

The MATISSE Catalogue

A combination of data : fundamental stellar parameters, angular diameters, mid-infrared fluxes and infrared features

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AIMS OF THE CATALOGUE

1. Provide sets of targets suitable for the commissioning runs with information on :
 - Angular diameter
 - Flux density in the L, M and N bands
 - Binarity
 - Infrared excess
2. Identify the potential calibrators

SPECIFICATIONS OF MATISSE-VLTI

- Spectral bands

L-band	M-band	N-band
3.2-3.9 μm	4.5-5.0 μm	8-13 μm

- Angular resolution

4-AT Config	B_{max}	$\lambda = 3.5 \mu\text{m}$	$\lambda = 10,5 \mu\text{m}$
Small (A0-B2-D0-C1)	34 m	21 mas	64 mas
Large (A0-G1-J2-J3)	132 m	5 mas	16 mas

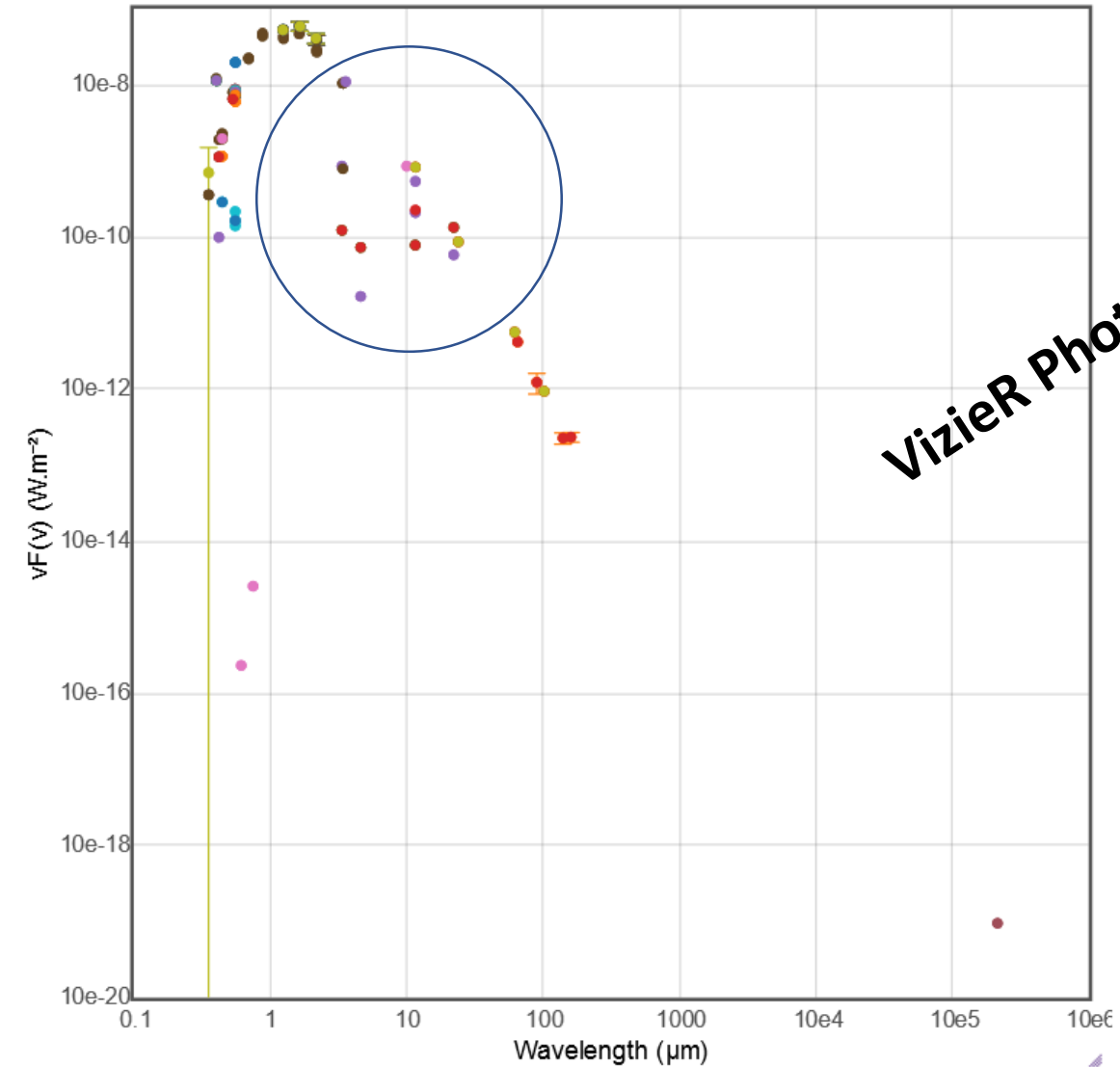
- Sensitivity (specifications and goals)

