

Example HLSP README

README

Contributor

- R.A. Shaw (STScI)
- 2018-May-1

General Information

This file is intended as an example of a well organized README file, which would be included in a delivery of an HLSP data collection. The following text is excerpted from the README provided by the GOODS v2.0 release of the ACS multi-band catalog data.

These catalogs, prepared using the SExtractor package (Bertin & Arnouts 1996, [A&A, 117, 393](#)), are based on the version v2.0 of the reduced, calibrated, stacked and mosaiced images acquired with HST and ACS as part of the GOODS ACS Treasury program and of the PANS program of search for Type Ia supernovae at high redshift.

The catalogs are *z*-band based, that is, source detection has been made using the *z*-band images. A variety of photometric apertures defined during the detection process have then been used as "fixed apertures" in the *i*, *v*, and *b*-band images to derive the multi-band photometry.

What is Being Released

This v2.0 release of the multi-band source catalogs comprises:

- 8 primary ASCII files (the updated catalogs)
- 1 updated file required to configure SExtractor
- this "README" file

The primary catalog files have names of the form:

hlsp_goods_hst_acs_<region>_<filter>_v2.0_drz_cat.txt

where *region* is either north or south, and the *filter* is one of: (b,v,i,z). The file format is ASCII text with whitespace-separated columns.

Changes from Previous GOODS ACS Data Releases

The v2.0 catalog release is based on the v2.0 images, which, as described above, have significantly longer total exposure times in the z850 bandpass, and somewhat longer exposure times in the i775 and v606 bands as well. The only significant difference in the catalogs, other than that of being based on deeper data, is that we have applied a small astrometric offset to the GOODS-North images (only), as explained in the v2.0 documentation.

How the Catalogs Were Prepared

With the scale of the images set at 0.03 arcsec per pixel (to improve the sampling of the PSF), each GOODS field would have resulted in images too large in size for practical purposes (40,000x40,000 pixels for the HDF-N and 32,000x40,000 pixels for the CDF-S). As a result, each field has been divided into contiguous sections, each 8,192x8,192 pixels in size. A total of 17 sections cover the HDF-N, and a total of 18 sections cover the CDF-S....

Source Detection and Photometry

Source detection was carried out on the z-band images, and photometry was then measured in the other bandpasses using SExtractor "dual image mode", i.e., through fixed apertures defined from the z-band detection catalog...

Before cataloging, we verified the noise scaling by measuring the amplitude and autocorrelation of the background noise in the drizzled science images, and using this information to rescale the weight maps ("w") by a weight scale factor ("s") before converting to RMS maps ("rms"): $rms = 1/(s*w)$

GOODS ACS Weight Map Rescaling Factors (arcsec)

| Bandpass | North | South |
|----------|--------|--------|
| F435W | 0.9052 | 0.8487 |
| F606W | 0.9386 | 0.8987 |
| F775W | 0.9094 | 0.9199 |
| F850LP | 0.9307 | 0.9295 |

In most cases, these factors change the scaling of the RMS maps by less than 5%...

Column Description for the Catalogs

A listing of the 104 individual columns of the catalogs, reproduced from the catalog file headers, is provided below. We have added brief descriptions of the output quantities here, but in many cases the user should refer to the SExtractor documentation for more detailed explanations....

GOODS ACS Weight Map Rescaling Factors

| Col | Field | Description |
|-----|-------------|---|
| 1 | ID_IAU | IAU-format coordinate-based name for object |
| 2 | ALPHA_J2000 | J2000 Right Ascension (degrees) |
| 3 | DELTA_J2000 | J2000 Declination (degrees) |
| 4 | SECT_REFNUM | section number from GOODS v2.0 imaging data |
| 5 | X_SECT | centroid pixel x coordinate within section |
| 6 | Y_SECT | centroid pixel y coordinate within section |
| 7 | X_MOSAIC | centroid pixel x coordinate within a virtual mosaic of all sections |
| 8 | Y_MOSAIC | centroid pixel y coordinate within a virtual mosaic of all sections |
| 9 | ... | ... |

Publications

A description of the GOODS observations and data products is given in:

Giavalisco, M. and the GOODS Team 2004, *The Great Observatories Origins Deep Survey: Initial Results from Optical and Near-Infrared Imaging* [ApJ](#), **600**, L93.