HETDEX Value-Added Catalog Description

Column Descriptors

Radio

Column	Units	Description
Source_Name		The radio name of the source, automatically generated from RA and DEC in most cases
RA	deg	Position from PyBDSF or combination of PyBDSF components
E_RA	arcsec	Estimated by PyBDSF. Only fitting uncertainties are included
DEC	deg	Position from PyBDSF or combination of PyBDSF components
E_DEC	arcsec	Estimated by PyBDSF. Only fitting uncertainties are included
Peak_flux	mJy/bm	The peak Stokes I flux density per beam of the source
E_Peak_flux	mJy/bm	The 1-σ error on the peak flux density per beam of the source
Total_flux	mJy	The total, integrated Stokes I flux density of the source at the reference frequency
E_Total_flux	mJy	The 1-σ on the total flux density of the source
Maj	arcsec	The FWHM of the major axis of the source, INCLUDING convolution with the 6-arcsec LOFAR beam
E_Maj	arcsec	The 1-σ error on the FWHM of the major axis of the source
Min	arcsec	The FWHM of the minor axis of the source, INCLUDING convolution with the 6-arcsec LOFAR beam
E_Min	arcsec	The 1-σ error on the FWHM of the minor axis of the source
PA	deg	The position angle of the major axis of the source measured east of north, INCLUDING convolution with the 6-arcsec LOFAR beam
E_PA	deg	The 1-σ error on the position angle of the major axis of the source
DC_Maj	arcsec	The FWHM of the major axis of the source, after de-convolution with the 6-arcsec LOFAR beam
E_DC_Maj	arcsec	The 1-σ error on the FWHM of the deconvolved major axis of the source
DC_Min	arcsec	The FWHM of the minor axis of the source, after de-convolution with the 6-arcsec LOFAR beam
E_DC_Min	arcsec	The 1-σ error on the FWHM of the deconvolved minor axis of the source
DC_PA	deg	The position angle of the major axis of the source measured east of north, after de-convolution with the 6-arcsec LOFAR beam

E_DC_PA	deg	The 1-σ error on the position angle of the deconvolved major axis of the source
Isl_rms	mJy/beam	The average background rms value of the island
S_Code		A code that defines the source structure (see key below)
Mosaic_ID		The name of the HETDEX mosaic in which the FITS image can be found
Masked_Fraction		The fraction of the source that is in the CLEAN mask

Optical ID

Column	Units	Description
ID_flag		Flag indicating the origin of the optical identification (see key below)
ID_name		PanSTARRs, AllWISE, 2MASX or SDSS name of optical identification
ID_ra	deg	Right ascension of optical identification
ID_dec	deg	Declination of optical identification
ML_LR		Likelihood ratio from maximum likelihood analysis [1]
LGZ_Size	arcsec	Length of the largest diameter of the convex hull around the set of component elliptical Gaussians
LGZ_Width	arcsec	Twice the maximum perpendicular distance of points on the convex hull to the largest diameter line
LGZ_PA	deg	The position angle on the sky, measured east of north, of that largest diameter
LGZ_Assoc		Number of sources in the LGZ association
LGZ_Assoc_Qual		LGZ association quality flag
LGZ_ID_Qual		LGZ identification quality flag
Deblended_from		Name of PyBDSF multiple Gaussian component source from which this source was deblended

Optical Photometry

Column	Units	Description
AllWISE		Name of the source in the AllWISE catalogue
objid		The PanSTARRs object ID
gFApFlux	μJy	PanSTARRs g-band forced aperture photometry flux
gFApFluxErr	μJy	PanSTARRs g-band forced aperture photometry flux error
gFApMag	mag (AB)	PanSTARRs g-band forced aperture photometry magnitude