	L-band	N-band
With 4 ATs	7.5 Jy (1.5)	45 Jy (10)
With 4 UTs	0.75 Jy (0.15)	3 Jy (0.75)

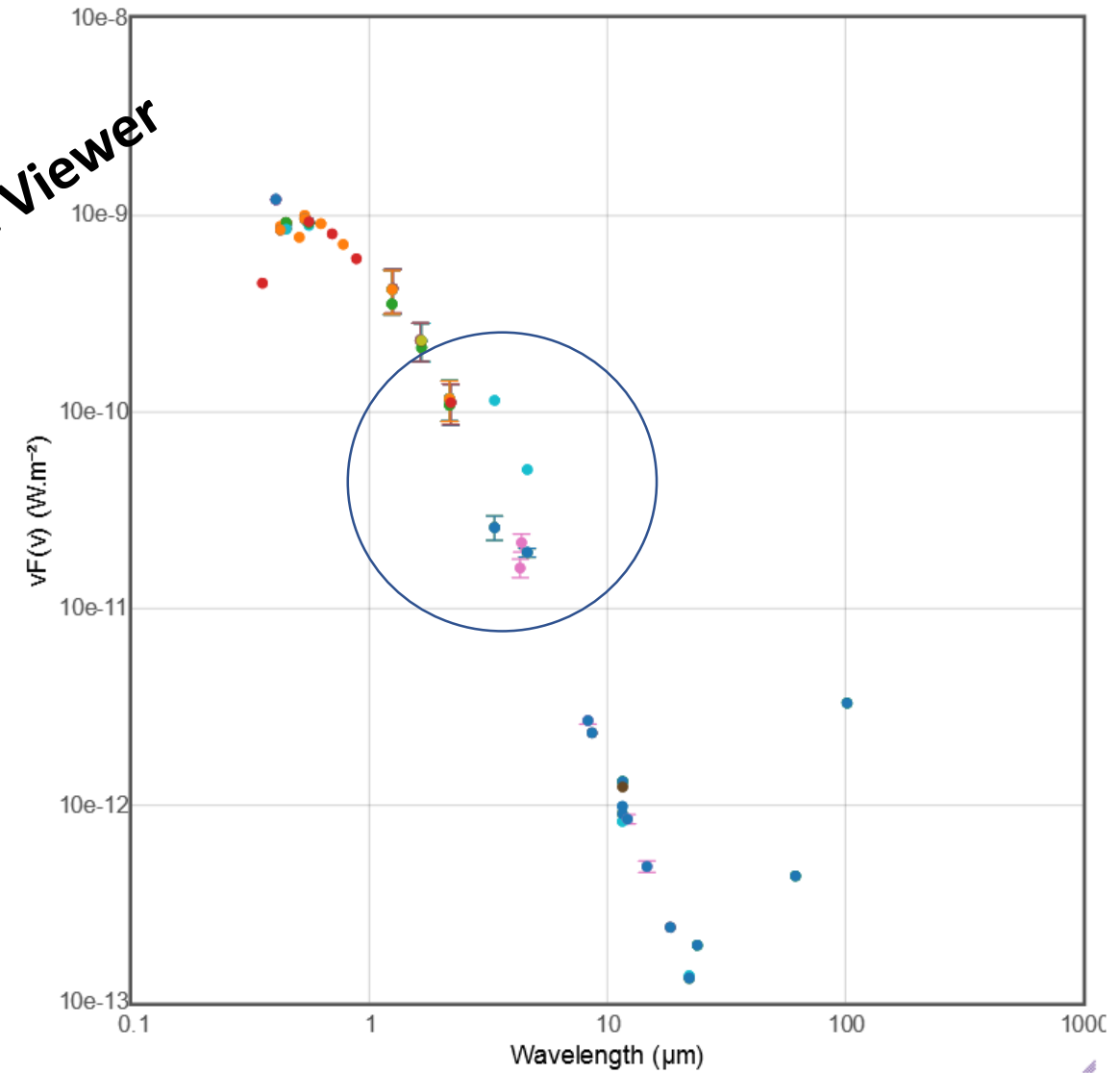
