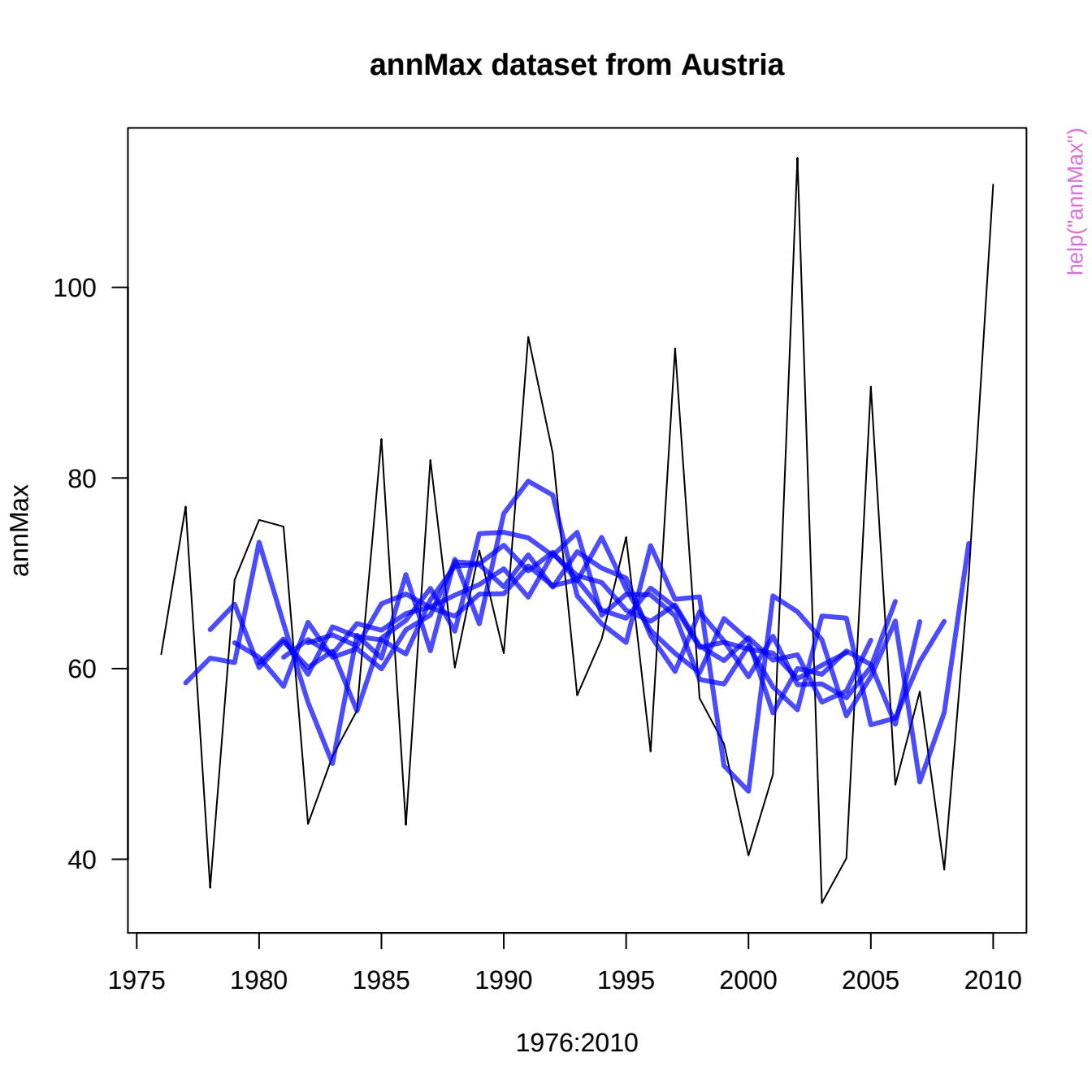
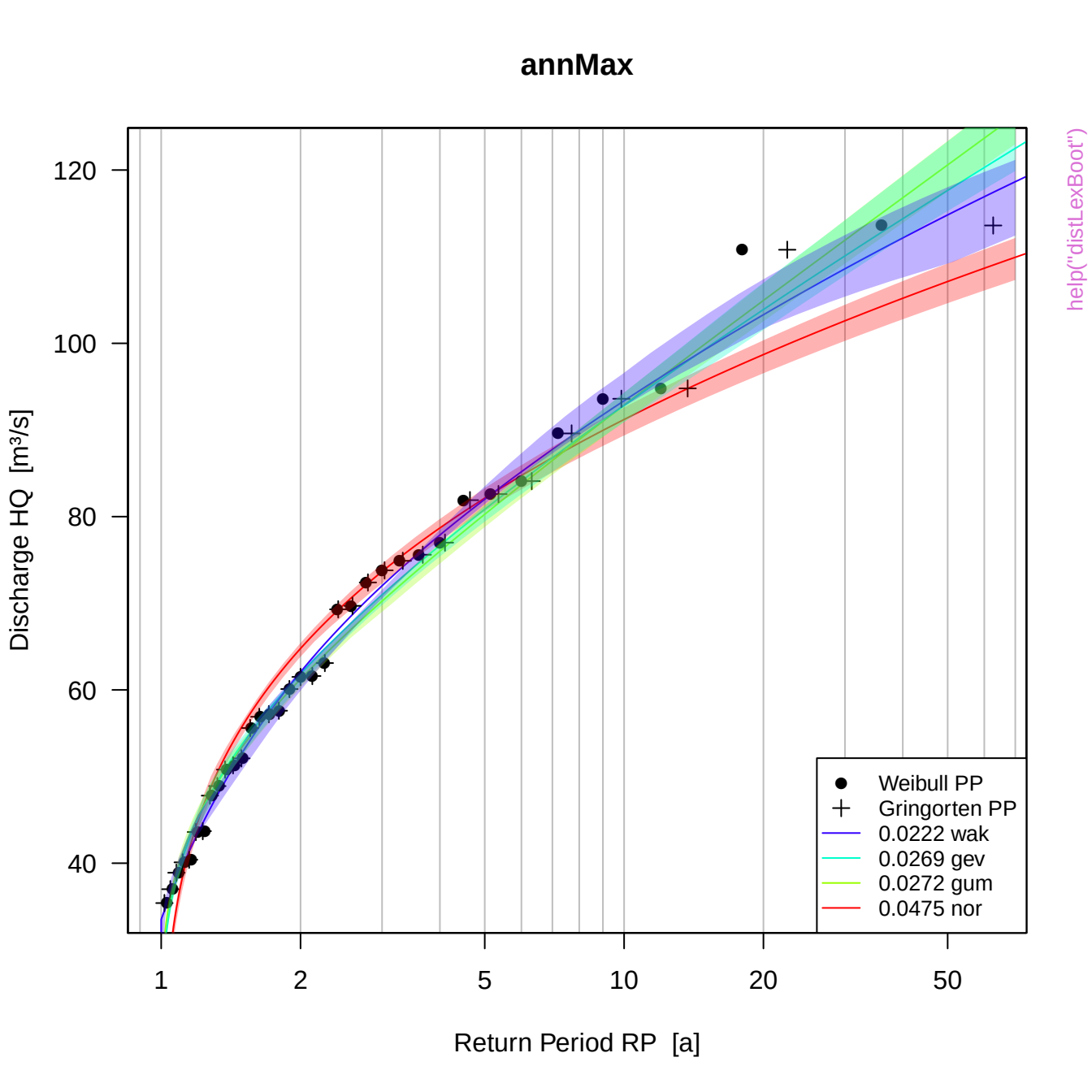
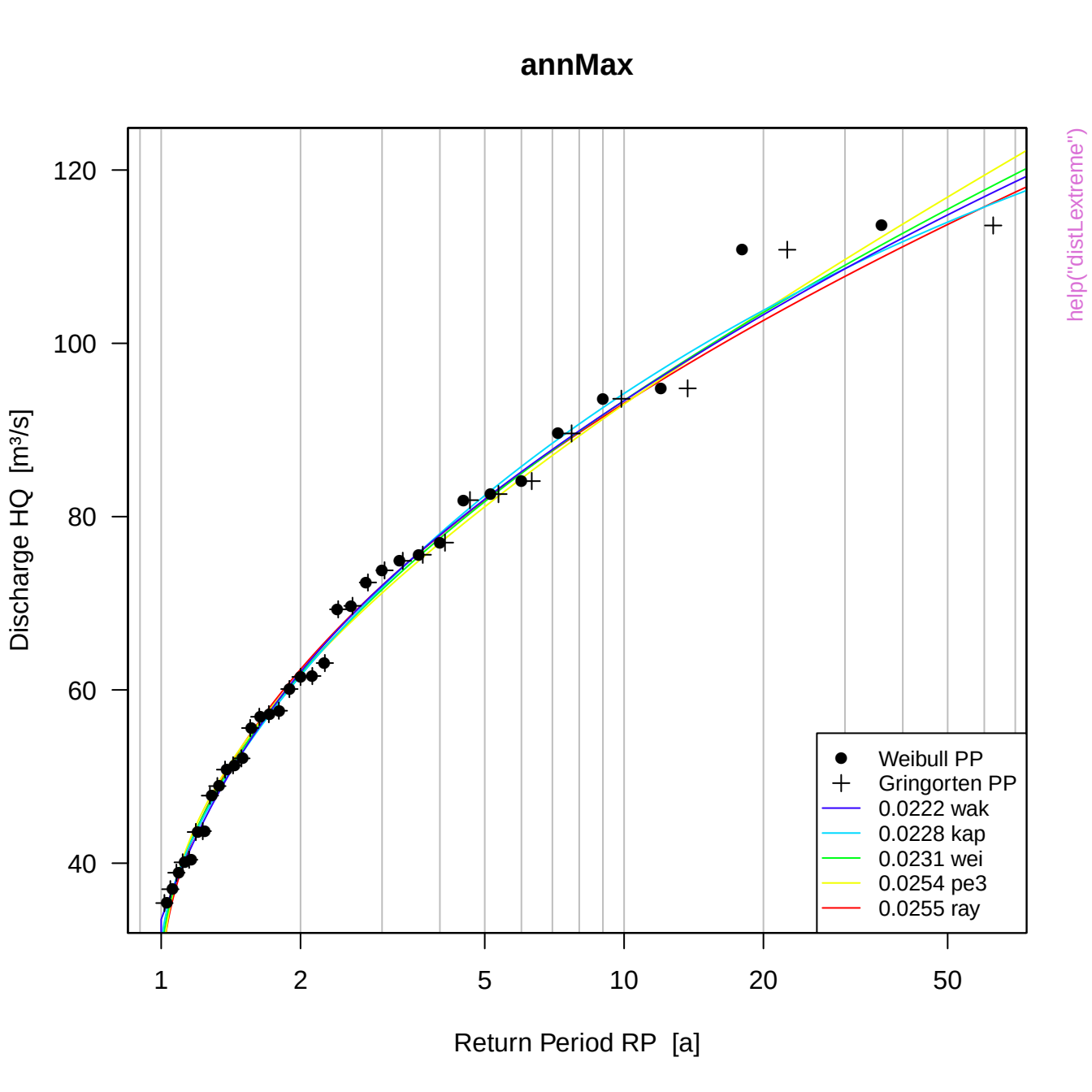
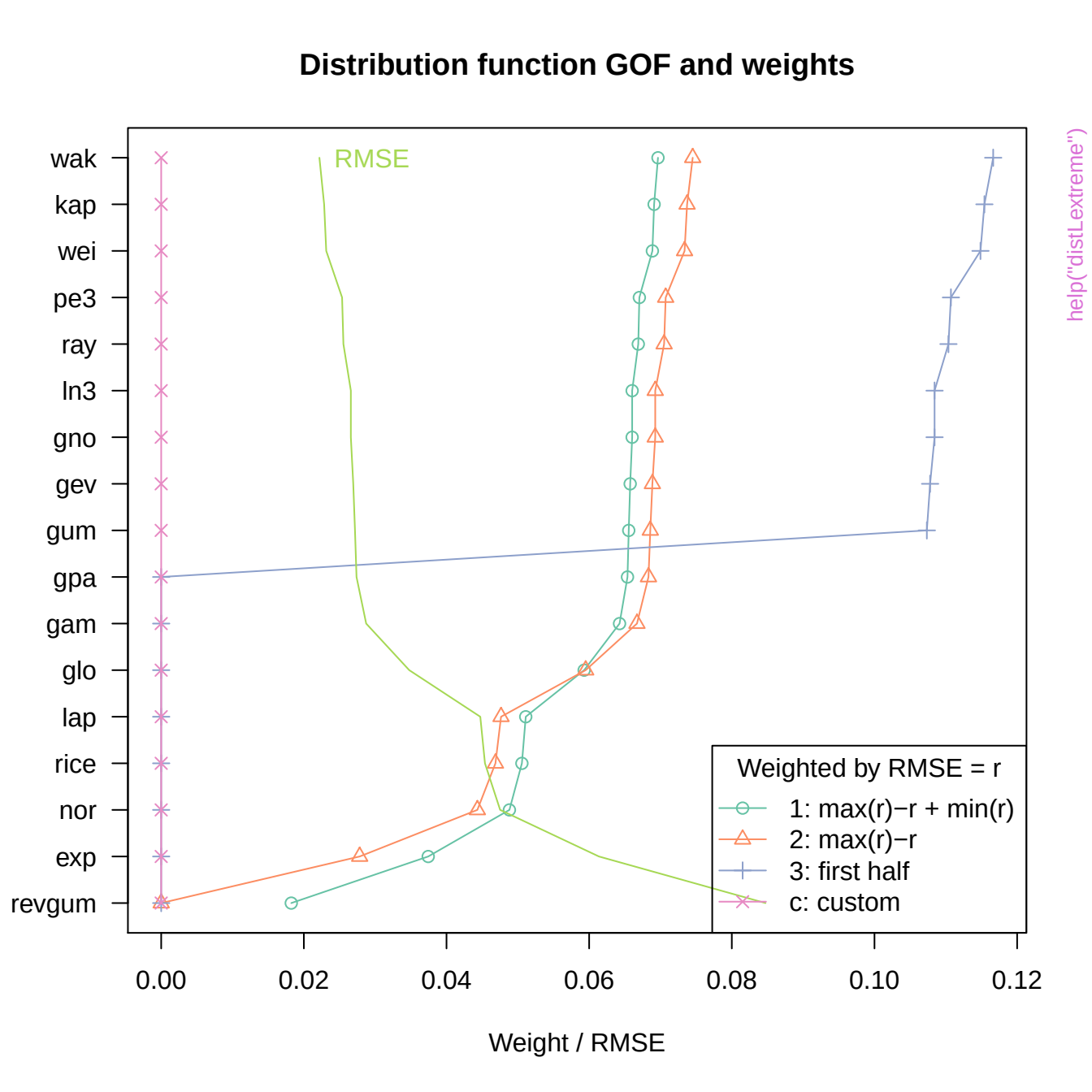
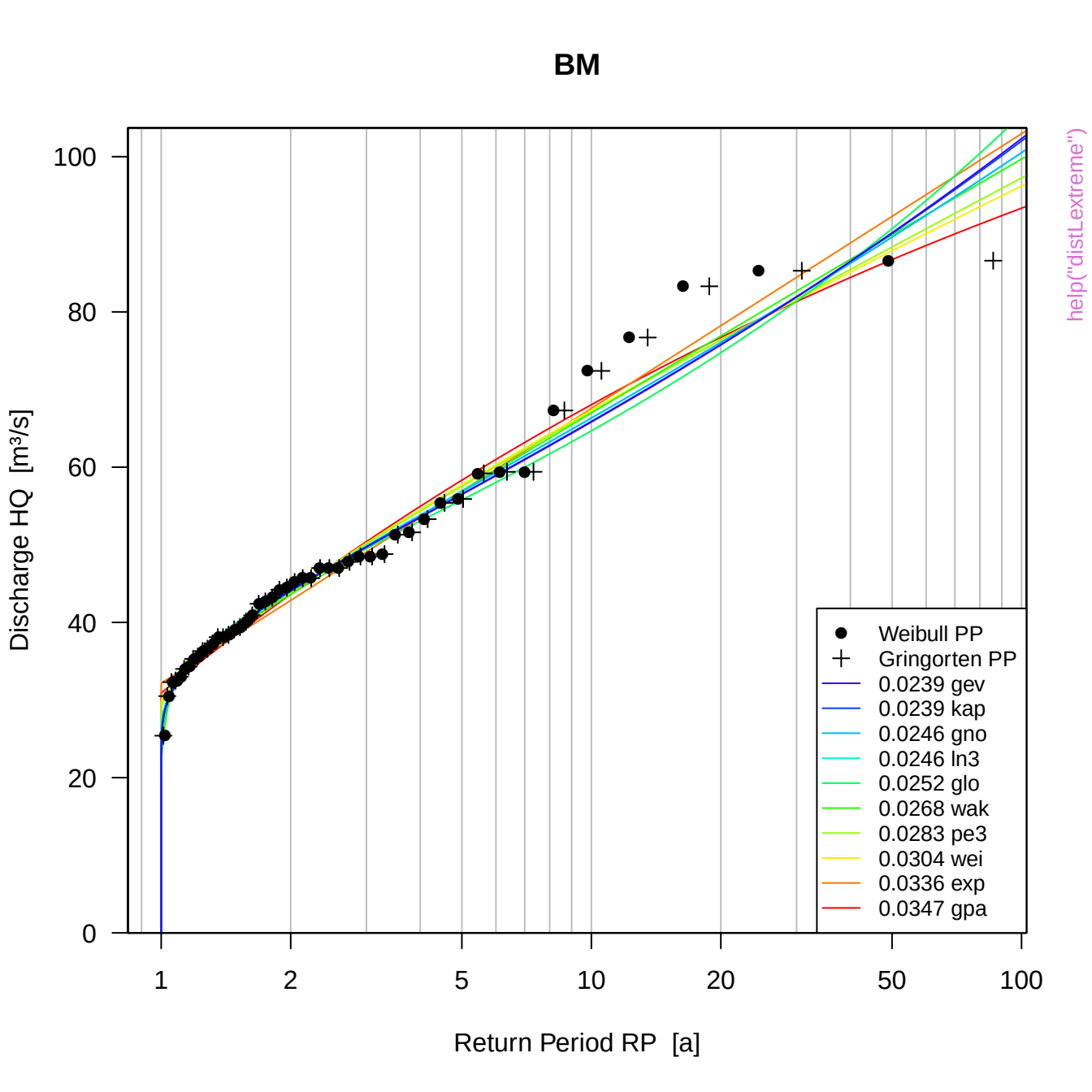
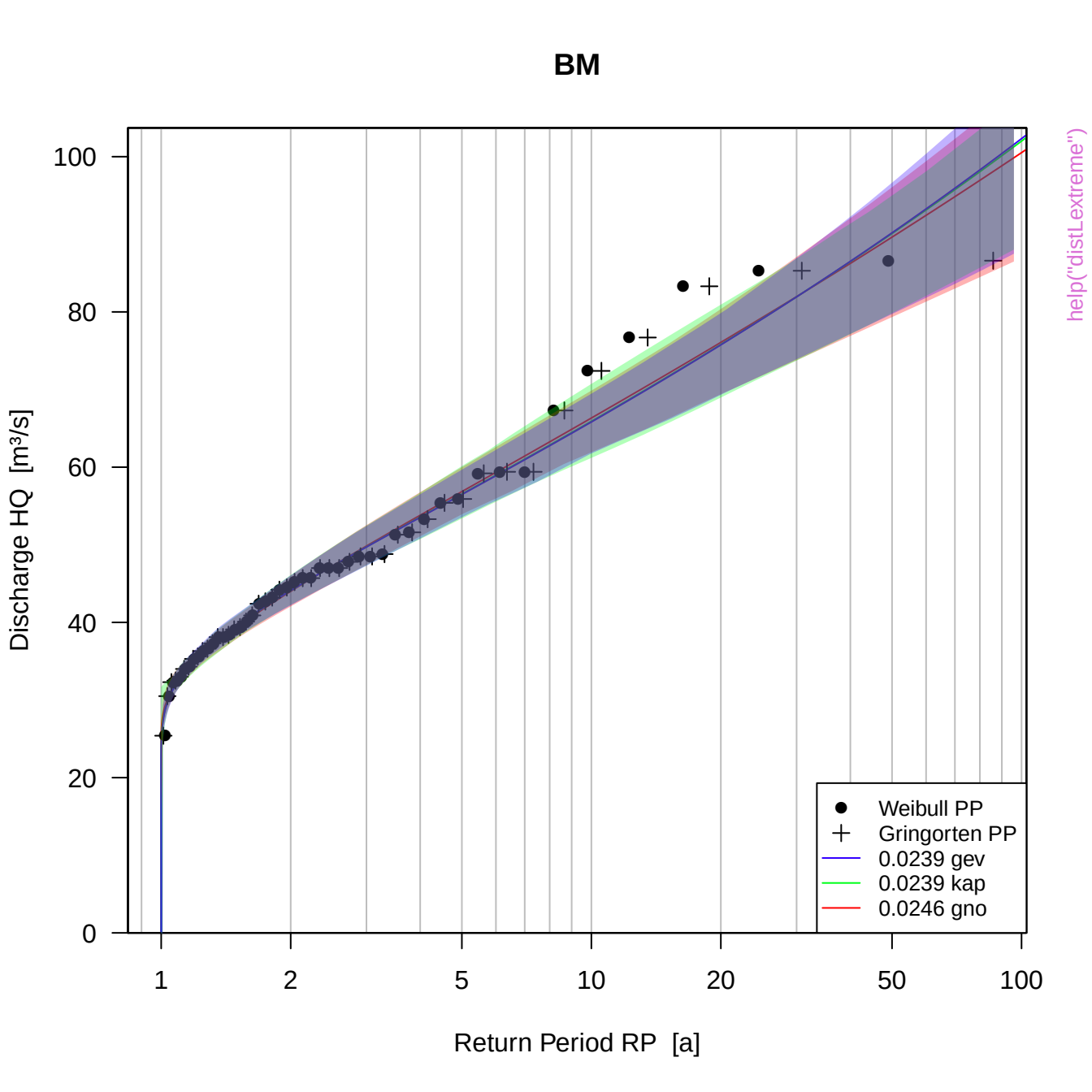

annMax dataset from Austria
help("annMax")
annMax
100
80
60
40
1975
1980
1985
1990
1995
2000
2005
2010
1976:2010

