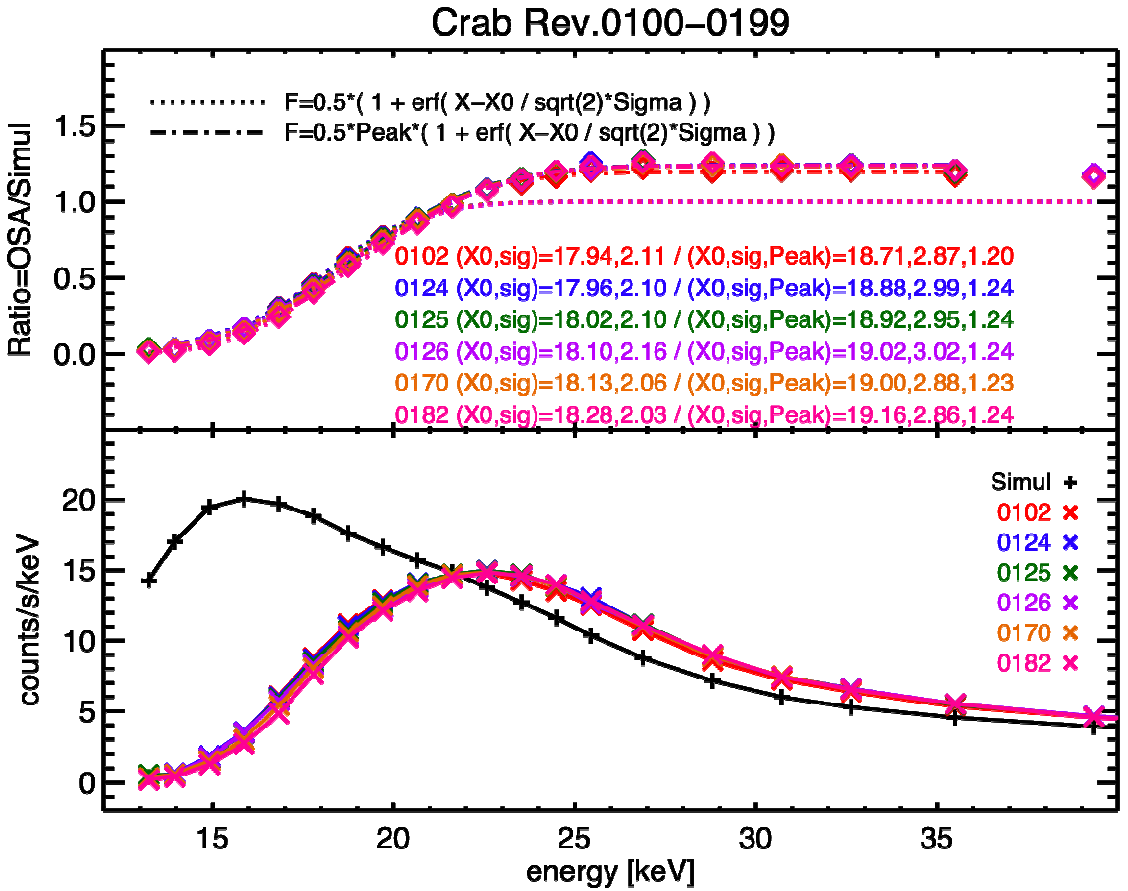
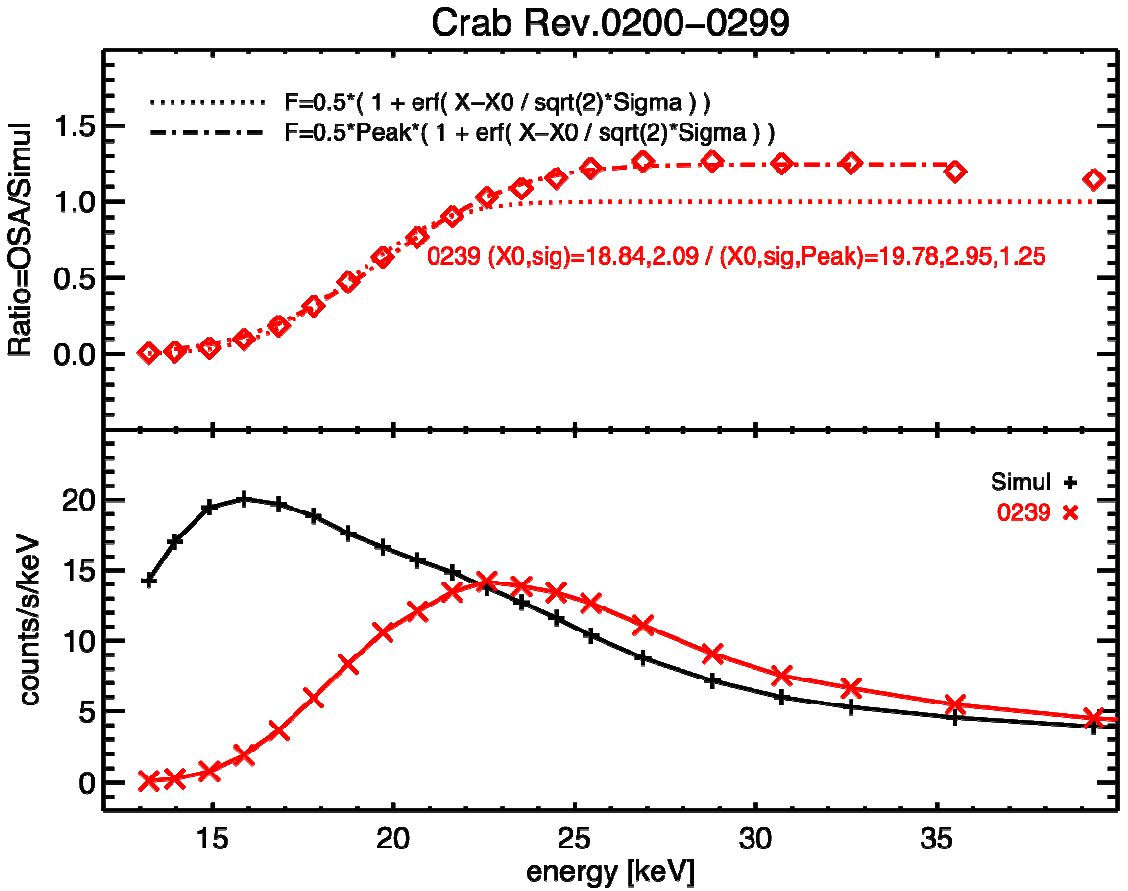
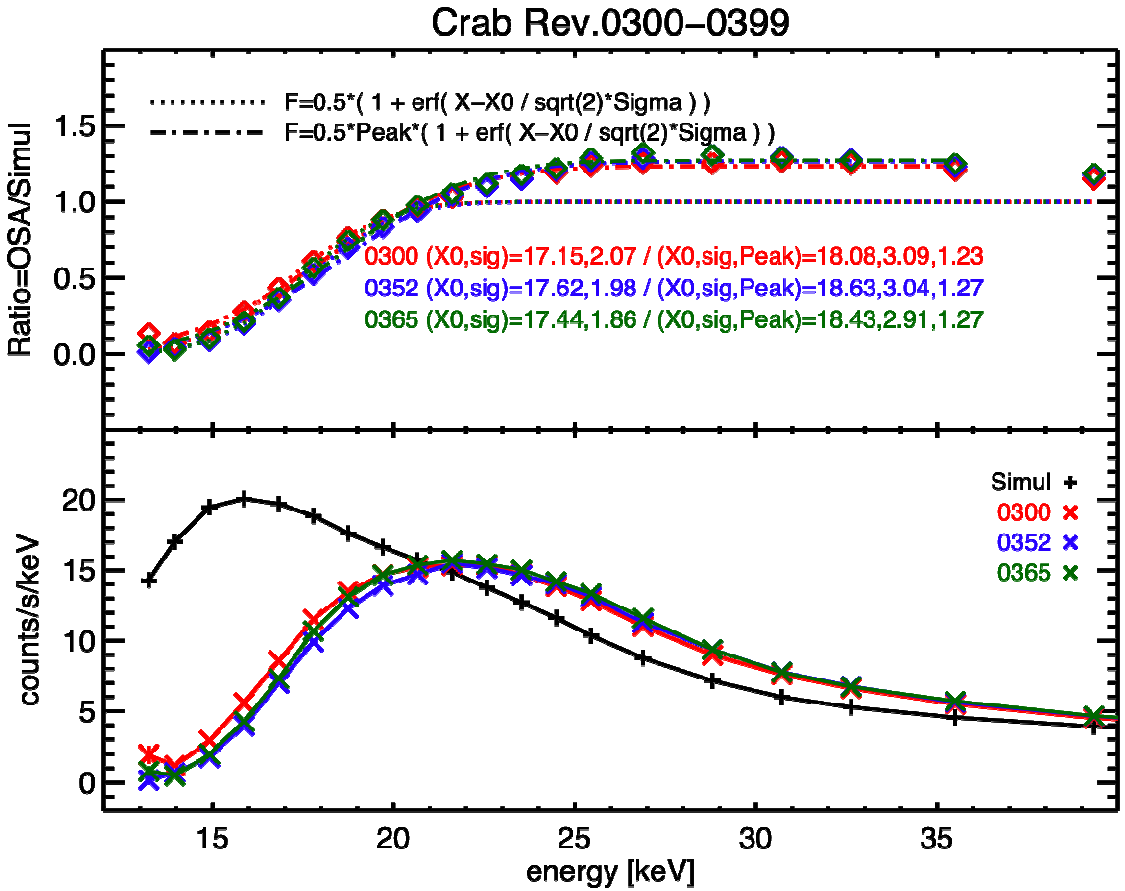
Fit results


