Supplementary information: CANDELS Theory-Friendly Catalogs

v1.0 public release
September 1 2020

Table of Contents

1. Theory-Friendly Catalogs Column Information

Note: The columns for all catalogs are the same

##	NAME	DESCRIPTION	Type
# 0	ID	CANDELS ID (1)	Int
# 1	RA	RA (deg) (1)	Float
# 2	DEC	DEC (deg) (1)	Float
# 3	U_abmag	AB mag in observed frame U band[1] corrected for Galactic extinction (2)	Float
# 4	U_eabmag	Uncertainty AB mag in observed frame U band corrected for Galactic extinction (2)	Float
# 5	ACS_F435_abmag	AB mag in ACS_F435W band corrected for Galactic extinction (2)	Float
# 6	ACS_F435_eabmag	Uncertainty in AB mag in ACS_F435W band corrected for Galactic extinction (2)	Float
# 7	ACS_F606_abmag	AB mag in ACS_F606W band corrected for Galactic extinction (2)	Float
# 8	ACS_F606_eabmag	Uncertainty AB mag in ACS_F606W band corrected for Galactic extinction (2)	Float
# 9	ACS_F775_abmag	AB mag in ACS_F775W band corrected for Galactic extinction (2)	Float
# 10	ACS_F775_eabmag	Uncertainty AB mag in ACS_F775W band corrected for Galactic extinction (2)	Float
# 11	ACS_F814_abmag	AB mag in ACS_F814W band corrected for Galactic extinction (2)	Float
# 12	ACS_F814_eabmag	Uncertainty AB mag in ACS_F814W band corrected for Galactic extinction (2)	Float
# 13	ACS_F850_abmag	AB mag in ACS_F850LP band corrected for Galactic extinction (2)	Float
# 14	ACS_F850_eabmag	Uncertainty AB mag in ACS_F850LP band corrected for Galactic extinction (2)	Float
# 15	WFC3_F098_abmag	AB mag in WFC3_F098M band corrected for Galactic extinction (2)	Float
# 16	WFC3_F098_eabmag	Uncertainty AB mag in WFC3_F098M band corrected for Galactic extinction (2)	Float
# 17	WFC3_F105_abmag	AB mag in WFC3_F105W band corrected for Galactic extinction (2)	Float
# 18	WFC3_F105_eabmag	Uncertainty AB mag in WFC3_F105W band corrected for Galactic extinction (2)	Float

[1] U-band filter is different in each field -- see Appendix B

# 19	WFC3_F125_abmag	AB mag in WFC3_F125W band corrected for Galactic extinction (2)	Float
# 20	WFC3_F125_eabmag	Uncertainty AB mag in WFC3_F125W band corrected for Galactic extinction (2)	Float
# 21	WFC3_F140_abmag	AB mag in WFC3_F140W band corrected for Galactic extinction	Float
# 22	WFC3_F140_eabmag	Uncertainty AB mag in WFC3_F140W band corrected for Galactic extinction	Float
# 23	WFC3_F160_abmag	AB mag in WFC3_F160W band corrected for Galactic extinction (2)	Float
# 24	WFC3_F160_eabmag	Uncertainty AB mag in WFC3_F160W band corrected for Galactic extinction (2)	Float
# 25	WFC3_F275_abmag	AB mag in WFC3_F275W band corrected for Galactic extinction	Float
# 26	WFC3_F275_eabmag	Uncertainty AB mag in WFC3_F275W band corrected for Galactic extinction	Float
# 27	K_abmag	AB mag in observed frame K band corrected for Galactic extinction (2)[2]	Float
# 28	K_eabmag	Uncertainty AB mag K-band band corrected for Galactic extinction (2)	Float
# 29	IRAC_CH1_abmag	AB mag in IRAC_CH1 band corrected for Galactic extinction (2)	Float
# 30	IRAC_CH1_eabmag	Uncertainty AB mag in IRAC_CH1 band corrected for Galactic extinction (2)	Float
# 31	IRAC_CH2_abmag	AB mag in IRAC_CH2 band corrected for Galactic extinction (2)	Float
# 32	IRAC_CH2_eabmag	Uncertainty AB mag in IRAC_CH2 band corrected for Galactic extinction (2)	Float
# 33	IRAC_CH3_abmag	AB mag in IRAC_CH3 band corrected for Galactic extinction (2)	Float
# 34	IRAC_CH3_eabmag	Uncertainty AB mag in IRAC_CH3 band corrected for Galactic extinction (2)	Float
# 35	IRAC_CH4_abmag	AB mag in IRAC_CH4 band corrected for Galactic extinction (2)	Float
# 36	IRAC_CH4_eabmag	Uncertainty AB mag in IRAC_CH4 band corrected for Galactic extinction (2)	Float
# 37	ztype	Z type for z best (0=spec, 1=grism, 2=phot) (3)	Int
# 38	zbest	Best estimate of the redshift (3)	Float
# 39	zmed	Median phot z (3)	Float
# 40	zlow	16th percentile of z phot PDF (3)	Float
# 41	zhigh	84th percentile of z phot PDF (3)	Float

