1000]$ | $k2_{aT} \in [-3, 3]$ | $k2_{av} \in [-3, 3]$ | $p_0 \in [0.01, 20]$

Peleg — Modified by Atatek

$MR = 1 - t/(a_0 \cdot \exp(a_{aT} \cdot \tilde{T} + a_{av} \cdot \tilde{v}) + b_0 \cdot \exp(b_{aT} \cdot \tilde{T}) \cdot t)$

$a_0 \in [10^{-3}, 10^5]$ | $a_{aT} \in [-3, 3]$ | $a_{av} \in [-3, 3]$ | $b_0 \in [10^{-6}, 1000]$ | $b_{aT} \in [-3, 3]$

Balbay and Sahin — Modified by Atatek

$MR = (1 - (a_0 + a_T \cdot \tilde{T})) \cdot \exp(-k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v}) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot \tilde{T}))}) + b_0$

$a_0 \in [-2, 2]$ | $a_T \in [-4, 4]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $b_0 \in [-2, 2]$

Combined two-term & Page — Modified by Atatek

$MR = (a_0 + a_T \cdot \tilde{T}) \cdot \exp(-k_0 \cdot \exp(k_{aT} \cdot \tilde{T} + k_{av} \cdot \tilde{v}) \cdot t^{(n_0 \cdot \exp(n_{aT} \cdot \tilde{T}))}) + (1 - (a_0 + a_T \cdot \tilde{T})) \cdot \exp(-k1_0 \cdot \exp(k1_{aT} \cdot \tilde{T} + k1_{av} \cdot \tilde{v}) \cdot t)$

$a_0 \in [-2, 3]$ | $a_T \in [-5, 5]$ | $k_0 \in [10^{-6}, 1000]$ | $k_{aT} \in [-3, 3]$ | $k_{av} \in [-3, 3]$ | $n_0 \in [0.01, 6]$ | $n_{aT} \in [-3, 3]$ | $k1_0 \in [10^{-6}, 1000]$ | $k1_{aT} \in [-3, 3]$ | $k1_{av} \in [-3, 3]$

Grigoras — Modified by Atatek

$MR = (a_0 + a_T \cdot \tilde{T} + a_v \cdot \tilde{v}) \cdot (1 - \exp(-b_0 \cdot \exp(b_{aT} \cdot \tilde{T} + b_{av} \cdot \tilde{v}) \cdot t))$

$a_0 \in [-2, 3]$ | $a_T \in [-5, 5]$ | $a_v \in [-5, 5]$ | $b_0 \in [10^{-6}, 1000]$ | $b_{aT} \in [-3, 3]$ | $b_{av} \in [-3, 3]$

Baroreflex 5-param. (baro5) — Modified by Atatek

$MR = (c_0 + c_T \cdot \tilde{T}) + ((d_0 + d_T \cdot \tilde{T}) - (c_0 + c_T \cdot \tilde{T}))/(1 + f_0 \cdot \exp(b1_0 \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot \tilde{T} + e2_{av} \cdot \tilde{v})))) + (1 - f_0) \cdot \exp(b2_0 \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot \tilde{T} + e2_{av} \cdot \tilde{v})))))$

$c_0 \in [-2, 2]$ | $c_T \in [-4, 4]$ | $d_0 \in [-2, 2]$ | $d_T \in [-4, 4]$ | $f_0 \in [-20, 20]$ | $b1_0 \in [-50, 50]$ | $b2_0 \in [-50, 50]$ | $e2_0 \in [10^{-4}, 10^6]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

Brain-Cousens BC.4 — Modified by Atatek

$MR = (d_0 + d_T \cdot \tilde{T} + f_0 \cdot t)/(1 + \exp(b_0 \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot \tilde{T} + e2_{av} \cdot \tilde{v})))))$

$d_0 \in [-2, 2]$ | $d_T \in [-4, 4]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $e2_0 \in [10^{-4}, 10^6]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

Brain-Cousens BC.5 — Modified by Atatek

$MR = (c_0 + c_T \cdot \tilde{T}) + ((d_0 + d_T \cdot \tilde{T}) - (c_0 + c_T \cdot \tilde{T}) + f_0 \cdot t)/(1 + \exp(b_0 \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot \tilde{T} + e2_{av} \cdot \tilde{v})))))$

$c_0 \in [-2, 2]$ | $c_T \in [-4, 4]$ | $d_0 \in [-2, 2]$ | $d_T \in [-4, 4]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $e2_0 \in [10^{-4}, 10^6]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

