GAM Assumption Checks

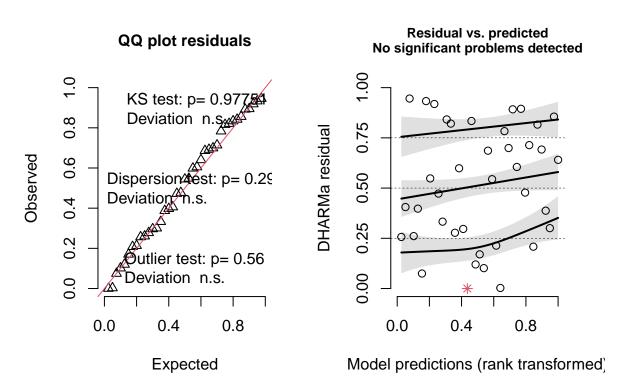
Michael W Belitz

2024-03-16

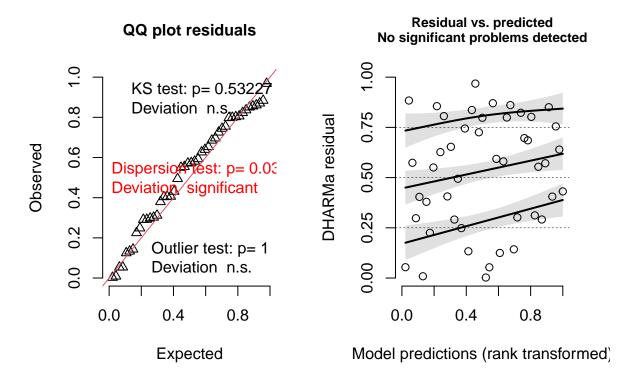
Pooled Macro-moth checks

First negative binomial distributions

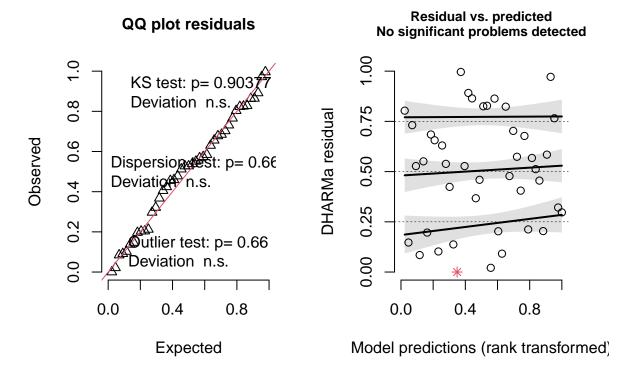
DHARMa residual



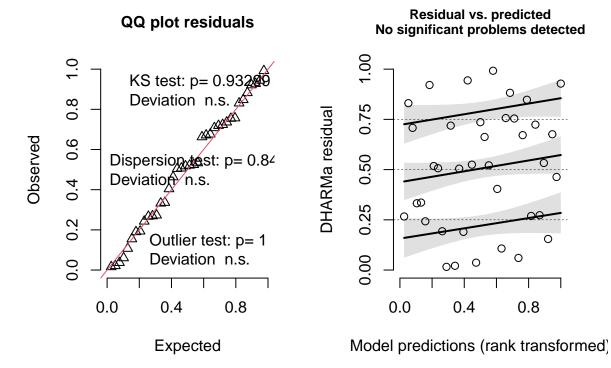
Site: AUCA



Site: PRCR



Site: Rist



Site: Demi

KS test: p= 0.82344 Deviation n.s. Dispersion test: p= 0.76 Deviation n.s. Outlier test: p= 1 Deviation n.s.

0.4

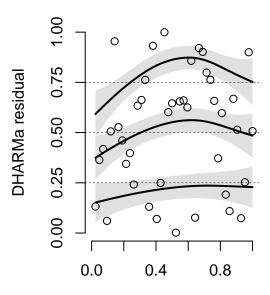
Expected

8.0

0.0

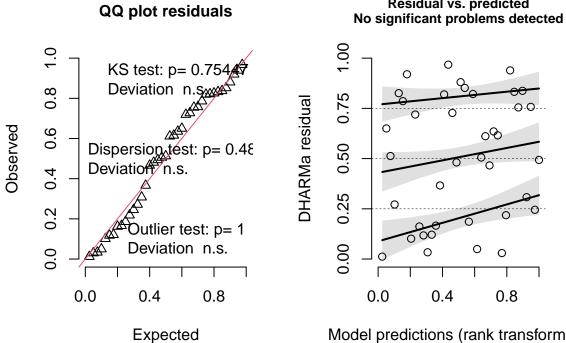
QQ plot residuals

Residual vs. predicted No significant problems detected



Model predictions (rank transformed)