[2] K-band filter is different for each field. see Appendix B.

# 42	U_rest_eazy	Rest-frame AB mag in U band derived with EAZY (4)	Float
# 43	V_rest_eazy	Rest-frame AB mag in V band derived with EAZY (4)	Float
# 44	R_rest_eazy	Rest-frame AB mag in R band derived with EAZY (4)	Float
# 45	I_rest_eazy	Rest-frame AB mag in I band derived with EAZY (4)	Float
# 46	J_rest_eazy	Rest-frame AB mag in J band derived with EAZY (4)	Float
# 47	H_rest_eazy	Rest-frame AB mag in H band derived with EAZY (4)	Float
# 48	K_rest_eazy	Rest-frame AB mag in K band derived with EAZY (4)	Float
# 49	UV1500_rest_eazy	Rest-frame AB mag in UV1500A band derived with EAZY (4)	Float
# 50	UV2300_rest_eazy	Rest-frame AB mag in UV2300A band derived with EAZY (4)	Float
# 51	UV2800_rest_eazy	Rest-frame AB mag in UV2800A band derived with EAZY (4)	Float
# 52	FLAGS_galactic	Galfit flag in F160W band (0: good fit; 1: suspicious fit; 2: bad fit; 3: no fit -- see data paper) (5)	Int
# 53	re	Galfit R_e in F160W band (semi-major axis in arcsec of the ellipse that contains half of the total light in the best fitting Sersic model) (5)	Float
# 54	dre	Uncertainty (1-sigima) Galfit R_e in F160W band (5)	Float
# 55	n	Galfit Sersic index in F160W band (5)	Float
# 56	dn	Uncertainty Galfit Sersic index in F160W band (5)	Float
# 57	q	Galfit b/a (axis ratio) in F160W band (5)	Float
# 58	dq	Uncertainty Galfit b/a in F160W band (5)	Float
# 59	pa	Galfit position angle in F160W band in degrees (0: North; 90: East) (5)	Float
# 60	dpa	Uncertainty in Galfit position angle in F160W band (5)	Float
# 61	sn	Galfit S/N integrated over the F160W segmentation region (5)	Float
# 62	logM_P12_50	Median stellar mass at observation time (6)	Float
# 63	logMt_P12_50	Median total stellar mass formed (6)	Float
# 64	logSFR_P12_50	Median SFR in the last 10Myr (6)	Float
# 65	logAGE_P12_50	Median light-weighted age (6)	Float
# 66	logha_P12_50	Median Halpha flux (6)	Float
# 67	VJ_P12_50	Median V-J color (6)	Float
# 68	UV_P12_50	Median U-V color (6)	Float
# 69	AV_P12_50	Median dust attenuation in V band (6)	Float
# 70	AFUV_P12_50	Median dust attenuation in FUV band (6)	Float
# 71	ANUV_P12_50	Median dust attenuation in NUV band (6)	Float
# 72	logM_P12_16	16th percentile stellar mass at observation (6)	Float
# 73	logMt_P12_16	16th percentile total stellar mass formed (6)	Float
# 74	logSFR_P12_16	16th percentile SFR in the last 10Myr (6)	Float