GETTING RELIABLE MIR FLUX ESTIMATES

α Sco (M0.5Iab+B3V)

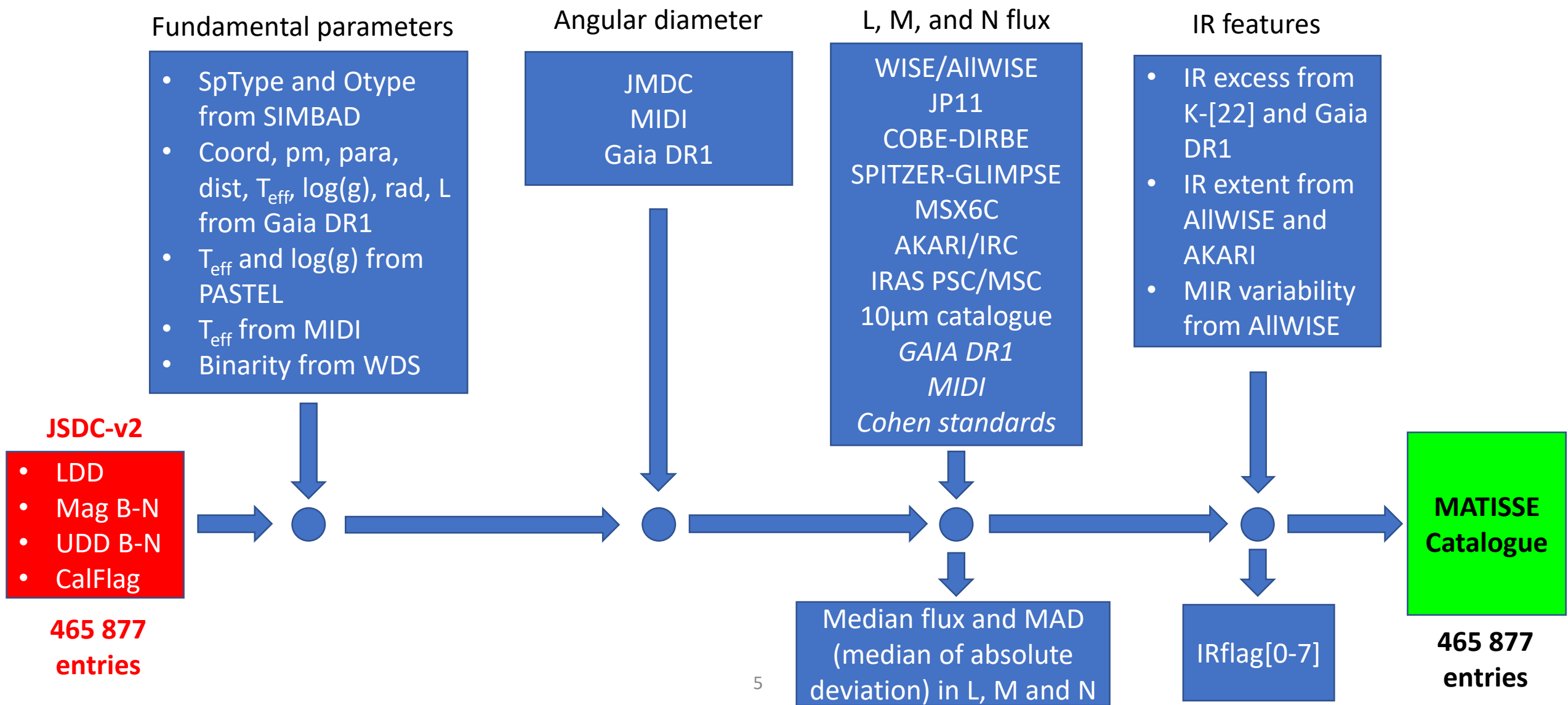
η Sco (F5IV)