Site: Bowa



0 0 90 0

Residual vs. predicted

Model predictions (rank transformed)

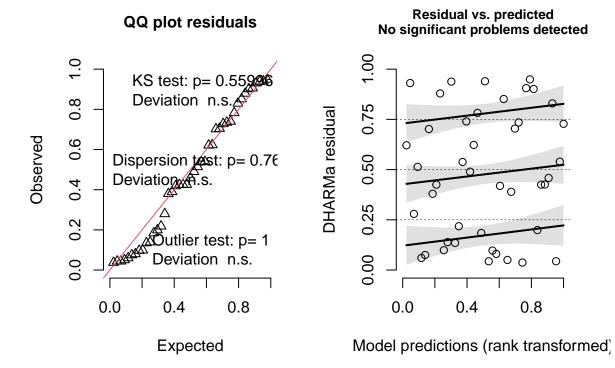
0.4

0.0

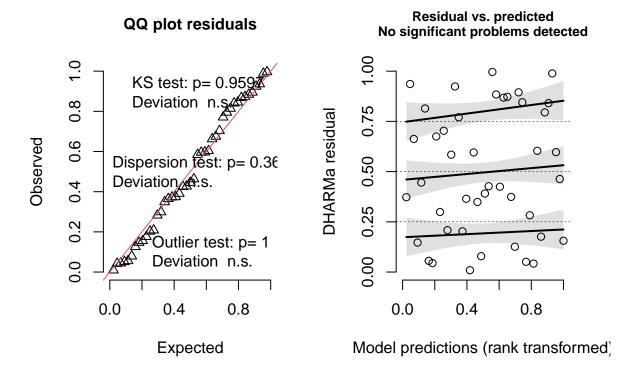
0 0

0.8

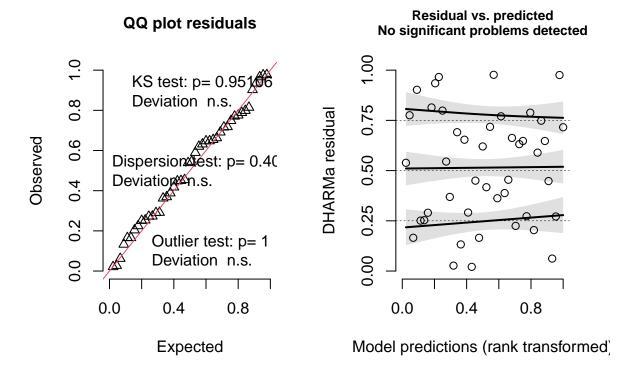
Site: Biva



Site: Baca



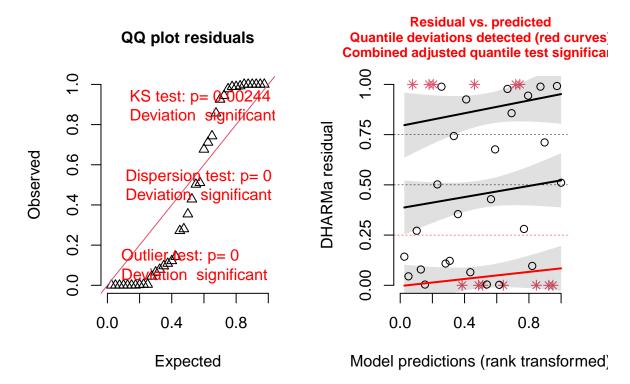
Site: Cofr



Site: Joma

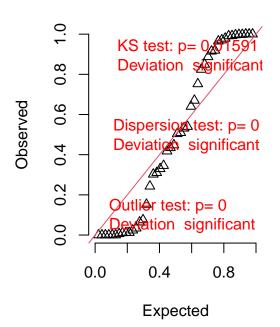
Now fit using poisson

DHARMa residual



Site: AUCA

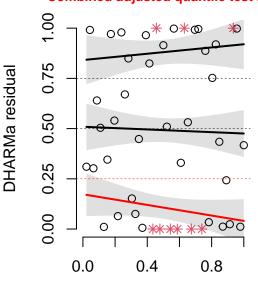
QQ plot residuals



Residual vs. predicted

Quantile deviations detected (red curves)

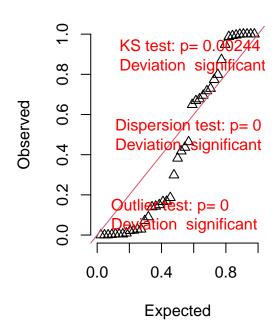
Combined adjusted quantile test n.s.