# 75	logAGE_P12_16	16th percentile light-weighted age (6)	Float
# 76	logha_P12_16	16th percentile Halpha flux (6)	Float
# 77	VJ_P12_16	16th percentile V-J color (6)	Float
# 78	UV_P12_16	16th percentile U-V color (6)	Float
# 79	AV_P12_16	16th percentile dust attenuation in V band (6)	Float
# 80	AFUV_P12_16	16th percentile dust attenuation in FUV band (6)	Float
# 81	ANUV_P12_16	16th percentile dust attenuation in NUV band (6)	Float
# 82	logM_P12_84	84th percentile stellar mass at observation (6)	Float
# 83	logMt_P12_84	84th percentile total stellar mass formed (6)	Float
# 84	logSFR_P12_84	84th percentile SFR in the last 10Myr (6)	Float
# 85	logAGE_P12_84	84th percentile light-weighted age (6)	Float
# 86	logha_P12_84	84th percentile Halpha flux (6)	Float
# 87	VJ_P12_84	84th percentile V-J color (6)	Float
# 88	UV_P12_84	84th percentile U-V color (6)	Float
# 89	AV_P12_84	84th percentile dust attenuation in V band (6)	Float
# 90	AFUV_P12_84	84th percentile dust attenuation in FUV band (6)	Float
# 91	ANUV_P12_84	84th percentile dust attenuation in NUV band (6)	Float
# 92	red_chi_P12	Reduced chi^2 of fit (good<5) (6)	Float
# 93	nbands_P12	Number of bands fitted (good>=10) (6)	Int
# 94	FLAGS_P12	Zbest_flag (good=red_chi<5 and nbands>=10) (6)	Int
# 95	Log_mass_zPhot	Best-fit stellar mass (7)	Float
# 96	SFR_zPhot	Best-fit SFR (7)	Float
# 97	age_zPhot	Best-fit age of formation (7)	Float
# 98	E_BminusV_zPhot	Best-fit E(B-V) (7)	Float
# 99	U_zPhot	Best-fit rest-frame Vega mag in U band (7)	Float
# 100	B_zPhot	Best-fit rest-frame Vega mag in B band (7)	Float
# 101	V_zPhot	Best-fit rest-frame Vega mag in V band (7)	Float
# 102	R_zPhot	Best-fit rest-frame Vega mag in R band (7)	Float
# 103	I_zPhot	Best-fit rest-frame Vega mag in I band (7)	Float
# 104	J_zPhot	Best-fit rest-frame Vega mag in J band (7)	Float
# 105	K_zPhot	Best-fit rest-frame Vega mag in K band (7)	Float
# 106	SFRTOTf	The best estimate of the total SFR: either SFR^corr_UV or SFR_IR + SFR^obs_UV for IR detected sources (8)	Float
# 107	LIMMAG_F160W	Limiting magnitude for a point source in F160W (9)	Float
# 108	RMS	RMS Value (9)	Float

2. GOODS-SOUTH File Information

Name: goodss_catalog.dat
Date Run: July 19, 2019

Original File Names*

(1) Guo et al 2013: hlsp_candels_hst_wfc3_goodss-tot-multiband_f160w_v1-1photom_cat.txt
(2) CANDELS_GDSS_znew_avgal_radec.dat
(3) Kodra et al. in preparation: zcat_GOODSS_v2.0.cat
(4) Brammer, van Dokkum & Coppi, 2008 and thanks to Dale Kocevski: GOODSS_RFcolors.dat
(5) Van der Wel et al 2012: gs_all_candels_ers_udf_f160w_v0.5_galfit.cat
(6) Pacifici et al. 2012, 2016: Cami_GOODS-S_zbest.dat
(7) Torelli, Fontana et al. in preparation: GOODSS_BC03_zbest.dat
(8) Barro et al in press: cdfs_candels_checkage_official_v2.ir_fitting
(9) gs_all_candels_ers_udf_f160w_060mas_v0.5_wht.fits
(10) flag_map_goodss.fits
(11) weight_values_goodss.txt

