Lessons learned from the IGSL
or
Words of warning IGSL
or
Tales from the trenches
or
Experience of the Stupid

IGSL

A snapshot of the sky before Gaia

- POSITIONS: Tycho, CU3-QSO, PPMXL, SDSS, GSC23, 2MASS, EPC, OGLE
- PROPER MOTIONS: Tycho, CU3-QSO (e.g. 0), SDSS (Munn), PPMXL
- MAGNITUDES (B_J, R_F): Tycho, GSC23, SDSS, OGLE, EPC
- MAGNITUDES (G, Grvs): Tycho, SDSS, OGLE, EPC, GSC23
- CLASSIFICATION (star/non-star): Tycho, CU3-QSO, SDSS, GSC23, 2MASS

Todays tools simple join the catalogs taking the best parameters 10% graft work, 90% interesting procedures to homogenized catalogs ...

!! NOT !! 90% graft, 10% procedures....

Documentation

Undefined Values

- Null,   null, NULL, None, NONE

- Nan, NAN, NaN, nan

- UNDEF, undefined

- False, f

- …   .   -   _

- 0 (when 0 makes no sense)
  - Error = 0 (when 0 makes sense)

- -1 (when -1 makes no sense)
  - Error = -1 (when -1 makes sense)

- 99, -99, 99.99, 9999, -9999, etc

- 32768, -32768 (Integer max)

... it's written in the....
Readme
Documentation
FAQ
Publication
Email
Web site
Known Problems

… it's obvious …

Well, actually I haven't AI trained my read program to see that yet....

NaN alla IDL

```
g=!values.f_nan & help,g
G               FLOAT    =           NaN
IDL>  if(g gt 0) then print,'LT' &  if(g eq 0) then print,'EQ' &  if(g lt 0) then
print,'GT'
IDL>
IDL> g=1./0.  &  help,g
G               FLOAT    =           Inf
% Program caused arithmetic error: Floating divide by 0
IDL>  if(g gt 0) then print,'LT' &  if(g eq 0) then print,'EQ' &  if(g lt 0) then
print,'GT'
LT
 IDL>  g=-741648977082906.8e-94 & help,g
 G               FLOAT    =      -0.00000
% Program caused arithmetic error: Floating underflow
 IDL>  if(g gt 0) then print,'LT' &  if(g eq 0) then print,'EQ' &  if(g lt 0) then
 print,'GT'
 EQ
 IDL>  g=-74164897702906.8.e94 & help,g
 G               FLOAT    =         -Inf
 % Program caused arithmetic error: Floating overflow
 IDL>  if(g gt 0) then print,'LT' &  if(g eq 0) then print,'EQ' &  if(g lt 0) then
 print,'GT'
 GT
```

Duplicate Entries

Catalog	Total	Objects with positions within:		
		1mas	100mas	1"
HIP	118218	0	0	0
TYCHO2	2539913	6541	6541	6542
CU3QSO	174742	27	34	60
UCAC	113780093	0	0	0
PPMXL	1000	0	1	5
sky2000	299167	0	0	4
SDSS	21162023	30	188	2208
GEPC	612946	0	33	740