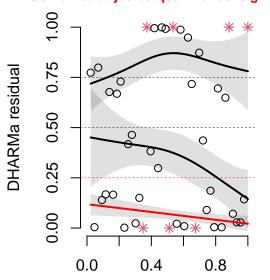
Model predictions (rank transformed)

Site: PRCR

QQ plot residuals



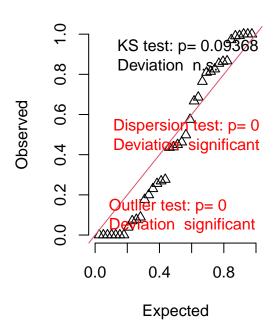
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal



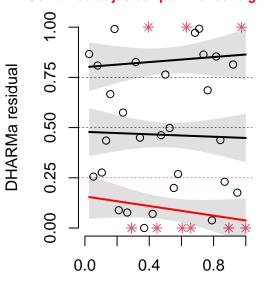
Model predictions (rank transformed)

Site: Rist





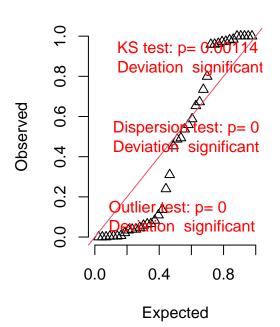
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significan



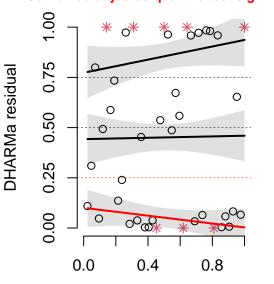
Model predictions (rank transformed)

Site: Demi

QQ plot residuals



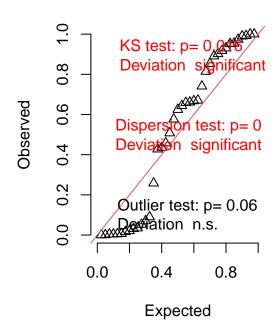
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal



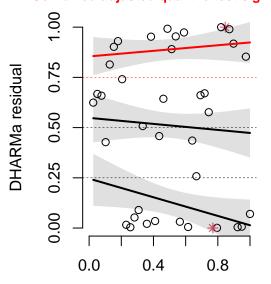
Model predictions (rank transformed)

Site: Bowa

QQ plot residuals

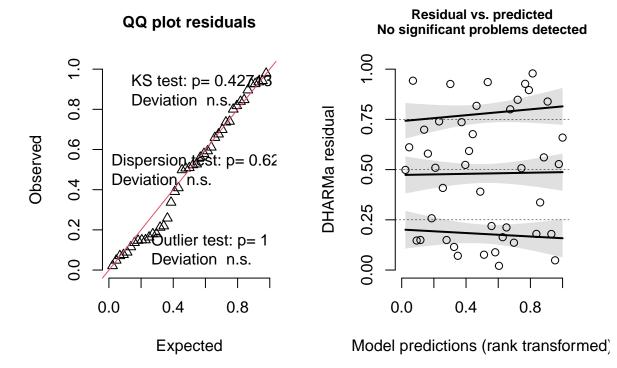


Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal



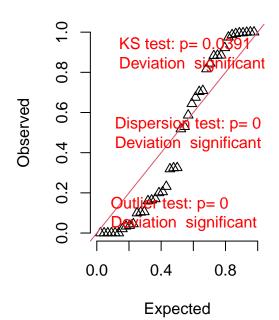
Model predictions (rank transformed)

Site: Biva

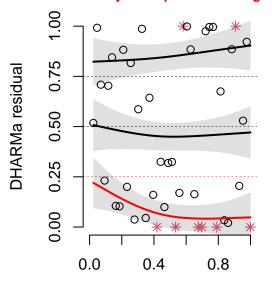


Site: Baca

QQ plot residuals



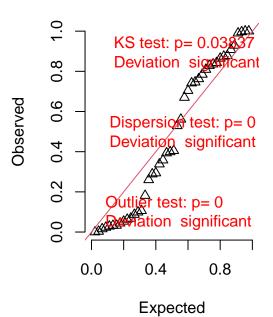
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal



