HSP-014

From nelson@larry.sal.wisc.edu Wed May 20 17:36:35 1992
To: lisa@stsci.edu
Subject: Re: 3996 ISR
Cc: nelson@larry.sal.wisc.edu

The first set of numbers is obtained by me in an arcane manner whih only I understand. Seriously, it is very complex and hard to explain in the limited amount of space I allowed myself, and would have taken more time to write up than I had at the moment. The wings and the core are different portions of the PSF as seen by HSP, and the core of the image is slightly offcenter WRT the wings. That leads to confusion about what the real center of the image. We chose to work with the core in this case to prevent the core from losing light at the aperture edges, since the images cannot both be well centered.

Times of observations

PODPS_Id	Oid	ST	O#	S	Filter/Ap	Start-of-Observation		Pkt-length
3994t04	0VN	02	01	T	VCLRU1_T	02-May-1992	04:16:19.92	0.000000
3994t04	0VN	02	02	T	VCLRU1_T	02-May-1992	04:20:40.92	0.000000
3994t04	0VN	02	03	T	VCLRU1_T	02-May-1992	04:23:48.67	0.000000
3994t04	0VN	02	04	T	VF248U1_A	02-May-1992	04:30:29.01	0.000000
3994t04	0VN	02	05	T	VF248U1_A	02-May-1992	05:47:11.01	0.000000
3994t04	0VN	04	01	T	VCLRU2_T	01-May-1992	23:34:11.92	0.000000
3994t04	0VN	04	02	T	VCLRU2_T	01-May-1992	23:38:32.92	0.000000
3994t04	0VN	04	03	T	VCLRU2_T	01-May-1992	23:41:40.67	0.000000
3994t04	0VN	04	04	T	VF262U2_A	01-May-1992	23:48:21.01	0.000000
3994t04	0VN	04	05	R	VF262U2_A	02-May-1992	01:04:53.01	0.000000
3994t04	0VN	06	01	T	VCLRV_T	02-May-1992	01:37:54.92	0.000000
3994t04	0VN	06	02	T	VCLRV_T	02-May-1992	01:42:15.92	0.000000
3994t04	0VN	06	03	T	VCLRV_T	02-May-1992	01:45:23.67	0.000000
3994t04	0VN	06	04	T	VF551V_A	02-May-1992	02:34:36.01	0.000000
3994t04	0VN	06	05	T	VF551V_A	02-May-1992	02:52:45.01	0.000000

UV2	Sky	v0vn0405	428.39	-163.14	428.49	-163.26
VIS	Finding	v0vn0603	375.763	-361.975		
VIS	Star	v0vn0604	315.47	-337.18	315.49	-337.35
VIS	Sky	v0vn0604	315.73	-337.42	315.74	-337.45
VIS	Star	v0vn0605	315.47	-337.26	315.48	-337.32
VIS	Sky	v0vn0605	315.74	-337.40	315.74	-337.47

It is felt that the best scheme for determining the best pointing for the use of the PRISM mode is to average the positions of the two apertures, thus minimizing the miscentering problems for both data streams, instead of having good centering for one aperture and very poor centering for the other. Accordingly the average positions for the three assemblies, and the corresponding delta V2,V3 positions are as follows, with the deltas being defined as (finding aperture - prism aperture):

Detector	V2(av)	V3(av)	dV2(delta)	dV3(delta)
UV1	136.12	-444.51	43.010	-48.702
UV2	428.36	-163.21	64.913	5.158
VIS	315.61	-337.40	60.153	-24.575

What remains is to combine the delta positions in V2,V3 of the apertures with the current V2,V3 positions of the finding apertures as defined in the PDB. This will yield the new V2,V3 of the prism apertures. For reference the old V2,V3 of the prism apertures is given along with the old delta positions of the prism apertures WRT the finding aperture. The old and new delta's can be compared to look for systematic effects which might explain the unusually bad predicted positions of the prism apertures. The final table

Detector	V2(old)	V3(old)	V2(TAQ ap)	V3(TAQ ap)
UV1	135.8505	-444.1201	179.6417	-492.3280
UV2	428.7297	-163.4393	493.5936	-157.6331
VIS	315.4012	-338.2685	375.8750	-362.4401

Detector	dV2(old)	dV3(old)	dV2(new)	dV3(new)	Change V2	Change V3
UV1	43.7912	-48.2079	43.010	-48.702	-0.7812	-0.4941
UV2	64.8639	5.8062	64.913	5.158	0.0491	-0.6482
VIS	60.4738	-24.1716	60.153	-24.575	-0.3208	-0.4034

lastly subtract the new deltas from the PDB V2,v3 of the finding aperture to yield the new V2,V3 of the prism apertures:

Aperture	New V2	New V3
VF135U1_A	+136.63170	-443.62600
VF248U1_A	+136.63170	-443.62600
VF145U2_A	+428.68060	-162.79110
VF262U2_A	+428.68060	-162.79110
VF240V_A	+315.72200	-337.86510
VF551V_A	+315.72200	-337.86510

These new values will be sent to Colin Cox for addition to the SIAF PDB file today.

Matt Nelson