gFApMagErr	mag (AB)	PanSTARRs g-band forced aperture photometry magnitude error
rFApFlux	µJy	PanSTARRs r-band forced aperture photometry flux
rFApFluxErr	µJy	PanSTARRs r-band forced aperture photometry flux error
rFApMag	mag (AB)	PanSTARRs r-band forced aperture photometry magnitude
rFApMagErr	mag (AB)	PanSTARRs r-band forced aperture photometry magnitude error
iFApFlux	µJy	PanSTARRs i-band forced aperture photometry flux
iFApFluxErr	µJy	PanSTARRs i-band forced aperture photometry flux error
iFApMag	mag (AB)	PanSTARRs i-band forced aperture photometry magnitude
iFApMagErr	mag (AB)	PanSTARRs i-band forced aperture photometry magnitude error
zFApFlux	µJy	PanSTARRs z-band forced aperture photometry flux
zFApFluxErr	µJy	PanSTARRs z-band forced aperture photometry flux error
zFApMag	mag (AB)	PanSTARRs z-band forced aperture photometry magnitude
zFApMagErr	mag (AB)	PanSTARRs z-band forced aperture photometry magnitude error
yFApFlux	µJy	PanSTARRs y-band forced aperture photometry flux
yFApFluxErr	µJy	PanSTARRs y-band forced aperture photometry flux error
yFApMag	mag (AB)	PanSTARRs y-band forced aperture photometry magnitude
yFApMagErr	mag (AB)	PanSTARRs y-band forced aperture photometry magnitude error
w1Flux	µJy	AllWISE W1 profile-fit photometry flux
w1FluxErr	µJy	AllWISE W1 profile-fit photometry flux error
w1Mag	mag (AB)	AllWISE W1 profile-fit photometry magnitude
w1MagErr	mag (AB)	AllWISE W1 profile-fit photometry magnitude error
w2Flux	µJy	AllWISE W2 profile-fit photometry flux
w2FluxErr	µJy	AllWISE W2 profile-fit photometry flux error
w2Mag	mag (AB)	AllWISE W2 profile-fit photometry magnitude
w2MagErr	mag (AB)	AllWISE W2 profile-fit photometry magnitude error
w3Flux	µJy	AllWISE W3 profile-fit photometry flux
w3FluxErr	µJy	AllWISE W3 profile-fit photometry flux error [2]
w3Mag	mag (AB)	AllWISE W3 profile-fit photometry magnitude
w3MagErr	mag (AB)	AllWISE W3 profile-fit photometry magnitude error
w4Flux	µJy	AllWISE W4 profile-fit photometry flux
w4FluxErr	µJy	AllWISE W4 profile-fit photometry flux error [2]
w4Mag	mag (AB)	AllWISE W4 profile-fit photometry magnitude

w4MagErr	mag (AB)	AllWISE W4 profile-fit photometry magnitude error
gFKronFlux	μJy	PanSTARRs g-band forced photometry Kron flux
gFKronFluxErr	μJy	PanSTARRs g-band forced photometry Kron flux error
rFKronFlux	μJy	PanSTARRs r-band forced photometry Kron flux
rFKronFluxErr	μJy	PanSTARRs r-band forced photometry Kron flux error
iFKronFlux	μJy	PanSTARRs i-band forced photometry Kron flux
iFKronFluxErr	μJy	PanSTARRs i-band forced photometry Kron flux error
zFKronFlux	μJy	PanSTARRs z-band forced photometry Kron flux
zFKronFluxErr	μJy	PanSTARRs z-band forced photometry Kron flux error
yFKronFlux	μJy	PanSTARRs y-band forced photometry Kron flux
yFKronFluxErr	μJy	PanSTARRs y-band forced photometry Kron flux error

Photo-z and Ancillary Information

Column	Units	Description
z_best		Best available redshift estimate
z_best_source		Source of z_best, 0 = photometric, 1 = spectroscopic
z_spec		Literature Spectroscopic Redshift
z_spec_source		Source of z_spec (see spectroscopic survey codes)
z1_median		Median of the primary redshift peak above 80% HPD CI
z1_min		Lower bound of the primary 80% HPD CI peak
z1_max		Upper bound of the primary 80% HPD CI peak
z1_area		Integrated area of the primary 80% HPD CI peak
z2_median		Median of the secondary redshift peak (if present) above 80% HPD CI
z2_min		Lower bound of the secondary 80% HPD CI peak
z2_max		Upper bound of the secondary 80% HPD CI peak
z2_area		Integrated area of the secondary 80% HPD CI peak
specAGN		Flag indicating spectroscopically identified AGN
mqcAGN		Flag indicating source is included in Million Quasar Catalog compilation
XrayClass		2RXS or XMMSL2 X-ray source class - 1 = AGN, 2 = Galaxy/Star (based on criteria in Salvato+2017)
2RXS_ID		ID in 2RXS catalog (if available)