CRS.4a () — Modified by Atatek

MR = $(d_0 + d_T \cdot T + f_0 \cdot \exp(-1/t^{1}))/(1 + \exp(b_0 \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$d_0 \in [-2, 2]$ | $d_T \in [-4, 4]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $e2_0 \in [10^{-4}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

CRS.4b () — Modified by Atatek

MR = $(d_0 + d_T \cdot T + f_0 \cdot \exp(-1/t^{0.5}))/(1 + \exp(b_0 \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$d_0 \in [-2, 2]$ | $d_T \in [-4, 4]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $e2_0 \in [10^{-4}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

CRS.4c () — Modified by Atatek

MR = $(d_0 + d_T \cdot T + f_0 \cdot \exp(-1/t^{0.25}))/(1 + \exp(b_0 \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$d_0 \in [-2, 2]$ | $d_T \in [-4, 4]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $e2_0 \in [10^{-4}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

UCRS.4a () — Modified by Atatek

MR = $(d_0 + d_T \cdot T) - ((d_0 + d_T \cdot T) + f_0 \cdot \exp(-1/t^{1}))/(1 + \exp(b_0 \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$d_0 \in [-2, 2]$ | $d_T \in [-4, 4]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $e2_0 \in [10^{-4}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

UCRS.4b () — Modified by Atatek

MR = $(d_0 + d_T \cdot T) - ((d_0 + d_T \cdot T) + f_0 \cdot \exp(-1/t^{0.5}))/(1 + \exp(b_0 \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$d_0 \in [-2, 2]$ | $d_T \in [-4, 4]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $e2_0 \in [10^{-4}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

UCRS.4c () — Modified by Atatek

MR = $d_0 - (d_0 + f_0 \cdot \exp(-1/t^{0.25}))/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$d_0 \in [-2, 2]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $e2_0 \in [10^{-4}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

CRS.5a () — Modified by Atatek

MR = $c_0 + (d_0 - c_0 + f_0 \cdot \exp(-1/t^{1}))/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$c_0 \in [-2, 2]$ | $d_0 \in [-2, 2]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $e2_0 \in [10^{-4}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

CRS.5b () — Modified by Atatek

MR = $c_0 + (d_0 - c_0 + f_0 \cdot \exp(-1/t^{0.5}))/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$c_0 \in [-2, 2]$ | $d_0 \in [-2, 2]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $e2_0 \in [10^{-4}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

CRS.5c () — Modified by Atatek

MR = $c_0 + (d_0 - c_0 + f_0 \cdot \exp(-1/t^{0.25}))/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$c_0 \in [-2, 2]$ | $d_0 \in [-2, 2]$ | $f_0 \in [-20, 20]$ | $b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $e2_0 \in [10^{-4}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

UCRS.5a () — Modified by Atatek

$MR = c_0 + d_0 - (d_0 - c_0 + f_0 \cdot \exp(-1/t^{1}))/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$c_0 \in [-2, 2]$ $d_0 \in [-2, 2]$ $f_0 \in [-20, 20]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^{6}]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

UCRS.5b () — Modified by Atatek

$MR = c_0 + d_0 - (d_0 - c_0 + f_0 \cdot \exp(-1/t^{0.5}))/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$c_0 \in [-2, 2]$ $d_0 \in [-2, 2]$ $f_0 \in [-20, 20]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^{6}]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

UCRS.5c () — Modified by Atatek

$MR = c_0 + d_0 - (d_0 - c_0 + f_0 \cdot \exp(-1/t^{0.25}))/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$c_0 \in [-2, 2]$ $d_0 \in [-2, 2]$ $f_0 \in [-20, 20]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^{6}]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

CRS.6 (six-parameter) — Modified by Atatek

$MR = c_0 + (d_0 - c_0 + f_0 \cdot \exp(-1/t alpha_0))/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$c_0 \in [-2, 2]$ $d_0 \in [-2, 2]$ $f_0 \in [-20, 20]$ $alpha_0 \in [0.01, 15]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^{6}]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Logistic L3 — Modified by Atatek

$MR = d_0/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$d_0 \in [-2, 2]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^{6}]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Logistic L4 — Modified by Atatek

$MR = c_0 + (d_0 - c_0)/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))$

$c_0 \in [-2, 2]$ $d_0 \in [-2, 2]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^{6}]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Logistic L5 — Modified by Atatek

$MR = c_0 + (d_0 - c_0)/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \tilde{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))))^{f_0}$

$c_0 \in [-2, 2]$ $d_0 \in [-2, 2]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^{6}]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$ $f_0 \in [10^{-3}, 20]$

Exponential decay EXD.2 — Modified by Atatek

$MR = a_0 \cdot ((1 + b_0) \cdot \exp(b_{aT} \cdot T + b_{av} \cdot \tilde{v}))^{t}$

