XMM-Newton CCF Release Note

XMM-CCF-REL-43

XRT PSF Parameterization for RGS

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1 CCF components

Name of CCF	VALDATE	List of Blocks changed	CAL VERSION	XSCS flag
XRT1_XPSF_0003	2000-01-13T00:00:00	BETAPSF	xmmsas_20001207_0215	NO
XRT2_XPSF_0003	2000-01-13T00:00:00	BETAPSF	xmmsas_20001207_0215	NO

2 Changes

Addition of table `BETAPSF`.

3 Scientific Impact of this Update

The mirror PSF is part of the convolution to derive the LSF of RGS. Only the distribution along the RGS dispersion direction is used. Therefore the analytical parameterization of the XRT PSF was numerically integrated along the cross-dispersion direction and the resulting distribution was parameterized with two Gaussians (see Figure 1). The parameters of these Gaussians are stored in these tables.

4 Estimated Scientific Quality

Improvements of the accuracy of the LSF of both RGS. Previously when fitting data with good statistical accuracy (e.g. taken from Capella), relatively large residuals remained due to an inaccuracies

of the LSF of RGS.

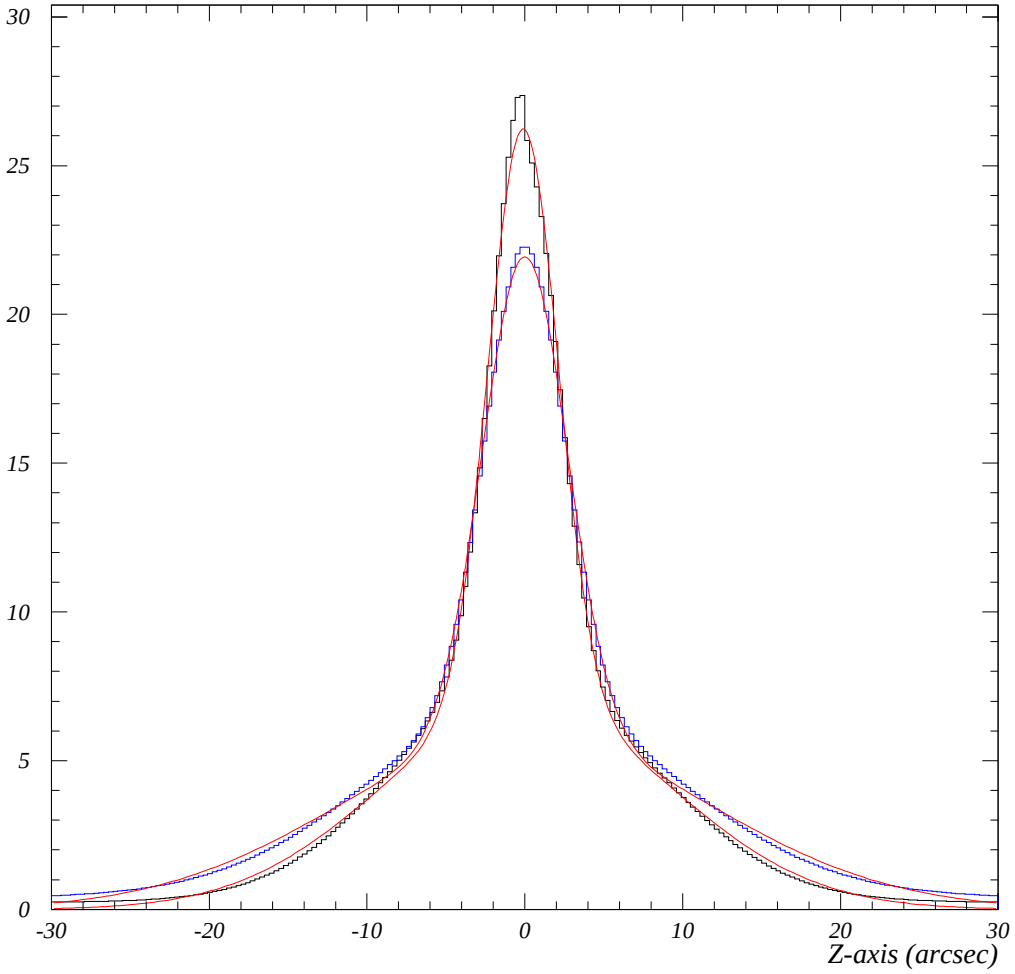

Figure 1: Parameterization of the XRT PSF that was integrated along the cross-dispersion. Red is the parameterizations, blue is the integrated curve for XRT1, and black is the integrated curve for XRT2.