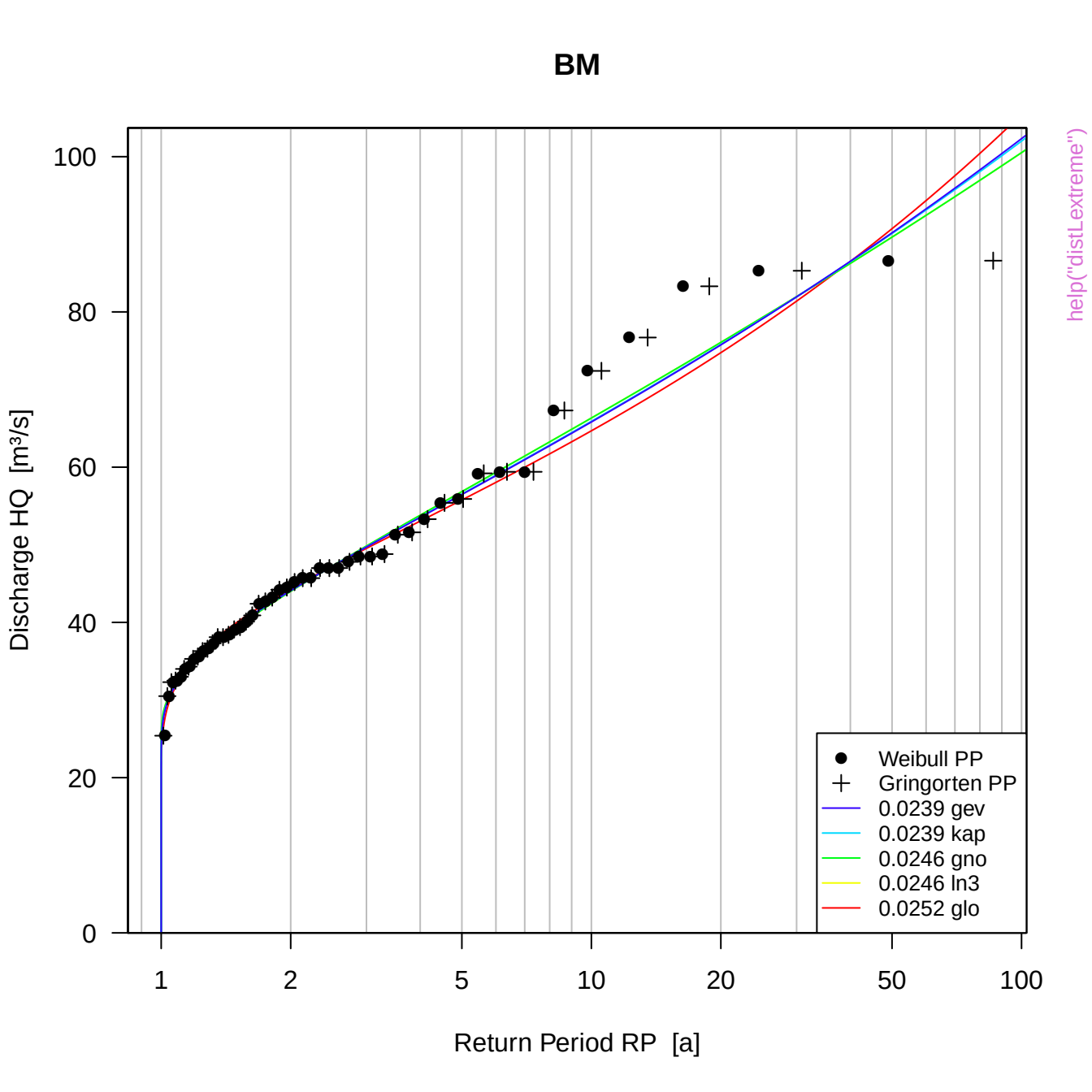

annMax
Discharge HQ [m³/s]
120
100
80
60
40
1
2
5
10
20
50
Return Period RP [a]
Weibull PP
Gringorten PP
0.0222 wak
0.0269 gev
0.0272 gum
0.0475 nor
help("distLexBoot")

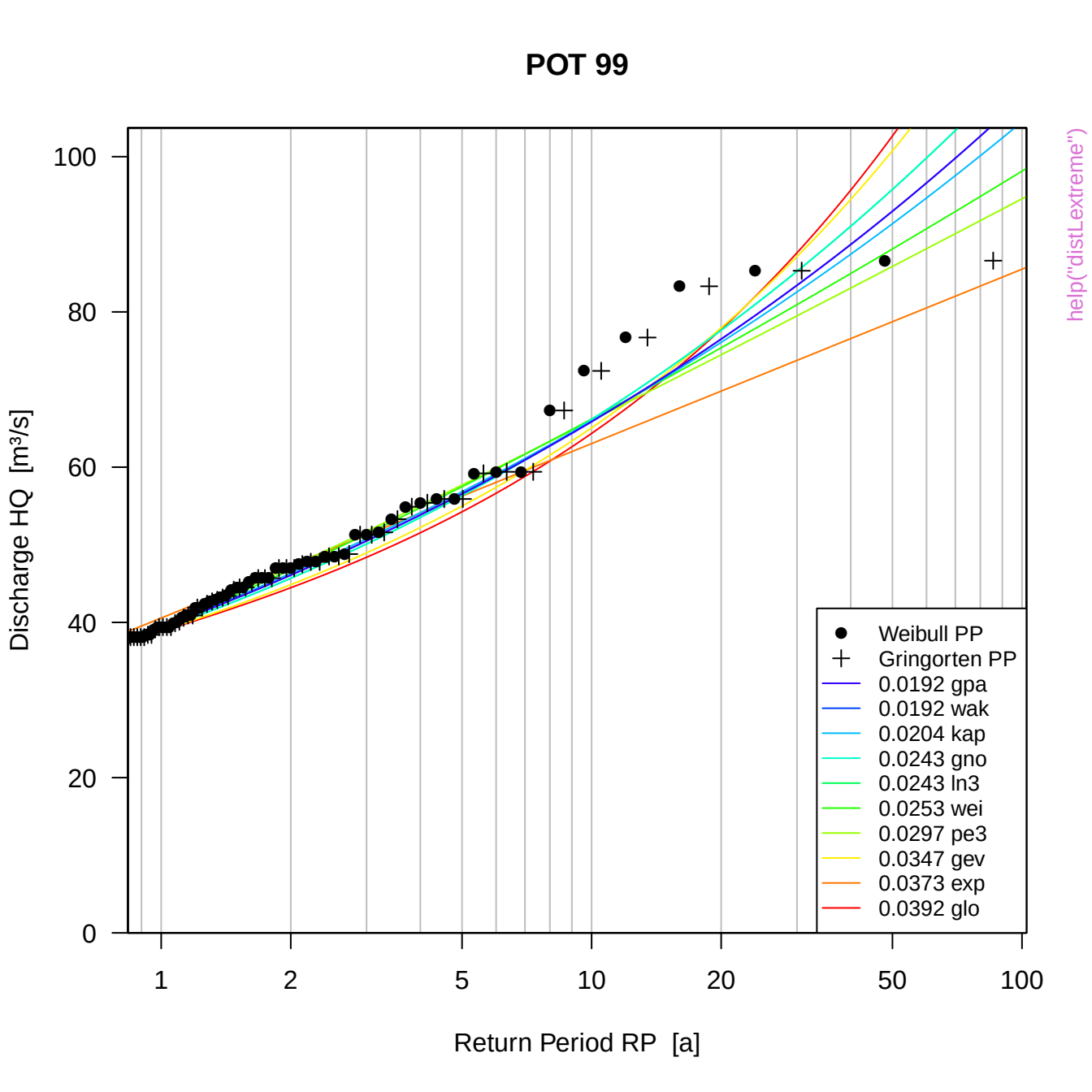

annMax
Discharge HQ [m³/s]
120
100
80
60
40
1
2
5
10
20
50
Return Period RP [a]
Weibull PP
Gringorten PP
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray
help("distLextreme")

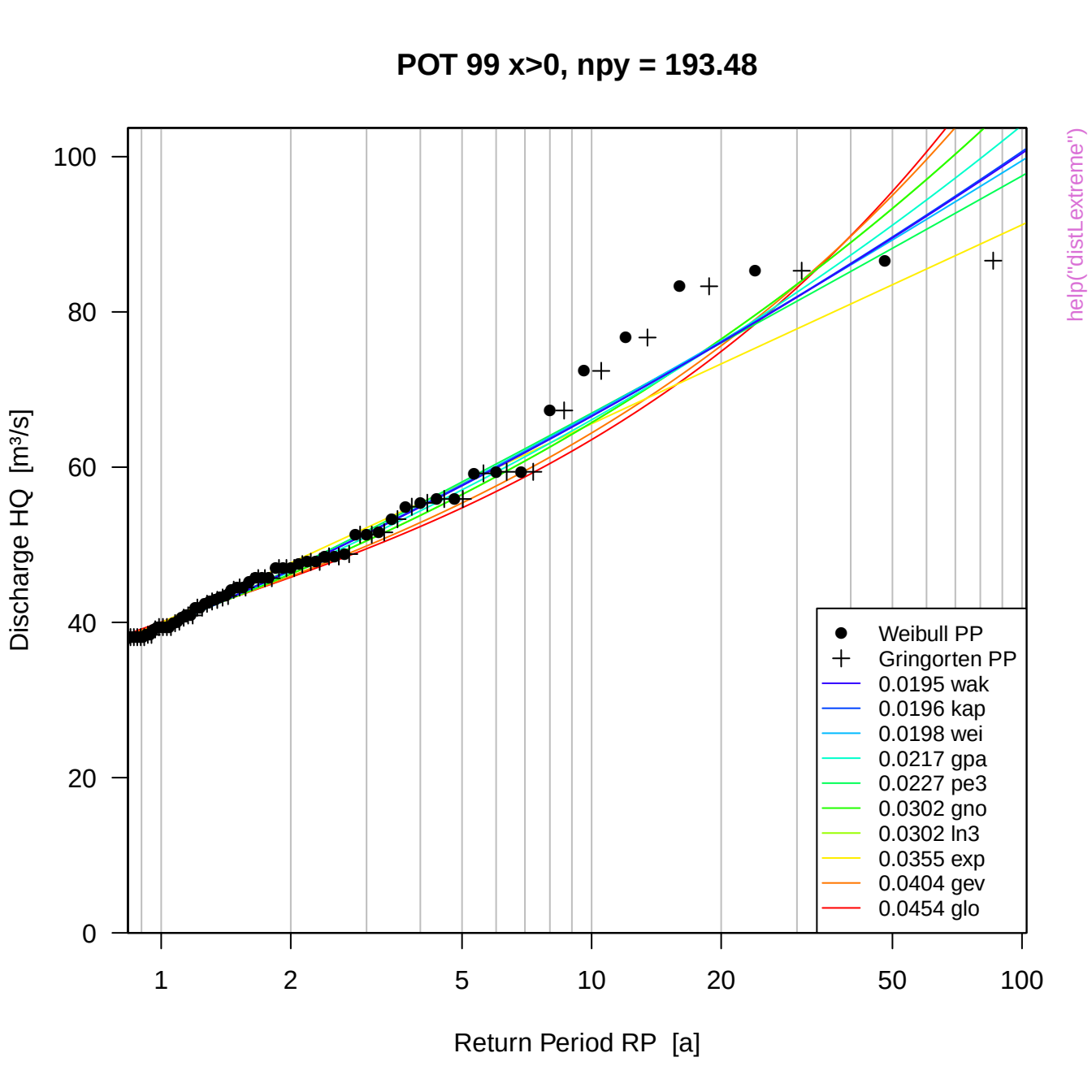

Distribution function GOF and weights
RMSE
wak
kap
wei
pe3
ray
ln3
gno
gev
gum
gpa
gam
glo
lap
rice
nor
exp
revgum
0.00
0.02
0.04
0.06
0.08
0.10
0.12
Weight / RMSE
Weighted by RMSE = r
1: max(r)−r + min(r)
2: max(r)−r
3: first half
c: custom
help("distLextreme")

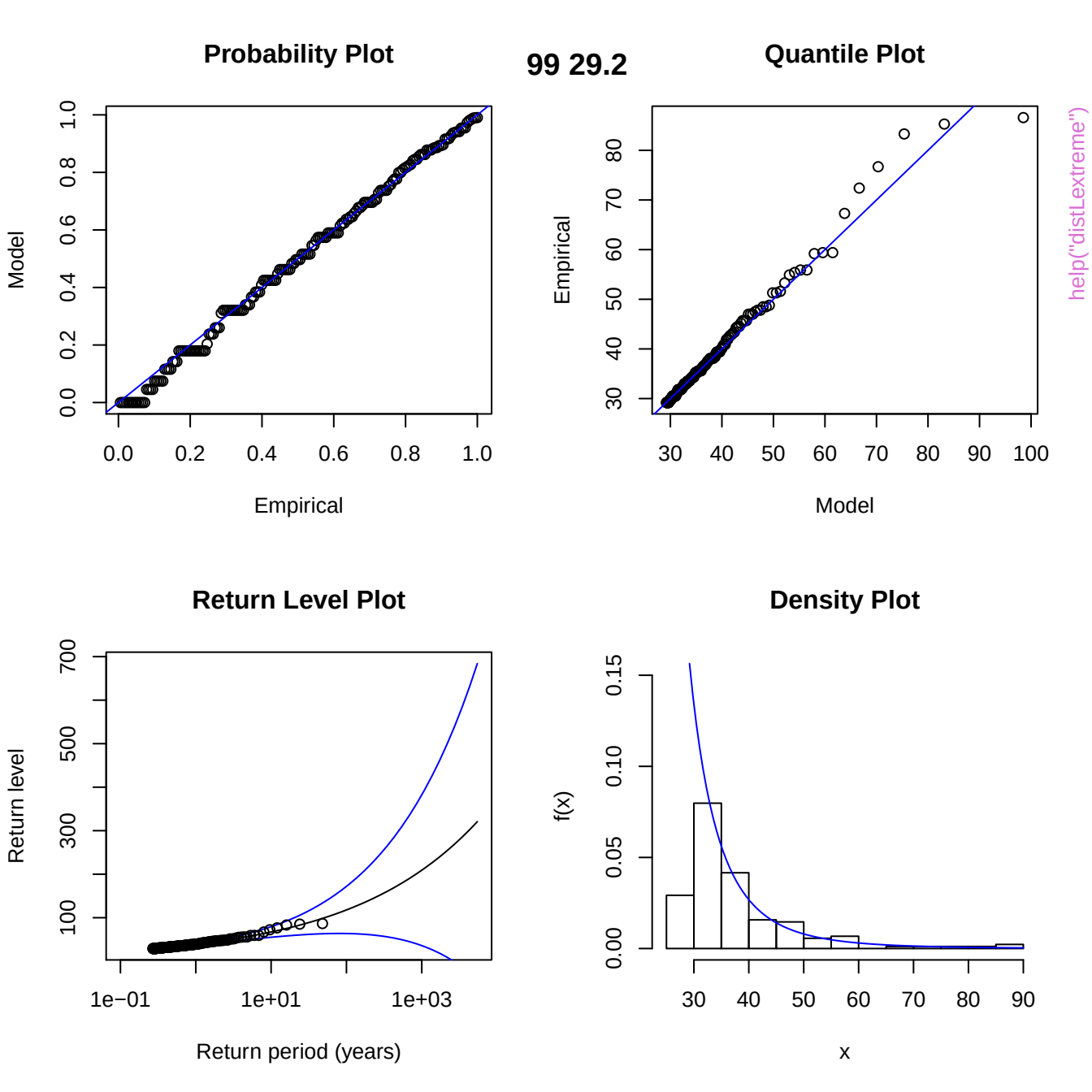

BM
Discharge HQ [m³/s]
Return Period RP [a]
0
20
40
60
80
100
1
2
5
10
20
50
100
Weibull PP
Gringorten PP
0.0239 gev
0.0239 kap
0.0246 gno
0.0246 ln3
0.0252 glo
0.0268 wak
0.0283 pe3
0.0304 wei
0.0336 exp
0.0347 gpa
help("distLextreme")

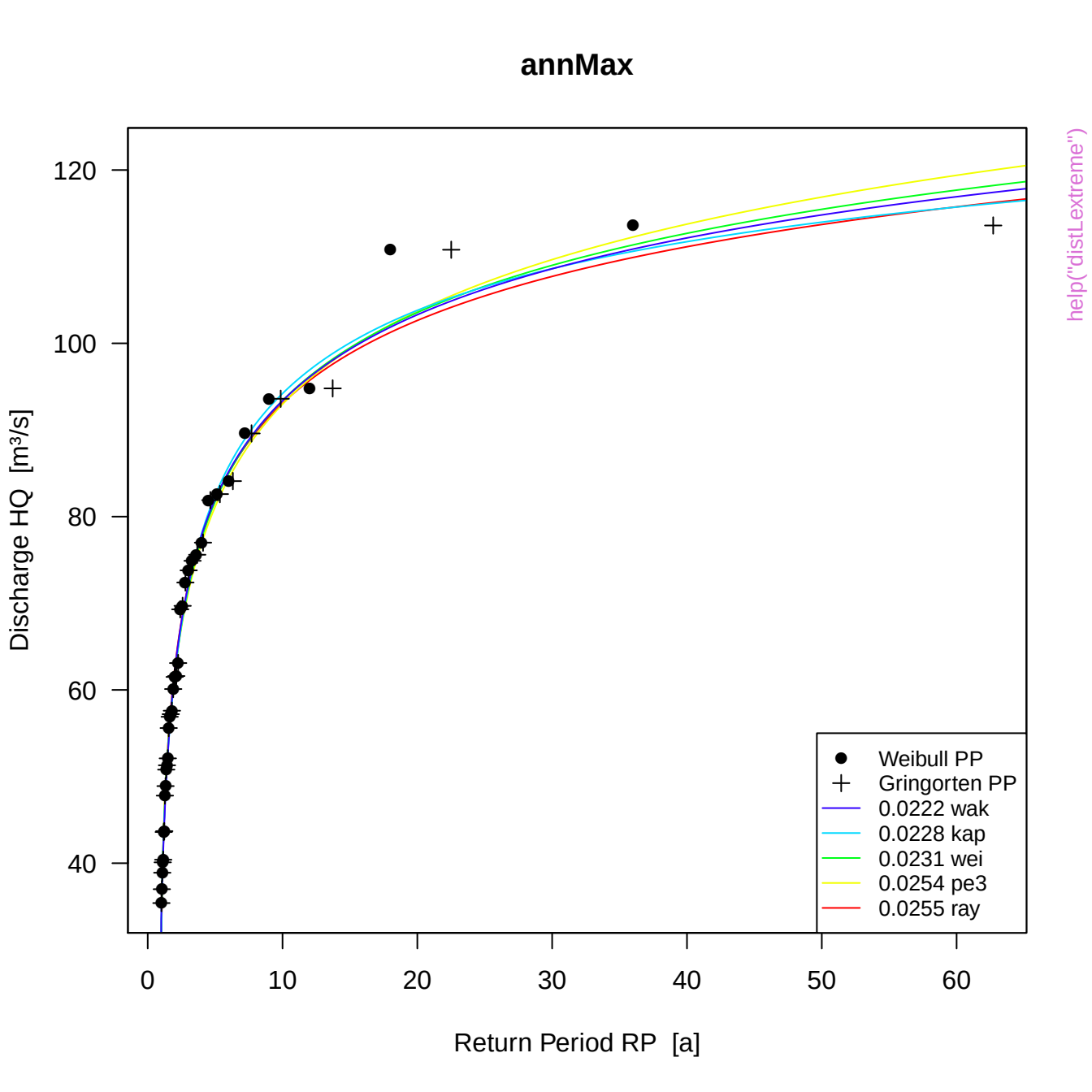

BM
Discharge HQ [m³/s]
Return Period RP [a]
0
20
40
60
80
100
1
2
5
10
20
50
100
Weibull PP
Gringorten PP
0.0239 gev
0.0239 kap
0.0246 gno
help("distLextreme")