$a_0 \in [-2, 3]$ $b_0 \in [-0.999, 2]$ $b_{aT} \in [-3, 3]$ $b_{av} \in [-3, 3]$

Exponential decay EXD.3 — Modified by Atatek

$MR = c_0 + (d_0 - c_0) \cdot \exp(-t/(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \tilde{v})))$

$c_0 \in [-2, 2]$ $d_0 \in [-2, 2]$ $e2_0 \in [10^{-4}, 10^{6}]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Gompertz G.4 — Modified by Atatek

MR = $c_0 + (d_0 - c_0)\cdot\exp(-\exp((b_0 + b_T\cdot T + b_v\cdot\tilde{v})\cdot(\ln(t) - e2_0\cdot\exp(e2_{aT}\cdot T + e2_{av}\cdot\tilde{v}))))$

$c_0 \in [-2, 2]$ $d_0 \in [-2, 2]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-6}, 10^6]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Log-logistic LL.2 — Modified by Atatek

MR = $1/(1 + \exp((b_0 + b_T\cdot T + b_v\cdot\tilde{v})\cdot(\ln(t) - \ln(e2_0\cdot\exp(e2_{aT}\cdot T + e2_{av}\cdot\tilde{v})))))$

$b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^6]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Log-logistic LL.2 (diğer form) — Modified by Atatek

MR = $1/(1 + \exp((b_0 + b_T\cdot T + b_v\cdot\tilde{v})\cdot(\ln(t) - e2_0\cdot\exp(e2_{aT}\cdot T + e2_{av}\cdot\tilde{v}))))$

$b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-6}, 10^6]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Log-logistic LL.3 — Modified by Atatek

MR = $d_0/(1 + \exp((b_0 + b_T\cdot T + b_v\cdot\tilde{v})\cdot(\ln(t) - \ln(e2_0\cdot\exp(e2_{aT}\cdot T + e2_{av}\cdot\tilde{v})))))$

$d_0 \in [-2, 2]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^6]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Log-logistic LL.3 (diğer form) — Modified by Atatek

MR = $d_0/(1 + \exp((b_0 + b_T\cdot T + b_v\cdot\tilde{v})\cdot(\ln(t) - e2_0\cdot\exp(e2_{aT}\cdot T + e2_{av}\cdot\tilde{v}))))$

$d_0 \in [-2, 2]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-6}, 10^6]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Log-logistic LL.3u (üst sınır) — Modified by Atatek

MR = $c_0 + (1 - c_0)/(1 + \exp((b_0 + b_T\cdot T + b_v\cdot\tilde{v})\cdot(\ln(t) - \ln(e2_0\cdot\exp(e2_{aT}\cdot T + e2_{av}\cdot\tilde{v})))))$

$c_0 \in [-2, 2]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^6]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Log-logistic LL.3u (diğer form) — Modified by Atatek

MR = $c_0 + (1 - c_0)/(1 + \exp((b_0 + b_T\cdot T + b_v\cdot\tilde{v})\cdot(\ln(t) - e2_0\cdot\exp(e2_{aT}\cdot T + e2_{av}\cdot\tilde{v}))))$

$c_0 \in [-2, 2]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-6}, 10^6]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Log-logistic LL.4 — Modified by Atatek

MR = $c_0 + (d_0 - c_0)/(1 + \exp((b_0 + b_T\cdot T + b_v\cdot\tilde{v})\cdot(\ln(t) - \ln(e2_0\cdot\exp(e2_{aT}\cdot T + e2_{av}\cdot\tilde{v})))))$

$c_0 \in [-2, 2]$ $d_0 \in [-2, 2]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-4}, 10^6]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Log-logistic LL.4 (diğer form) — Modified by Atatek

MR = $c_0 + (d_0 - c_0)/(1 + \exp((b_0 + b_T\cdot T + b_v\cdot\tilde{v})\cdot(\ln(t) - e2_0\cdot\exp(e2_{aT}\cdot T + e2_{av}\cdot\tilde{v}))))$

$c_0 \in [-2, 2]$ $d_0 \in [-2, 2]$ $b_0 \in [-50, 50]$ $b_T \in [-100, 100]$ $b_v \in [-100, 100]$ $e2_0 \in [10^{-6}, 10^6]$ $e2_{aT} \in [-3, 3]$ $e2_{av} \in [-3, 3]$

Log-logistic LL.5 — Modified by Atatek

$MR = c_0 + (d_0 - c_0)/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \vec{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \vec{v})))))^{f_0}$