VizieR Photometric Viewer



BUILDING THE CATALOGUE



COLUMNS OF DATA (v4)

#	Label
1	Name
2	sp_type
3	main_type
4	other_types
5	Teff_pastel
6	Teff_gaia
7	Teff_fit
8	Teff_spt
9	logg_pastel
10	logg_gaia
11	Lbol
12	Rad
13	RA_J2000
14	DE_J2000
15	ra_deg

#	Label
16	dec_deg
17	pmra
18	pmdec
19	Plx
20	e_plx
21	Dist
22	LDD_meas
23	e_LDD_meas
24	UDD_meas
25	band_meas
26	diam_gaia
27	diam_fit
28	LDD
29	e_LDD
30	UDDL

#	Label
31	UDDM
32	UDDN
33	calib [0/1]
34	CalFlag [0/7]
35	Irflag [0/7]
36	Bmag
37	Vmag
38	Rmag
39	Imag
40	Jmag
41	Hmag
42	Kmag
43	Comp
44	Obs1
45	Obs2

#	Label
46	pa1
47	pa2
48	sep1
49	sep2
50	mag1
51	mag2
52	FW1_WISE
53	FL_saao
54	FL_johnson
55	F3.5_bb
56	F3.5_dirbe
57	F3.6_irac
58	nval_Lflux
59	median_Lflux
60	mad_Lflux

#	Label
61	FB1_msx
62	FB2_msx
63	F4.5_irac
64	FW2_WISE
65	F4.8_bb
66	F4.9_dirbe
67	FM_johnson
68	nval_Mflux
69	median_Mflux
70	mad_Mflux
71	F8_irac
72	F8_cohen
73	FA_msx
74	F8.9_cohen
75	FS9W_akari

#	Label
76	F9.9_cohen
77	F10um
78	FN_johnson
79	F10.5_bb
80	F10.7_cohen
81	FSiC_cohen
82	FW3_WISE
83	F12_IRAS
84	F11.7_cohen
85	F12_dirbe
86	FC_msx
87	F12.5_cohen
88	nval_Nflux
89	median_Nflux
90	mad_Nflux

