





Fig. 4 – Bos & Wallinga (2012)





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Fig. 4 – Bos & Wallinga (2012)





Fig. 4 – Bos & Wallinga (2012)





Histogram



Histogram





Χ

LxTxData\$Dose







RLum.Data.Image



OSL (UVVIS)



RLum.Data.Spectrum



IR-RF $D_e = 623.25 [600.63; 635.8]$ RF_nat + RF_reg 2.0e+03 IR-RF [cts/1.3 s] 1.8e + 031.6e + 031.4e+03Ш 100 200 300 400 500 600 700 0

Time [s]

IR-RF $D_e = 610.17 [567.19; 653.15]$ RF_nat + RF_reg 2.0e+03 IR-RF [cts/1.3 s] 1.6e + 031.4e+03Ш 610.17 600 0 100 200 300 400 500 700 Time [s]



Growth curve

 $D_e = 1668.25 \pm 49.22$ | fit: EXP





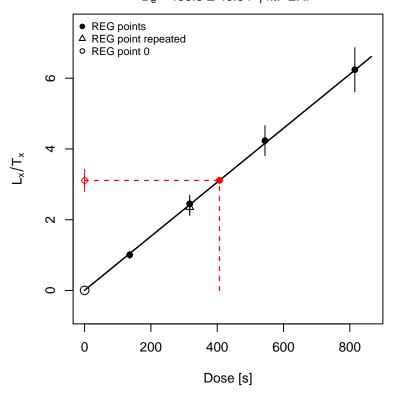


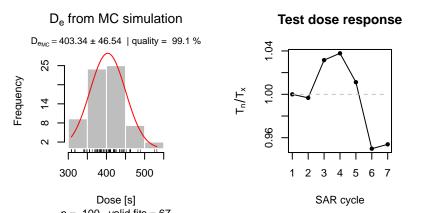




Growth curve

 $D_e = 406.8 \pm 46.54$ | fit: EXP





TL pseudoIRSL1 pseudoIRSL2



T [°C]

help("analyse_pIRIRSequence")





T [°C]





D_e from MC simulation



Test dose response





Pseudo pIRIR data set based on quartz OSL



Pseudo pIRIR data set based on quartz OSL

 $D_e = 1668.25 \pm 47.59$ | fit: EXP



$\ensuremath{D_{e}}$ from MC simulation





Summarised Dose Response Curves



Sensitivity change



Rejection criteria



OSL



OSL



OSL



Monte Carlo Simulation

$$n = 100 \mid \hat{\mu} = 43 \mid \hat{\sigma} = 20 \mid \frac{\hat{\sigma}}{\sqrt{n}} = 2 \mid v = 0.73$$



Profile log likelihood for σ_{OD}



Fast Ratio





Fuchs & Lang (2001)







Likelihood profile: gamma



Likelihood profile: p0



Likelihood profile: sigma



Likelihood profile: gamma



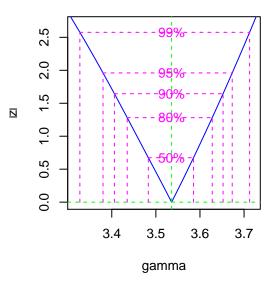
Likelihood profile: p0



Likelihood profile: sigma



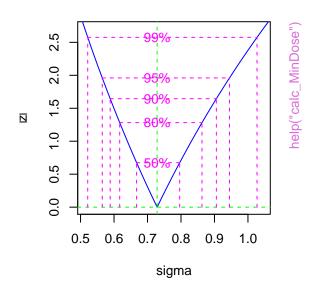
Likelihood profile: gamma



Likelihood profile: p0



Likelihood profile: sigma



3-parameter Minimum Age Model



Standardised estimate

Source Dose Rate Prediction



help("calc_SourceDoseRate")

D_e distribution



Thermal Lifetime Contour Plot



Thermal Lifetime Density Plot



gSGC and resulting De











Background















D_e distribution





Standardised estimate



D_{e} distribution





Profile log likelihood for σ_{OD}



TL (UVVIS)



help("merge_RLum.Data.Curve")

TL (UVVIS)



TL (UVVIS)