$c_0 \in [-2, 2]$ | $d_0 \in [-2, 2]$ | $b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $e2_0 \in [10^{-4}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$ | $f_0 \in [10^{-6}, 20]$

Log-logistic LL.5 (diğer form) — Modified by Atatek

$MR = c_0 + (d_0 - c_0)/(1 + \exp((b_0 + b_T \cdot T + b_v \cdot \vec{v}) \cdot (\ln(t) - e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \vec{v}))))^{f_0}$

$c_0 \in [-2, 2]$ | $d_0 \in [-2, 2]$ | $b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $e2_0 \in [10^{-6}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$ | $f_0 \in [10^{-6}, 20]$

Log-normal LN.2 — Modified by Atatek

$MR = 1/(t \cdot (sigma_0 \cdot \exp(sigma_{aT} \cdot T + sigma_{av} \cdot \vec{v})) \cdot \sqrt{(2 \cdot \pi)}) \cdot \exp(-(\ln(t) - (mu_0 + mu_T \cdot T + mu_v \cdot \vec{v}))^2/(2 \cdot (sigma_0 \cdot \exp(sigma_{aT} \cdot T + sigma_{av} \cdot \vec{v}))^2))$

$sigma_0 \in [10^{-3}, 100]$ | $sigma_{aT} \in [-3, 3]$ | $sigma_{av} \in [-3, 3]$ | $mu_0 \in [-50, 50]$ | $mu_T \in [-100, 100]$ | $mu_v \in [-100, 100]$

Log-normal LN.3 — Modified by Atatek

$MR = 1/((t - gamma_0) \cdot (sigma_0 \cdot \exp(sigma_{aT} \cdot T + sigma_{av} \cdot \vec{v})) \cdot \sqrt{(2 \cdot \pi)}) \cdot \exp(-(\ln(t - gamma_0) - (mu_0 + mu_T \cdot T + mu_v \cdot \vec{v}))^2/(2 \cdot (sigma_0 \cdot \exp(sigma_{aT} \cdot T + sigma_{av} \cdot \vec{v}))^2))$

$gamma_0 \in [-500, 0]$ | $sigma_0 \in [10^{-3}, 100]$ | $sigma_{aT} \in [-3, 3]$ | $sigma_{av} \in [-3, 3]$ | $mu_0 \in [-50, 50]$ | $mu_T \in [-100, 100]$ | $mu_v \in [-100, 100]$

Log-normal LN.3u () — Modified by Atatek

$MR = 1/((t - gamma_0) \cdot \sqrt{(2 \cdot \pi)}) \cdot \exp(-(\ln(t - gamma_0) - (mu_0 + mu_T \cdot T + mu_v \cdot \vec{v}))^2/2)$

$gamma_0 \in [-1000, -10^{-4}]$ | $mu_0 \in [-50, 50]$ | $mu_T \in [-100, 100]$ | $mu_v \in [-100, 100]$

Log-normal LN.4 — Modified by Atatek

$MR = 1/(((t - beta_0)/(alpha_0 - t)) \cdot (sigma_0 \cdot \exp(sigma_{aT} \cdot T + sigma_{av} \cdot \vec{v})) \cdot \sqrt{(2 \cdot \pi)}) \cdot \exp(-(\ln((t - beta_0)/(alpha_0 - t)) - (mu_0 + mu_T \cdot T + mu_v \cdot \vec{v}))^2/(2 \cdot (sigma_0 \cdot \exp(sigma_{aT} \cdot T + sigma_{av} \cdot \vec{v}))^2))$

$beta_0 \in [-1000, -10^{-4}]$ | $alpha_0 \in [10^{-4}, 10^{5}]$ | $sigma_0 \in [10^{-3}, 100]$ | $sigma_{aT} \in [-3, 3]$ | $sigma_{av} \in [-3, 3]$ | $mu_0 \in [-50, 50]$ | $mu_T \in [-100, 100]$ | $mu_v \in [-100, 100]$

Weibull W1.2 (two-param.) — Modified by Atatek

$MR = \exp(-\exp((b_0 + b_T \cdot T + b_v \cdot \vec{v}) \cdot (\ln(t) - (e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \vec{v})))))$

$b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $e2_0 \in [10^{-6}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

Weibull W2.2 — Modified by Atatek

$MR = ((b_0 + b_T \cdot T + b_v \cdot \vec{v})/(a_0 \cdot \exp(a_{aT} \cdot T + a_{av} \cdot \vec{v}))) \cdot \exp(((b_0 + b_T \cdot T + b_v \cdot \vec{v}) - 1) \cdot \ln(t/(a_0 \cdot \exp(a_{aT} \cdot T + a_{av} \cdot \vec{v}))) - (t/(a_0 \cdot \exp(a_{aT} \cdot T + a_{av} \cdot \vec{v})))^{(b_0 + b_T \cdot T + b_v \cdot \vec{v})})$