Crab Rev.0100–0199
F=0.5*(1 + erf(X–X0 / sqrt(2)*Sigma))
F=0.5*Peak*(1 + erf(X–X0 / sqrt(2)*Sigma))
0102 (X0,sig)=17.94,2.11 / (X0,sig,Peak)=18.71,2.87,1.20
0124 (X0,sig)=17.96,2.10 / (X0,sig,Peak)=18.88,2.99,1.24
0125 (X0,sig)=18.02,2.10 / (X0,sig,Peak)=18.92,2.95,1.24
0126 (X0,sig)=18.10,2.16 / (X0,sig,Peak)=19.02,3.02,1.24
0170 (X0,sig)=18.13,2.06 / (X0,sig,Peak)=19.00,2.88,1.23
0182 (X0,sig)=18.28,2.03 / (X0,sig,Peak)=19.16,2.86,1.24
Ratio=OSA/Simul
1.5
1.0
0.5
0.0
Simul
0102
0124
0125
0126
0170
0182
counts/s/keV
20
15
10
5
0
15
20
25
30
35
energy [keV]

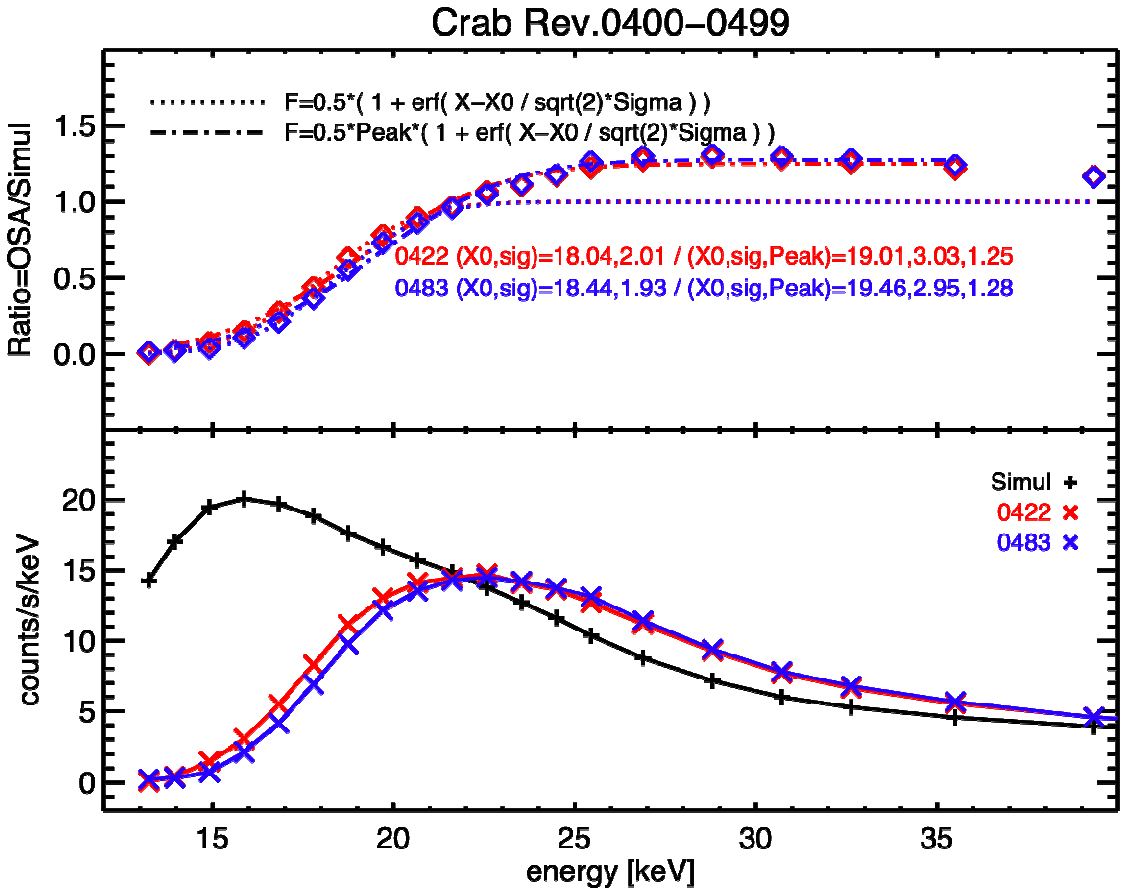
Fit results


Crab Rev.0200–0299
F=0.5*(1 + erf(X–X0 / sqrt(2)*Sigma))
F=0.5*Peak*(1 + erf(X–X0 / sqrt(2)*Sigma))
0239 (X0,sig)=18.84,2.09 / (X0,sig,Peak)=19.78,2.95,1.25
Ratio=OSA/Simul
1.5
1.0
0.5
0.0
Simul
0239
counts/s/keV
20
15
10
5
0
15
20
25
30
35
energy [keV]