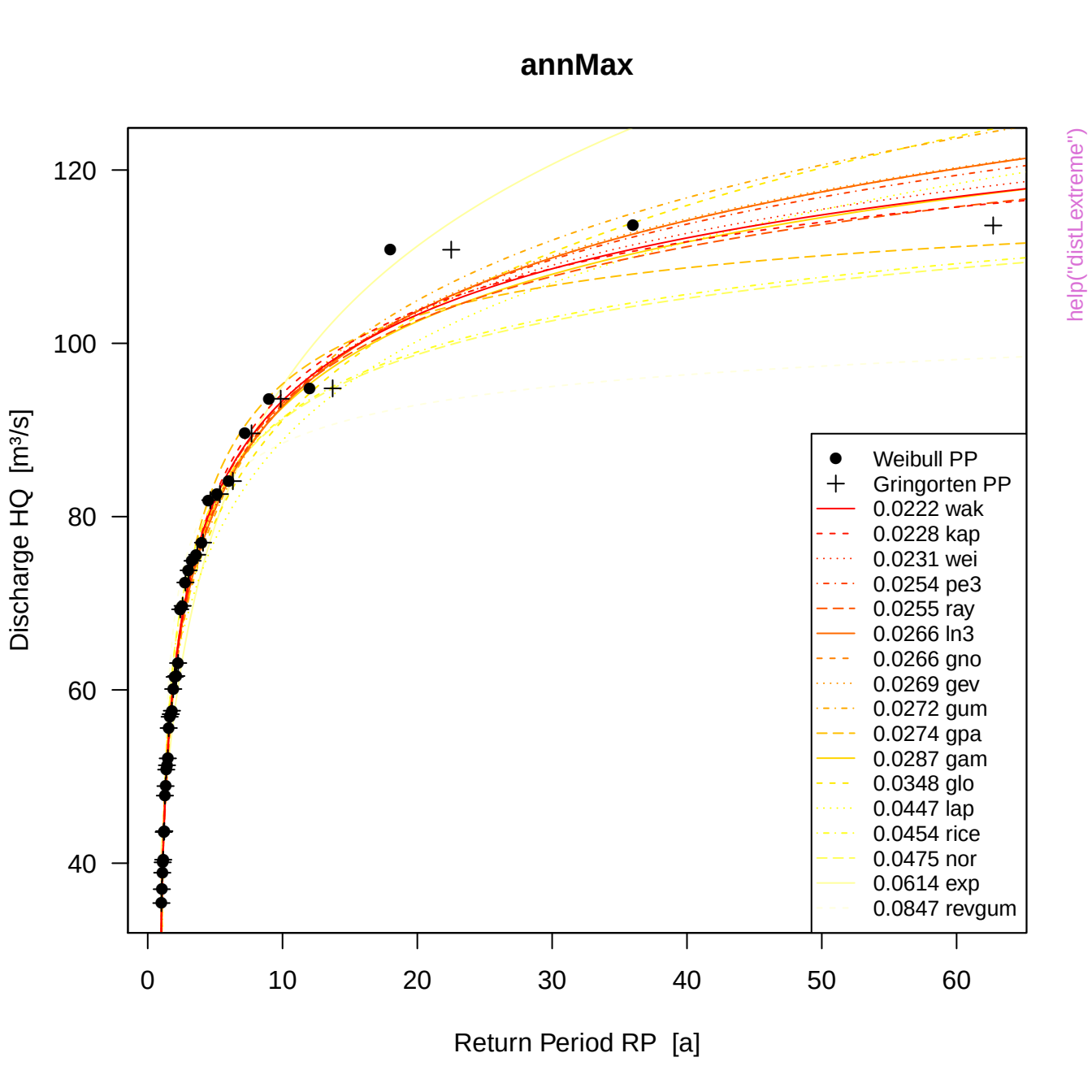

BM
Discharge HQ [m³/s]
Return Period RP [a]
0
20
40
60
80
100
1
2
5
10
20
50
100
Weibull PP
Gringorten PP
0.0239 gev
0.0239 kap
0.0246 gno
0.0246 ln3
0.0252 glo
help("distLextreme")

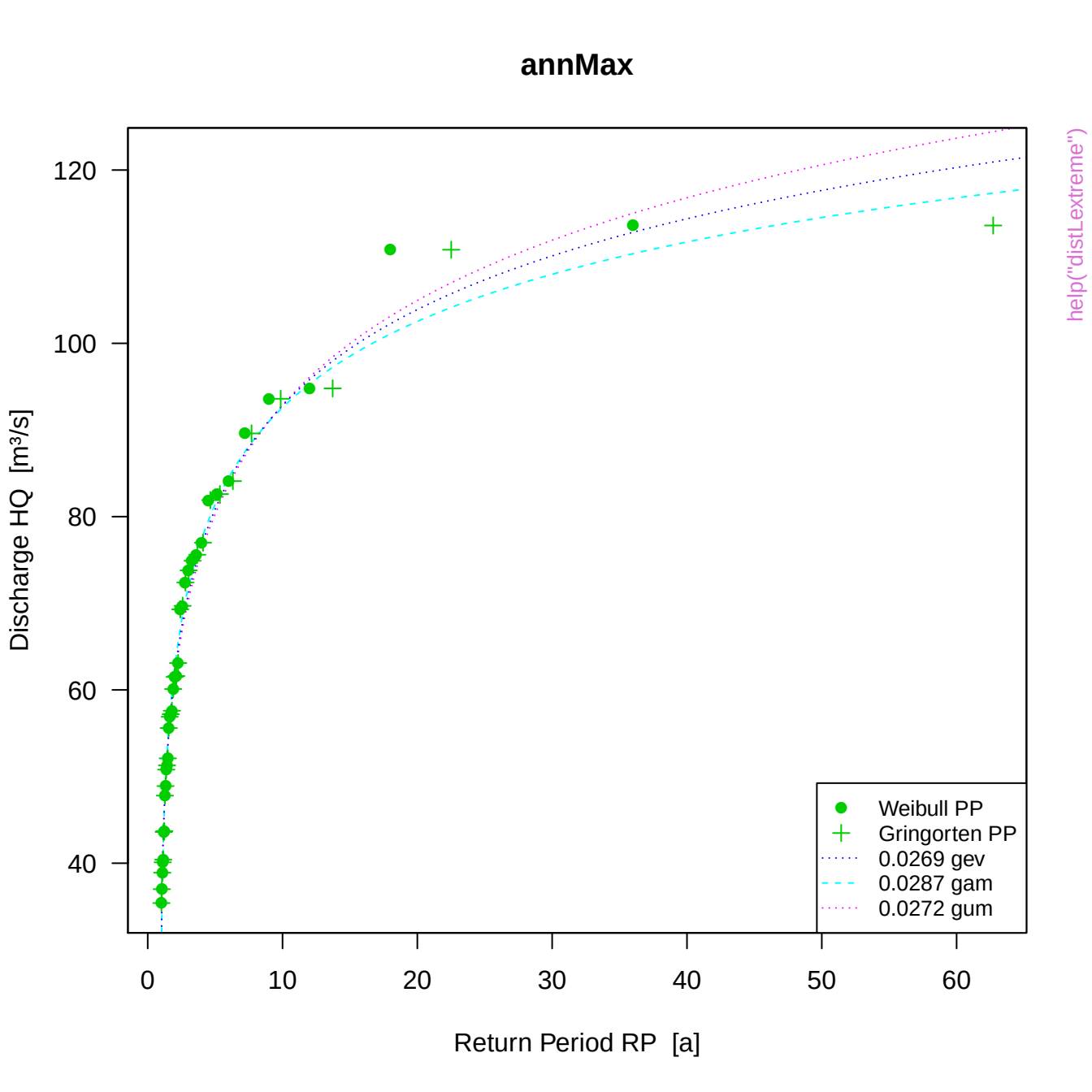

POT 99
Discharge HQ [m³/s]
Return Period RP [a]
0
20
40
60
80
100
1
2
5
10
20
50
100
Weibull PP
Gringorten PP
0.0192 gpa
0.0192 wak
0.0204 kap
0.0243 gno
0.0243 ln3
0.0253 wei
0.0297 pe3
0.0347 gev
0.0373 exp
0.0392 glo
help("distLextreme")

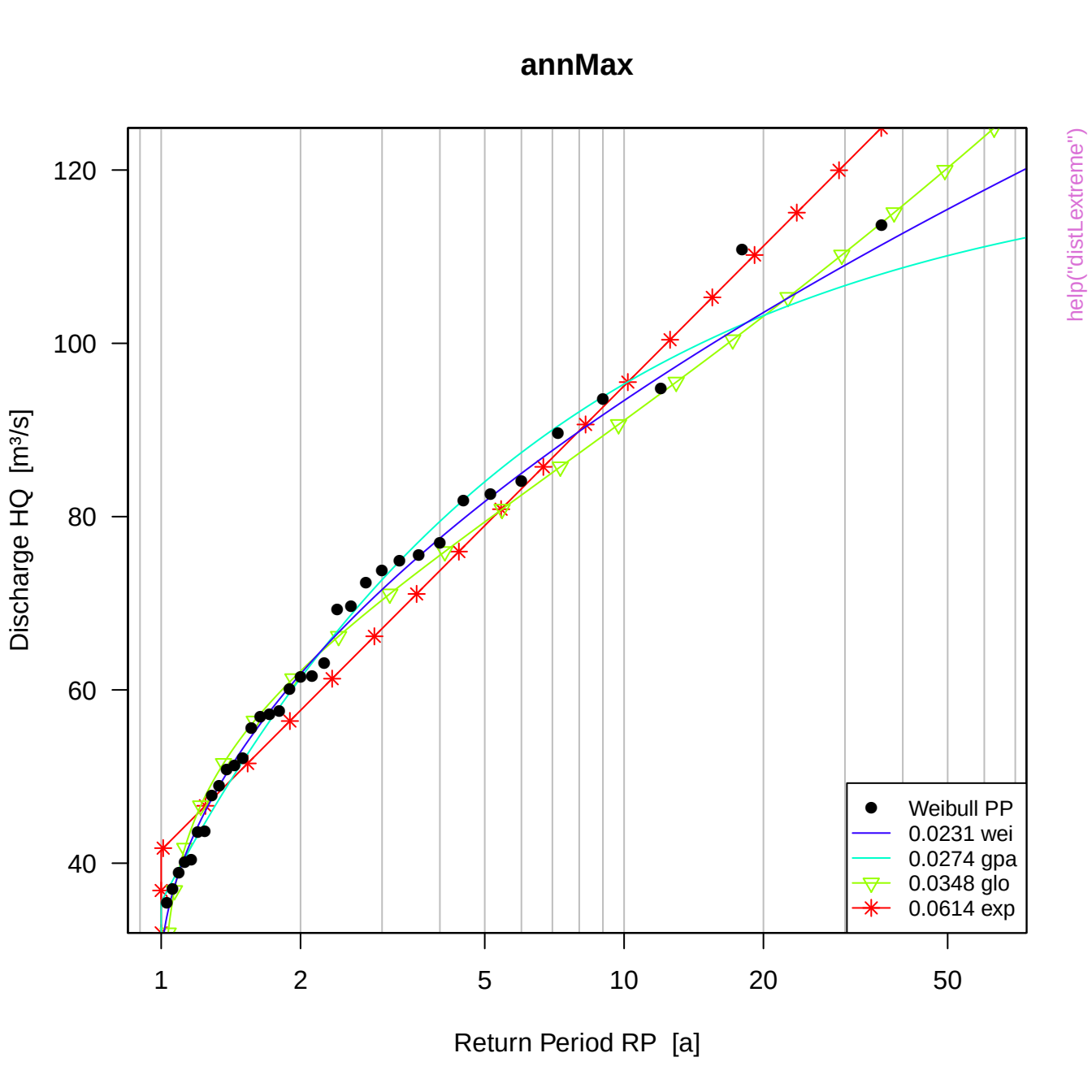

POT 99 x>0, npy = 193.48
Discharge HQ [m³/s]
Return Period RP [a]
0
20
40
60
80
100
1
2
5
10
20
50
100
Weibull PP
Gringorten PP
0.0195 wak
0.0196 kap
0.0198 wei
0.0217 gpa
0.0227 pe3
0.0302 gno
0.0302 ln3
0.0355 exp
0.0404 gev
0.0454 glo
help("distLextreme")

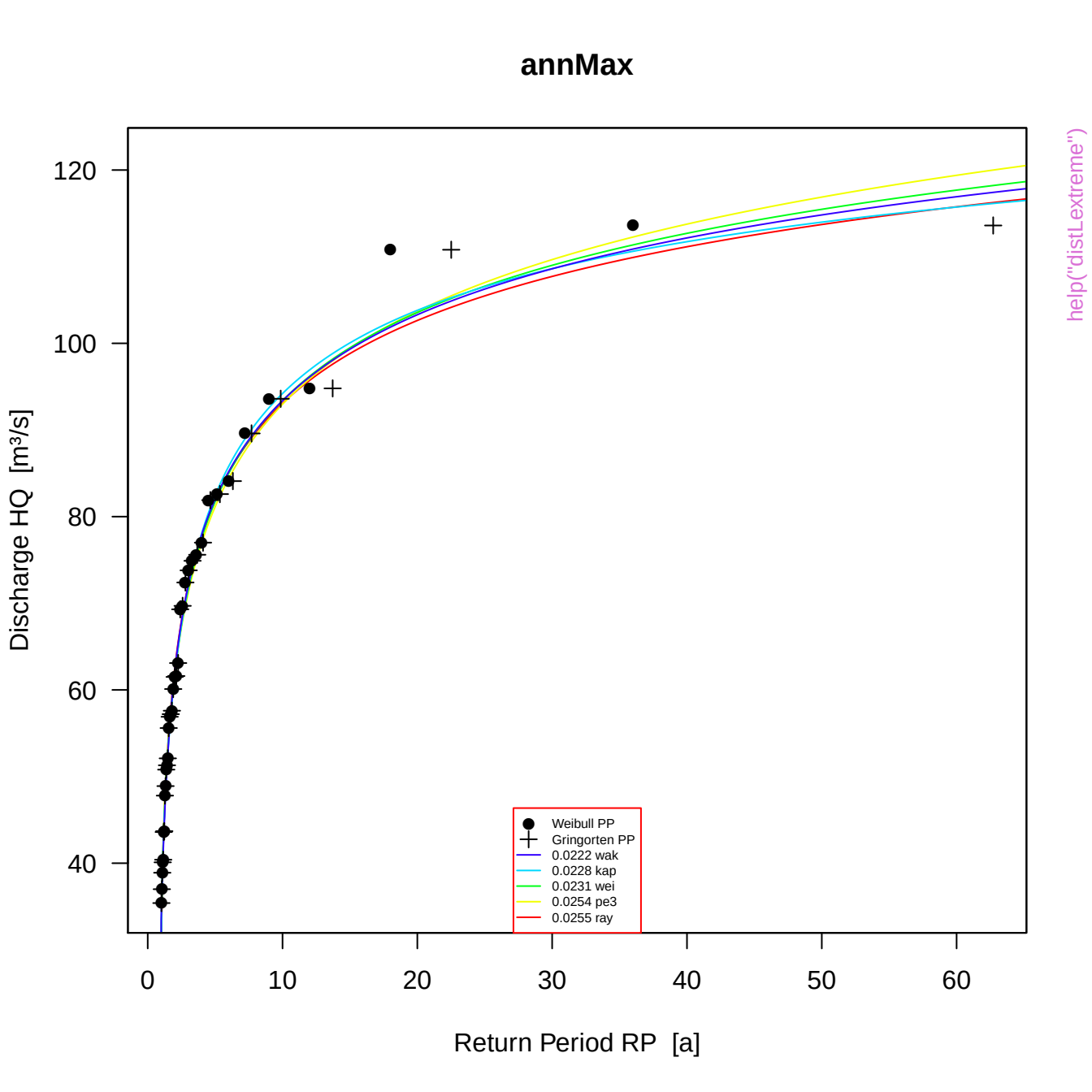

Probability Plot
99 29.2
Quantile Plot
Model
Empirical
0.0
0.2
0.4
0.6
0.8
1.0
Empirical
Model
30
40
50
60
70
80
90
100
help("distLextreme")
Return Level Plot
Density Plot
Return level
100
300
500
700
1e−01
1e+01
1e+03
Return period (years)
f(x)
0.00
0.05
0.10
0.15
x

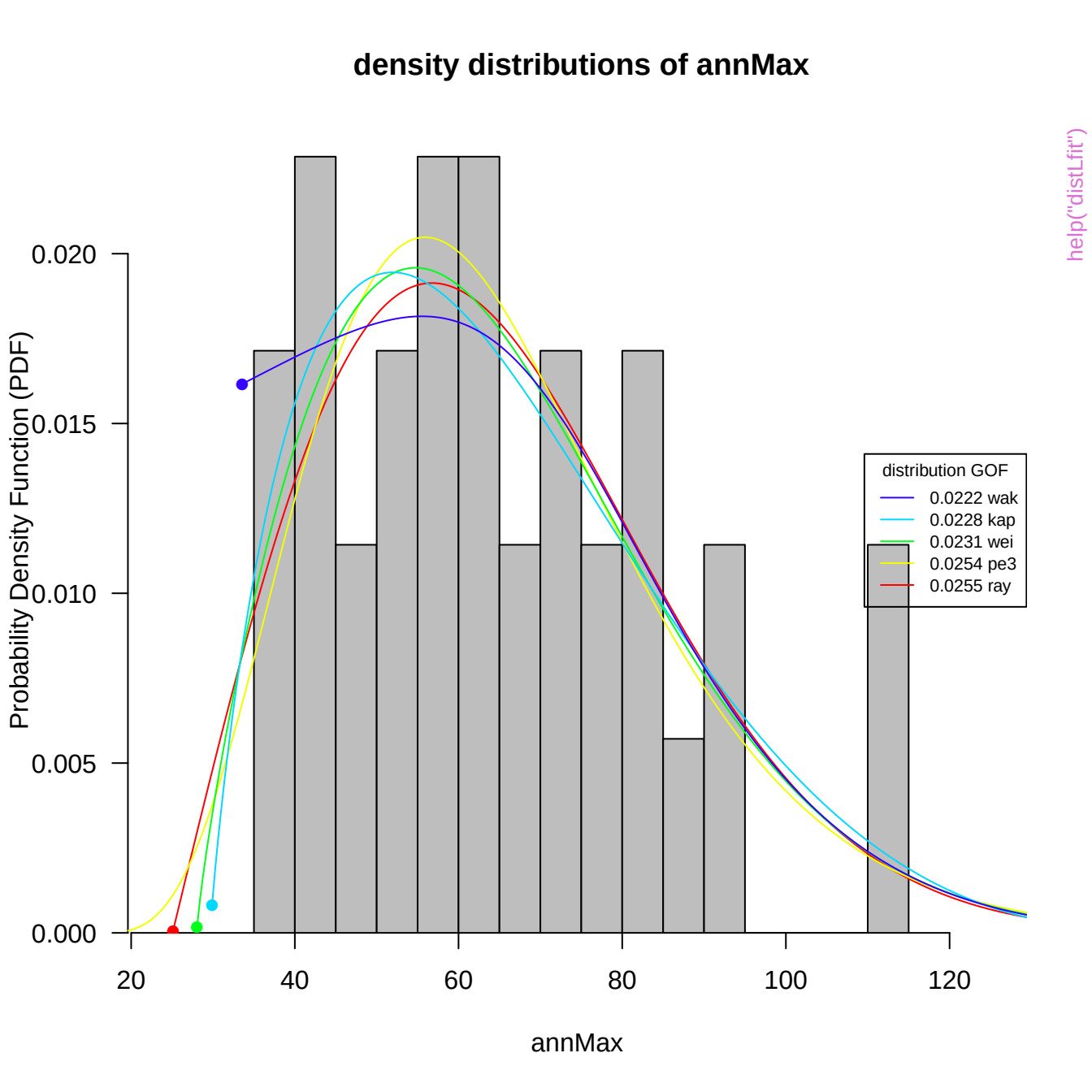

annMax
Discharge HQ [m³/s]
Return Period RP [a]
120
100
80
60
40
0
10
20
30
40
50
60
Weibull PP
Gringorten PP
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray
help("distLextreme")

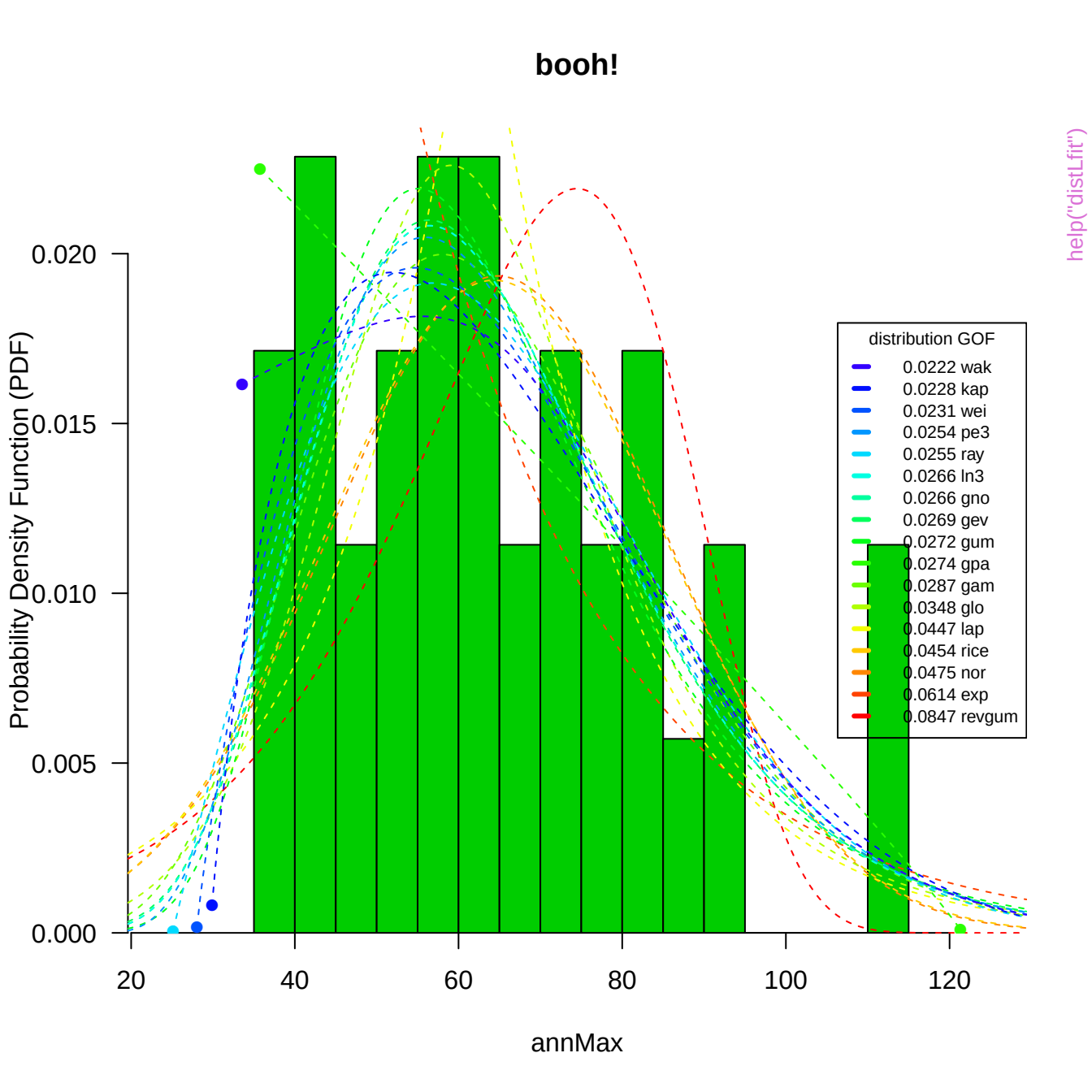

annMax
Discharge HQ [m³/s]
Return Period RP [a]
120
100
80
60
40
0
10
20
30
40
50
60
Weibull PP
Gringorten PP
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray
0.0266 ln3
0.0266 gno
0.0269 gev
0.0272 gum
0.0274 gpa
0.0287 gam
0.0348 glo
0.0447 lap
0.0454 rice
0.0475 nor
0.0614 exp
0.0847 revgum
help("distLextreme")