XMMSL2_ID		ID in XMMSL2 catalog (if available)
IRClass		Bit-flag indicating WISE AGN Class based on Assef+2012 selection criteria
EBV		E(B-V) galactic extinction for the source based on its position and Schlegel, Finkbeiner & Davis (1998) extinction maps - http://argonaut.skymaps.info/. Fluxes and magnitudes in the catalog have already been corrected based on this value.
PanSTARRS_Missing		Boolean flag indicating source has no PS1 FAp available (and hence may be missing ID/photo-z)

Rest-frame Magnitudes

Column	Units	Description
u_rest	mag (AB)	Estimated rest-frame u-band magnitude (for z_best)
g_rest	mag (AB)	Estimated rest-frame g-band magnitude (for z_best)
r_rest	mag (AB)	Estimated rest-frame r-band magnitude (for z_best)
i_rest	mag (AB)	Estimated rest-frame i-band magnitude (for z_best)
z_rest	mag (AB)	Estimated rest-frame z-band magnitude (for z_best)
w1_rest	mag (AB)	Estimated rest-frame w1-band magnitude (for z_best)
w2_rest	mag (AB)	Estimated rest-frame w2-band magnitude (for z_best)
w3_rest	mag (AB)	Estimated rest-frame w3-band magnitude (for z_best)
U_rest	mag (AB)	Estimated rest-frame U-band magnitude (for z_best)
B_rest	mag (AB)	Estimated rest-frame B-band magnitude (for z_best)
V_rest	mag (AB)	Estimated rest-frame V-band magnitude (for z_best)
I_rest	mag (AB)	Estimated rest-frame I-band magnitude (for z_best)
J_rest	mag (AB)	Estimated rest-frame J-band magnitude (for z_best)
Ks_rest	mag (AB)	Estimated rest-frame Ks-band magnitude (for z_best)

S_code Key

- ‘S’ = a single-Gaussian source that is the only source in the island
- ‘C’ = a single-Gaussian source in an island with other sources
- ‘M’ = a multi-Gaussian source

ID_flag Codes

- 0 - no ID possible (too large or otherwise difficult)
- 1 - identification (or alck thereof) from maximum likelihood analysis
- 2 - match to a bright galaxy (either 2MASX or SDSS)
  - 22 - match to a bright galaxy (either 2MASX or SDSS) after LGZ classification as host broken-up
- 3? - association and identification (or lack therof) from LGZ, second digit is further flag

    - 31 - output from LGZ
    - 32 - output from LGZ (too-zoomed-in)
- 4? - association and identification (or lack therof) through deblend workflow
    - 41 - deblend following flowchart classification of m sources
    - 42 - deblend following LGZ

Spectroscopic Survey Codes

- 1 - SDSS
- 2 - DEEP 2/3
- 4 - 3D-HST
- 8 - Steidel et al. (2003)
- 16 - AEGIS-X
- 32 - Huang et al. (2009)

WISE AGN Selection classes - 'IRClass' (Assef et al. (2012))

- 1 - 90% Completeness criteria
- 2 - 75% Completeness criteria
- 4 - 75% Reliability criteria
- 8 - 90% Reliability criteria

Footnotes

1. The maximum likelihood threshold to select a match was 0.639.
2. When converting AllWISE Vega magnitudes to flux (Janskys), discrepancies in the calibration for blue and red objects means that the conversion is uncertain by 10%; this additional uncertainty has been added in quadrature when calculating the flux uncertainty. See section IV.4.h.i of the WISE All-Sky Data Release Explanatory Supplement for details on the calibration uncertainty.)