WFPC2 Calibration

WFPC2 Close-Out Calibration Programs.

Cycle 12 is currently planned to be the last full cycle for WFPC2, which will be de-orbited during the next Servicing Mission (SM) when it is scheduled to be replaced with WFC3. Therefore, we are currently soliciting input from the community as to whether there are any additional calibration programs that should be carried out with WFPC2 before it is de-orbited, in order to improve or augment calibration accuracies or explore new types of calibration. In conjunction with the recent HST Calibration Workshop, a special splinter session was devoted to the topic of WFPC2 close-out, and a number of possible programs were identified. Some examples of these included further refinements to the geometric solution, improvements to the filter photometric characteristics, better measurements of the PSF wings on large scales, and improving the CTE characterization.

We therefore encourage any interested members of the community to contact us with suggestions for Cycle 12 calibration observations, which we will be de-orbiting in the next few months. These may fall under the above categories or alternatively address other issues that may be required in order to improve the scientific value of archival WFPC2 data. We also remind observers of the opportunity to submit Calibration Outsourcing proposals of your own in Cycle 12. These may be observational, archival, or both. Additional topics for Calibration Outsourcing programs are listed at this website: http://www.stsci.edu/instruments/wfpc2/wfpc2_2005.html.

Consultation with the WFPC2 group at STScI is welcomed on any of these topics (just send an email to help@stsci.edu addressing the topic of WFPC2 Close-Out Calibration Programs). We will be happy to provide advice and collaborative input, and we strongly encourage members of the community to take the initiative in proposing any close-out programs that you feel would enhance the quality of some particular aspect of WFPC2 science.

WFPC2 Cycle 11 Calibration Plan.

The Cycle 11 Calibration Program, extending from July 1, 2002, to June 30, 2003, will continue to monitor the health of WFPC2, using the standard suite of calibrations, as well as some special programs to characterize other aspects of the instrument. The most significant change in the routine monitors concerns the length of time between decontaminations. This period has been increased from 28 days to 49 days because data from the last few cycles indicate that the contamination rate has been decreasing. Special programs include more efforts to characterize CTE, a revisit of the long vs. short anomaly, photometry of non-standard filters for creating new zeropoints, as well as a program to cross-calibrate WFPC2 and ACS filters. Because there are significantly fewer primary WFPC2 science observations in Cycle 11, with the advent of ACS, the calibration plan has been significantly scaled back, but without sacrificing the quality of data required to calibrate the instrument. For Cycle 11, 40 external orbits will be used, compared to 61 in Cycle 10. For details see http://www.stsci.edu/instruments/wfpc2/wfpc2_cycle11cal.html.

Pointing Uncertainties.

An offset of 1-2 arcsec is found between the predicted and actual pointing positions of a set of observations of the standard star GRW+70DS824 taken during Jan 1999 and Aug 2002. The direction of the offset in chip coordinates changes throughout the course of the year as the telescope orientation changes, causing the overall uncertainty in the absolute pointing of WFPC2 to be somewhat higher than the 1 arcsec uncertainty in guide star positions. The rms of the pointings is approximately 1.5 arcsec, but two individual pointings of the same target observed about 6 months apart could differ by as much as 5 arcsec in the worst cases. This scatter is primarily due to misalignments of the three Fine Guidance Sensors, and is expected to be improved by an update to the observatory aperture file implemented on 20 Oct, 2002. Users requiring high absolute astrometric precision for a given image should measure positions relative to an astrometric standard found on the same frame, if possible. For more information, see the paper by Brammer, Whitmore, and Koekemoer in the proceedings of the 2002 HST Calibration Workshop (to be published in 2003).

Updated Contamination Rates for WFPC2 UV Filters.

Photometric monitoring observations of a white dwarf standard (GRW+70DS824) have been used to update the contamination rates for WFPC2 UV filters. Observations from April 1994 through May 2002 were used in the analysis. In general, the contamination rates have declined by roughly 50% for most of the filters during this period. Least-squares fits have been made to the data to allow observers to remove the effects of contamination in their WFPC2 observations. For details see the ISR at http://www.stsci.edu/instruments/wfpc2/wfpc2_isr/wfpc2_isr0207.html.

New ISRs since the last AAS Meeting:

- 2002-05 “WFPC2 Cycle 11 Calibration Plan”, Shireen Gonzaga, and the WFPC2 Group
- 2002-06 “WFPC2 SMOV3b”, Anton Koekemoer et al.
- 2002-07 “Updated Contamination Rates for WFPC2 UV Filters”, Matt McMaster, Brad Whitmore

The ISRs can be accessed at http://www.stsci.edu/instruments/wfpc2/wfpc2_ISR.html.

Other WFPC2 Documents.

- The WFPC2 Instrument Handbook has been updated for Cycle 12.
- A new edition of the WFPC2 Data Analysis Tutorial is available.

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