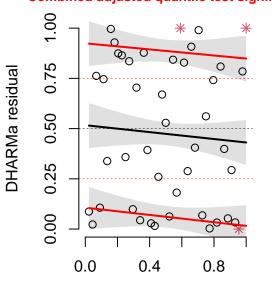
Model predictions (rank transformed)

Site: Cofr





Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significant



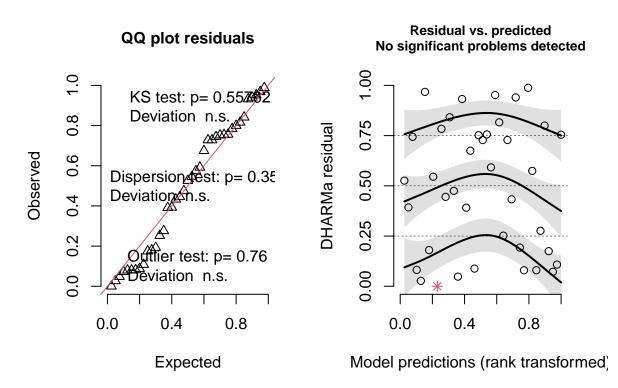
Model predictions (rank transformed)

Site: Joma

Pooled micro-moth checks

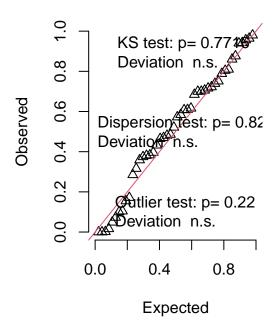
First negative binomial distributions

DHARMa residual

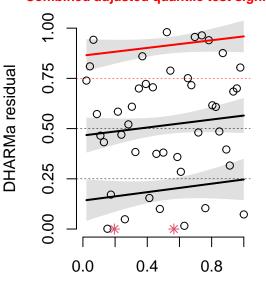


Site: AUCA

QQ plot residuals

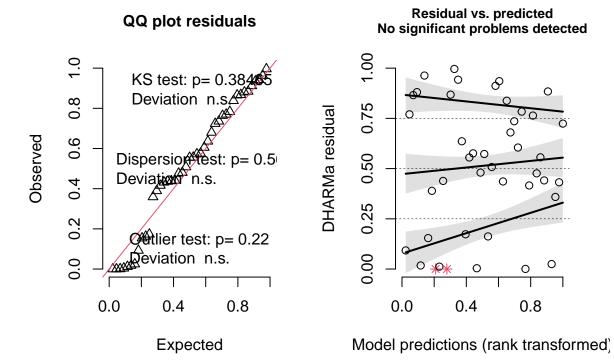


Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significan

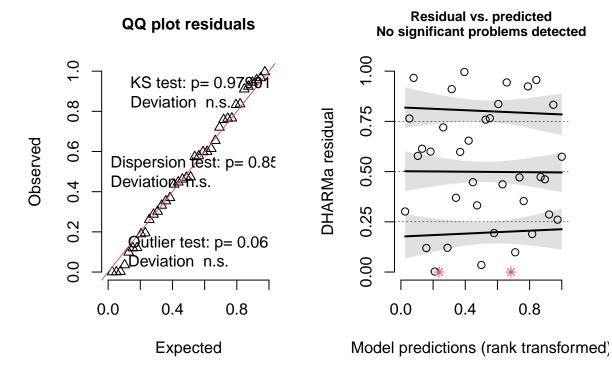


Model predictions (rank transformed)

