

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<sub>J</sub>, R<sub>F</sub>): Tycho, GSC23, SDSS, OGLE, EPC
- MAGNITUDES (G, Grvs): Tycho, SDSS, OGLE, EPC, GSC23
- CLASSIFICATION (star/non-star): Tycho, CU3-QSO, SDSS, GSC23, 2MASS

Today's tools simply join the catalogs taking the best parameters 10% graft work, 90% interesting procedures to homogenized catalogs ...

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

# Documentation

Summary ReadMe VizieR Browse FTP Tar

I/254 The HST Guide Star Catalog, Version 1.2 (Lasker+ 1996)

The Guide Star Catalog Version 1.2: an astrometric recalibration and other refinements.  
Morrison J.E., Roeser S., McLean B., Bucciarelli B., Lasker B.  
<Astron. J., 121, 1752 (2001)>  
=2001AJ....121.1752M

ADC\_Keywords: Surveys ; Positional data

Description:  
The Guide Star Catalog (GSC), which has been constructed to support the operational need of the Hubble Space Telescope contains nearly 19 million objects brighter than sixteenth magnitude, of which more than 15 million are classified as stars. This catalog provides positions and magnitudes for these stars.

The original version of this catalog, GSC 1.0, is described in a series of papers: Lasker et al. (1990AJ....99.2019L); Rago della foto: Russell et al. (1990AJ....99.2059R); and Jenkner et al. (1990AJ....99.2082J)

The reference material for the GSC 1.2 reduction is the "Positions and Proper Motions Catalogue":  
PPM-North, Roeser S. and Bastian U., 1988, Cat. I/146  
PPM-South, Bastian U. and Roeser S., 1993, Cat. I/193



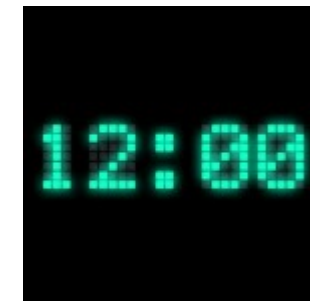
## Getting Started is as Easy as 1-2-3!

Works with any PC that has a standard internal connector

- 1** Insert your Voyage V-Phone into any PC's USB port.
- 2** **Please Wait...** Various messages will display while your PC automatically detects and launches Voyage Talk software.
- 3** Once you see "Ready to Call" you can now make and receive Voyage calls!

**Problems?** If you have a firewall installed on your PC, be sure to allow Voyage Talk software to run. You can do this by clicking "allow" or "accept" in most cases. See page 10 for more information.

**Tip:** Voyage Talk software works from the Voyage V-Phone. No software is installed on your PC. No need to restart your computer!