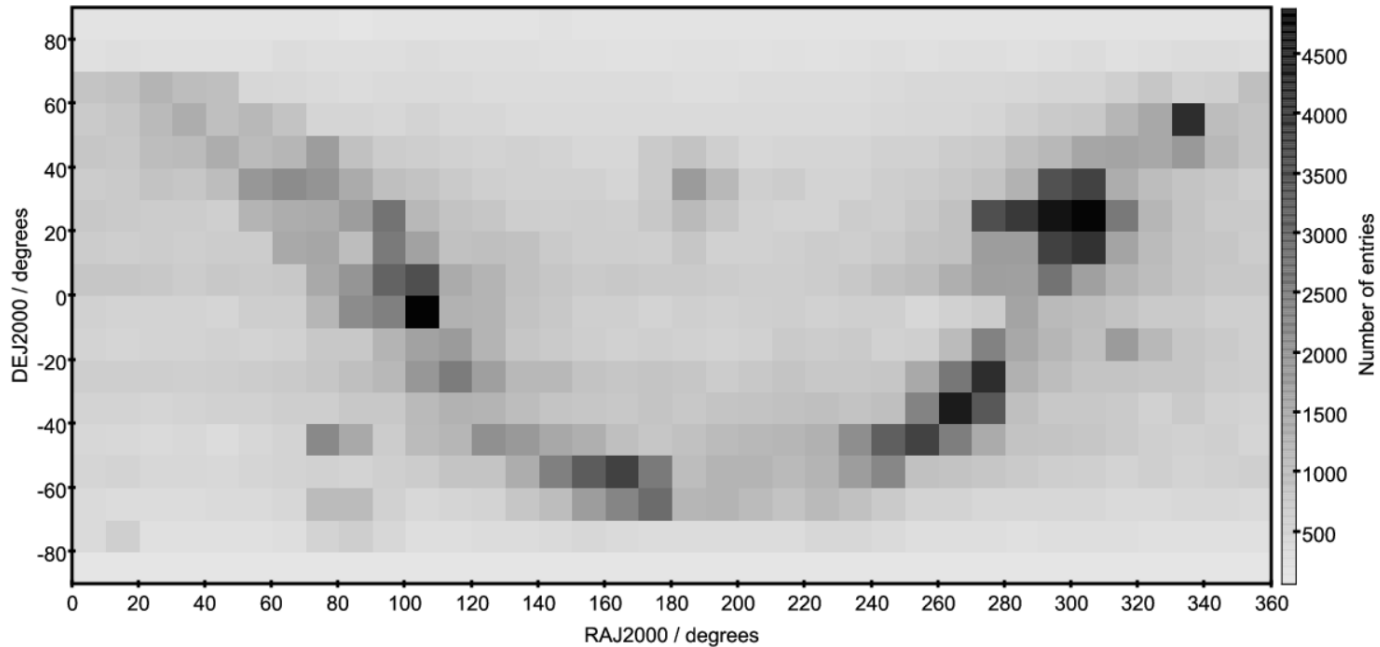
CALIBRATORS

1. Reliable angular diameter estimate
2. Single star or binary with separation $> 1''$
3. Favorable object type
4. No IR excess
5. No IR extent
6. No MIR variability

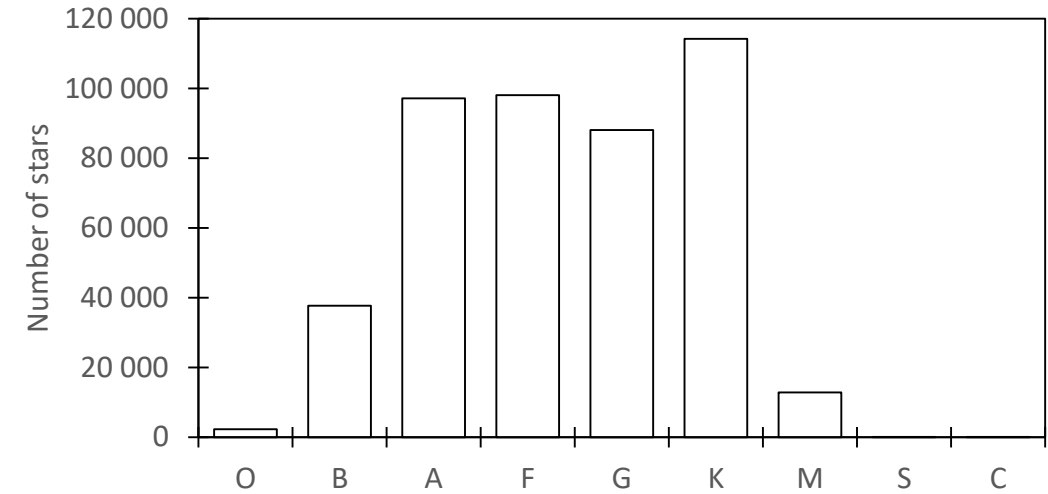
⇒ 155 160 potential calibrators (33% of the MATISSE catalogue)