*Locations on where to find the original catalogs can be found in Appendix A

3. GOODS-NORTH File Information

Name: goodsn_catalog.dat
Date Run: July 19, 2019

Original File Names*

(1) Barro et al. in preparation: CANDELS.GOODSN.F160W.v1_1.photom.cat
(2) CANDELS_GDSN_znew_avgal_radec.dat
(3) Kodra et al. in preparation: zcat_GOODSN_v2.0.cat
(4) Brammer, van Dokkum & Coppi, 2008 and thanks to Dale Kocevski: GOODSN_RFcolors.dat
(5) Van der Wel et al 2012: gn_all_candels_wfc3_f160w_060mas_v0.8_galfit.cat
(6) Pacifici et al. 2012, 2016: Cami_GOODS-N_zbest.dat
(7) Torelli, Fontana et al. in preparation: GOODSN_BC03_zbestV2.dat
(8) Barro et al in press: hdfn_candels_checkage_official_v2.ir_fitting
(9) goodsn_all_wfc3_ir_f160w_060mas_v1.0_wht.fits
(10) flag_map_goodsn.fits
(11) weight_values_goodsn.txt

*Locations on where to find the original catalogs can be found in Appendix A

3. UDS File Information

Name: uds_catalog.dat
Date Run: July 19, 2019

Original File Names*

(1) Galametz et al. 2013: hlsp_candels_hst_wfc3_uds-tot-multiband_f160w_v1-1photom_cat.txt
(2) CANDELS_UDS_znew_avgal_radec.dat
(3) Kodra et al. in preparation: zcat_UDS_v2.0.cat
(4) Brammer, van Dokkum & Coppi, 2008 and thanks to Dale Kocevski: UDS_RFcolors.dat
(5) Van der Wel et al 2012: uds_2epoch_wfc3_f160w_060mas_v0.3_galfit.cat
(6) Pacifici et al. 2012, 2016: Cami_UDS_zbest.dat
(7) Torelli, Fontana et al. in preparation: UDS_BC03_zbest.dat
(8) Barro et al in press: uds_candels_checkage_official_v2.ir_fitting
(9) uds_all_wfc3_ir_f160w_060mas_v1.0_wht.fits
(10) flag_map_uds.fits
(11) weight_values_uds.txt

*Locations on where to find the original catalogs can be found in Appendix A

4. EGS File Information

Name: egs_catalog.dat
Date Run: July 19, 2019

Original File Names*

(1) Stefanon et al. 2017: hlsp_candels_hst_wfc3_egs-tot-multiband_f160w_v1-1photom_cat.txt
(2) CANDELS_EGS_znew_avgal_radec.dat
(3) Kodra et al. in preparation: zcat_EGS_v2.0.cat
(4) Brammer, van Dokkum & Coppi, 2008 and thanks to Dale Kocevski: EGS_RFcolors.dat
(5) Van der Wel et al 2012: egs_2epoch_wfc3_f160w_060mas_v0.8_galfit.cat
(6) Pacifici et al. 2012, 2016: Cami_EGS_zbest.dat
(7) Torelli, Fontana et al. in preparation: EGS_BC03_zbest.dat
(8) Barro et al in press: egs_candels_checkage_official_v2.ir_fitting
(9) egs_all_wfc3_ir_f160w_060mas_v1.1_wht.fits
(10) flag_map_egs.fits
(11) weight_values_egs.txt

*Locations on where to find the original catalogs can be found in Appendix A

5. COSMOS File Information

Name: cosmos_catalog.dat
Date Run: July 19, 2019

Original File Names*

(1) Nayyeri et al. 2017: hlsp_candels_hst_wfc3_cos-tot-multiband_f160w_v1-1photom_cat.txt
(2) CANDELS_COSM_znew_avgal_radec.dat
(3) Kodra et al. in preparation: zcat_COSMOS_v2.0.cat
(4) Brammer, van Dokkum & Coppi, 2008 and thanks to Dale Kocevski: COSMOS_RFcolors.dat
(5) Van der Wel et al 2012: cos_2epoch_wfc3_f160w_060mas_v1.0_galfit.cat
(6) Pacifici et al. 2012, 2016: Cami_COSMOS_zbest.dat
(7) Torelli, Fontana et al. in preparation: COSMOS_BC03_zbest.dat
(8) Barro et al in press: cosmos_candels_checkage_official_v2.ir_fitting
(9) cos_all_wfc3_ir_f160w_060mas_v1.5_wht.fits
(10) flag_map_cos.fits
(11) weight_values_cos.txt