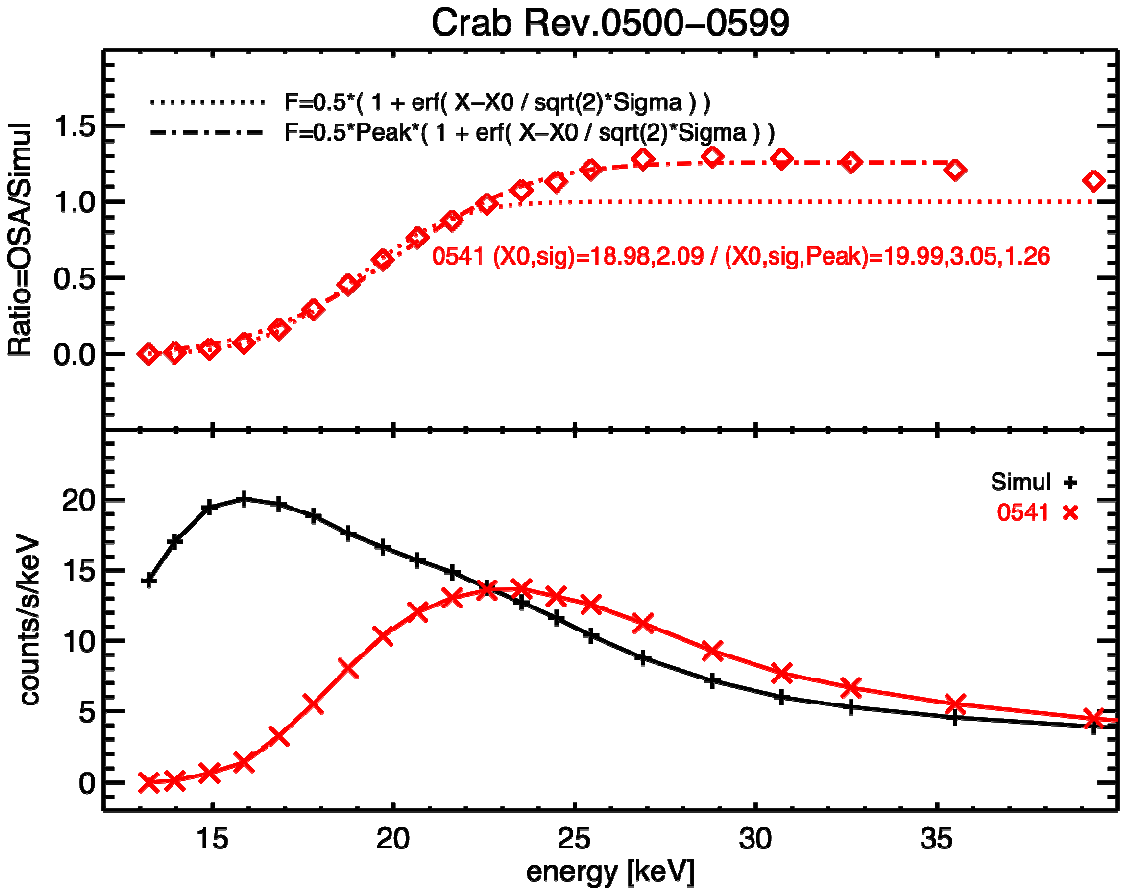
Fit results


Crab Rev.0300–0399
F=0.5*(1 + erf(X–X0 / sqrt(2)*Sigma))
F=0.5*Peak*(1 + erf(X–X0 / sqrt(2)*Sigma))
0300 (X0,sig)=17.15,2.07 / (X0,sig,Peak)=18.08,3.09,1.23
0352 (X0,sig)=17.62,1.98 / (X0,sig,Peak)=18.63,3.04,1.27
0365 (X0,sig)=17.44,1.86 / (X0,sig,Peak)=18.43,2.91,1.27
Ratio=OSA/Simul
1.5
1.0
0.5
0.0
Simul
0300
0352
0365
counts/s/keV
20
15
10
5
0
15
20
25
30
35
energy [keV]

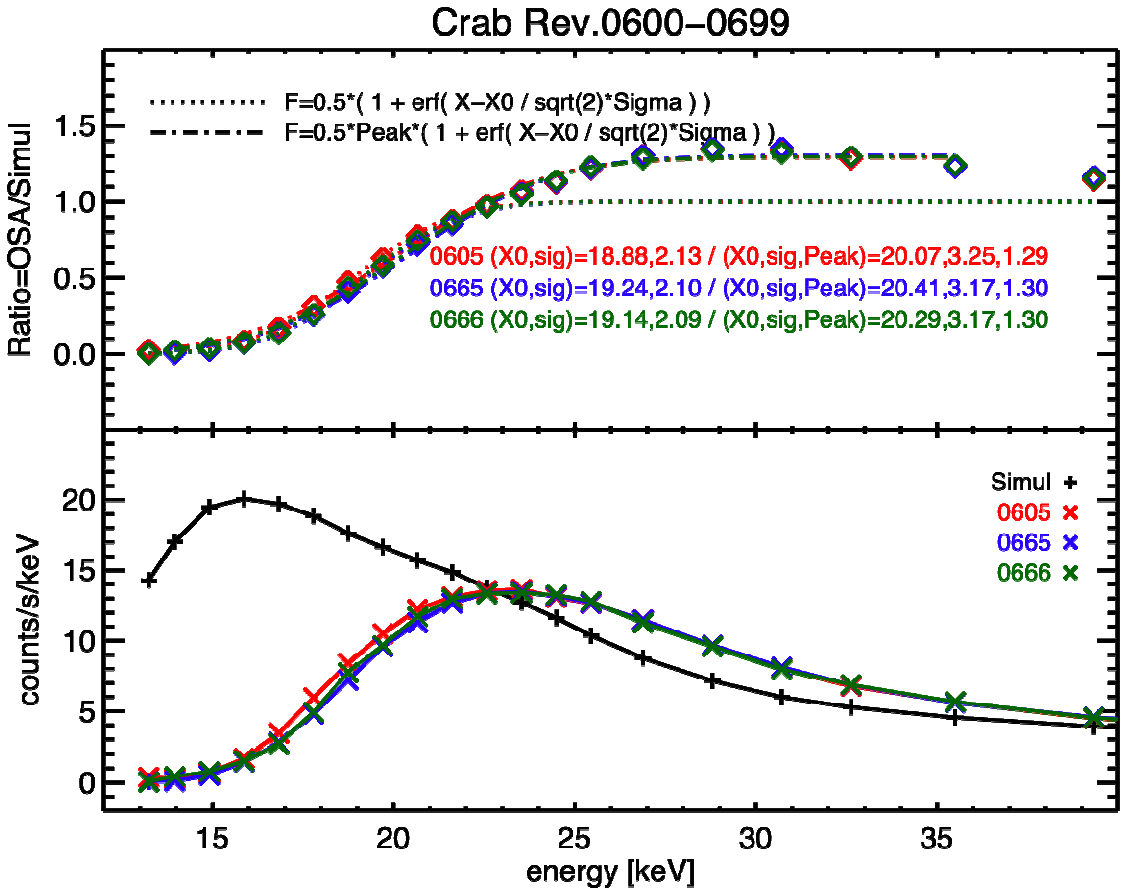
Fit results


Crab Rev.0400–0499
F=0.5*(1 + erf(X–X0 / sqrt(2)*Sigma))
F=0.5*Peak*(1 + erf(X–X0 / sqrt(2)*Sigma))
0422 (X0,sig)=18.04,2.01 / (X0,sig,Peak)=19.01,3.03,1.25
0483 (X0,sig)=18.44,1.93 / (X0,sig,Peak)=19.46,2.95,1.28
Ratio=OSA/Simul
1.5
1.0
0.5
0.0
Simul
0422
0483
counts/s/keV
20
15
10
5
0
15
20
25
30
35
energy [keV]