Why do you care

If you store in double precision you may not "see" duplicate entries

IDL> f=420327l
IDL> dmas2r=0.0000000048481368110953 5d0
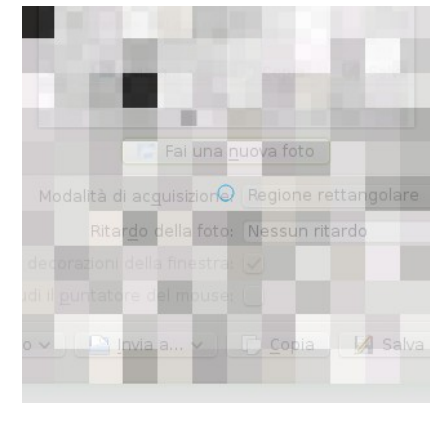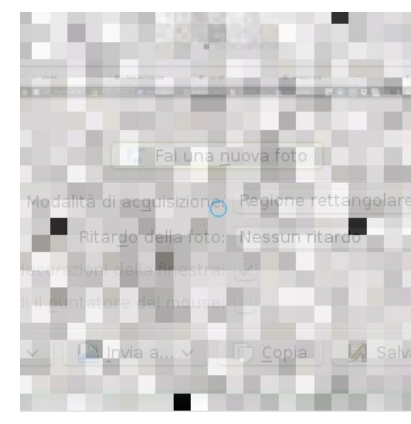IDL> print,format='(f24.20)',f*dmas2r
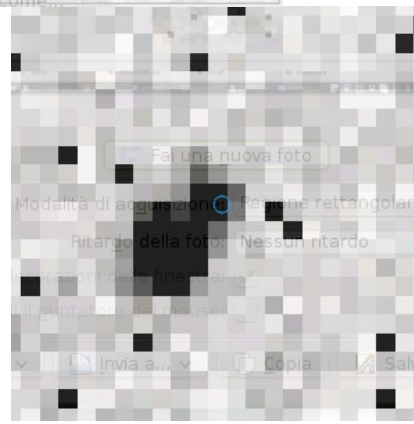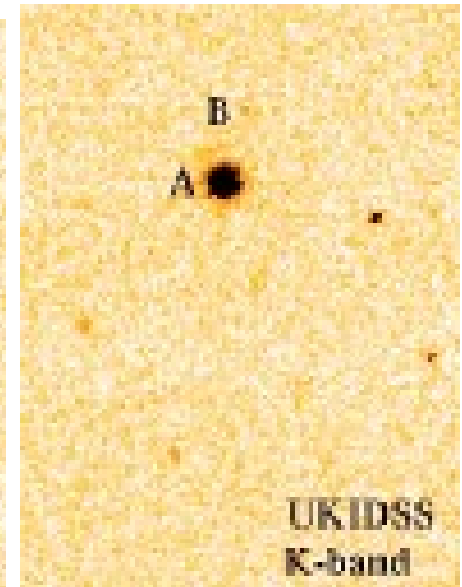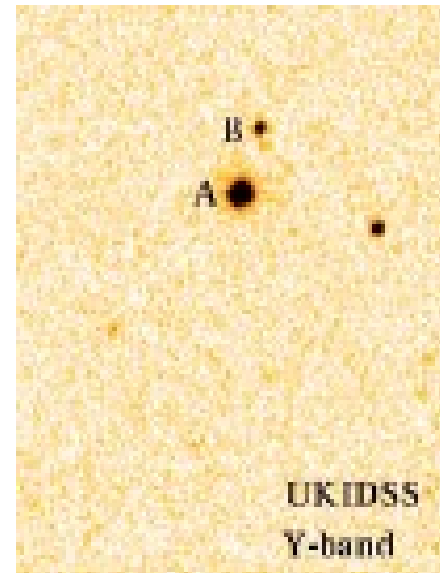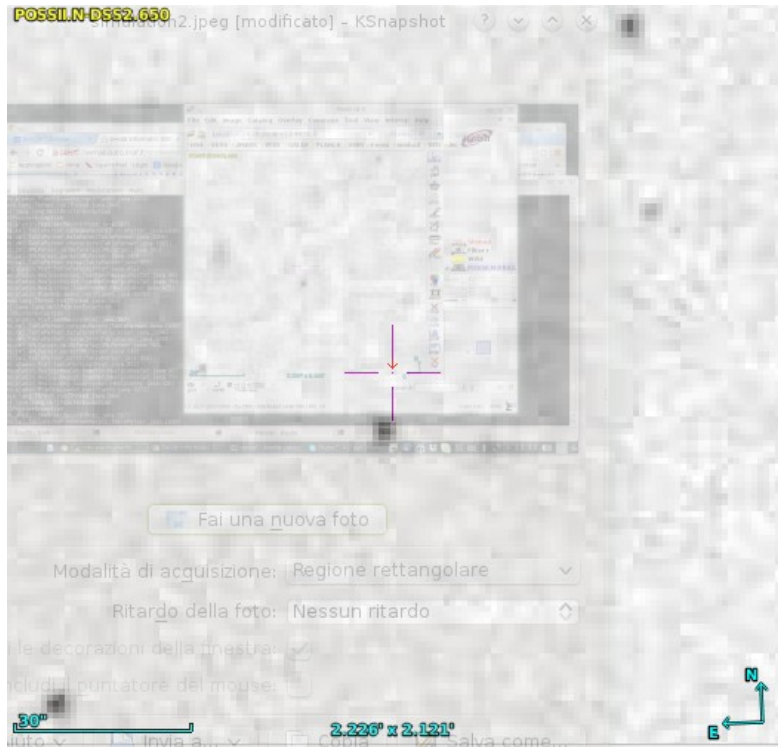
On desktop (Suse Linux 64bit, IDL 7)
   0.00203780280139727538
On laptop (Suse Linux 64bit, IDL 7)
   0.00203780280139727346

The sky does not collaborate SDSS1416

Beware of Magnitude

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