

Chapter 28

WFPC2 Data Analysis

In This Chapter...

Photometric Zero Point / 28-2
Photometric Corrections / 28-6
Polarimetry / 28-16
Astrometry / 28-18
Dithering / 28-19
Accuracy of WFPC2 Results / 28-23

This chapter deals with several topics pertaining to WFPC2 data analysis. We begin with a practical guide to photometry with WFPC2, in which we discuss how to accurately determine the zeropoint, photometric corrections that should be made to WFPC2 data, and common problems and their solutions. We start with the most important aspects of the photometric calibration that affect all observers, largely independently of the final accuracy desired, and in later sections consider subtle effects that can produce relatively small errors. A relatively simple calibration will produce photometric errors of 5 to 10%. With attention to more subtle effects, photometric accuracy between 2 and 5% can be achieved. We then discuss the analysis of polarization data, the astrometric characteristics of WFPC2 images, and the reconstruction of dithered data via the STSDAS package **dither**. Sub-pixel dithering is widely recognized—after the success of the Hubble Deep Field observations—as a valuable way to overcome in part the undersampling of WFPC2 images. Finally, we summarize various accuracies to be expected from well-calibrated WFPC2 observations.

Additional information on many WFPC2 data analysis topics can be found via the WFPC2 Clearinghouse. The Clearinghouse includes references to STScI documentation, publications from the astronomical literature, and user-submitted documentation, organized into more than 50 topics. The Clearinghouse can be found on the following web page:

http://www.stsci.edu/ftp/instrument_news/WFPC2/Wfpc2_clear/wfpc2_clrhs.html