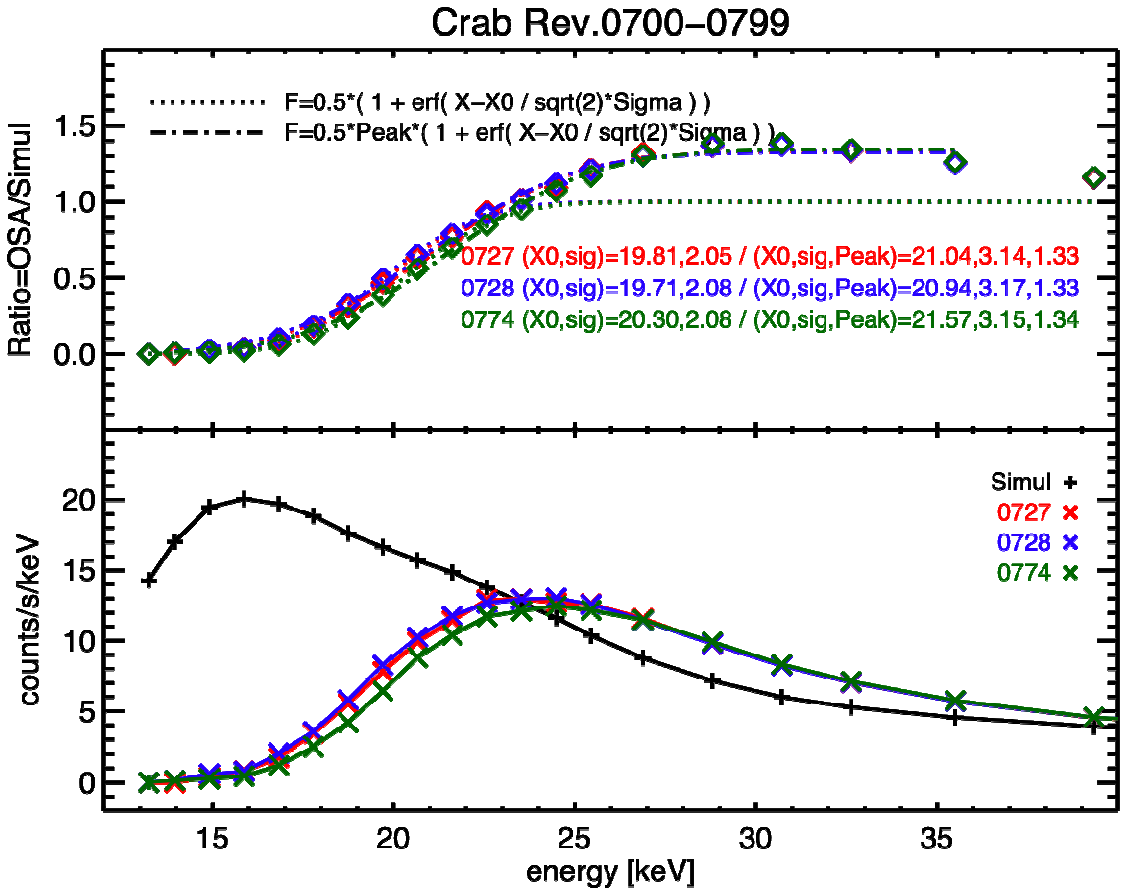
Fit results


Crab Rev.0500–0599
F=0.5*(1 + erf(X–X0 / sqrt(2)*Sigma))
F=0.5*Peak*(1 + erf(X–X0 / sqrt(2)*Sigma))
0541 (X0,sig)=18.98,2.09 / (X0,sig,Peak)=19.99,3.05,1.26
Ratio=OSA/Simul
1.5
1.0
0.5
0.0
Simul
0541
counts/s/keV
20
15
10
5
0
15
20
25
30
35
energy [keV]

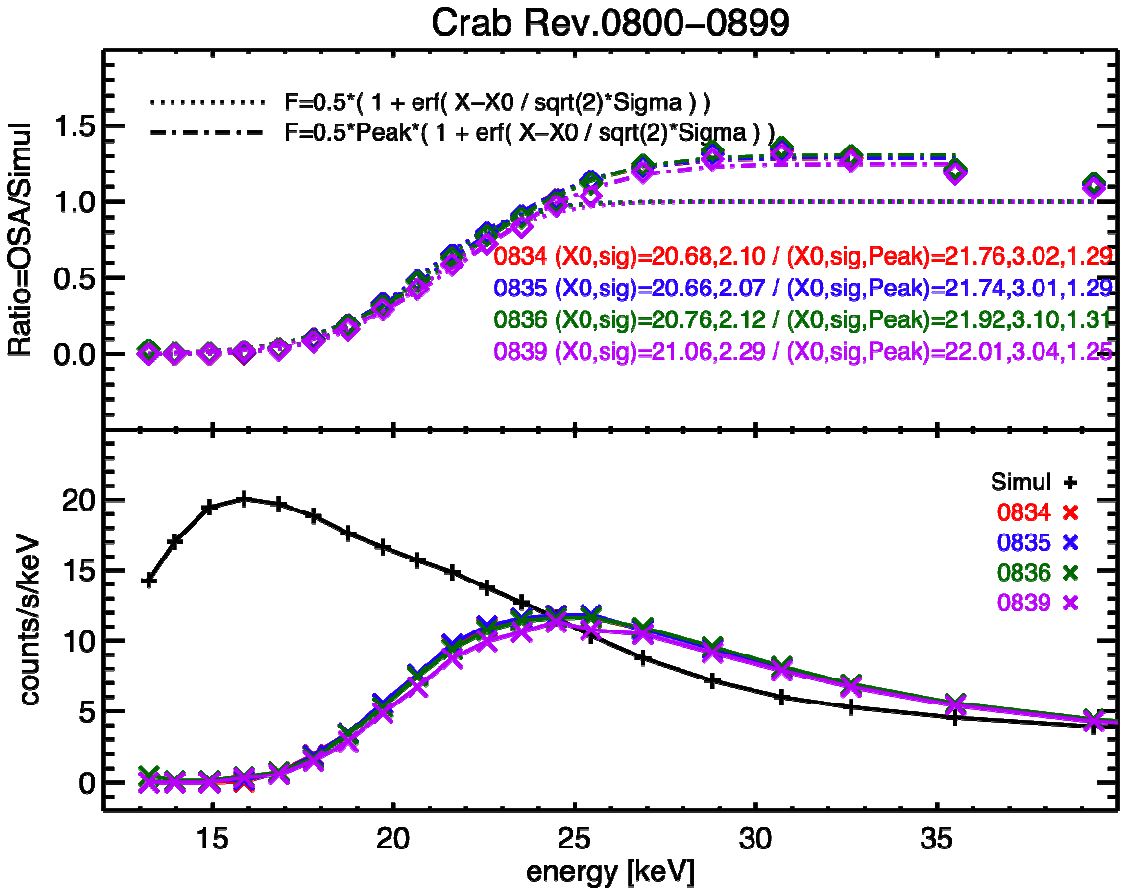
Fit results


Crab Rev.0600–0699
F=0.5*(1 + erf(X–X0 / sqrt(2)*Sigma))
F=0.5*Peak*(1 + erf(X–X0 / sqrt(2)*Sigma))
0605 (X0,sig)=18.88,2.13 / (X0,sig,Peak)=20.07,3.25,1.29
0665 (X0,sig)=19.24,2.10 / (X0,sig,Peak)=20.41,3.17,1.30
0666 (X0,sig)=19.14,2.09 / (X0,sig,Peak)=20.29,3.17,1.30
Ratio=OSA/Simul
1.5
1.0
0.5
0.0
Simul
0605
0665
0666
counts/s/keV
20
15
10
5
0
15
20
25
30
35
energy [keV]