*Locations on where to find the original catalogs can be found in Appendix A

Appendix A - Original Data Catalogs Locations

(1) Multiple Publishers: hlsp_candels_hst_wfc3_*-tot-multiband_f160w_v1-1photom_cat.txt

- GOODS-S, UDS, EGS, & COSMOS: MAST Archive: https://archive.stsci.edu/prepds/candels/
- GOODS-N: Contact Yicheng Guo --? seems to be on MAST now

(2) CANDELS_*_znew_avgal_radec.dat

- Contact Cami Pacifici
- Note: These catalogs do not include dust emission and thus do not include any bands greater than 3 microns. Specifically, this means z<0.34 contains no IRAC, 0.34<z<0.67 contains IRAC1, 0.67<z<1.17 contains IRAC 1 and 2, 1.17<z<2.17 contains IRAC 1-3, and z>2.17 contains all IRAC channels.

(3) Kodra et al. in preparation: zcat_*_v2.0.cat

- Contact Dritan Kodra

(4) Brammer, van Dokkum & Coppi, 2008 and thanks to Dale Kocevski for the rest-frame colors: *_RFcolors.dat

- See Appendix D for EAZY run information
- Note: Rest frame colors where U, V, J fall outside the observed range should be used cautiously

(5) Van der Wel et al 2012: gs_all_candels_*_udf_f160w_v0.5_galfit.cat

- MPIA.de: http://www.mpia.de/homes/vdwel/candels.html

(6) Pacifici et al. 2012, 2016: Cami_*_zbest.dat

- Contact Cami Pacifici

(7) Torelli, Fontana et al. in preparation: *_BC03_zbest.dat

- Contact Marianna Torelli

(8) Barro et al in press: *_candels_checkage_official_v2.ir_fitting

- Contact Guillermo Barro

(9) *_all_*_f160w_060mas_v*_wht.fits

- Contact Harry Ferguson

(10) flag_map_*.fits

- Contact Harry Ferguson

(11) weight_values_*.txt

- Contact Harry Ferguson

Appendix B – U and K AB Magnitude

The U_abmag and K_abmag columns in these catalogs (and the corresponding U and K_eabmag) come from different bands in the different surveys. These are the original bands for each survey that were set to be U and K, and their corresponding filter number in their original files (2)

GOODSS

- U Band: VIMOS_U_abmag (f2)
- K Band: ISAAC_KS_abmag (f12)

GOODSN

- U Band: KPNO_U_abmag (f1)
- K Band: CFHT_Ks_abmag (f13)

UDS

- U Band: CFHT_U_abmag (f1)
- K Band: UKIDSSDR8_K_abmag (f15)

EGS

- U Band: CFHT_u_abmag (f1)
- K Band: WIRCAM_K_abmag (f13)

COSMOS

- U Band: CFHT_uS_abmag (f1)
- K Band: UltraVISTA_Ks_abmag (f19)

Appendix C – RMS and Limiting Magnitude Calculations

Several new calculations were done which were added to the catalogs. These calculations used values from the referenced files.

