

IXPE CALDB Release 20260424

Includes:

GPD version 20260424

XRT version 20260331

1. ASIC correction parameters:
 1. data/ixpe/gpd/bcf/asiccorr/ixpe_d2_20250414_asiccorr_01.fits:
 - i. New Coherent Noise Offset (CNO) and Trigger Minicluster Offset (TMO) values for DU2 after the 2025-04-14 anomaly.
2. Background rejection parameters (new category of CALDB file):
 1. data/ixpe/gpd/bcf/bgdparam/ixpe_d?_20170101_bgdparam_01.fits
 - i. Ixpeflagbgd will be changed from using hard-coded background rejection parameters from A. Di Marco, et. al., AJ 165, 143 (2023) to using CALDB-provided parameters.
 - ii. The three files here (one for each DU) contain the parameters listed above as keywords in the Primary HDU
 2. data/ixpe/gpd/bcf/bgdparam/ixpe_d2_20250615_bgdparam_01.fits:
 - i. This file contains updated background rejection parameters for DU2 post-anomaly, calculated by Alessandro DiMarco using data from 2025-06-15 to 2025-10. The effective date of this file is 2025-06-15T12:00:00.
 3. Note: The DU2 CALDB background rejection parameter products for 2025-04-14 through 2025-06-17 will be released at a later date
3. Pedestal map files:
 1. data/ixpe/gpd/bcf/pedestal/ixpe_d2_20250414_pedestal_01.fits:
 - i. New pedestal values for DU2 from immediately after the 2025-04-14 anomaly to 2025-06-15.
 1. data/ixpe/gpd/bcf/pedestal/ixpe_d2_20250615_pedestal_01.fits:
 - i. New pedestal values for DU2 for use post-anomaly after 2025-06-15.
4. Pixel equalization files:
 1. data/ixpe/gpd/bcf/pedestal/ixpe_d2_20250615_pedestal_01.fits:
 - i. New pixel equalization values for DU2 from immediately after the 2025-04-14 anomaly to 2025-06-15.
 2. data/ixpe/gpd/bcf/pixeq/ixpe_d2_20250615_pixeq_01.fits:
 - i. New pixel equalization values for DU2 for use post-anomaly after 2025-06-15.
5. Spurious modulation files:
 1. data/ixpe/gpd/bcf/spmod/ixpe_d2_20250414_spmod_01.fits:
 - i. New spurious modulation data for DU2 from immediately after the 2025-04-14 anomaly to the 2025-06-15.
 2. data/ixpe/gpd/bcf/spmod/ixpe_d2_20250615_spmod_01.fits:
 - i. New spurious modulation data for DU2 post-anomaly after 2025-06-15.
6. PHA scaling files (new category of CALDB file):
 1. These files contain a primary header value with keyword "PHASCALE" that has been multiplied into each value in the DU2 Level1 Event files' PIX_PHAS column post-anomaly to account for the change of gain that occurred.

2. data/ixpe/xrt/bcf/phascale/ixpe_d2_20250414_phascale_01.fits:
 - i. This file sets the PHASCALE header value to 0 immediately after the DU2 reference voltage anomaly (effective date 2025-04-14T20:54:31.423) to remove an anomalous burst of events coming from the ASIC and not the x-ray detection volume.
3. data/ixpe/xrt/bcf/phascale/ixpe_d2_20250414_phascale_02.fits:
 - i. This file sets the PHASCALE value used for DU2 after the detector stabilized post-anomaly (effective date 2025-04-14T22:14:49.0)
7. Updated quantum efficiency files for 2025:
 1. Luca Baldini calculated new values for the 2025 quantum efficiency files using a better estimate of the starting pressure in each DU. The following file patterns contain the updates:
 - i. For effective date 2025-01-01T00:00:00, and ? = [1,2, or 3], the updated file patterns are:
 1. data/ixpe/gpd/bcf/qe/ixpe_d?_20250101_qe_02.fits
 2. data/ixpe/gpd/bcf/qe/ixpe_d?_20250101_qe_alpha075_02.fits
 3. data/ixpe/gpd/bcf/qe/ixpe_d?_20250101_qe_alpha075simp_02.fits
 - ii. For effective date 2025-07-01T12:00:00 and ? = [1,2, or 3], the updated file patterns are:
 1. data/ixpe/gpd/bcf/qe/ixpe_d?_20250701_qe_02.fits
 2. data/ixpe/gpd/bcf/qe/ixpe_d?_20250701_qe_alpha075_02.fits
 3. data/ixpe/gpd/bcf/qe/ixpe_d?_20250701_qe_alpha075simp_02.fits
8. Updated modulation factor files for 2025:
 1. Luca Baldini calculated new values for the 2025 modulation factor files using a better estimate of the starting pressure in each DU. The following file patterns contain the updates:
 - i. For effective date 2025-01-01T00:00:00, and ? = [1,2, or 3], the updated file patterns are:
 1. data/ixpe/gpd/bcf/modfact/ixpe_d?_20250101_mfact_02.fits
 2. data/ixpe/gpd/bcf/modfact/ixpe_d?_20250101_mfact_alpha075_02.fits
 - ii. For effective date 2025-07-01T12:00:00 and ? = [1,2, or 3], the updated file patterns are:
 1. data/ixpe/gpd/bcf/modfact/ixpe_d?_20250701_mfact_02.fits
 2. data/ixpe/gpd/bcf/modfact/ixpe_d?_20250701_mfact_alpha075_02.fits