SKY COVERAGE AND SPECTRAL TYPE

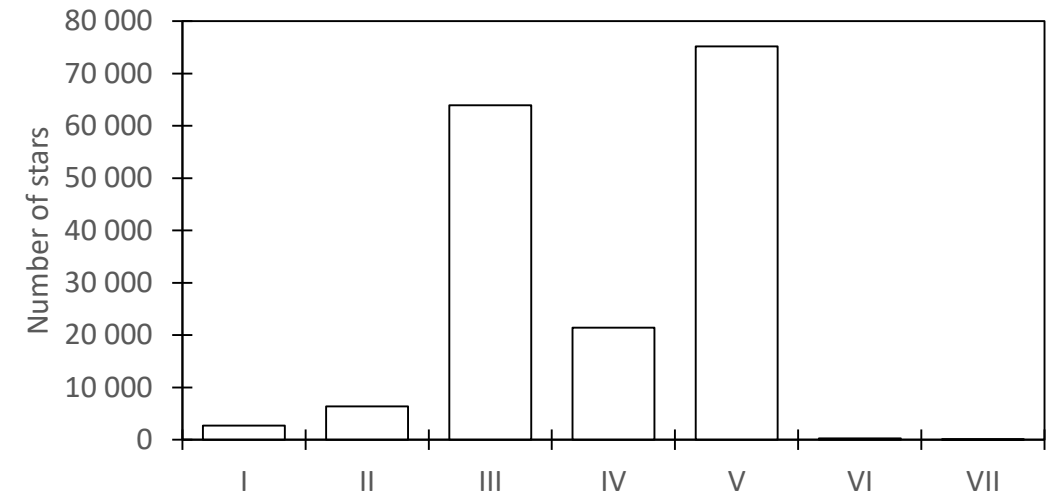
CATALOGUE SKY COVERAGE



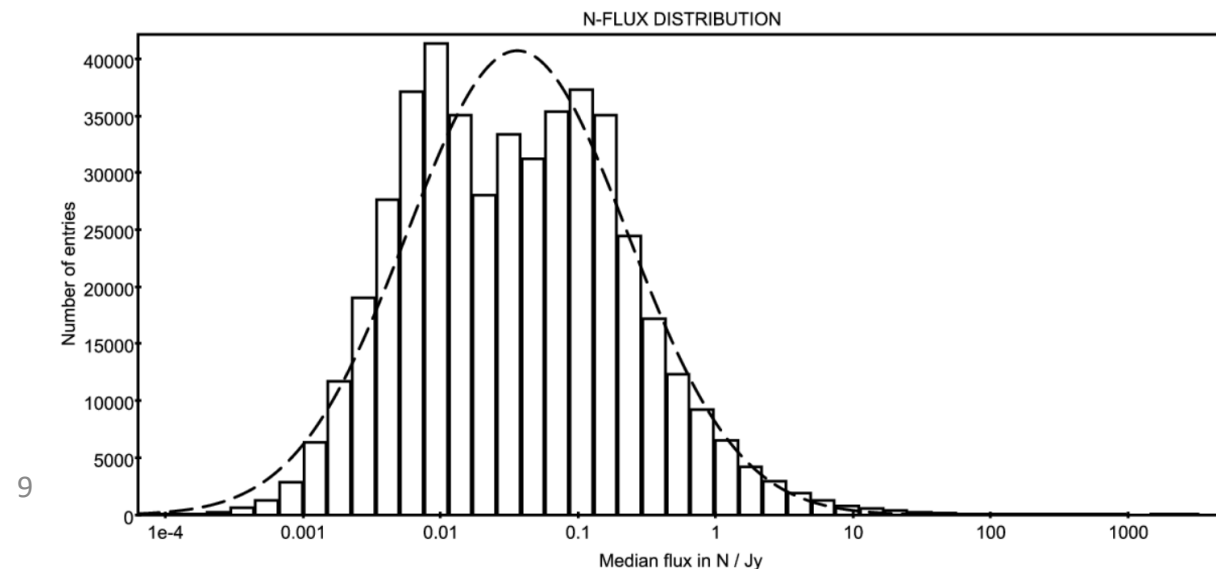
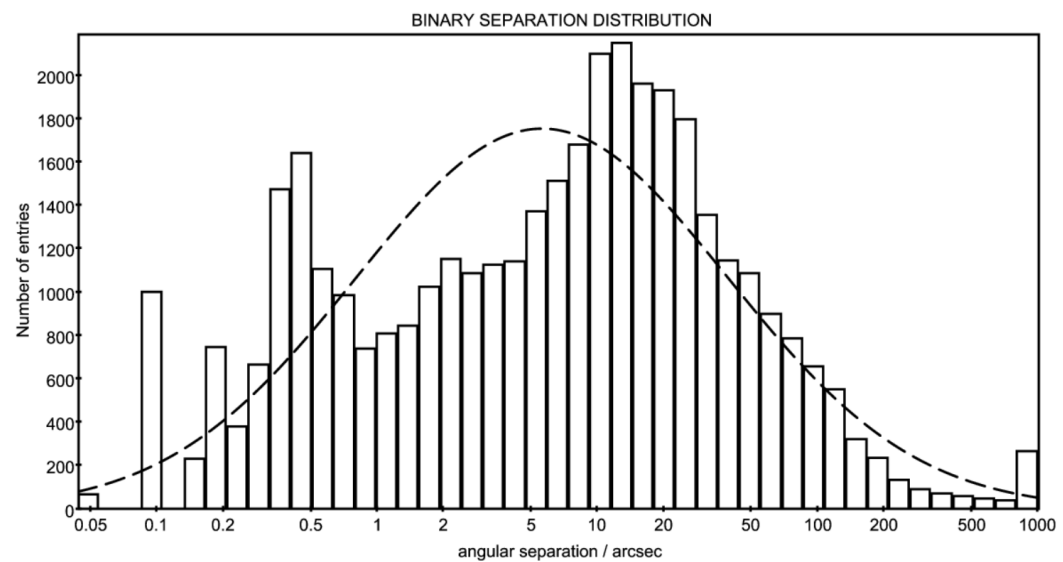
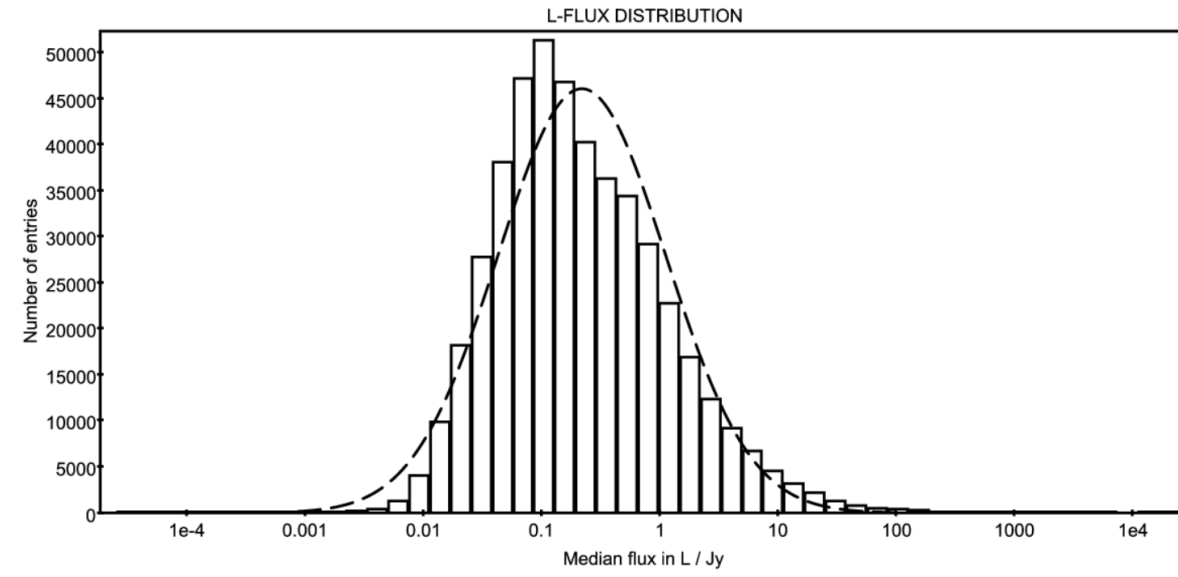
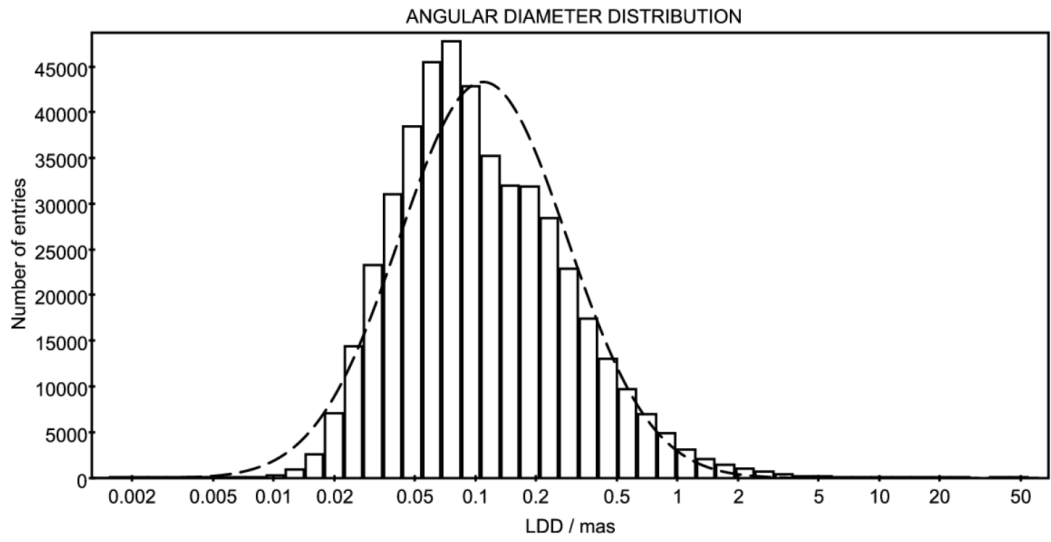
SPECTRAL-CLASS DISTRIBUTION



LUMINOSITY-CLASS DISTRIBUTION



STATISTICS



GETTING THE CATALOGUE

- Available in formats VOTable and FITS
- TOPCat compatible
- Can be uploaded from MATISSE Twiki <https://matisse.oca.eu/foswiki/>
- Regularly updated :
 - 15-Feb-2018 : First version with "only" 140 455 stars
 - 06-Mar-2018 : Second version with 244 664 stars
 - 20-Mar-2018 : Third version with 243 374 stars
 - 13-Apr-2018 : Fourth version with 465 877 stars
 - June-2018 : Fifth version including Gaia DR2 data
- Paper in preparation (refereed journal) \Rightarrow CDS/VizieR submission