Profile log likelihood for σ_{OD}



Profile log likelihood for σ_{OD}



n = 62 | in 2 sigma = 41.9 %









n = 62 | in 2 sigma = 41.9 %











n = 62 | in 2 sigma = 41.9 %





n = 62 | in 2 sigma = 41.9 %











n = 62 | in 2 sigma = 41.9 %









































n = 62 | in 2 sigma = 41.9 %





De distribution







Standardised estimate

n = 62 | in 2 sigma = 41.9 %





n = 62 | in 2 sigma = 41.9 %

















n = 62 | in 2 sigma = 41.9 %















































Example data











| n = 5 | weighted mean = 1.01 | | n = 5 | weighted mean = 1 |





Example data



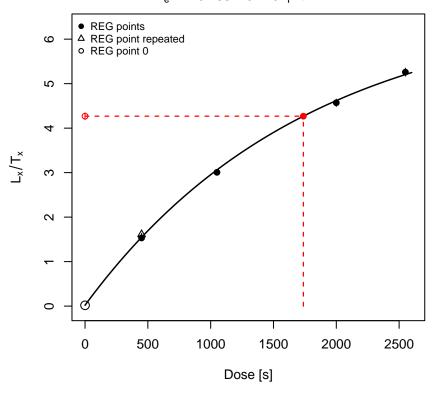


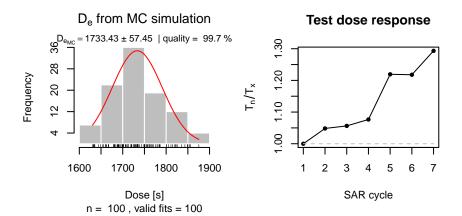




Growth curve

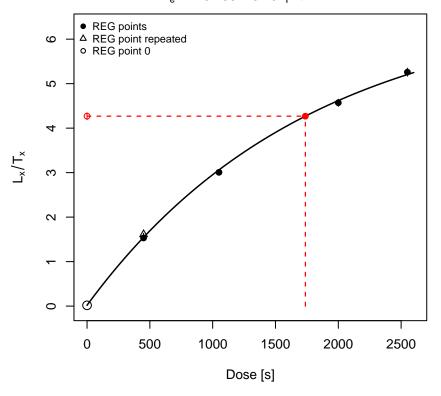
 $D_e = 1737.88 \pm 57.45$ | fit: EXP

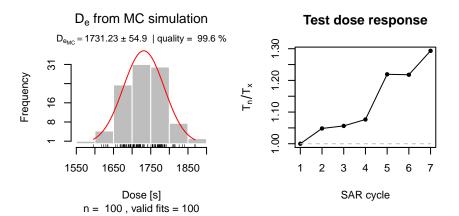




Growth curve

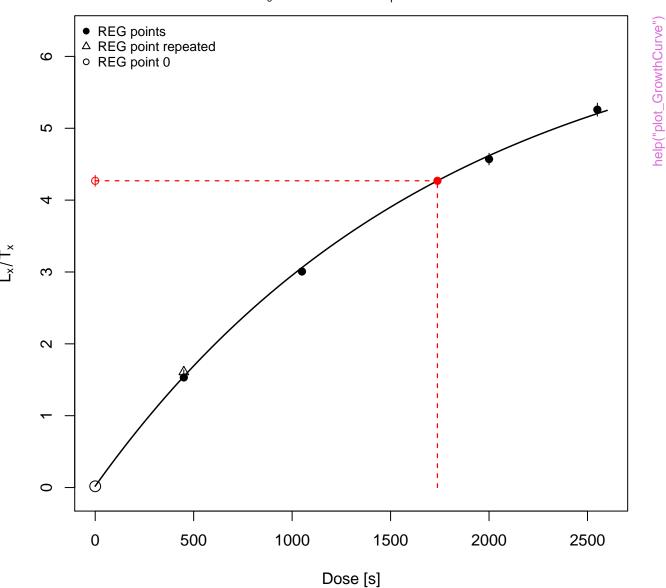
 $D_e = 1737.88 \pm 54.9$ | fit: EXP





Growth curve

 $D_e = 1737.88 \pm 64.53$ | fit: EXP



D_e from MC simulation



