WFC3 Calibration Pipeline Update: Significant Changes and Improvements

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INTRODUCTION

CALWF3 processing software version 3.0, and its associated routines, such as WF3CCD and WF3IR, are now available independent of the IRAF environment as part of the HSTCAL package. The previous PyRAF software (versions of CALWF3 below 3.0), while still available within the current STSDAS release. will no longer be maintained. IRAF dependency was removed in order to facilitate more uniform structure and dependencies across all our supported software. Now users do not need to have IRAF installed (the original dependency was very minimal) and the most current versions of the drizzle and synphot algorithms can be used rather than the older IRAF-based ones

The STScI archive pipeline started running the updated HSTCAL software on Sept 26, 2012. Since new, required, keywords were added to the software users should –re-request their datasets from the MAST data archive if they wish to run the newest version of the pipeline.

The updated routines may still be accessed from the PyRAF environment by importing the new WFC3TOOLS package (released as part of the latest STSCI_PYTHON). WFC3TOOLS may also be imported into any Python session or CALWF3.E may be called directly from the system command line prompt. Since the CALWF3.E executable is available from your OS command line and does not need a special environment in which to run, you can call out to it from within your favorite scripting language.

RELATED POSTER SESSIONS

- Wide Field Camera 3 Trends in the UVIS Detector; Matthew Bourque, session 316.11
- Wide Field Camera 3 Phase II Proposal Update for Cycle 21; Heather C. Gunning, session 316.12

IRAF FREE CALIBRATION PIPELINE

The pipeline has been converted to C and **Python** and may be run independent of the IRAF or PyRAF environment. The new pipeline uses CFITSIO for FITS file access and Pysynphot has been used to calculate the photometric header keywords.

RUNNING IN PYTHON (or PyRAF)

In Python:

>>> from wfc3tools import calwf3
>>> calwf3.calwf3(filename)

In Python with the Teal gui interface:

- >>> from stsci.tools import teal
- >>> from wfc3tools import calwf3
- >>> teal.teal('calwf3')

In PyRAF with epar:

- >>> import wfc3tools
- >>> epar calwf3

The recommended method for running calwf3 in batch mode, to process many images, is to use Python and the wfc3tools package:

- >>> import glob
- >>> for fits in glob.iglob('*raw.fits'): calwf3.calwf3(fits)

following command line option:

RUNNING FROM THE COMMAND LINE

- > calwf3.e iaa001kaw_raw.fits
 A quick way to check your version is to use the
- -r: print the current software revision and exit
- ** calwf3.e does NOT accept a user-defined list of input images, but it will accept an association (ASN) filename.

REFERENCE FILE UPDATES

IMPHTTAB: The PHOTCORR step is now performed using tables pre-computed by PYSYNPHOT instead of calling SYNPHOT on-the-fly. The correct files must be specified in the IMPHTTAB header keyword in order for CALWF3 to perform the PHOTCORR step. By default, this file should be in your iref\$ directory and have the suffix _imp.fits. Each detector uses a different table. If you do not wish to use this feature set PHOTCORR = OMIT. CALWF3 will abort if this keyword is not found in the data header

HOW TO GET HELP

The help files for all the calwf3 software tools in the WFC3TOOLS package may be accessed in two ways:

Using the Python "help" after import will print a text listing of helpful information:

>>>help(wfc3tools.calwf3)

If you would rather see HTML pages, the same information is linked through the Teal/epar facility under "Help/Calwf3 Help". These help files are stored locally on your machine and you do not need an internet connection in order to access them.

If you are unsure where the pages are installed on your machine, simply load the wfc3tools package, bring up the gui window for calwf3 and select "Help":



DOWNLOAD NOW

The WFC3TOOLS package and the CALWF3 executables are included with the HSTCAL package released alongside the latest STSDAS public release.

The software may be downloaded from:

<u>http://www.stsci.edu/institute/</u> software hardware/stsdas/download-stsdas.

Please update your currently installed software and scripts to use the new version of the pipeline (also known as the HSTCAL version) so that all bug fixes and new features will be available.

IMPORTANT SOFTWARE UPDATES

Complete version history information for the CALWF3 executables has been added to the "Software History" page on the WFC3TOOLS HTML help pages. The most significant changes to functionality are as follows:

- The bias subtraction for user specified subarray exposures has been corrected to subtract the proper overscan region.
- The value of TDFTRANS is no longer checked in IR datasets. A flight software update fixed the values of the TDFTRANS keywords which flags imsets as bad which had a loss of lock during an observation. The change mainly affects calibration programs, but If you are using versions prior to 3.1.2, and you retrieved data since August 2012, you may want to recalibrate your data.

CONTACT INFORMATION

All questions should be directed to the helpdesk: help@stsci.edu

A copy of this poster may be downloaded from the WFC3 homepage at http://www.stsci.edu/hst/wfc3