# 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=4203271
```

```
IDL> dmas2r=0.00000000484813681109535d0
```

```
IDL> print,format='(f24.20)',f*dmas2r
```

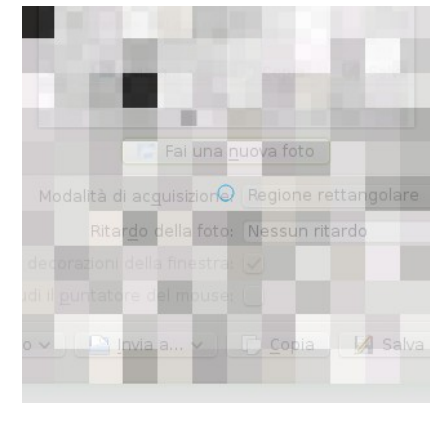
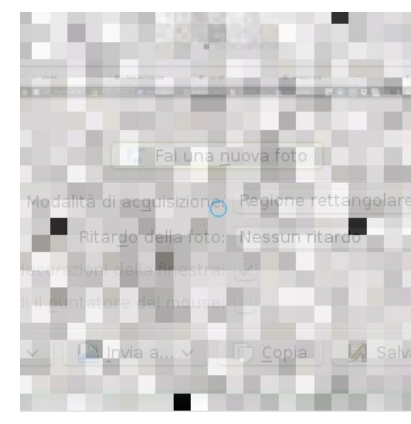
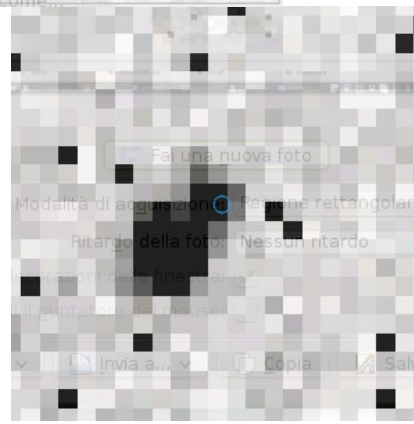
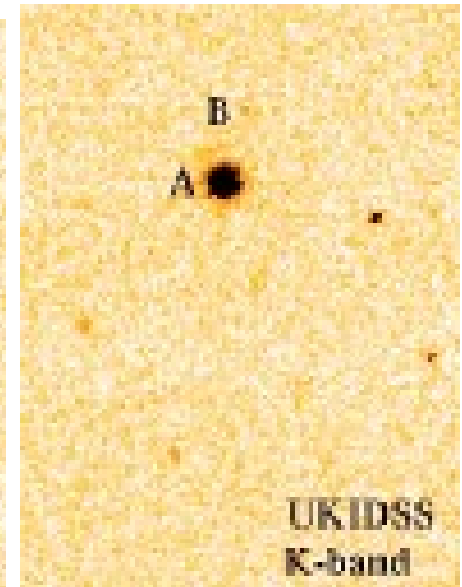
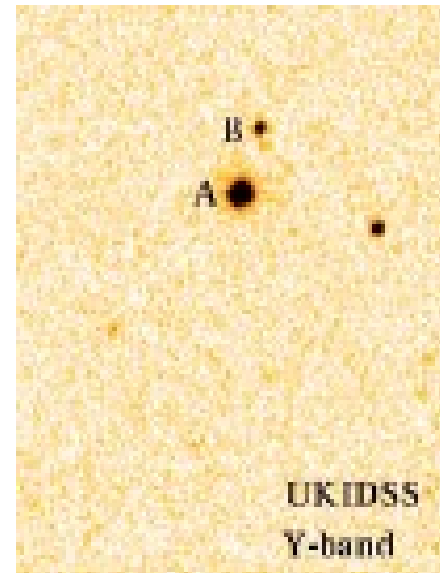
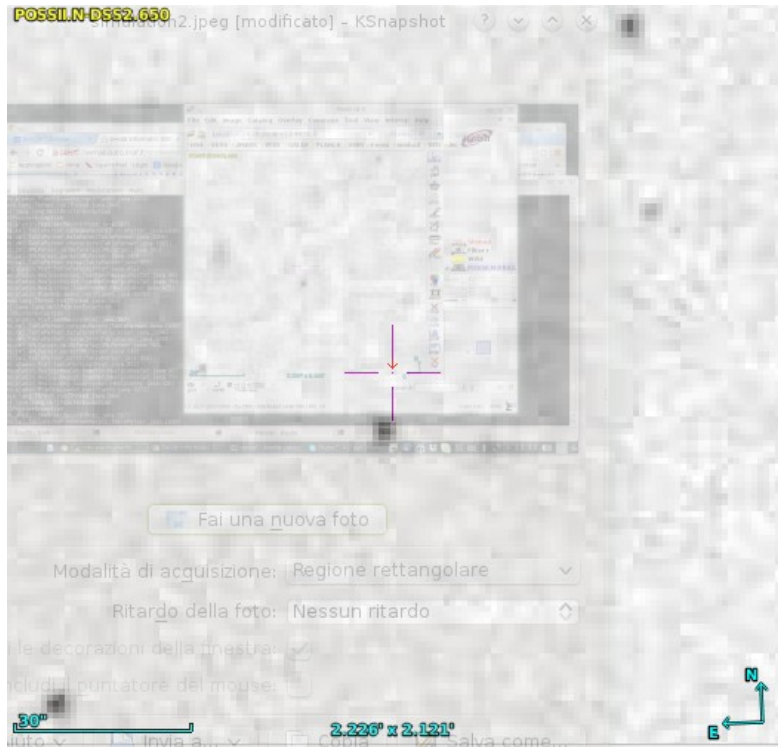
On desktop (Suse Linux 64bit, IDL 7)

```
0.00203780280139727538
```

On laptop (Suse Linux 64bit, IDL 7)

```
0.00203780280139727346
```

# The sky does not collaborate SDSS1416







# Beware of Magnitude

■