Plate scale

Maxim Markevitch, 2001 Oct 30

The latest CALDB release has the correct geometry file.

• ACIS physical pixel size is corrected

• Star cluster data from ACIS and HRC were used to derive in-orbit mirror focal length:

10070 ± 3 mm (was 10062 mm)

All detectors, as well as SAOSAC simulations based on ground calibrations (P. Zhao) agree.

• Chip and plate positions and rotations are corrected

Resulting coordinate accuracy:

Errors are $< 1''$ in areas normally used for astrometry

• $1''$ errors in ACIS chips S0, S1 (compared to 10–$20''$ PSF radius)

• 1–$2''$ errors in ACIS-I chips when ACIS-S is in aimpoint and vice versa

Residual coordinate deviations for S3 chip

No.	r, arcsec	r/r_{50}	r_{50}, arcsec	Nphot
1	0.05	0.04	1.38	61
2	0.22	0.26	0.82	27
3	0.29	0.25	1.17	73
4	0.01	0.02	0.58	50
5	0.19	0.18	1.06	59
6	0.19	0.15	1.28	84
7	0.43	0.52	0.82	15
8	0.05	0.03	1.57	44
9	0.53	0.22	2.42	65
10	0.07	0.11	0.64	97
11	1.04	1.23	0.85	12
12	0.23	0.33	0.69	15
13	0.16	0.29	0.56	17
14	0.03	0.05	0.56	16
15	0.10	0.16	0.61	20
16	0.09	0.09	0.96	32
17	0.07	0.10	0.72	73
18	0.25	0.36	0.69	14
19	0.05	0.09	0.61	22
20	0.05	0.08	0.64	103
21	0.13	0.12	1.14	67
22	0.22	0.20	1.09	121
23	0.24	0.22	1.09	40
24	0.54	0.21	2.55	163

Residual coordinate deviations for I3 chip

No.	r, arcsec	r/r_{50}	r_{50}, arcsec	Nphot
1	0.61	0.26	2.34	20
2	0.36	0.19	1.91	16
3	0.65	0.41	1.59	14
4	0.20	0.17	1.22	19
5	0.21	0.23	0.93	31
6	0.24	0.40	0.58	16
7	0.18	0.22	0.82	16
8	0.20	0.17	1.20	79
9	0.32	0.19	1.65	17
10	0.36	0.14	2.60	42
11	0.67	0.20	3.27	46
12	0.39	0.14	2.68	77
13	0.43	0.17	2.52	16
14	0.68	0.23	3.00	35
15	0.24	0.12	2.05	28
16	0.89	0.53	1.67	27
17	0.11	0.08	1.38	26
18	0.10	0.14	0.72	29
19	0.39	0.34	1.14	24
20	0.07	0.05	1.43	89
21	0.91	0.39	2.34	17
22	0.62	0.18	3.51	83
23	0.54	0.13	4.30	44
24	0.80	0.22	3.56	55
25	0.86	0.26	3.32	22