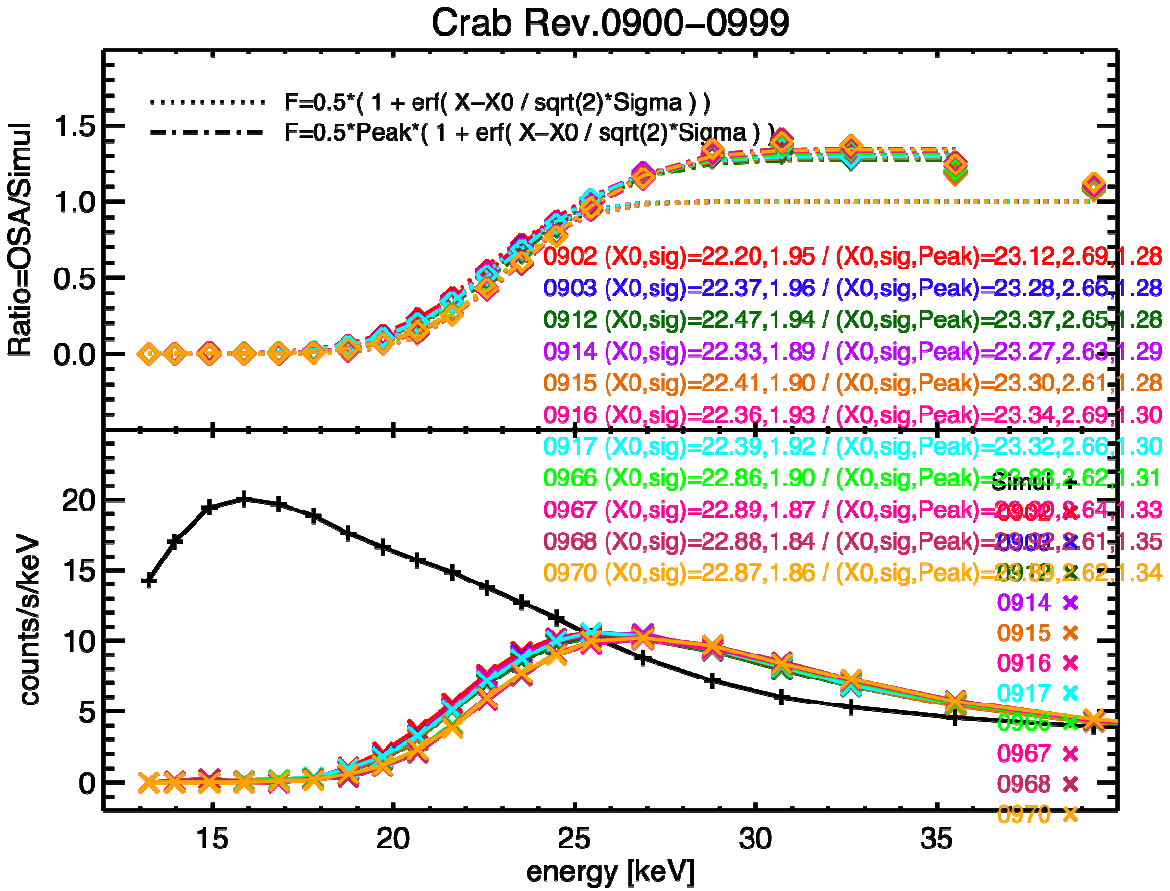
Fit results


Crab Rev.0700–0799
F=0.5*(1 + erf(X–X0 / sqrt(2)*Sigma))
F=0.5*Peak*(1 + erf(X–X0 / sqrt(2)*Sigma))
0727 (X0,sig)=19.81,2.05 / (X0,sig,Peak)=21.04,3.14,1.33
0728 (X0,sig)=19.71,2.08 / (X0,sig,Peak)=20.94,3.17,1.33
0774 (X0,sig)=20.30,2.08 / (X0,sig,Peak)=21.57,3.15,1.34
Ratio=OSA/Simul
1.5
1.0
0.5
0.0
Simul
0727
0728
0774
counts/s/keV
20
15
10
5
0
15
20
25
30
35
energy [keV]

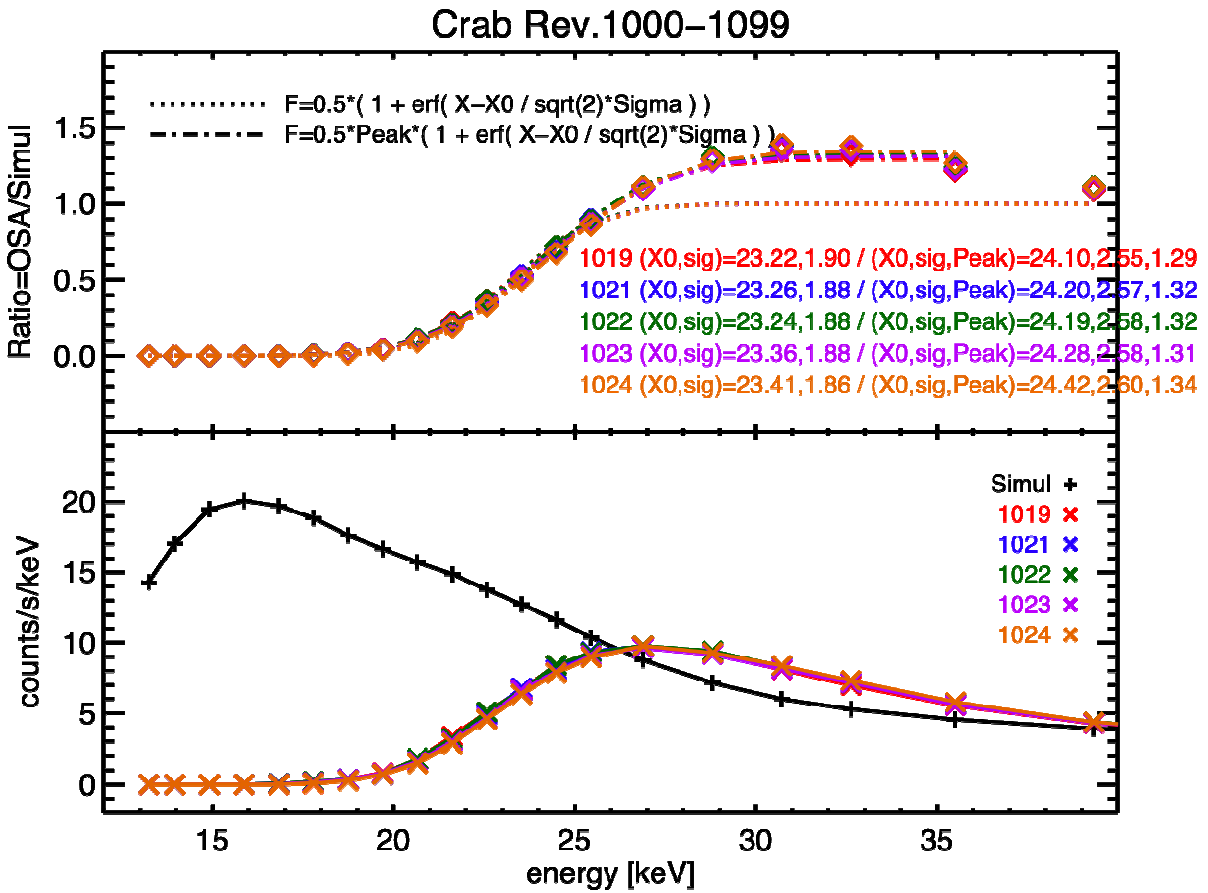
Fit results


Crab Rev.0800–0899
F=0.5*(1 + erf(X–X0 / sqrt(2)*Sigma))
F=0.5*Peak*(1 + erf(X–X0 / sqrt(2)*Sigma))
0834 (X0,sig)=20.68,2.10 / (X0,sig,Peak)=21.76,3.02,1.29
0835 (X0,sig)=20.66,2.07 / (X0,sig,Peak)=21.74,3.01,1.29
0836 (X0,sig)=20.76,2.12 / (X0,sig,Peak)=21.92,3.10,1.31
0839 (X0,sig)=21.06,2.29 / (X0,sig,Peak)=22.01,3.04,1.25
Ratio=OSA/Simul
1.5
1.0
0.5
0.0
Simul
0834
0835
0836
0839
counts/s/keV
20
15
10
5
0
15
20
25
30
35
energy [keV]