RMS

- Using the 6x6 square of pixels surrounding the center of each galaxy, the weight data of each pixel was found (9) and converted to RMS with the equation: $rms_{avg} = \sqrt{1/weight_{avg}}$

LIMMAG_F160W

- The 1σ F160W limiting magnitude was calculated and scaled for an area of 1 $arcsec^2$ with the following method: The RMS values calculated for each pixel in the 6x6 region surrounding the galaxy (described above; 9) were converted to a single limiting magnitude value with the equation: $limmag = -2.5 * log10(\sqrt{A * < rms^2 >}$ where $A = 1\ /\ (0.06\ arcsec/pixel)^2$ and $z_p = -2.5 * log10(PHOTFLAM) - 5 * log10(PHOTPLAM) - 2.408$.
- the values of PHOTPLAM and PHOTFLAM are taken from the image headers

Appendix D – Flag Descriptions

Flags present in the theory friendly catalogs:

FLAGS_galactic

- 0 = good fit, 1 = suspicious fit, 2 = bad fit, 3 = no fit
- See data paper from Van der Wel et al 2012 (5) for more information

FLAGS_P12

- 0 = good, 1 = bad
- The flag is set to bad if either the galaxy has a reduced chi squared larger than 5 or is observed in <10 photometric bands (red_chi_P12 > 5 or nbands_P12 < 10)

Note: The catalogs were also trimmed based on flag values that are not included in the "theory friendly" catalogs. The photometry catalogs (1) contained FLAGS and CLASS_STAR columns which corresponded to the flags constructed based on the F160W image and the Class_star SExtractor parameter (from the F160W-detected Extractor catalog), respectively. Rows were kept if they had FLAGS = 0 (for a non-contaminated source) and CLASS_STAR < 0.8

Appendix E - EAZY Run Information

Run 06 December 2019 by:

Shannon Osborne (STScI)
Brett Salmon (STScI)

Newly created catalogs with AB magnitudes (2) and z_best (3) for all five CANDELS fields used to run EAZY:

goodss_eazy_input_catalog.dat
goodsn_eazy_input_catalog.dat
uds_eazy_input_catalog.dat
egs_eazy_input_catalog.dat
cosmos_eazy_input_catalog.dat

