

Exoplanet Direct Imaging Mission Planning Catalog (ExoCat) v1

Preliminary notes; extensive details and refs to follow (in prep)

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HIP HD GL/GJ GL/LTT COMMON

Common catalog identifiers and names.

WDS

Washington Double Star survey identifier. This star may have multiple physical and/or optical companions, as listed in the WDS catalog.

sep(") dM(mag)

Given for bright ($V < 7$) targets only. Separation and delta-magnitude of nearest bright companion, taken from WDS. Companion must have $dM < 5$ (1%) and be within 30 arcseconds of the target in order to be given here. Other physical or optical companions may be listed in WDS.

NPLANETS

Number of currently known planetary companions as found in various sources.

RAhms DEdms RA(ICRS) DE(ICRS) pmRA pmDE Glon Glat

HipCat Coordinates, proper motions, galactic latitude and longitude.

d(pc) ePARX/PARX

Distance and fractional parallax uncertainty. Stars with $e_{parx}/parx > 10\%$ have been colored RED in the spreadsheet as a warning that all data are suspect. Some of these stars occasionally show up as "good" targets.

V e_V V_src B-V e_B-V B-V_src

Photometry as transformed to Johnson from Hipparcos or ground based data, whichever was higher quality.

Mv e_Mv CombMag

Absolute magnitude and uncertainty in magnitudes, flag (*) on entries where more than one star contributes to the measurement.

V-K e_V-K K_src

V-K color, uncertainty in magnitudes, and source of K-band photometry. 2MASS is not generally of good quality for bright stars, and thus many other sources had to be compiled. Wherever possible, those sources were transformed to the 2MASS system, and this was possible for recent measurements. For many of the brightest stars, however, the best photometry available is decades old. Attempts to transform those measurements to a single system would likely introduce more uncertainties than are differences between the systems. Those measurements are quoted as-is.

Lbol_src Lbol e_Lbol SpType CLASS SPECTAG

Bolometric luminosity, using bolometric corrections derived either from V-K (cooler stars) or B-V data (hotter stars). Spectral Types taken preferentially from Gray+03/06, Houk catalogs, or SIMBAD. CLASS and SPECTAG are convenient for color-coding plots: CLASS is either WD, GIANT, or MAINSEQ indicating rough placement on the HR diagram, and SPECTAG is O,B,A,F,G,K,M, GIANT or WD.

EEID(AU) EEID(mas)

Earth-equivalent Insolation Distance is the distance where an Earth-sized planet would receive the same incoming stellar radiation as does the Earth. This is a fast proxy for hab zone location without complications regarding inner and outer HZ edges. Computed from Lbol and d(pc).

FPB-Earth

Fractional planet brightness of an Earth-sized and albedo planet at the EEID at quadrature, relative to the star in V-band. Computed from Lbol.

V-Earth(mag)

V-band magnitude of Earth-sized and albedo planet at the EEID at quadrature. Computed from FPB-Earth and V.

Teff Teff_src R*(Rsun) R_src M*(Msun) M_src

Effective Temperature in K, stellar radius and mass in solar units. These quantities were preferentially taken from fits to high quality spectral data by Takeda+07, Valenti&Fischer05, Gray+03/06, or derived by Turnbull. Agreement across sources and derivations is very good.

log(g) log(g)_src Age(Gyr) Age_srcAC-Gray [Fe/H]-VF05

Gravity, very approximate age in Gyr, chromospheric Activity Class from Gray+03/06, and metallicity from VF05. AC-Gray flag refers to chromospheric Activity Class as follows:

VI = very inactive

I = inactive

A = active

VA = very active

This is sometimes used as a proxy for age.

Questions and comments, please contact:

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