$b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $a_0 \in [10^{-4}, 10^{5}]$ | $a_{aT} \in [-3, 3]$ | $a_{av} \in [-3, 3]$

Weibull W1.3 (three-param.) — Modified by Atatek

$MR = d_0 \cdot \exp(-\exp((b_0 + b_T \cdot T + b_v \cdot \vec{v}) \cdot (\ln(t) - (e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \vec{v})))))$

$d_0 \in [-2, 2]$ | $b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $e2_0 \in [10^{-6}, 10^{6}]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

Weibull W2.3 — Modified by Atatek

MR = $((a_0 + a_T \cdot T + a_v \cdot \bar{v})/(b_0 \cdot \exp(b_{aT} \cdot T + b_{av} \cdot \bar{v}))) \cdot ((t - m_0)/(b_0 \cdot \exp(b_{aT} \cdot T + b_{av} \cdot \bar{v})))^{(a_0 + a_T \cdot T + a_v \cdot \bar{v}) - 1)} \cdot \exp(-((t - m_0)/(b_0 \cdot \exp(b_{aT} \cdot T + b_{av} \cdot \bar{v})))^{(a_0 + a_T \cdot T + a_v \cdot \bar{v})})$

$a_0 \in [0.01, 20]$ | $a_T \in [-19.99, 19.99]$ | $a_v \in [-19.99, 19.99]$ | $b_0 \in [10^{-6}, 10^5]$ | $b_{aT} \in [-3, 3]$ | $b_{av} \in [-3, 3]$ | $m_0 \in [-500, 0]$

Weibull W1.4 (four-param.) — Modified by Atatek

MR = $(c_0 + c_T \cdot T + c_v \cdot \bar{v}) + (d_0 - (c_0 + c_T \cdot T + c_v \cdot \bar{v})) \cdot \exp(-\exp((b_0 + b_T \cdot T + b_v \cdot \bar{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \bar{v})))))$

$c_0 \in [-2, 2]$ | $c_T \in [-4, 4]$ | $c_v \in [-4, 4]$ | $d_0 \in [-2, 2]$ | $b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $e2_0 \in [10^{-4}, 10^6]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

Weibull W1.4 (diğer form) — Modified by Atatek

MR = $(c_0 + c_T \cdot T + c_v \cdot \bar{v}) + (d_0 - (c_0 + c_T \cdot T + c_v \cdot \bar{v})) \cdot (1 - \exp(-\exp((b_0 + b_T \cdot T + b_v \cdot \bar{v}) \cdot (\ln(t) - \ln(e2_0 \cdot \exp(e2_{aT} \cdot T + e2_{av} \cdot \bar{v}))))))$

$c_0 \in [-2, 2]$ | $c_T \in [-4, 4]$ | $c_v \in [-4, 4]$ | $d_0 \in [-2, 2]$ | $b_0 \in [-50, 50]$ | $b_T \in [-100, 100]$ | $b_v \in [-100, 100]$ | $e2_0 \in [10^{-4}, 10^6]$ | $e2_{aT} \in [-3, 3]$ | $e2_{av} \in [-3, 3]$

Weibull W2.4 — Modified by Atatek

MR = $((k_0 + k_T \cdot T + k_v \cdot \bar{v})/(theta_0 \cdot \exp(theta_{aT} \cdot T + theta_{av} \cdot \bar{v}))) \cdot ((t - alpha_0)/(2 \cdot beta_0 \cdot (theta_0 \cdot \exp(theta_{aT} \cdot T + theta_{av} \cdot \bar{v}))))^{(k_0 + k_T \cdot T + k_v \cdot \bar{v}) - 1)} \cdot t^{(-1)} \cdot \exp(-((t - alpha_0)/(2 \cdot beta_0 \cdot (theta_0 \cdot \exp(theta_{aT} \cdot T + theta_{av} \cdot \bar{v}))))^{(k_0 + k_T \cdot T + k_v \cdot \bar{v})})$

$k_0 \in [0.01, 20]$ | $k_T \in [-19.99, 19.99]$ | $k_v \in [-19.99, 19.99]$ | $theta_0 \in [10^{-4}, 500]$ | $theta_{aT} \in [-3, 3]$ | $theta_{av} \in [-3, 3]$ | $beta_0 \in [10^{-4}, 10^5]$ | $alpha_0 \in [-1000, 0]$