Parameter File Specifications

```
#### EAZY Default parameters

## Filters
FILTERS_RES          FILTER.RES.forshannon  # Filter transmission data
FILTER_FORMAT        1                  # Format of FILTERS_RES file -- 0: energy-  1:
photon-counting detector
SMOOTH_FILTERS       y                  # Smooth filter curves with Gaussian
SMOOTH_SIGMA         100.               # Gaussian sigma (in Angstroms) to smooth
filters

## Templates
TEMPLATES_FILE       templates/eazy_v1.2_dusty.spectra.param # Template definition
file
TEMPLATE_COMBOS      a                  # Template combination options:
                                        #         1 : one template at a time
                                        #         2 : two templates, read allowed
combinations from TEMPLATES_FILE
                                        #        -2 : two templates, all permutations
                                        # a <or> 99 : all templates simultaneously
NMF_TOLERANCE        1.e-4              # Tolerance for non-negative combinations
(TEMPLATE_COMBOS=a)
WAVELENGTH_FILE      templates/EAZY_v1.1_lines/lambda_v1.1.def # Wavelength grid
definition file
TEMP_ERR_FILE        templates/TEMPLATE_ERROR.eazy_v1.0 # Template error definition
file
TEMP_ERR_A2          0.50               # Template error amplitude
SYS_ERR              0.05               # Systematic flux error (% of flux)
APPLY_IGM            y                  # Apply Madau 1995 IGM absorption
LAF_FILE             templates/LAFcoeff.txt # File containing the Lyman alpha forest
data from Inoue
DLA_FILE             templates/DLAcoeff.txt # File containing the damped Lyman
absorber data from Inoue
SCALE_2175_BUMP      0.00               # Scaling of 2175A bump.  Values 0.13 (0.27)
absorb ~10 (20) % at peak.

DUMP_TEMPLATE_CACHE  n                  # Write binary template cache
USE_TEMPLATE_CACHE   n                  # Load in template cache
```

```
CACHE_FILE          photz.tempfilt     # Template cache file (in OUTPUT_DIRECTORY)

## Input Files
CATALOG_FILE
/Users/sosborne/Desktop/CANDELS/input_catalogs/RFcolors/EAZY_input_catalogs/goodsn_eaz
y_input_catalog.dat
MAGNITUDES          n                  # Catalog photometry in magnitudes rather than
f_nu fluxes
NOT_OBS_THRESHOLD   -90                # Ignore flux point if <NOT_OBS_THRESH
N_MIN_COLORS        5                  # Require N_MIN_COLORS to fit

## Output Files
OUTPUT_DIRECTORY
/Users/sosborne/Desktop/CANDELS/input_catalogs/RFcolors/GOODSN_individual_filters
MAIN_OUTPUT_FILE    photz              # Main output file, .zout
PRINT_ERRORS        y                  # Print 68, 95 and 99% confidence intervals
CHI2_SCALE          1.0                # Scale ML Chi-squared values to improve
confidence intervals
VERBOSE_LOG         y                  # Dump information from the run into
[MAIN_OUTPUT_FILE].param
OBS_SED_FILE        n                  # Write out observed SED/object, .obs_sed
TEMP_SED_FILE       n                  # Write out best template fit/object,
.temp_sed
POFZ_FILE           n                  # Write out Pofz/object, .pz
BINARY_OUTPUT       y                  # Save OBS_SED, TEMP_SED, PZ in binary format
to read with e.g IDL

## Redshift / Mag prior
APPLY_PRIOR         y                  # Apply apparent magnitude prior
PRIOR_FILE          templates/prior_F160W_TAO.dat # File containing prior grid
PRIOR_FILTER        205                # Filter from FILTER_RES corresponding to the
columns in PRIOR_FILE
PRIOR_ABZP          23.9               # AB zeropoint of fluxes in catalog.  Needed
for calculating apparent mags!

## Redshift Grid
FIX_ZSPEC           y                  # Fix redshift to catalog zspec
Z_MIN               0.01               # Minimum redshift
Z_MAX               10.0                # Maximum redshift
Z_STEP              0.01               # Redshift step size
Z_STEP_TYPE         1                  #  0 = ZSTEP, 1 = Z_STEP*(1+z)

## Zeropoint Offsets
GET_ZP_OFFSETS      n                  # Look for zphot.zeropoint file and compute
zeropoint offsets
ZP_OFFSET_TOL       1.e-4              # Tolerance for iterative fit for zeropoint
offsets [not implemented]

## Rest-frame colors
REST_FILTERS        313
RF_PADDING          1000.              # Padding (Ang) for choosing observed filters
around specified rest-frame pair.
RF_ERRORS           n                  # Compute RF color errors from p(z)
Z_COLUMN            z_peak             # Redshift to use for rest-frame color
calculation (z_a, z_p, z_m1, z_m2, z_peak)
USE_ZSPEC_FOR_REST  y                  # Use z_spec when available for rest-frame
colors
READ_ZBIN           n                  # Get redshifts from
OUTPUT_DIRECTORY/MAIN_OUTPUT_FILE.zbin rather than fitting them.

## Cosmology
```

```
H0                     70.0                 # Hubble constant (km/s/Mpc)
OMEGA_M                0.3                  # Omega_matter
OMEGA_L                0.7                  # Omega_lambda
```

Note: Conversion from EAZY Output (microjanskies in observed frame) to AB mag rest frame was done with: $RF\_lambda = 23.9 - 2.5 * log10(Lambda\_eazy) - DM\_eazy$ where *RF_lambda* is the AB mag rest frame for a filter of wavelength lambda, *Lambda_eazy* is the EAZY output for the filter, and *DM_eazy* is the distance modulus for the filter output from EAZY. Both *Lambda_eazy* and *DM_eazy* can be found in the output .rf files from EAZY.

Appendix F – Effective Area Calculation

The limiting magnitude of the galaxies in each survey were binned with bin size of 0.2 and the center of the distribution set to match that of Meredith Durbin's k-means clustering work (10,11). Then the CANDELS weight maps (10) were transformed into limiting magnitude maps using the equations outlined in Appendix C, and the effective area was calculated for each limiting magnitude bin by adding up the number of pixels for which the limiting magnitude was at the bin's value or fainter. The final effective area values are provided in tables of effective area (in arcminutes) vs F160W limiting AB magnitude in files named <survey>_limmag_effarea.dat.