Site: PRCR

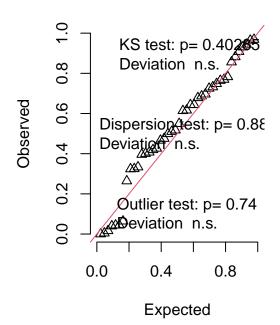


Site: Rist

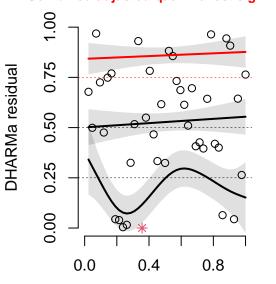


Site: Demi

QQ plot residuals

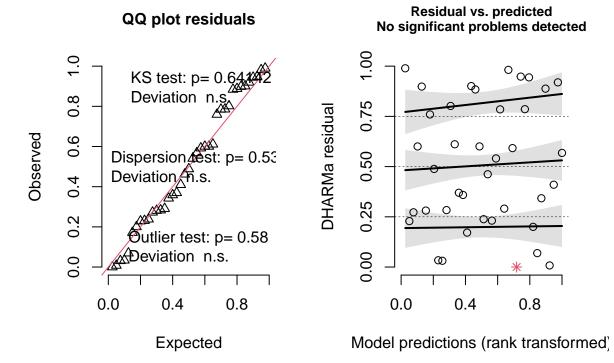


Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal

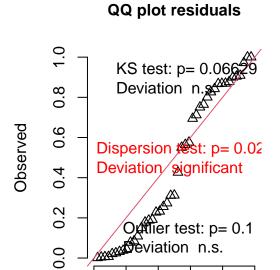


Model predictions (rank transformed)

Site: Bowa



Site: Biva



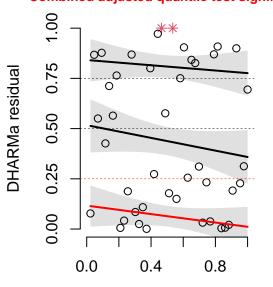
0.4

Expected

8.0

0.0

Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal



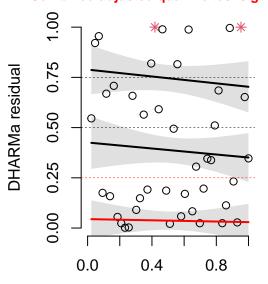
Model predictions (rank transformed)

Site: Baca

QQ plot residuals

KS test: p= 0.01/2 Deviation significant 0.8 9.0 Observed Dispersion Deviation significant 4.0 0.2 test: p= 0.12 ‱**⊉**eviation n.s. 0.0 0.0 8.0 0.4 Expected

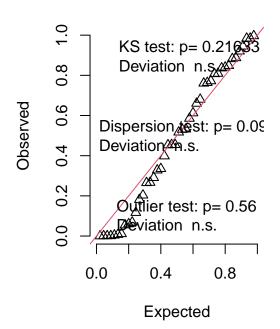
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significant



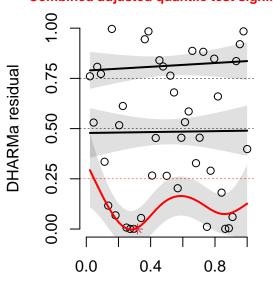
Model predictions (rank transformed)

Site: Cofr

QQ plot residuals



Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significant

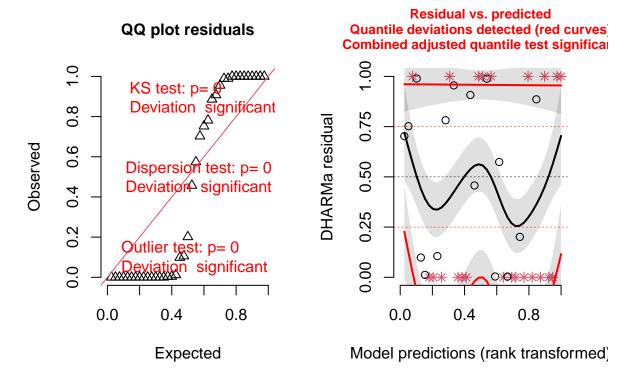


Model predictions (rank transformed)

Site: Joma

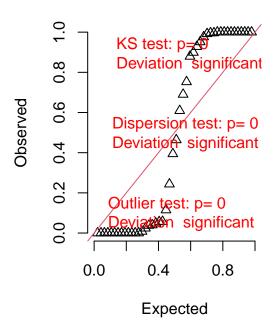
Now fit using poisson

DHARMa residual

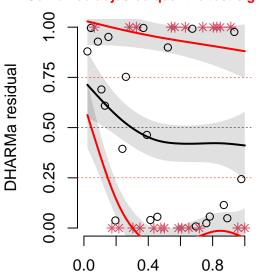


Site: AUCA

QQ plot residuals



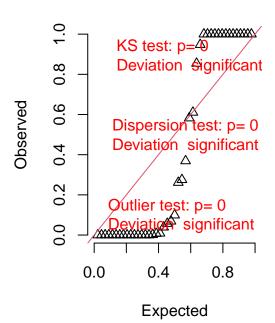
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significan