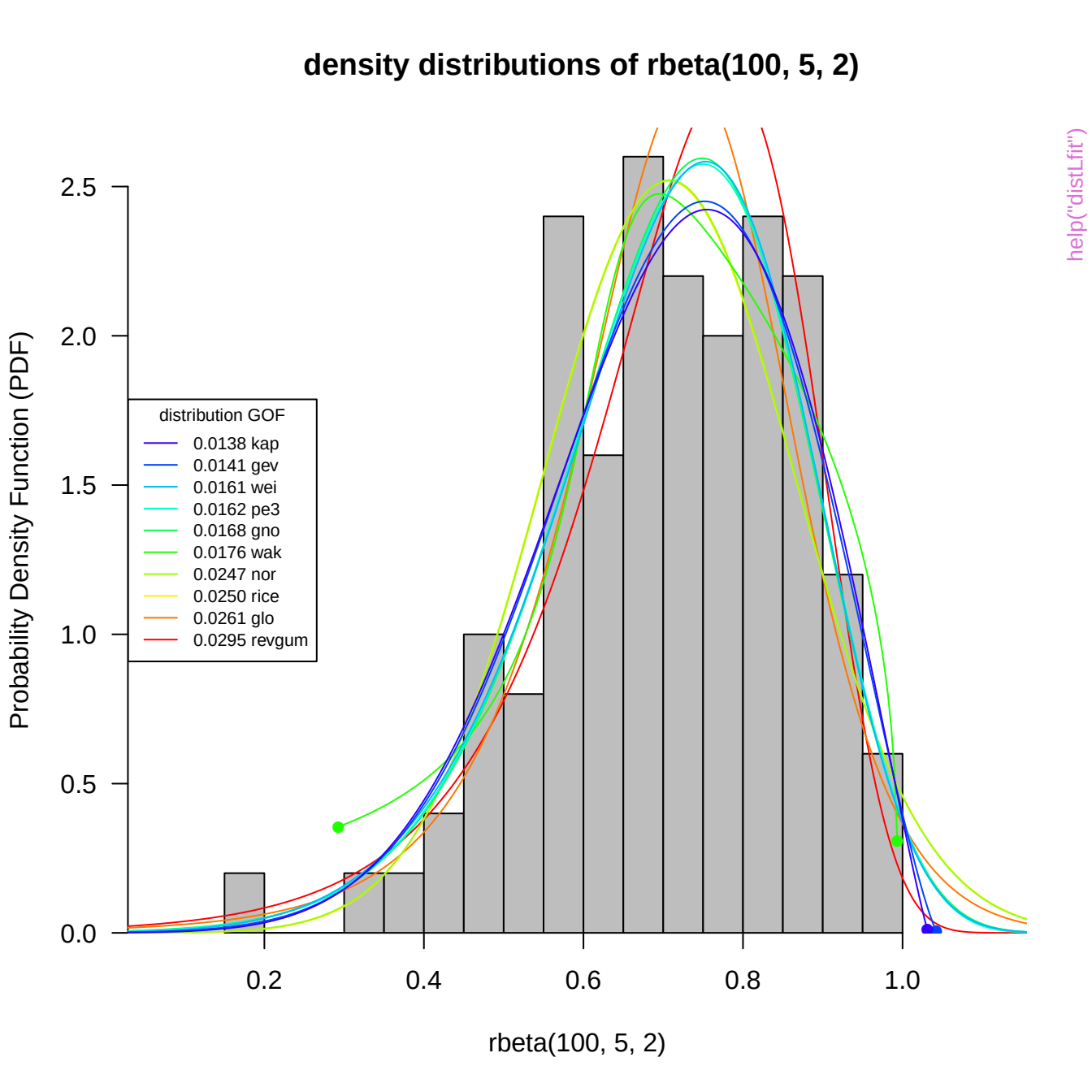

annMax
Discharge HQ [m³/s]
120
100
80
60
40
0
10
20
30
40
50
60
Return Period RP [a]
Weibull PP
Gringorten PP
0.0269 gev
0.0287 gam
0.0272 gum
help("distLextreme")

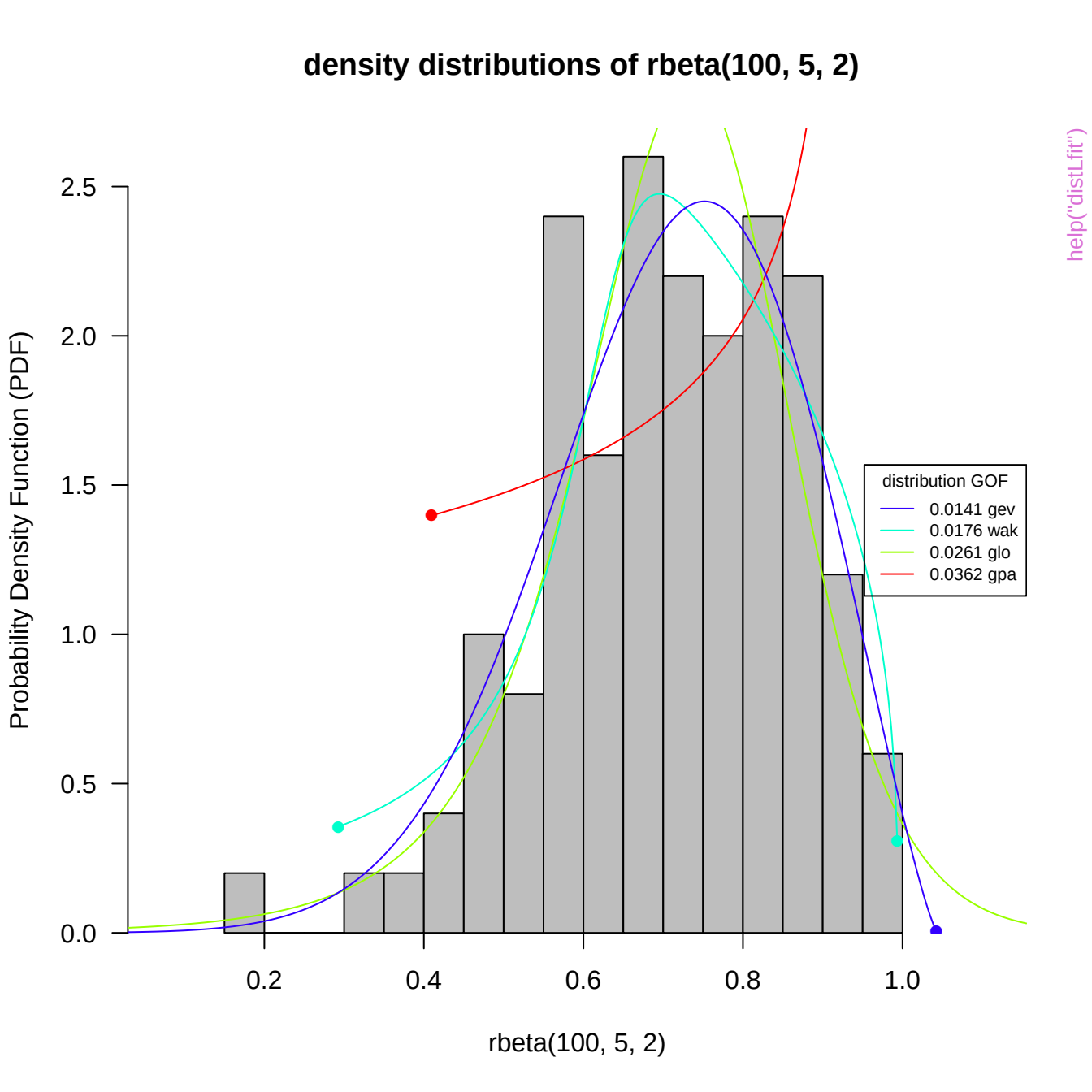

annMax
Discharge HQ [m³/s]
120
100
80
60
40
1
2
5
10
20
50
Return Period RP [a]
Weibull PP
0.0231 wei
0.0274 gpa
0.0348 glo
0.0614 exp
help("distLextreme")

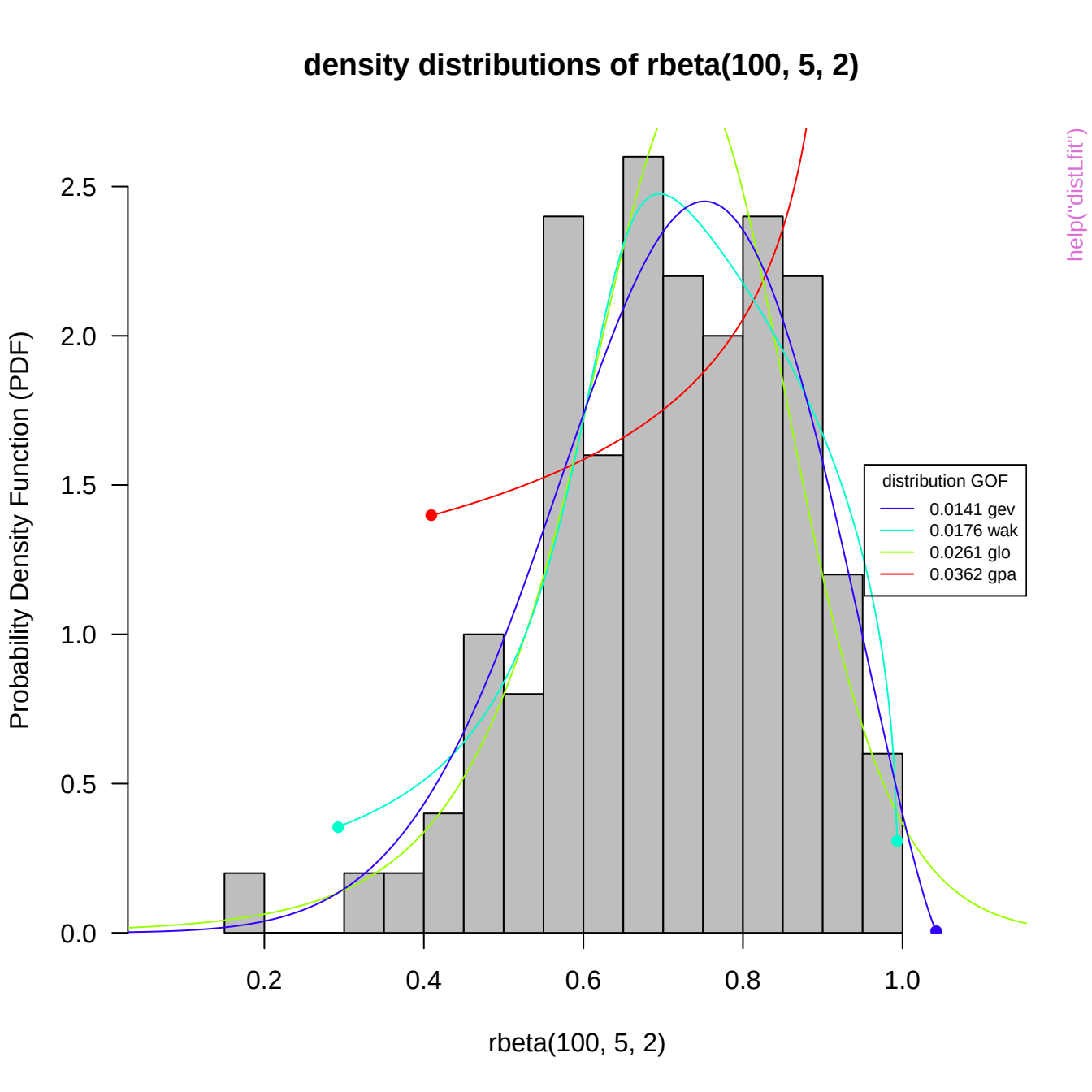

annMax
Discharge HQ [m³/s]
Return Period RP [a]
120
100
80
60
40
0
10
20
30
40
50
60
Weibull PP
Gringorten PP
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray
help("distLextreme")

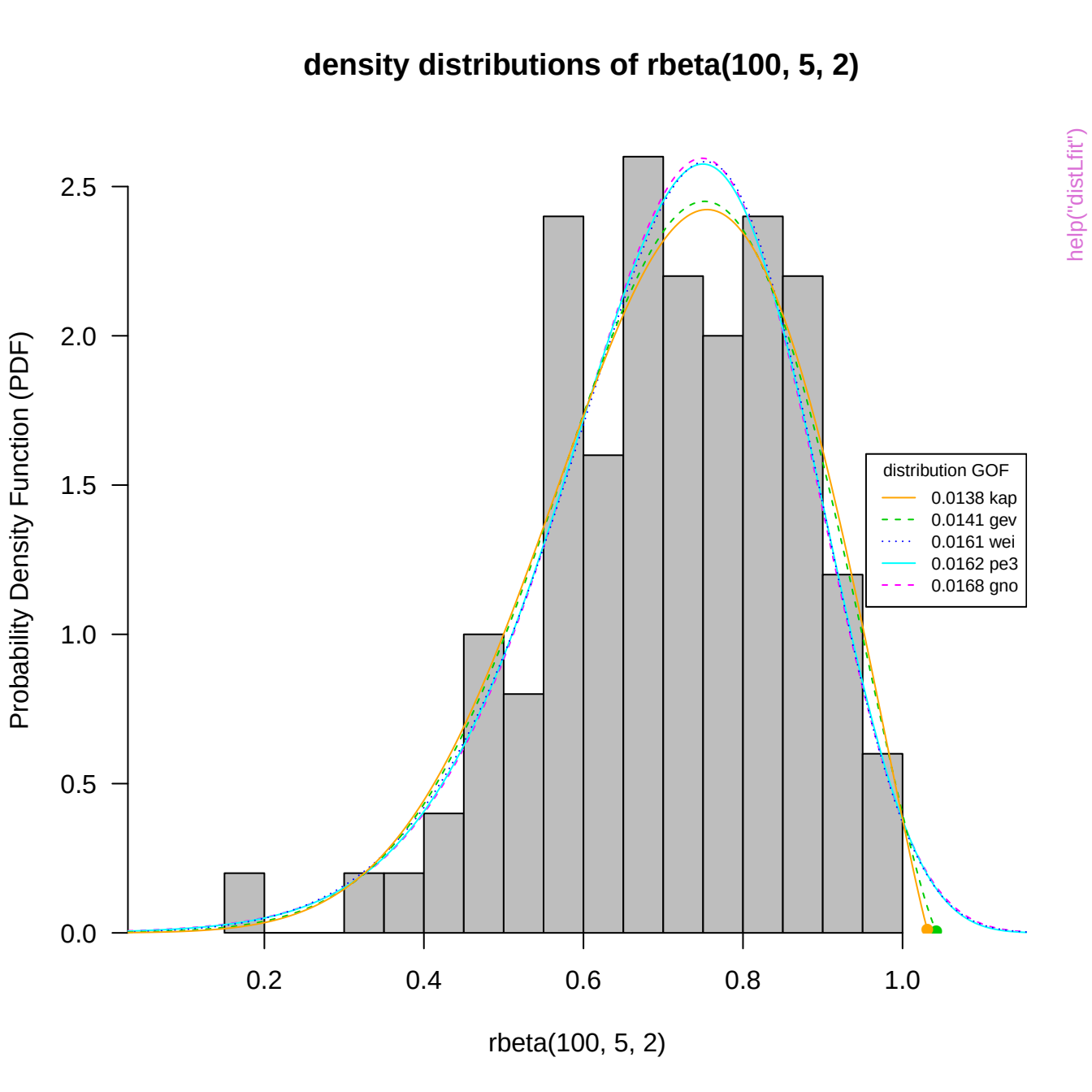

density distributions of annMax
help("distLfit")
Probability Density Function (PDF)
0.020
0.015
0.010
0.005
0.000
20
40
60
80
100
120
annMax
distribution GOF
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray

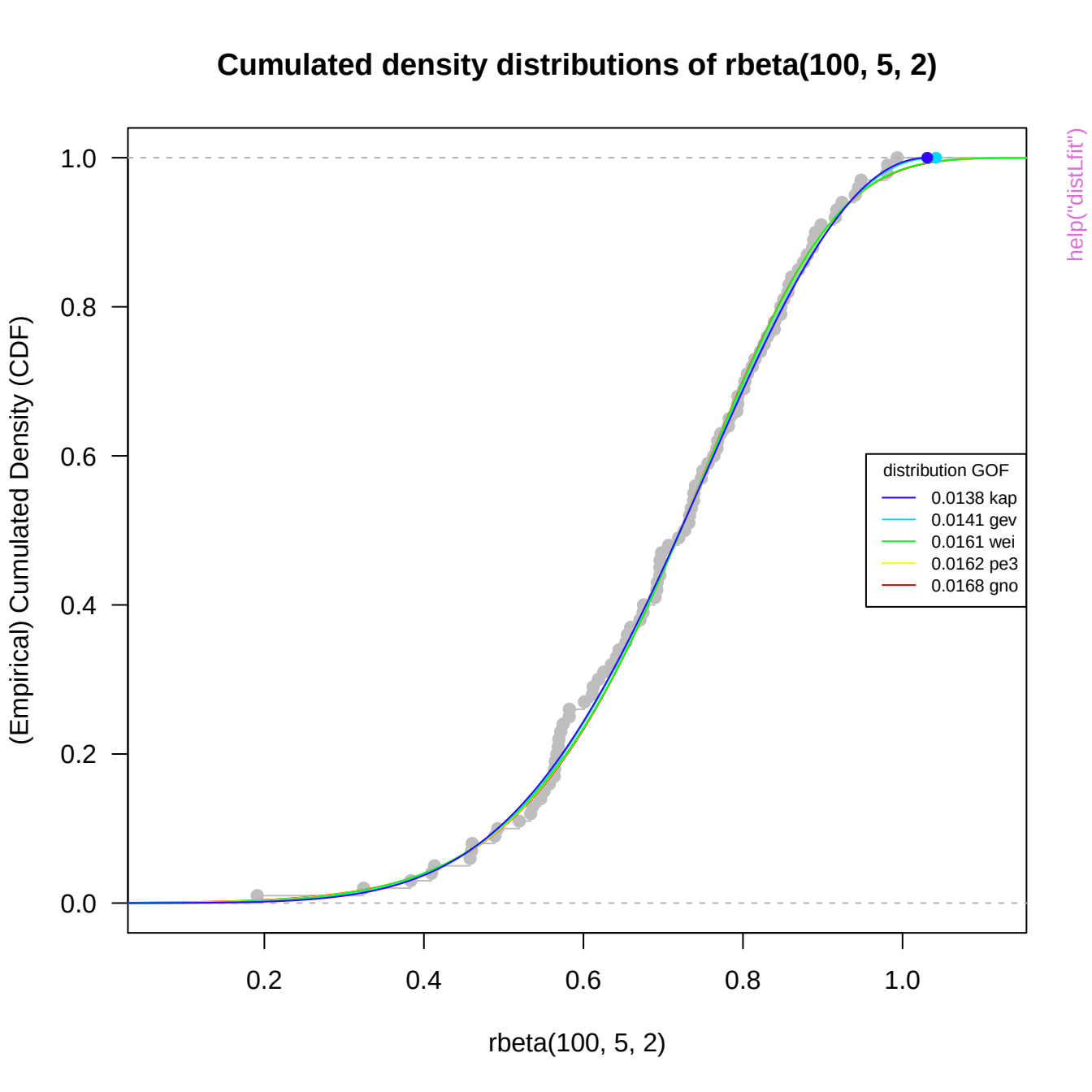

booh!
Probability Density Function (PDF)
0.020
0.015
0.010
0.005
0.000
20
40
60
80
100
120
annMax
distribution GOF
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray
0.0266 ln3
0.0266 gno
0.0269 gev
0.0272 gum
0.0274 gpa
0.0287 gam
0.0348 glo
0.0447 lap
0.0454 rice
0.0475 nor
0.0614 exp
0.0847 revgum
help("distLfit")