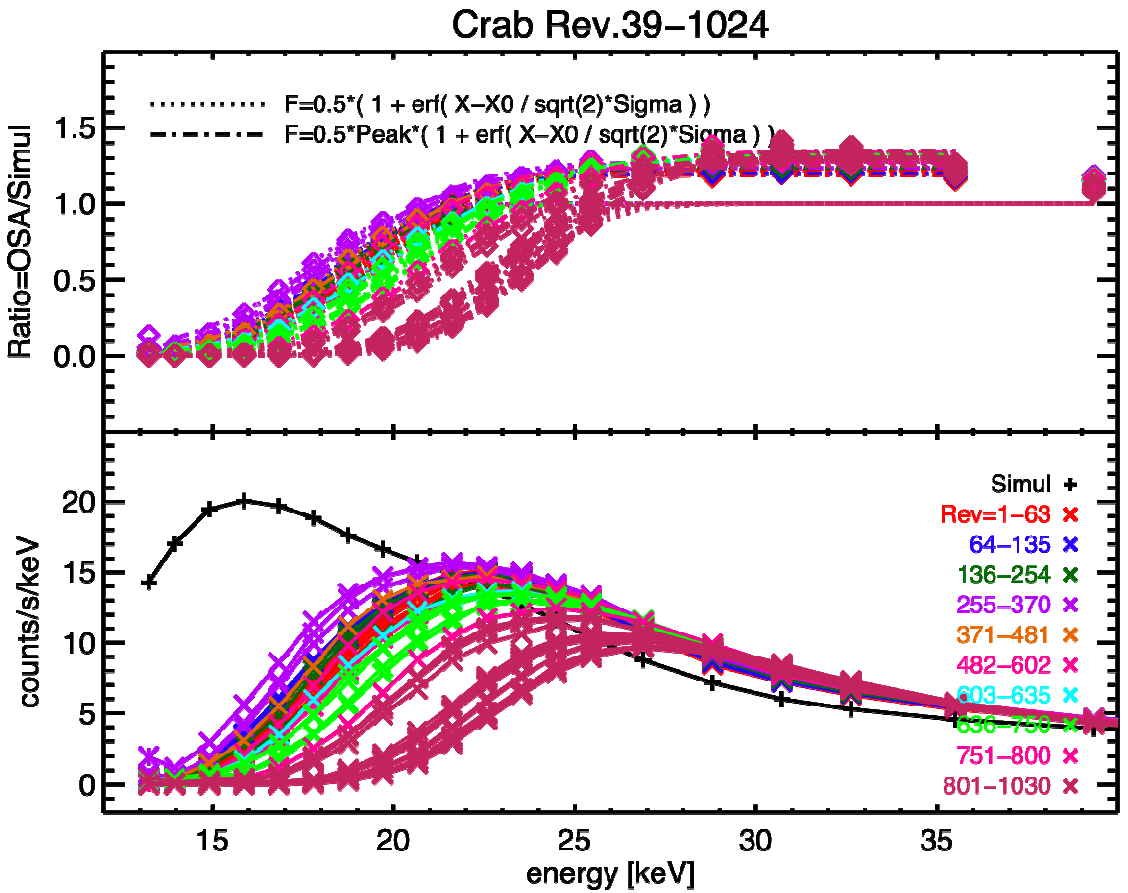
Fit results


Crab Rev.0900–0999
F=0.5*(1 + erf(X–X0 / sqrt(2)*Sigma))
F=0.5*Peak*(1 + erf(X–X0 / sqrt(2)*Sigma))
Ratio=OSA/Simul
counts/s/keV
energy [keV]
0902 (X0,sig)=22.20,1.95 / (X0,sig,Peak)=23.12,2.69,1.28
0903 (X0,sig)=22.37,1.96 / (X0,sig,Peak)=23.28,2.66,1.28
0912 (X0,sig)=22.47,1.94 / (X0,sig,Peak)=23.37,2.65,1.28
0914 (X0,sig)=22.33,1.89 / (X0,sig,Peak)=23.27,2.63,1.29
0915 (X0,sig)=22.41,1.90 / (X0,sig,Peak)=23.30,2.61,1.28
0916 (X0,sig)=22.36,1.93 / (X0,sig,Peak)=23.34,2.69,1.30
0917 (X0,sig)=22.39,1.92 / (X0,sig,Peak)=23.32,2.66,1.30
0966 (X0,sig)=22.86,1.90 / (X0,sig,Peak)=23.83,2.62,1.31
0967 (X0,sig)=22.89,1.87 / (X0,sig,Peak)=23.82,2.64,1.33
0968 (X0,sig)=22.88,1.84 / (X0,sig,Peak)=23.82,2.61,1.35
0970 (X0,sig)=22.87,1.86 / (X0,sig,Peak)=23.82,2.62,1.34
Simul.
0902
0914
0915
0916
0917
0967
0968
0970