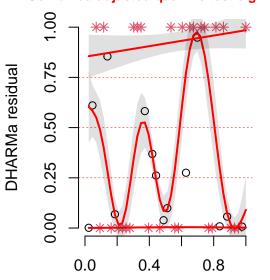
Model predictions (rank transformed)

Site: PRCR

QQ plot residuals



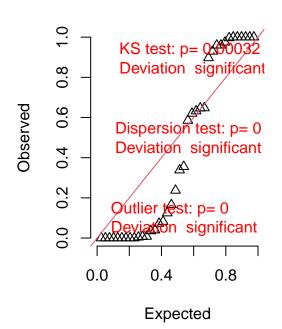
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal



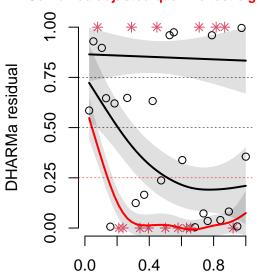
Model predictions (rank transformed)

Site: Rist

QQ plot residuals



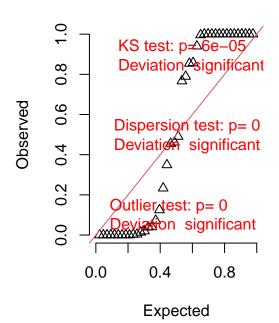
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significan



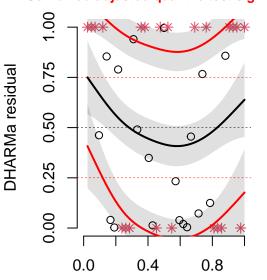
Model predictions (rank transformed)

Site: Demi

QQ plot residuals



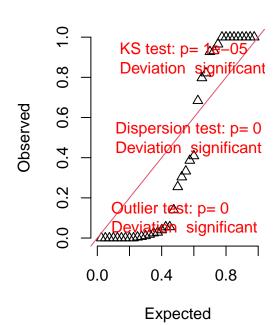
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal



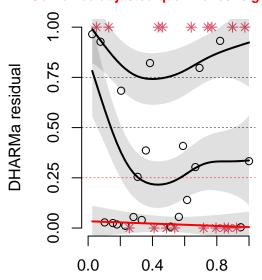
Model predictions (rank transformed)

Site: Bowa

QQ plot residuals



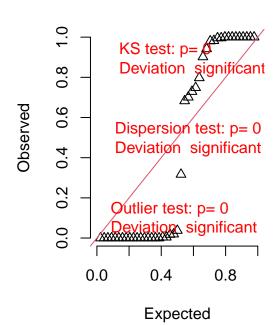
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal



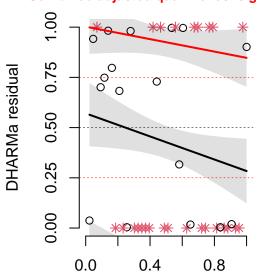
Model predictions (rank transformed)

Site: Biva

QQ plot residuals



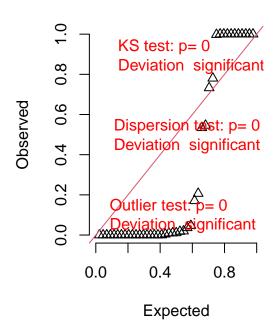
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal



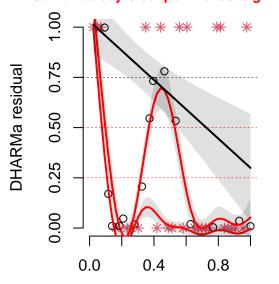
Model predictions (rank transformed)

Site: Baca

QQ plot residuals



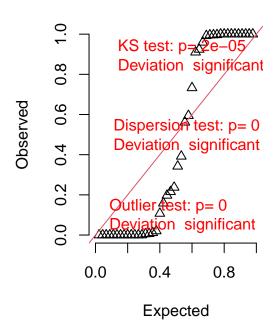
Residual vs. predicted
Quantile deviations detected (red curves)
Combined adjusted quantile test significal



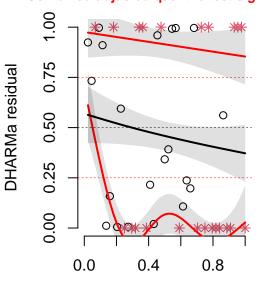
Model predictions (rank transformed)

Site: Cofr

QQ plot residuals



Residual vs. predicted Quantile deviations detected (red curves) Combined adjusted quantile test significant



Model predictions (rank transformed)

Site: Joma