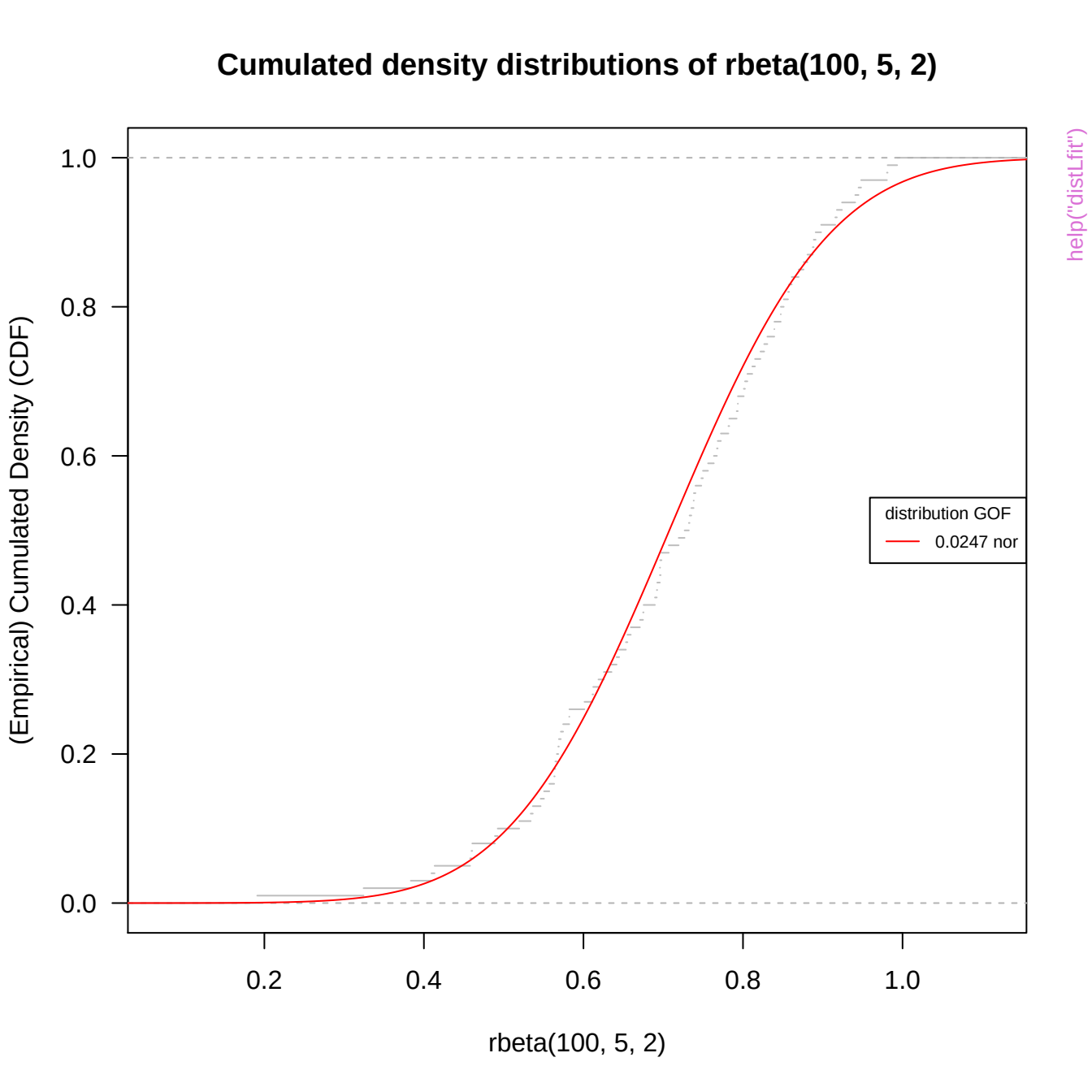

density distributions of rbeta(100, 5, 2)
help("distLfit")
Probability Density Function (PDF)
rbeta(100, 5, 2)
distribution GOF
0.0138 kap
0.0141 gev
0.0161 wei
0.0162 pe3
0.0168 gno
0.0176 wak
0.0247 nor
0.0250 rice
0.0261 glo
0.0295 revgum
0.0
0.5
1.0
1.5
2.0
2.5
0.2
0.4
0.6
0.8
1.0

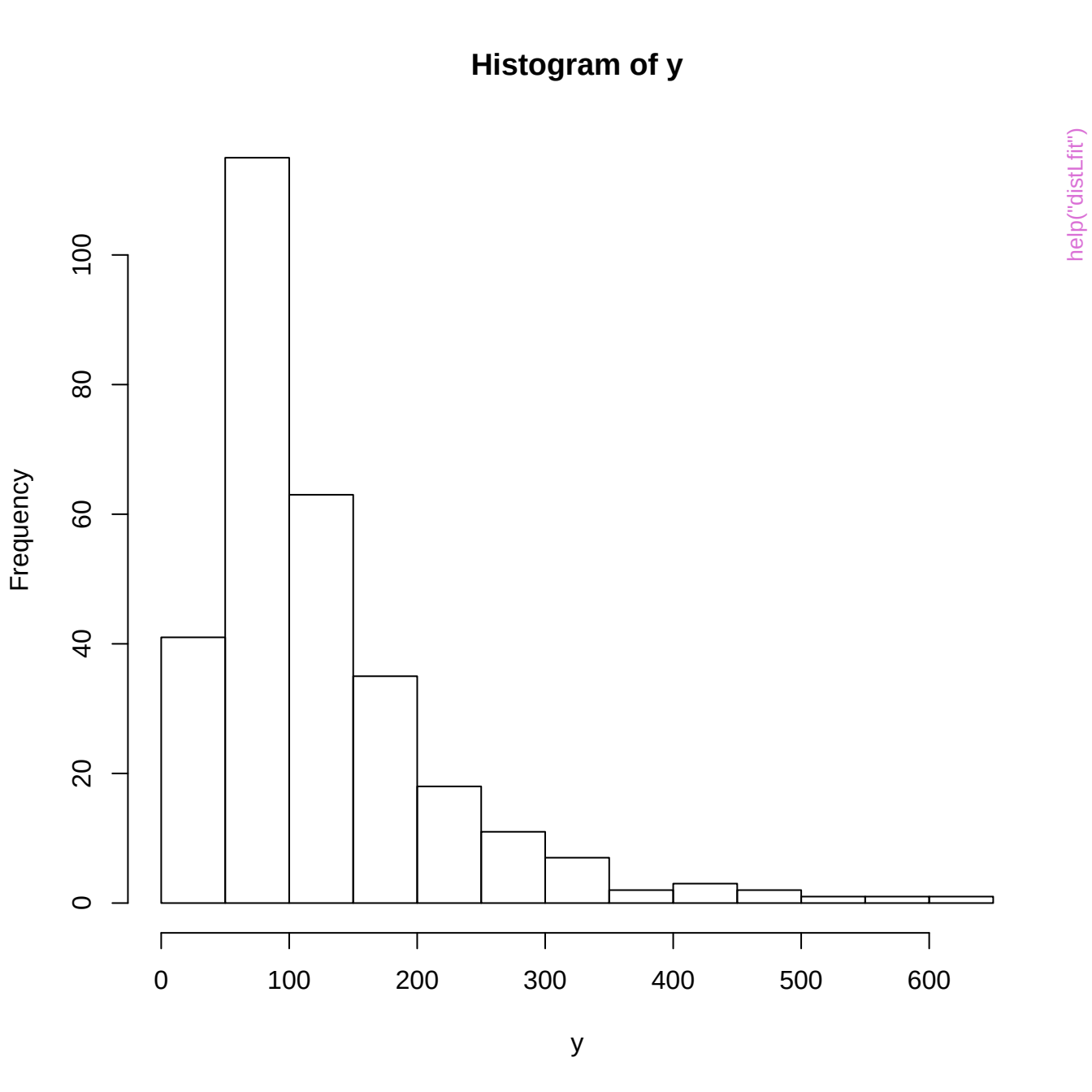

density distributions of rbeta(100, 5, 2)
help("distLfit")
Probability Density Function (PDF)
2.5
2.0
1.5
1.0
0.5
0.0
0.2
0.4
0.6
0.8
1.0
rbeta(100, 5, 2)
distribution GOF
0.0141 gev
0.0176 wak
0.0261 glo
0.0362 gpa

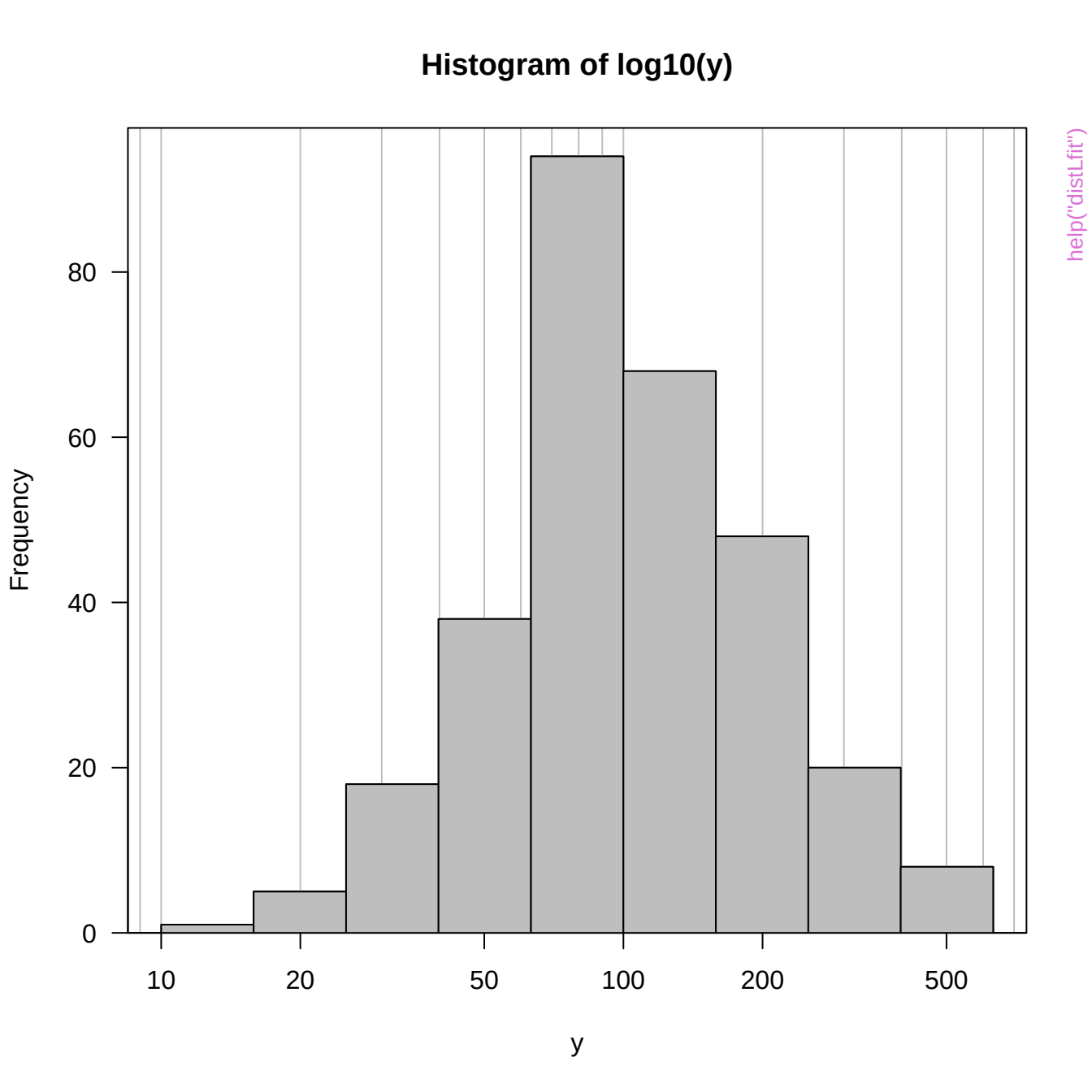

density distributions of rbeta(100, 5, 2)
help("distLfit")
Probability Density Function (PDF)
2.5
2.0
1.5
1.0
0.5
0.0
0.2
0.4
0.6
0.8
1.0
rbeta(100, 5, 2)
distribution GOF
0.0141 gev
0.0176 wak
0.0261 glo
0.0362 gpa

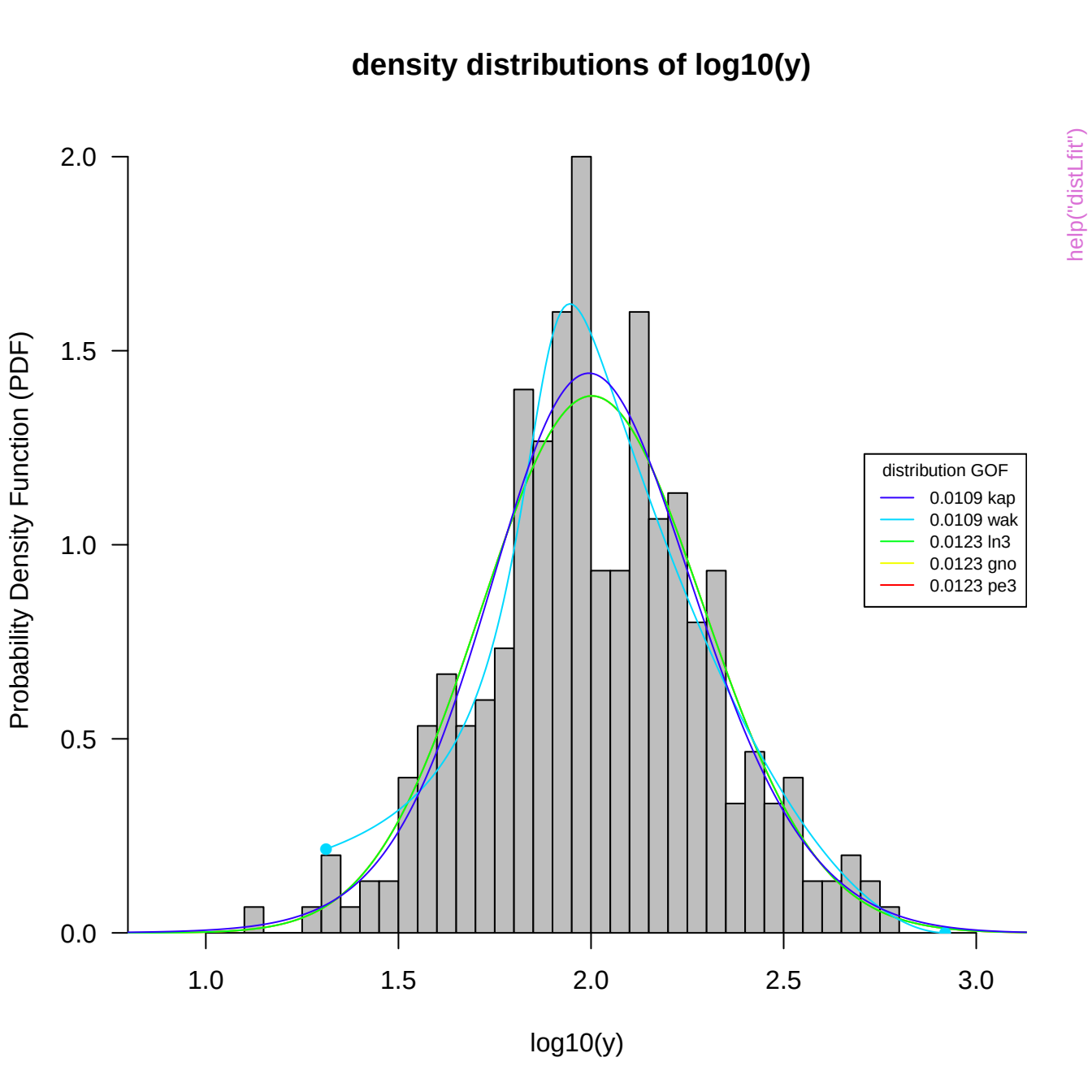

density distributions of rbeta(100, 5, 2)
help("distLfit")
Probability Density Function (PDF)
2.5
2.0
1.5
1.0
0.5
0.0
0.2
0.4
0.6
0.8
1.0
rbeta(100, 5, 2)
distribution GOF
0.0138 kap
0.0141 gev
0.0161 wei
0.0162 pe3
0.0168 gno

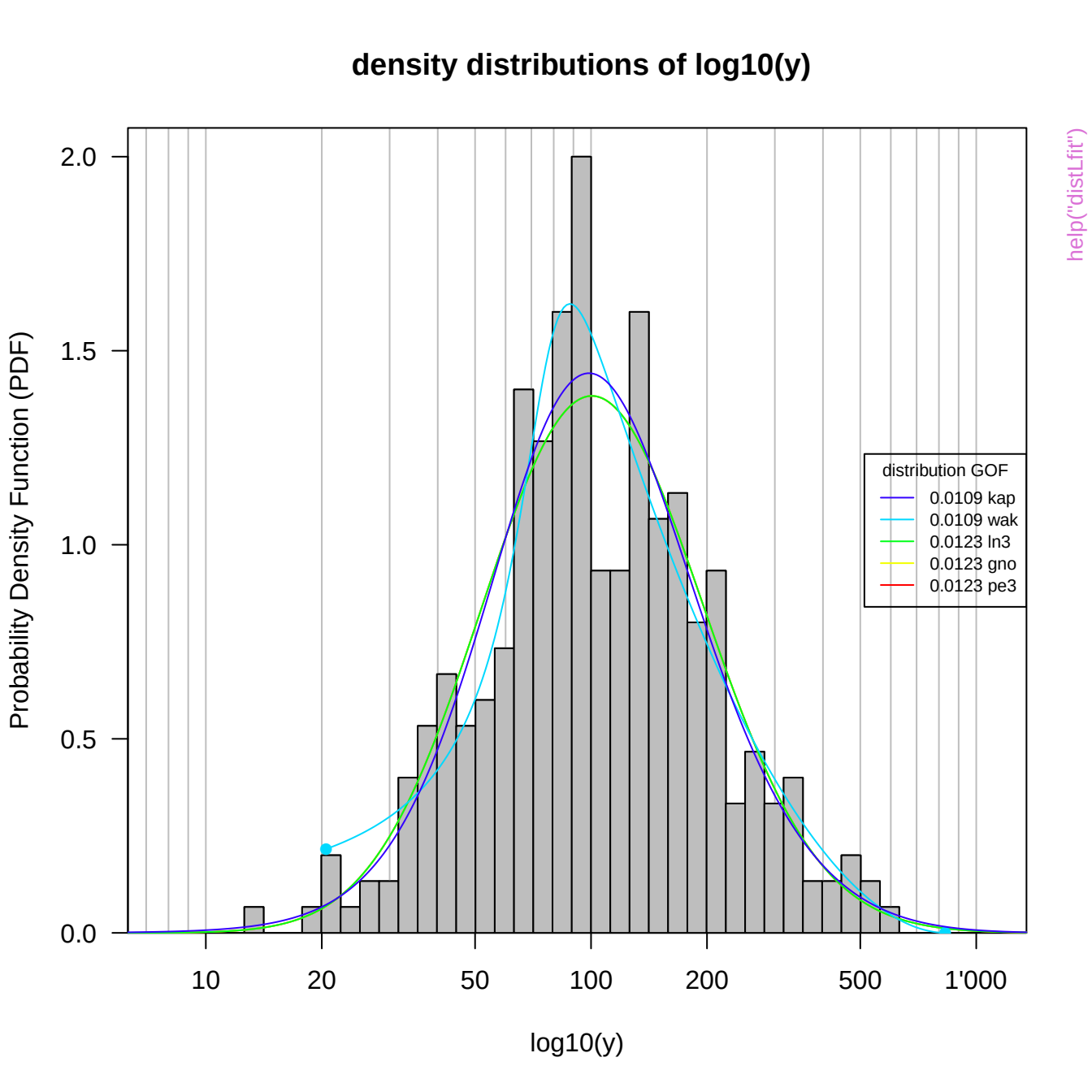

Cumulated density distributions of rbeta(100, 5, 2)
(Empirical) Cumulated Density (CDF)
1.0
0.8
0.6
0.4
0.2
0.0
0.2
0.4
0.6
0.8
1.0
rbeta(100, 5, 2)
distribution GOF
0.0138 kap
0.0141 gev
0.0161 wei
0.0162 pe3
0.0168 gno
help("distLfit")

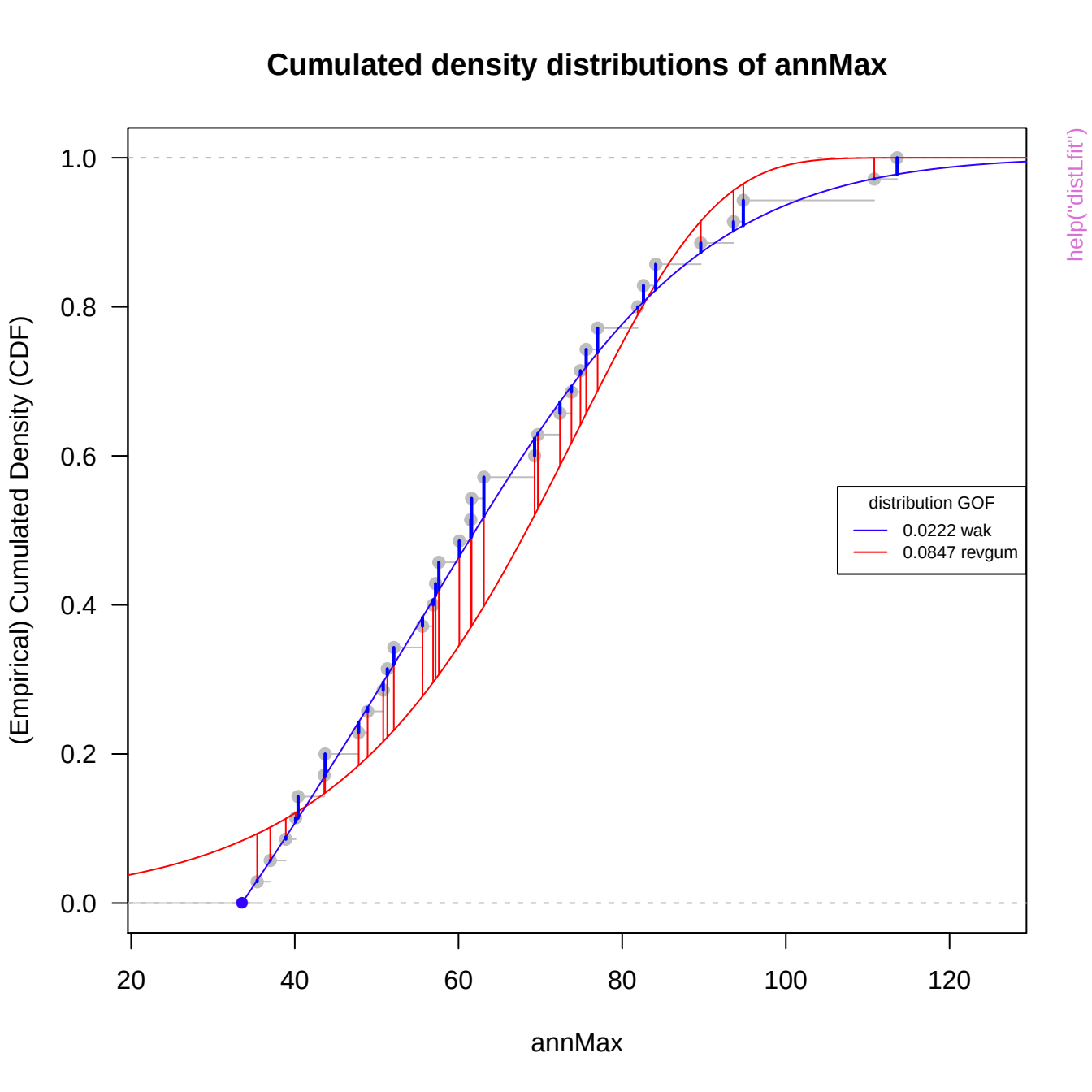

Cumulated density distributions of rbeta(100, 5, 2)
(Empirical) Cumulated Density (CDF)
1.0
0.8
0.6
0.4
0.2
0.0
0.2
0.4
0.6
0.8
1.0
rbeta(100, 5, 2)
distribution GOF
0.0247 nor
help("distLfit")