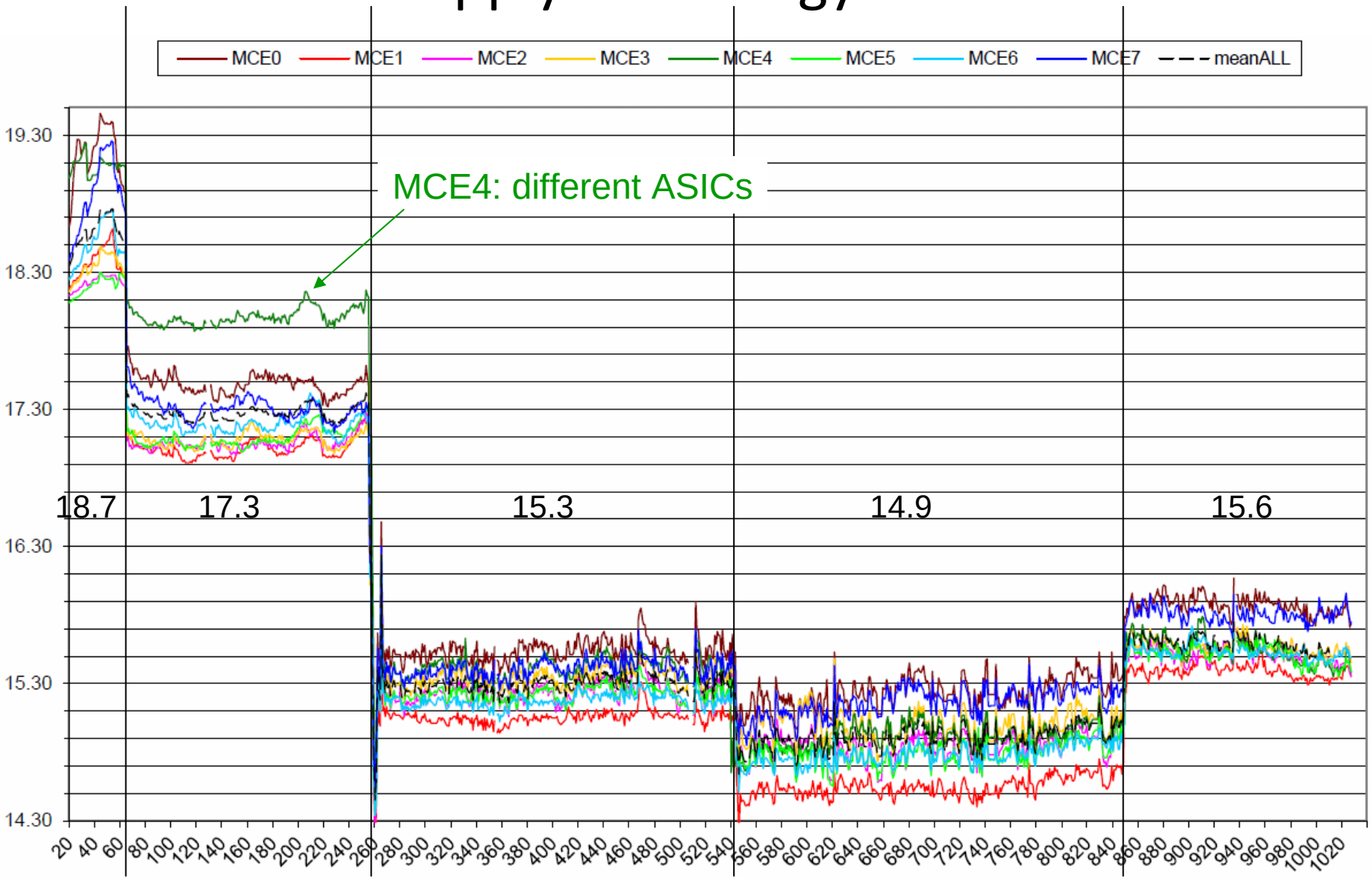
Fit results


Crab Rev.1000–1099
F=0.5*(1 + erf(X–X0 / sqrt(2)*Sigma))
F=0.5*Peak*(1 + erf(X–X0 / sqrt(2)*Sigma))
1019 (X0,sig)=23.22,1.90 / (X0,sig,Peak)=24.10,2.55,1.29
1021 (X0,sig)=23.26,1.88 / (X0,sig,Peak)=24.20,2.57,1.32
1022 (X0,sig)=23.24,1.88 / (X0,sig,Peak)=24.19,2.58,1.32
1023 (X0,sig)=23.36,1.88 / (X0,sig,Peak)=24.28,2.58,1.31
1024 (X0,sig)=23.41,1.86 / (X0,sig,Peak)=24.42,2.60,1.34
Ratio=OSA/Simul
1.5
1.0
0.5
0.0
Simul
1019
1021
1022
1023
1024
counts/s/keV
20
15
10
5
0
15
20
25
30
35
energy [keV]

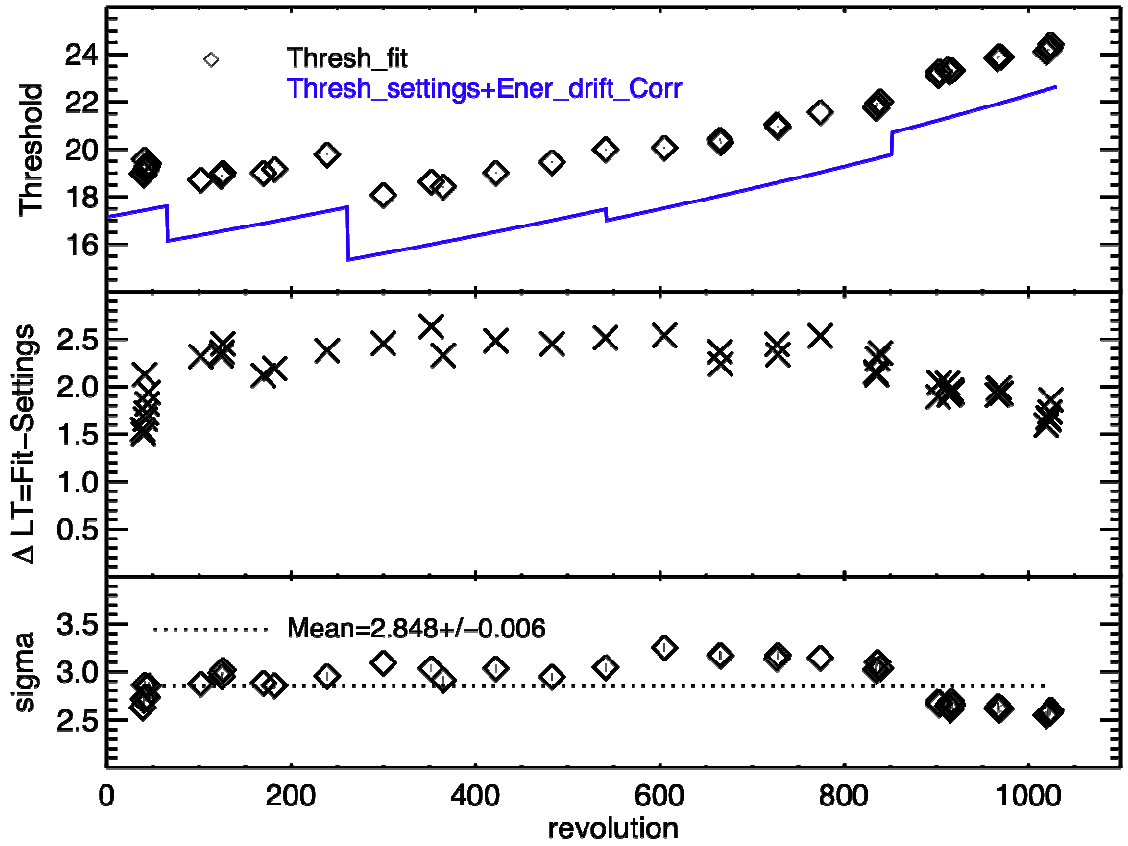
Fit results total



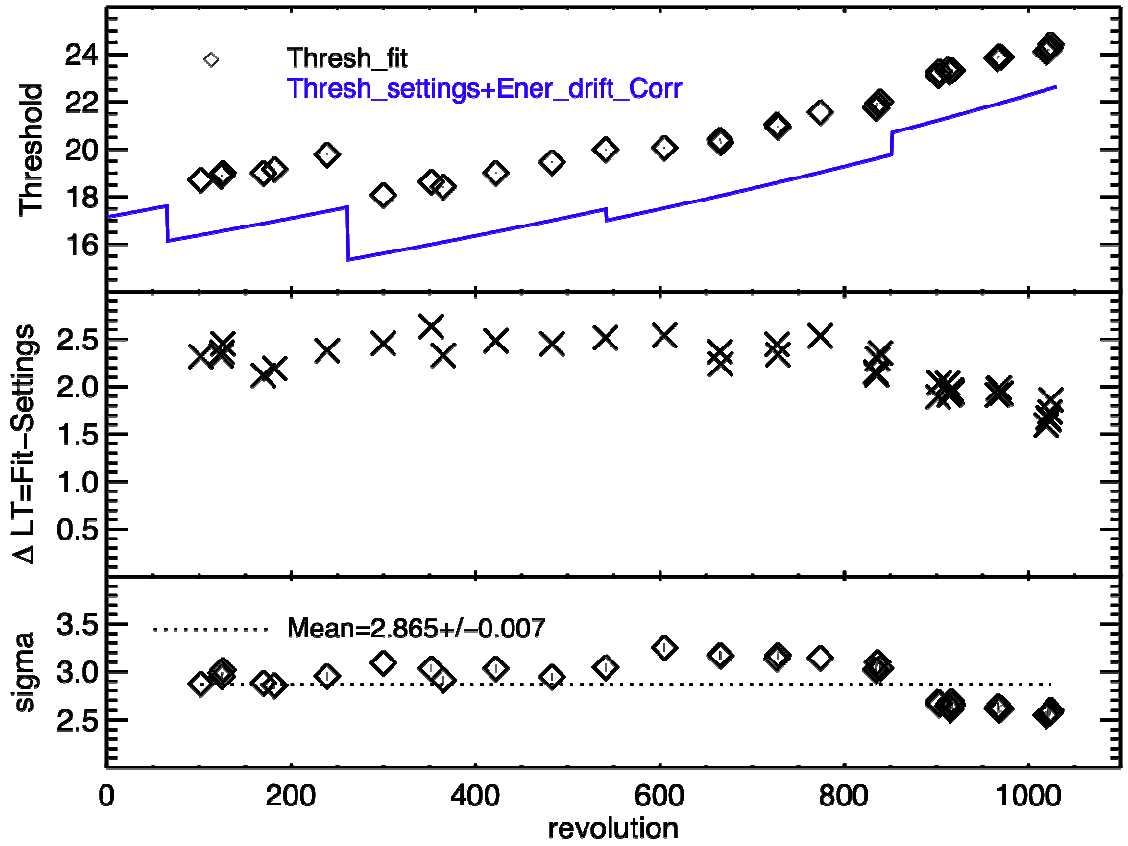
ISGRI low threshold settings
=> we must apply the energy drift correction