n = 100 , valid fits = 100





Histogram



Histogram of De-values

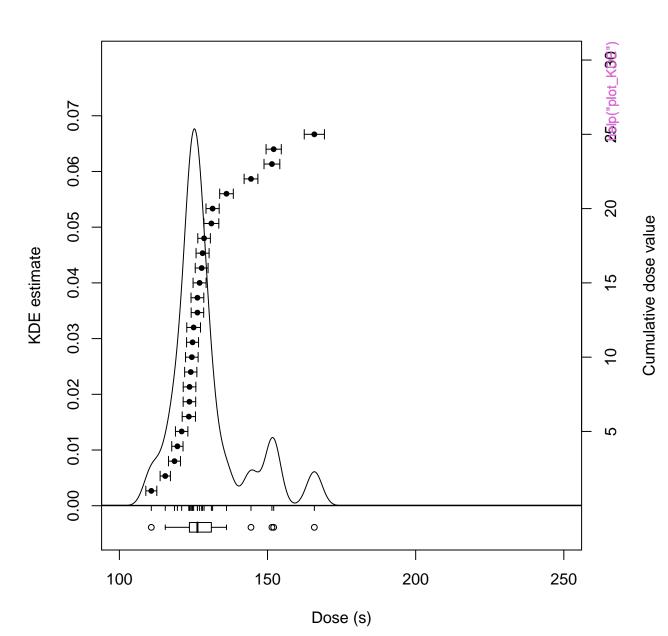
Example data set







Dose distribution















NR(t) Plot







NR(t) Plot



help("plot_NRt")









TnTx(t) Plot















TL combined



unkown curve type



RLum.Data.Image



RLum.Data.Spectrum



help("plot_RLum.Data.Spectrum")

RLum.Data.Spectrum



RLum.Data.Spectrum



unkown curve type





0.0

0.1

0.2

p0

0.3

0.4

Monte Carlo Simulation

$$n = 100 \mid \hat{\mu} = 45 \mid \hat{\sigma} = 21 \mid \frac{\hat{\sigma}}{\sqrt{n}} = 2 \mid v = 0.84$$







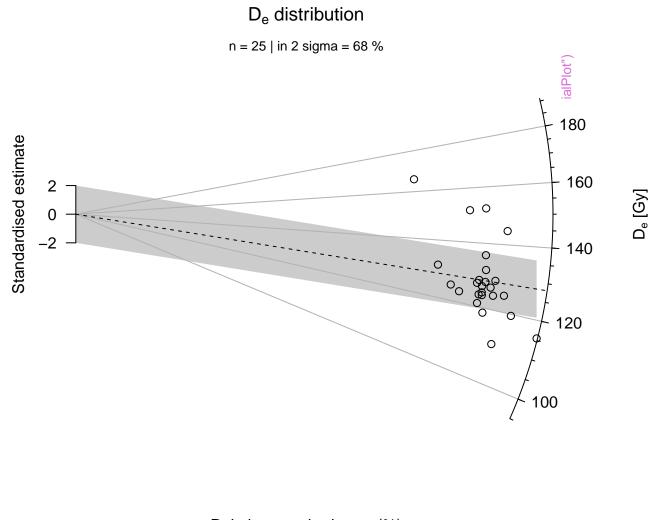


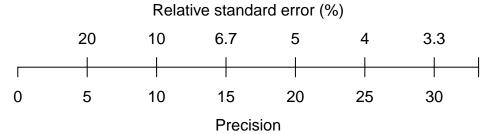
Precision



Precision













Precision





Data precision









D_e distribution













Density

OSL

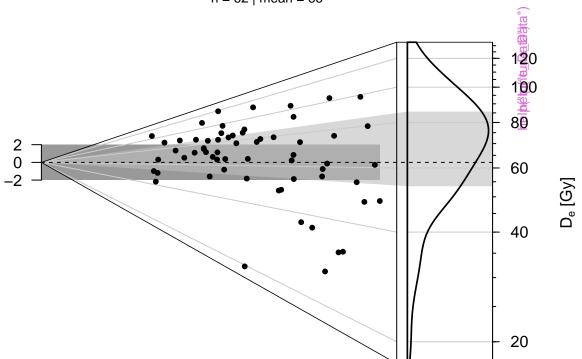


D_{e} distribution n = 62 | mean = 66 ("Entering 120 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 1 Standardised estimate 2 60 $D_{\rm e}$ [Gy] 40



20

D_e distribution n = 62 | mean = 66



Standardised estimate