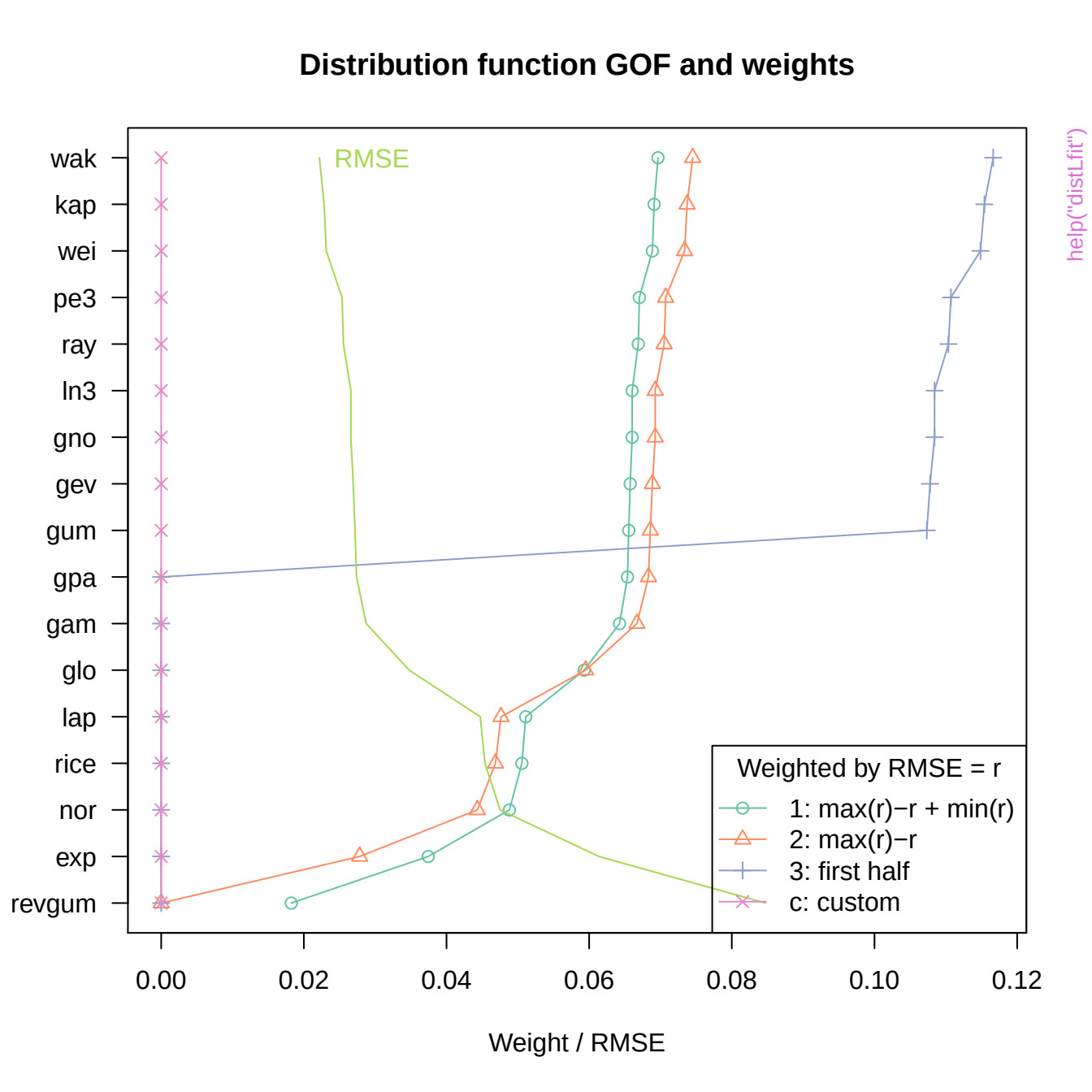

Histogram of y
Frequency
0
20
40
60
80
100
0
100
200
300
400
500
600
y
help("distLfit")

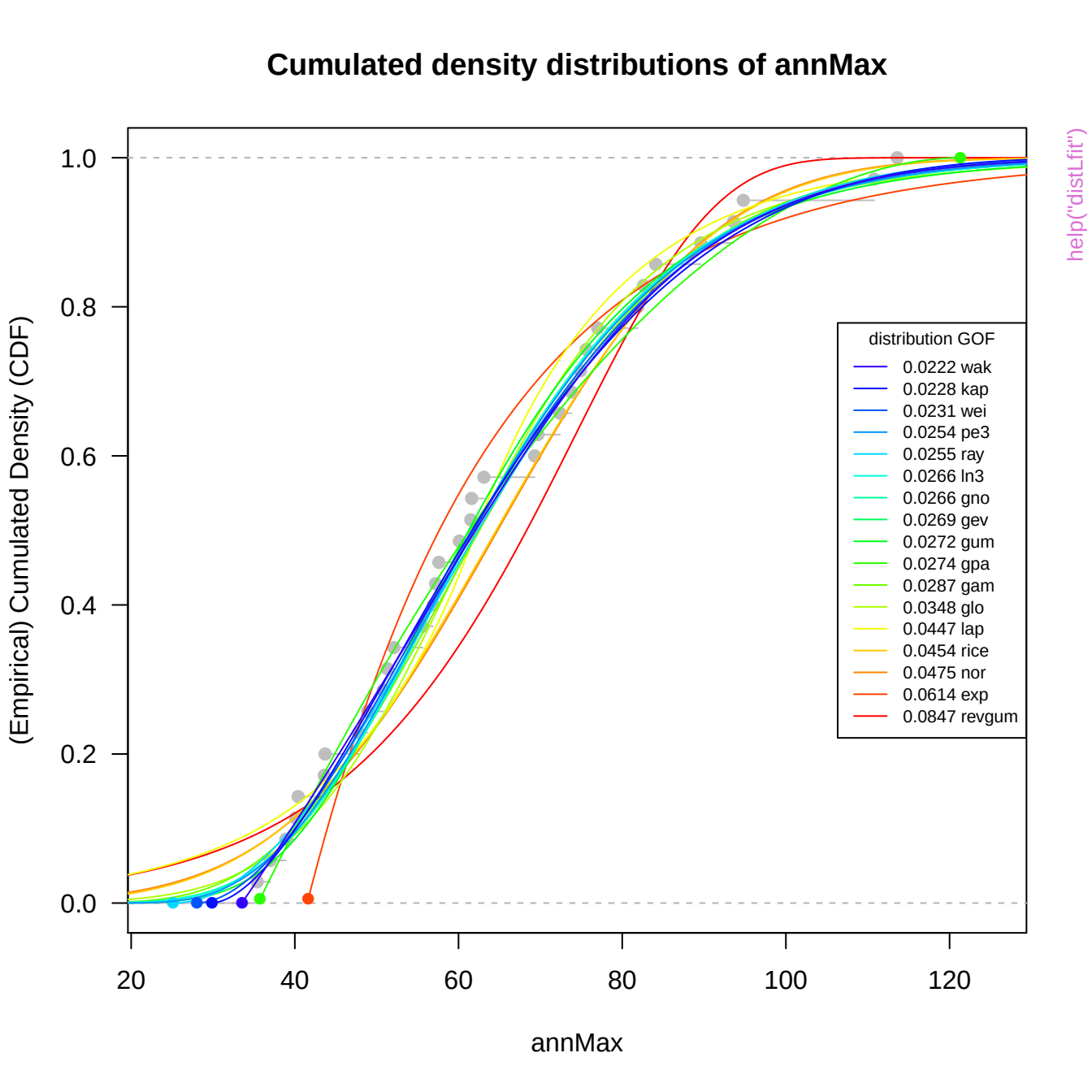

Histogram of log10(y)
Frequency
0
20
40
60
80
10
20
50
100
200
500
y
help("distLfit")

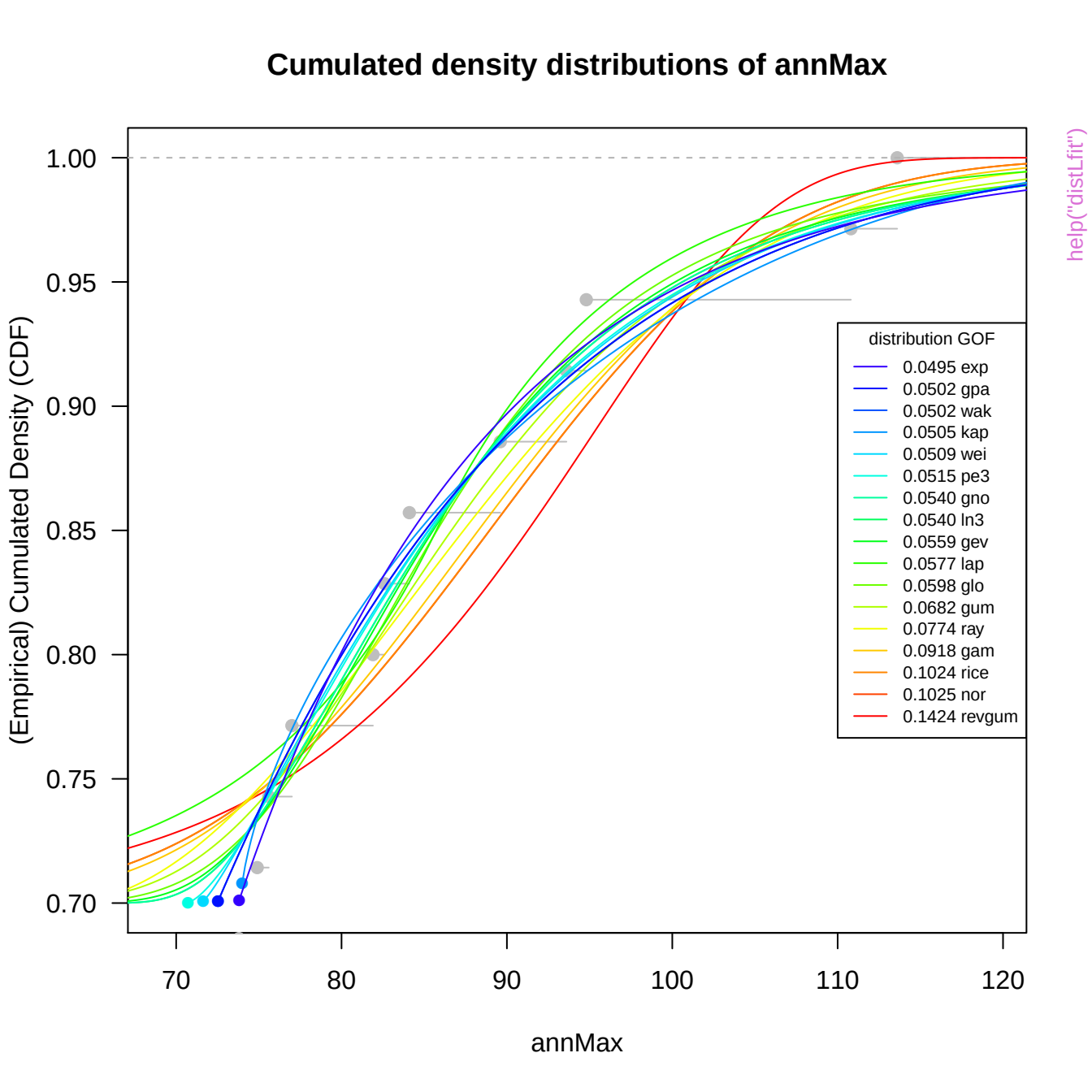

density distributions of log10(y)
help("distLfit")
Probability Density Function (PDF)
2.0
1.5
1.0
0.5
0.0
1.0
1.5
2.0
2.5
3.0
log10(y)
distribution GOF
0.0109 kap
0.0109 wak
0.0123 ln3
0.0123 gno
0.0123 pe3


density distributions of log10(y)
Probability Density Function (PDF)
2.0
1.5
1.0
0.5
0.0
10
20
50
100
200
500
1'000
log10(y)
distribution GOF
0.0109 kap
0.0109 wak
0.0123 ln3
0.0123 gno
0.0123 pe3
help("distLfit")

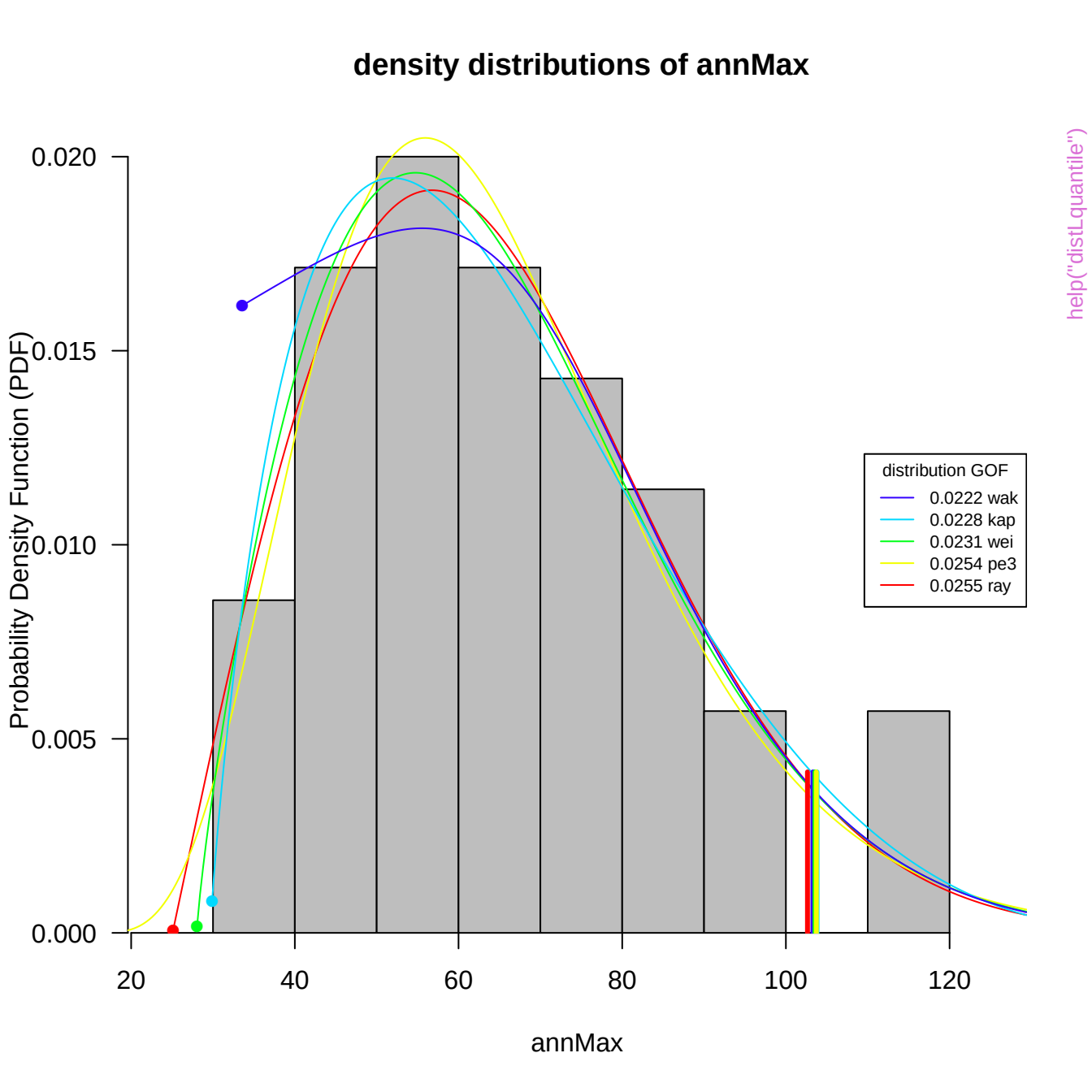

Cumulated density distributions of annMax
(Empirical) Cumulated Density (CDF)
1.0
0.8
0.6
0.4
0.2
0.0
20
40
60
80
100
120
annMax
distribution GOF
0.0222 wak
0.0847 revgum
help("distLfit")

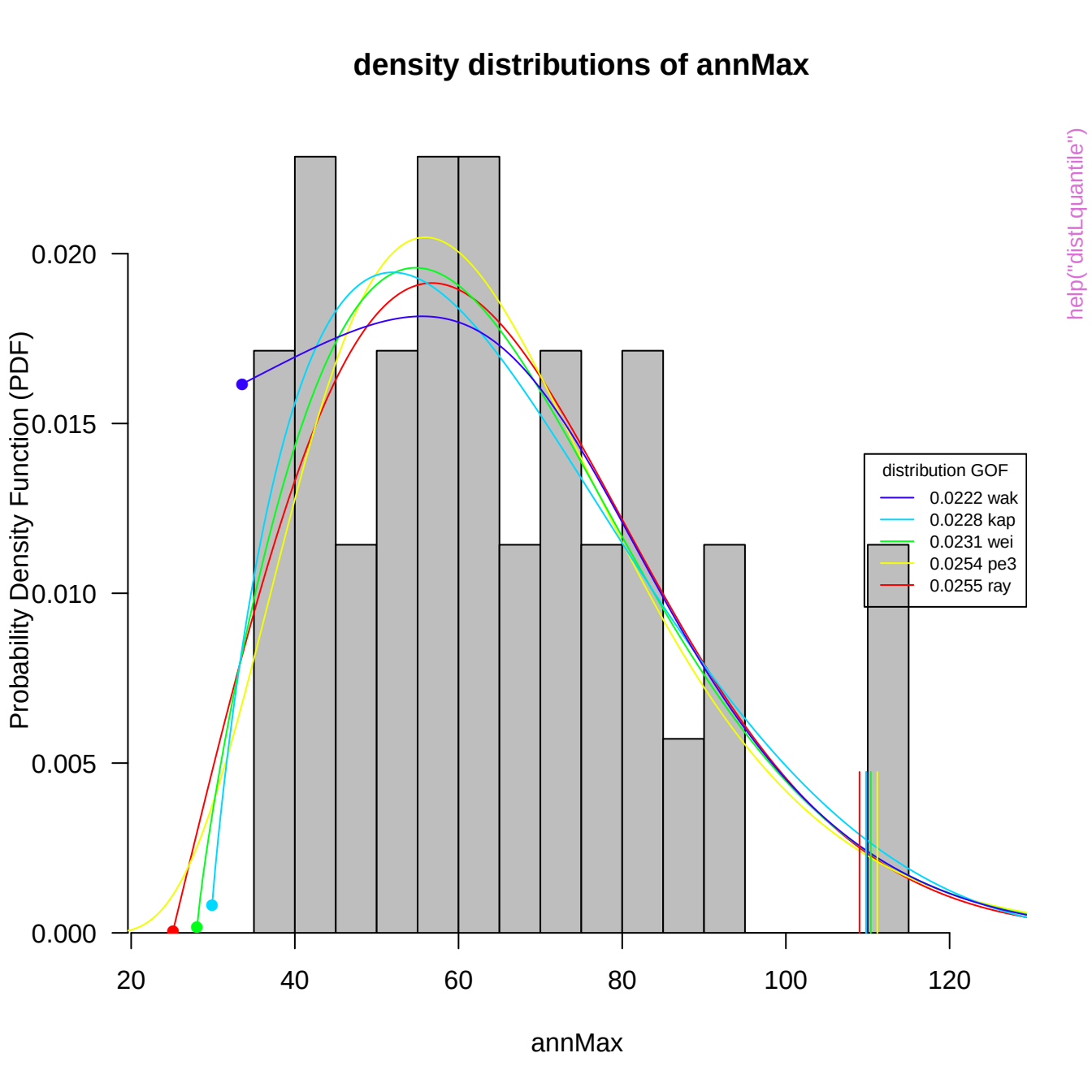

Distribution function GOF and weights
RMSE
wak
kap
wei
pe3
ray
ln3
gno
gev
gum
gpa
gam
glo
lap
rice
nor
exp
revgum
0.00
0.02
0.04
0.06
0.08
0.10
0.12
Weight / RMSE
Weighted by RMSE = r
1: max(r)−r + min(r)
2: max(r)−r
3: first half
c: custom
help("distLfit")