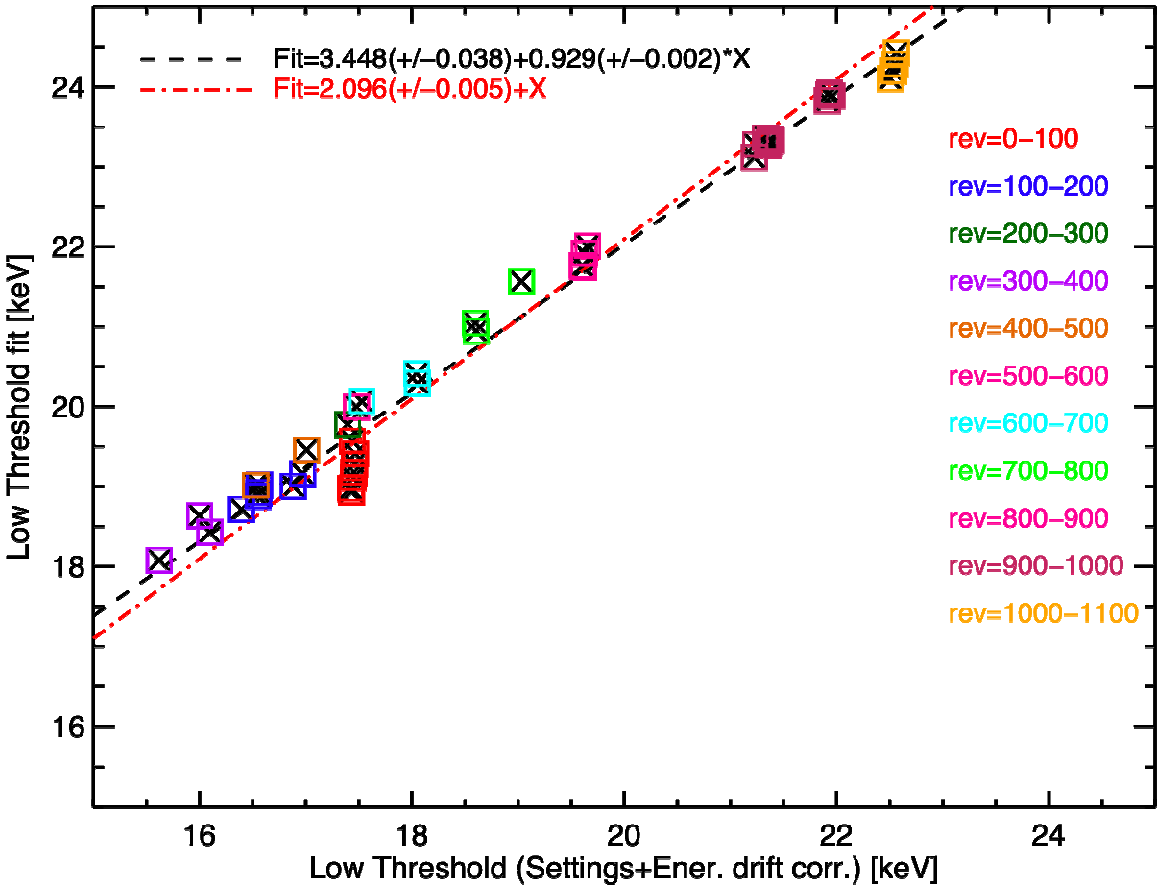


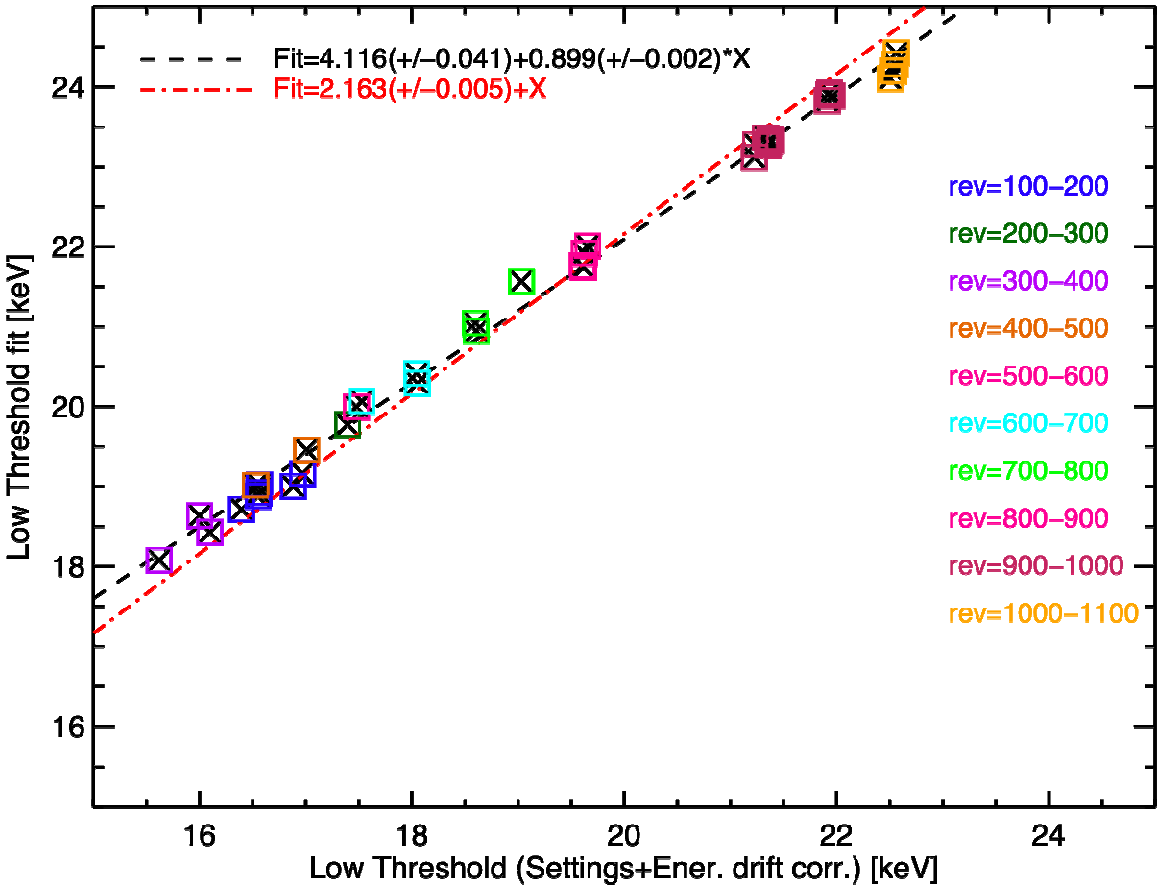
Mean LT settings with energy drift correction (blue)
Comparison with the fitted LT



Mean LT settings with energy drift correction (blue)
Comparison with the fitted LT




Fit=3.448(+/−0.038)+0.929(+/−0.002)*X
Fit=2.096(+/−0.005)+X
rev=0−100
rev=100−200
rev=200−300
rev=300−400
rev=400−500
rev=500−600
rev=600−700
rev=700−800
rev=800−900
rev=900−1000
rev=1000−1100
Low Threshold fit [keV]
Low Threshold (Settings+Ener. drift corr.) [keV]
16
18
20
22
24


Fit=4.116(+/–0.041)+0.899(+/–0.002)*X
Fit=2.163(+/–0.005)+X
rev=100–200
rev=200–300
rev=300–400
rev=400–500
rev=500–600
rev=600–700
rev=700–800
rev=800–900
rev=900–1000
rev=1000–1100
Low Threshold fit [keV]
Low Threshold (Settings+Ener. drift corr.) [keV]
16
18
20
22
24

Status

✓New correction developed in IDL

✓Implemented in OSA

✓Validation between IDL/OSA codes done

•TO DO:

- low threshold correction is underestimated:
  - ✓Suggested correction:

$$New\ LT = 4.12 + 0.9 \times LT_{\mathrm{DriftCorrected}} \qquad \sigma = 2.83$$

- ARFs: to be produced by Lorenzo with our input (Crab spectra for all the mission)