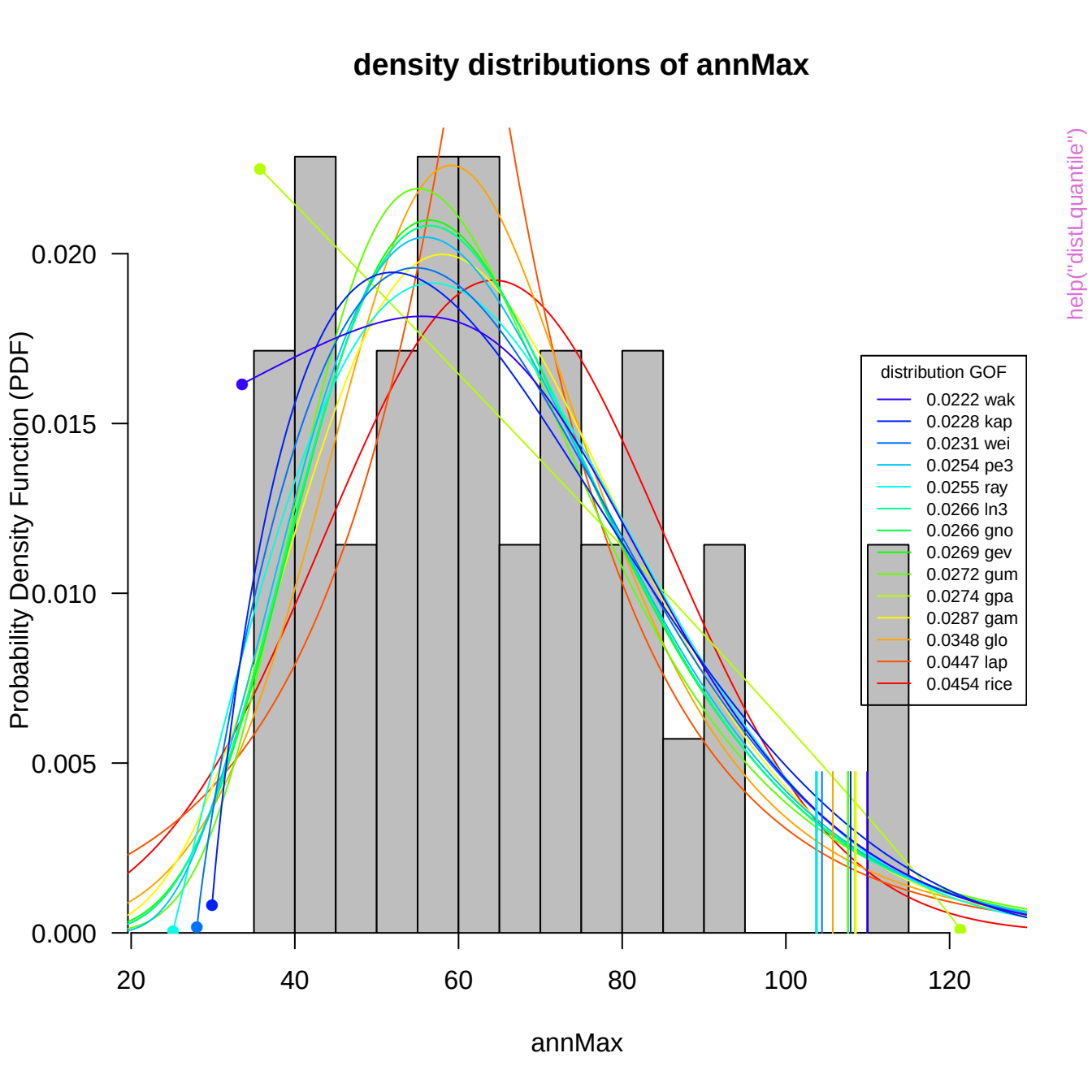

Cumulated density distributions of annMax
(Empirical) Cumulated Density (CDF)
annMax
1.0
0.8
0.6
0.4
0.2
0.0
20
40
60
80
100
120
distribution GOF
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray
0.0266 ln3
0.0266 gno
0.0269 gev
0.0272 gum
0.0274 gpa
0.0287 gam
0.0348 glo
0.0447 lap
0.0454 rice
0.0475 nor
0.0614 exp
0.0847 revgum
help("distLfit")

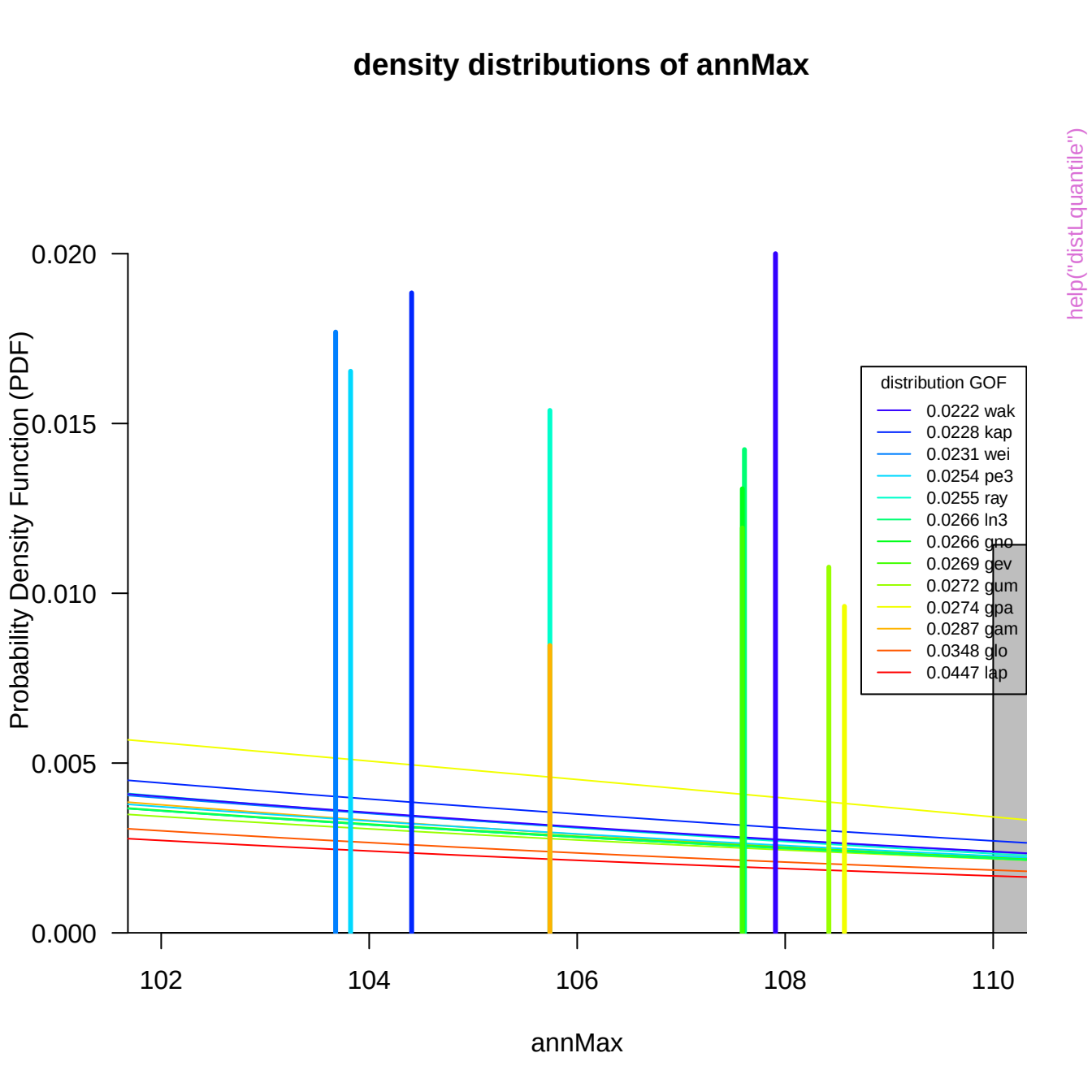

Cumulated density distributions of annMax
(Empirical) Cumulated Density (CDF)
1.00
0.95
0.90
0.85
0.80
0.75
0.70
70
80
90
100
110
120
annMax
distribution GOF
0.0495 exp
0.0502 gpa
0.0502 wak
0.0505 kap
0.0509 wei
0.0515 pe3
0.0540 gno
0.0540 ln3
0.0559 gev
0.0577 lap
0.0598 glo
0.0682 gum
0.0774 ray
0.0918 gam
0.1024 rice
0.1025 nor
0.1424 revgum
help("distLfit")

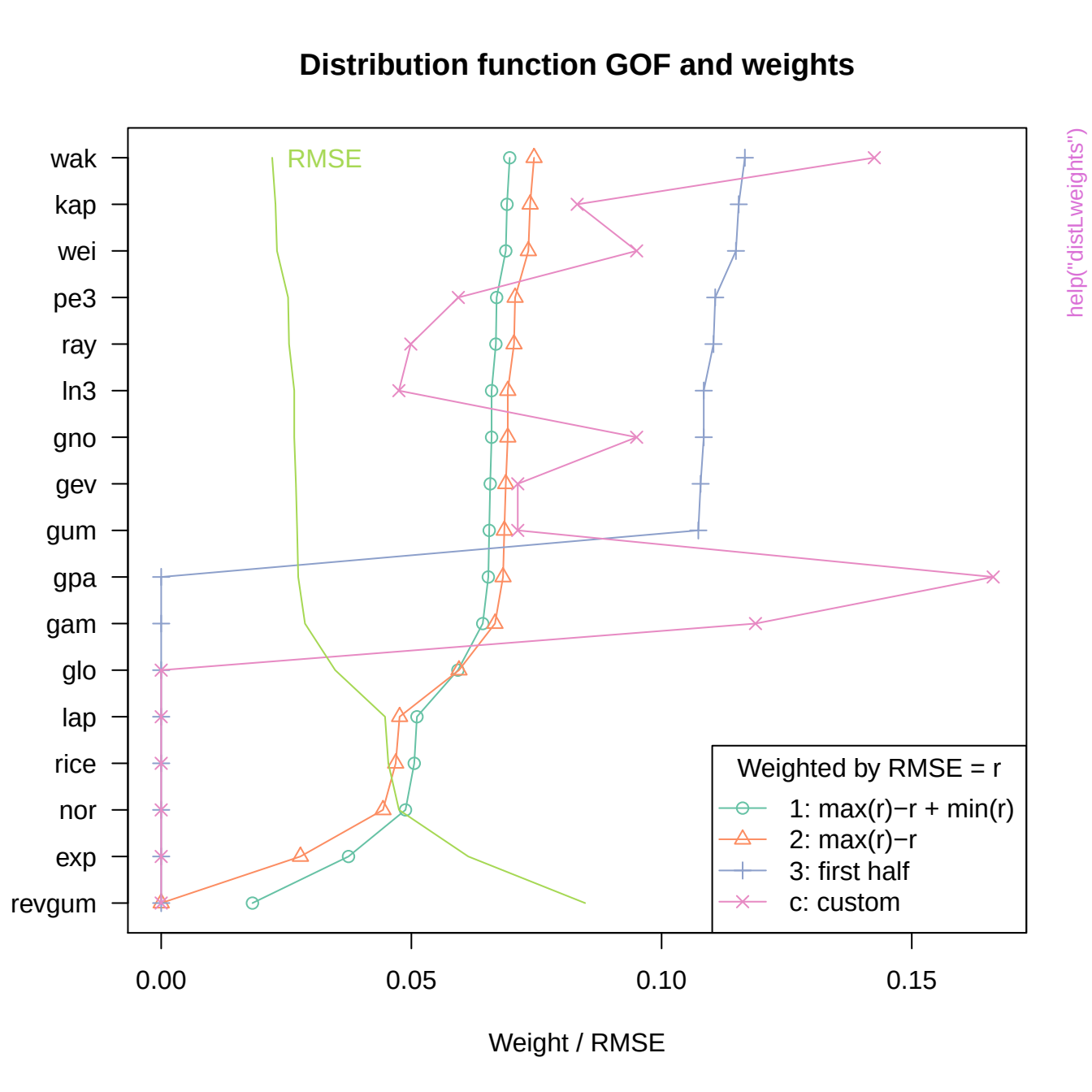
help("distLfit")

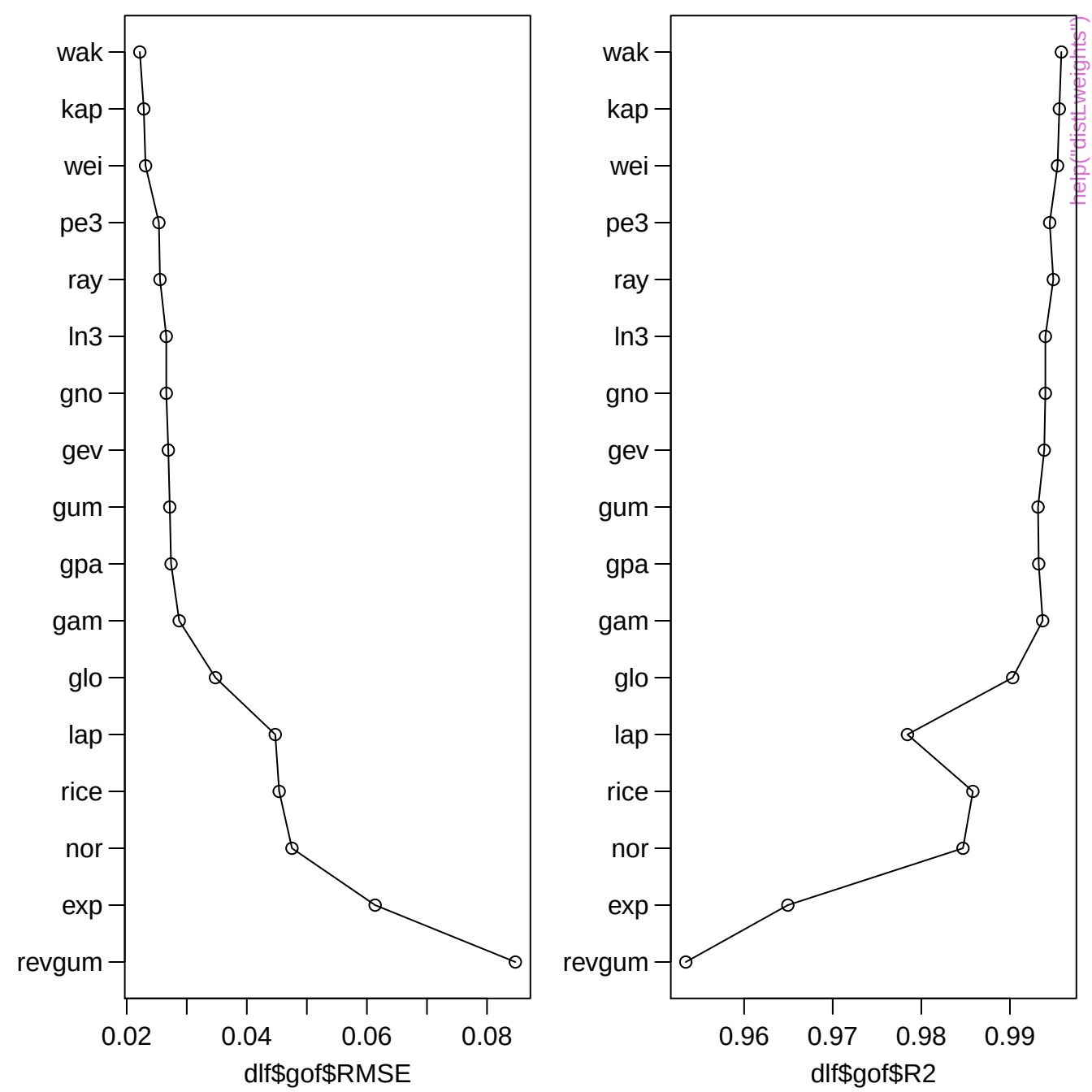

density distributions of annMax
Probability Density Function (PDF)
0.020
0.015
0.010
0.005
0.000
20
40
60
80
100
120
annMax
distribution GOF
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray
help("distLquantile")

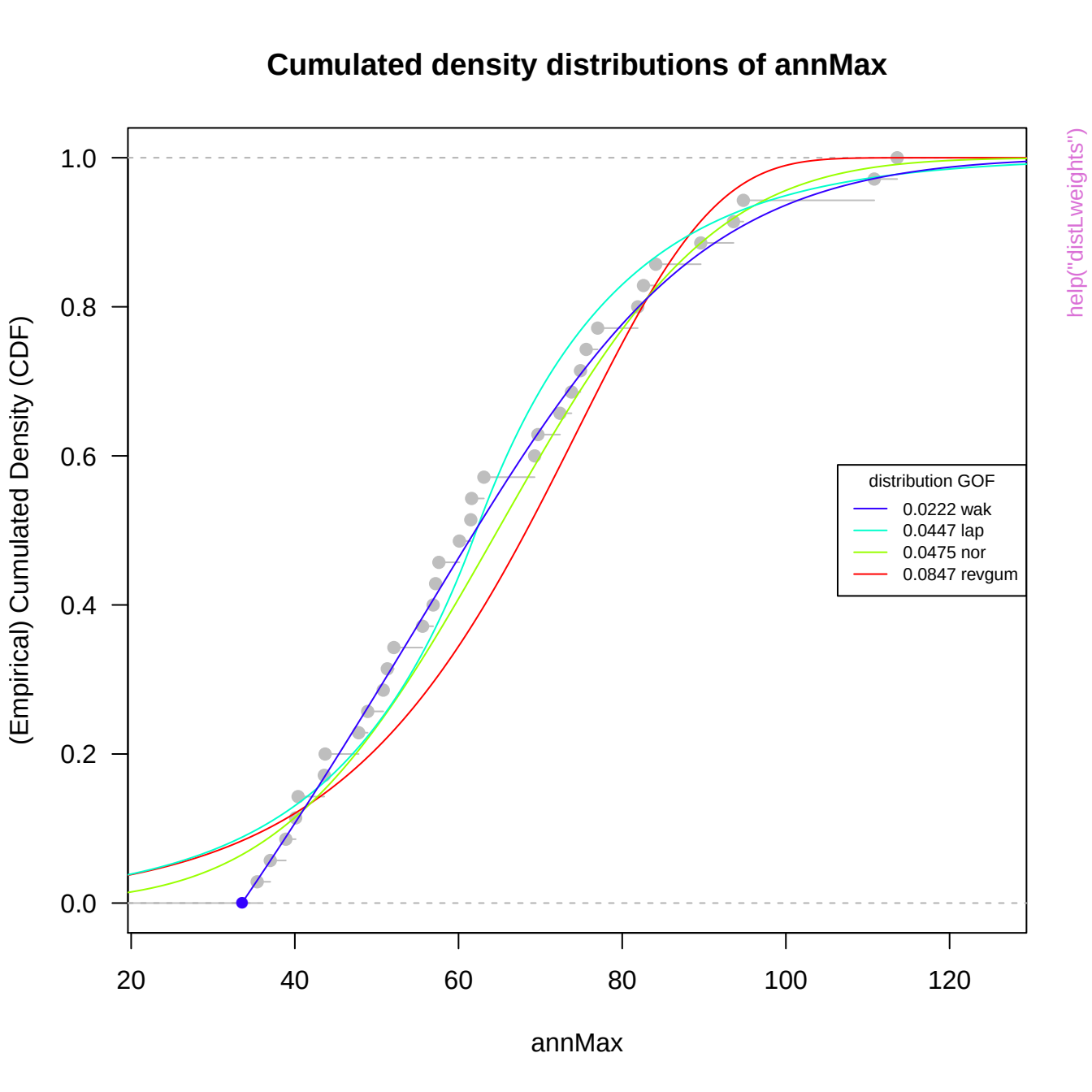

density distributions of annMax
help("distLquantile")
Probability Density Function (PDF)
0.020
0.015
0.010
0.005
0.000
20
40
60
80
100
120
annMax
distribution GOF
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray

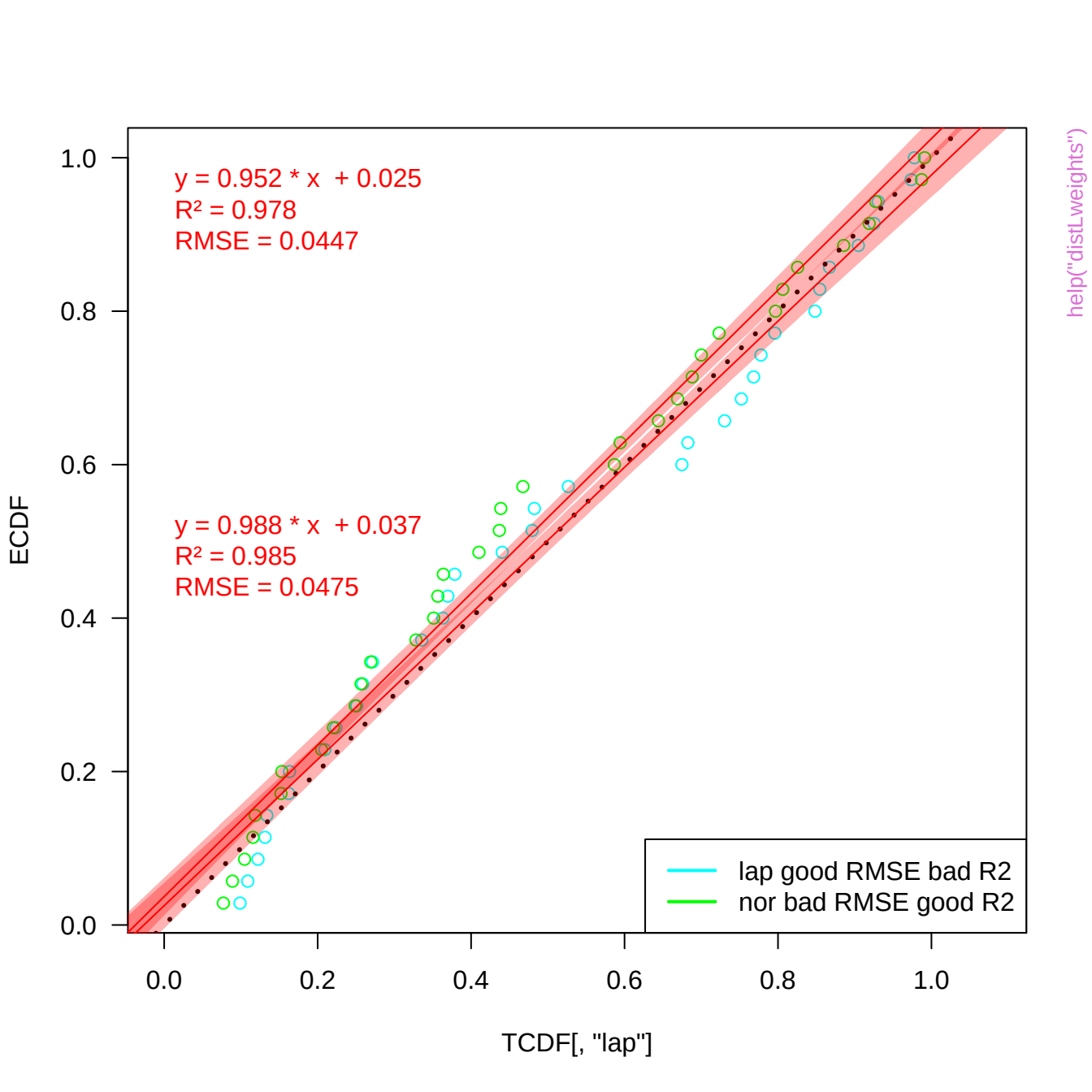

density distributions of annMax
Probability Density Function (PDF)
0.020
0.015
0.010
0.005
0.000
20
40
60
80
100
120
annMax
distribution GOF
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray
0.0266 ln3
0.0266 gno
0.0269 gev
0.0272 gum
0.0274 gpa
0.0287 gam
0.0348 glo
0.0447 lap
0.0454 rice
help("distLquantile")

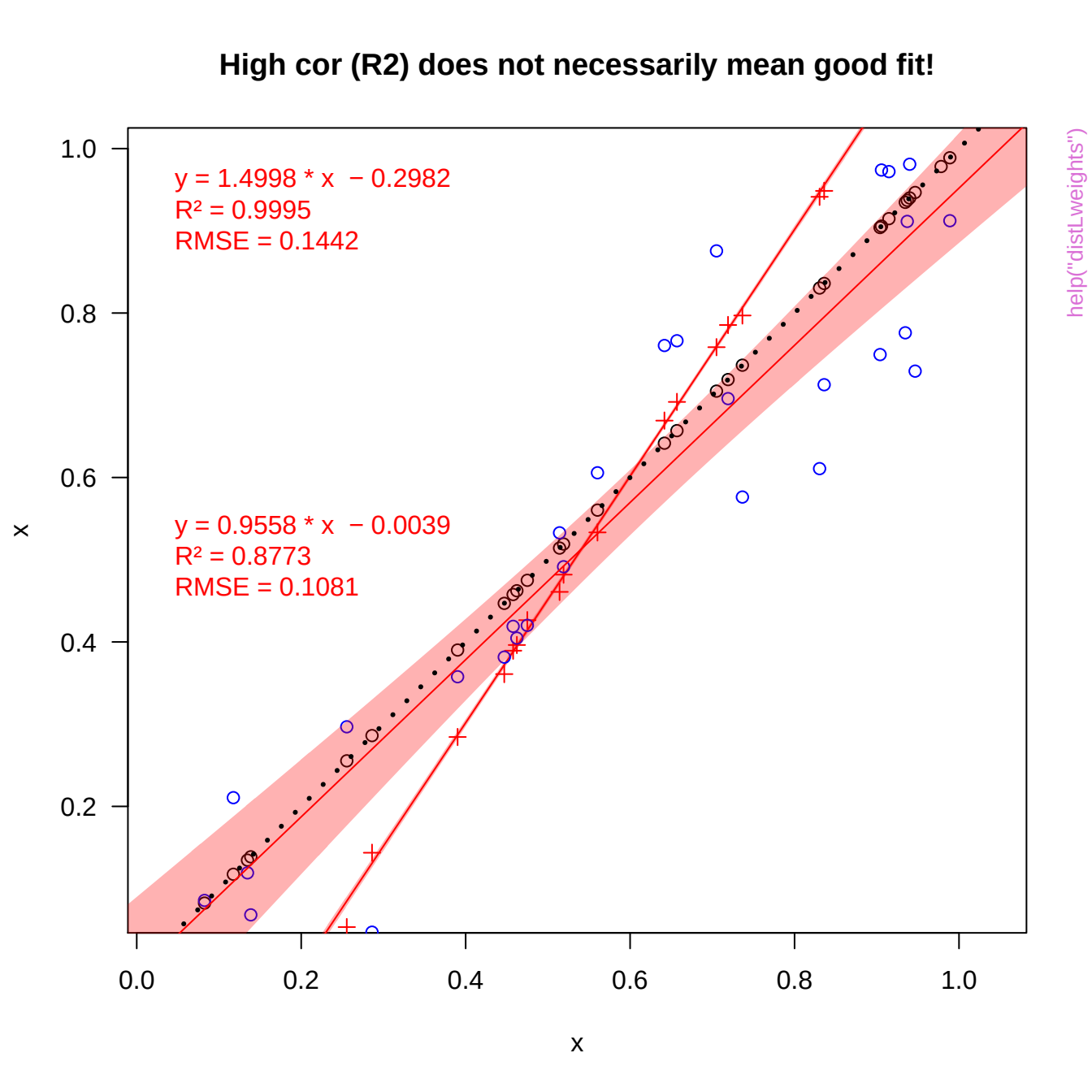

density distributions of annMax
help("distLquantile")
Probability Density Function (PDF)
0.020
0.015
0.010
0.005
0.000
102
104
106
108
110
annMax
distribution GOF
0.0222 wak
0.0228 kap
0.0231 wei
0.0254 pe3
0.0255 ray
0.0266 ln3
0.0266 gno
0.0269 gev
0.0272 gum
0.0274 gpa
0.0287 gam
0.0348 glo
0.0447 lap

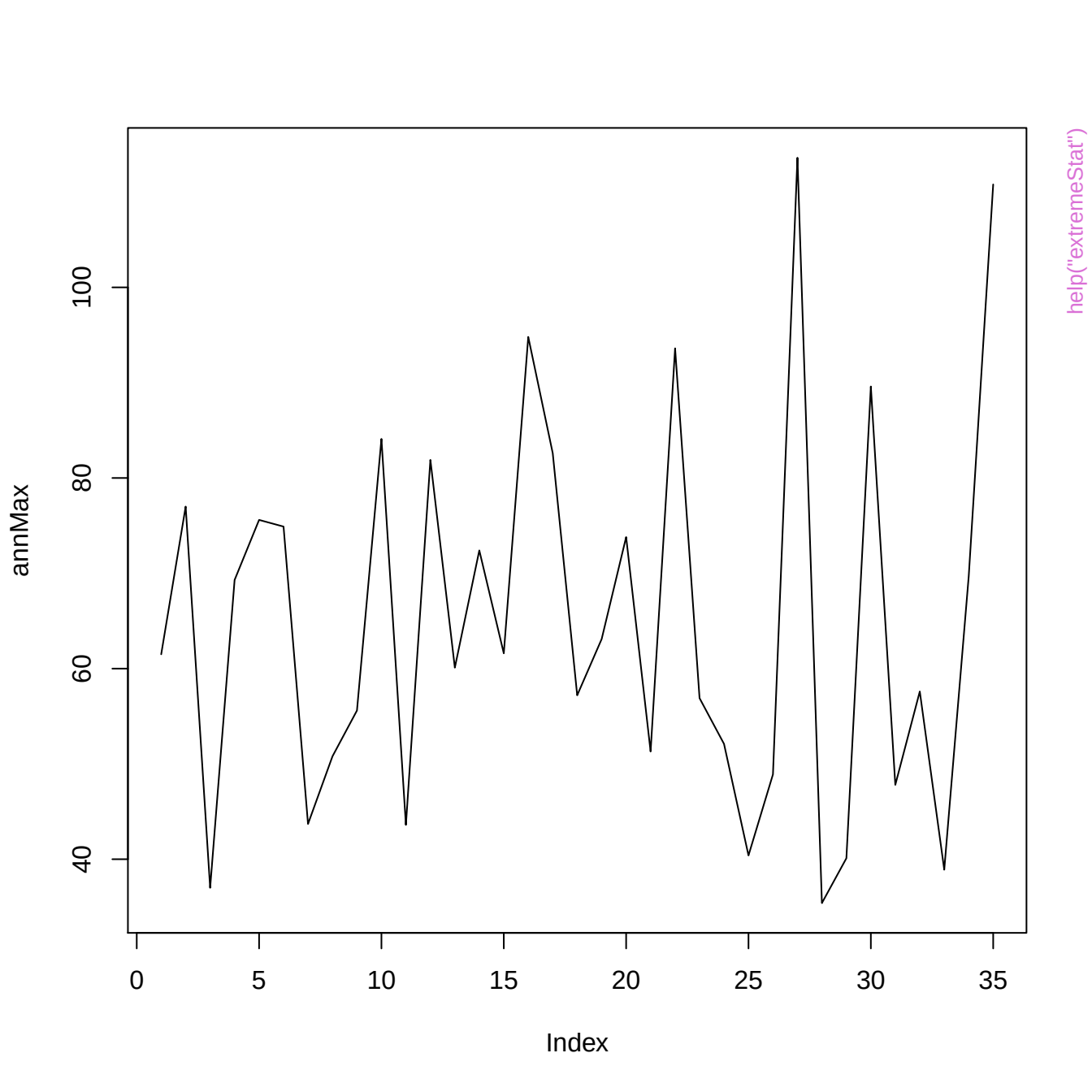

Distribution function GOF and weights
RMSE
wak
kap
wei
pe3
ray
ln3
gno
gev
gum
gpa
gam
glo
lap
rice
nor
exp
revgum
0.00
0.05
0.10
0.15
Weight / RMSE
Weighted by RMSE = r
1: max(r)−r + min(r)
2: max(r)−r
3: first half
c: custom
help("distLweights")

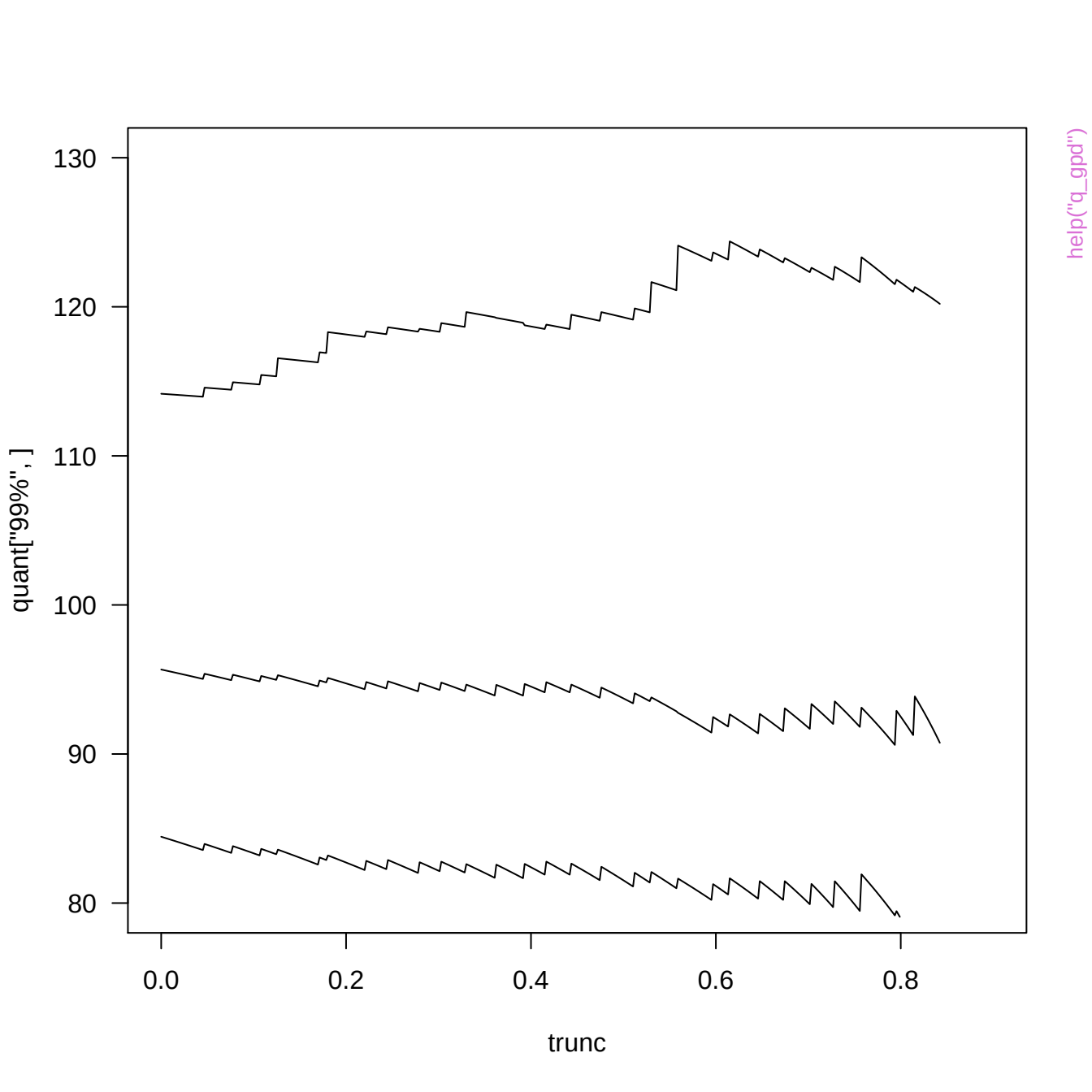

wak
kap
wei
pe3
ray
ln3
gno
gev
gum
gpa
gam
glo
lap
rice
nor
exp
revgum
0.02
0.04
0.06
0.08
dlfgofRMSE
0.96
0.97
0.98
0.99
dlfgofR2
help("distLweights")

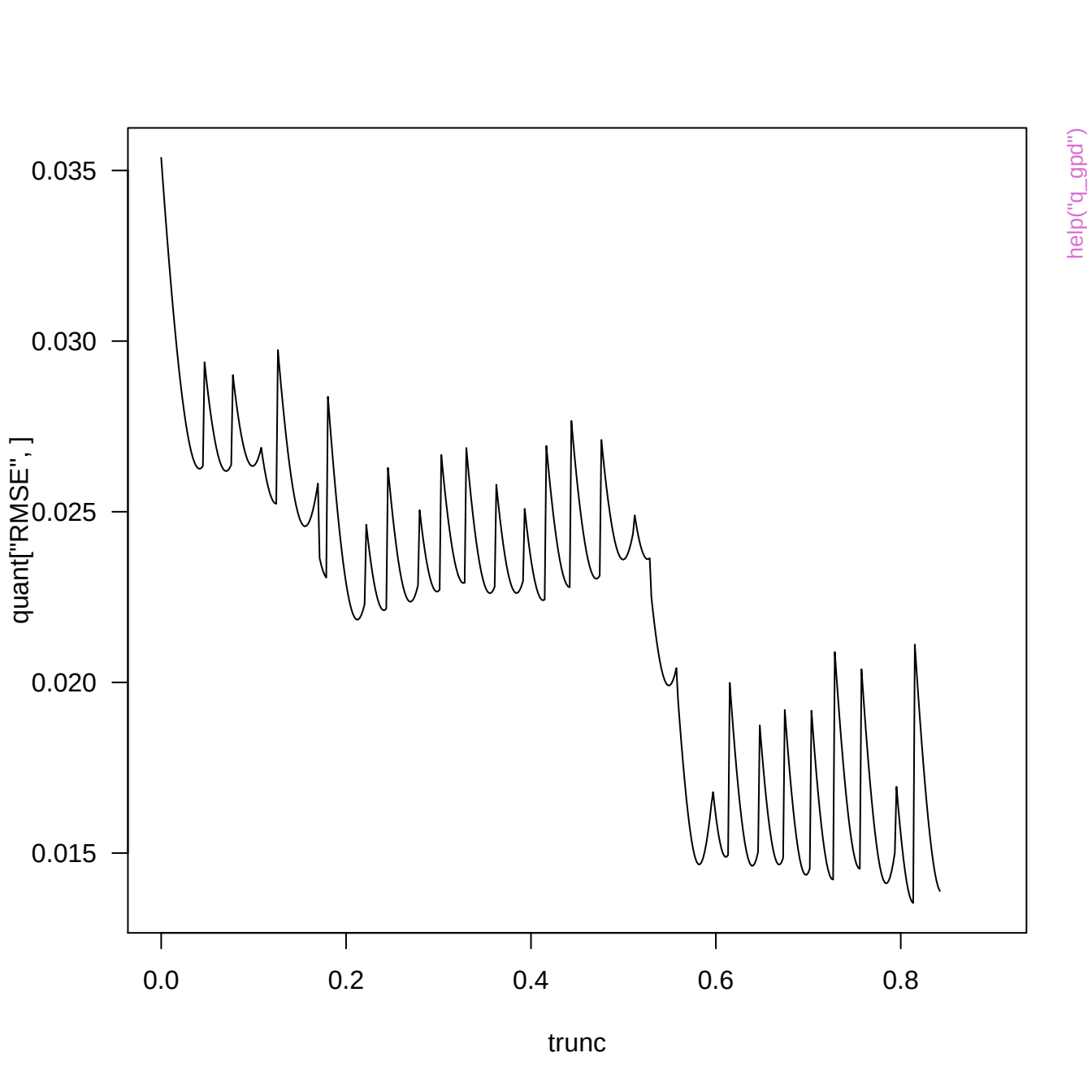

Cumulated density distributions of annMax
(Empirical) Cumulated Density (CDF)
1.0
0.8
0.6
0.4
0.2
0.0
20
40
60
80
100
120
annMax
distribution GOF
0.0222 wak
0.0447 lap
0.0475 nor
0.0847 revgum
help("distLweights")

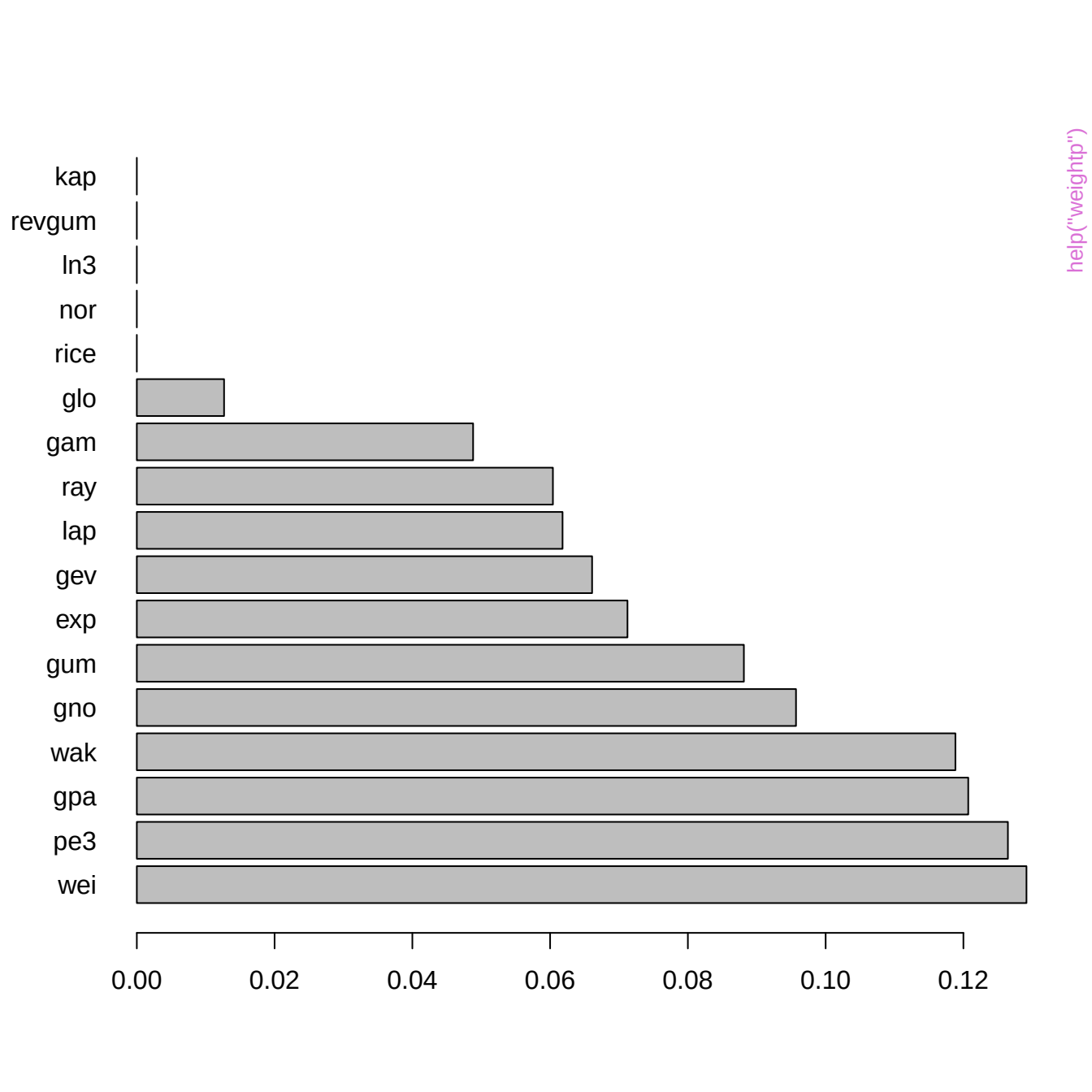

y = 0.952 * x + 0.025
R² = 0.978
RMSE = 0.0447
y = 0.988 * x + 0.037
R² = 0.985
RMSE = 0.0475
lap good RMSE bad R2
nor bad RMSE good R2
ECDF
TCDF[, "lap"]
0.0
0.2
0.4
0.6
0.8
1.0
help("distLweights")


High cor (R2) does not necessarily mean good fit!
y = 1.4998 * x − 0.2982
R² = 0.9995
RMSE = 0.1442
y = 0.9558 * x − 0.0039
R² = 0.8773
RMSE = 0.1081
x
x
0.0
0.2
0.4
0.6
0.8
1.0
help("distLweights")


annMax
40
60
80
100
0
5
10
15
20
25
30
35
Index
help("extremeStat")


130
120
110
100
90
80
quant["99%",]
0.0
0.2
0.4
0.6
0.8
trunc
help("q_gpd")


0.035
0.030
0.025
0.020
0.015
quant["RMSE",]
0.0
0.2
0.4
0.6
0.8
trunc
help("q_gpd")


kap
revgum
ln3
nor
rice
glo
gam
ray
lap
gev
exp
gum
gno
wak
gpa
pe3
wei
0.00
0.02
0.04
0.06
0.08
0.10
0.12
help("weightp")