DVO = “Desktop Virtual Observatory”

- Interface for queries of all-sky data and subsequent calcs.
  - Developed by E. Magnier, part of IPP distribution.

- Useful for relatively straight-forward searches (e.g. CMD cuts, static sky) and access to underlying PS1 measurements
  - Limited but fast: e.g. 4000 sq.degs in 10 min.

- Catalog cross-matches with 2MASS, SDSS, etc. being done.

- Not intended to have full capabilities for all users
  - Catalog cross-matching is done once w/ fixed radius
  - Not all 2MASS/SDSS/etc. catalog flags are incorporated
  - HELP WANTED: interface person for UKIDSS data products
DVO: The Users Perspective

- Simple (C-shell-like) scripting language for generating queries.

- Graphical interface for plotting & interacting with results.

- Many users are probably going to export DVO query results to their own tools.

A simple DVO shell script to do color-mag query of 2MASS

```bash
#!/bin/bash

#OUTFILE = big2mass
#RA_MIN = 0:15
#RA_MAX = 4:15
#DEC_MIN = -0
#DEC_MAX = 20

# cut by galactic latitude
$GLAT_MIN = 10

# define selection criteria
$SELECT = (2MASS_J < 12) & (2MASS_H - 2MASS_K > 0.23) & (abs(glat) > $GLAT_MIN)

# choose 2MASS
catdir /data/ips300.1/eugene/2mass/catdir.2mass

# define region
skyregion $RA_MIN $RA_MAX $DEC_MIN $DEC_MAX
clear
limits $RA_MIN $RA_MAX $DEC_MIN $DEC_MAX
box

# do extraction and keep track of time
echo "running AVEEXTRACT"
echo "extraction area (sq.degs) = " (DRA_MAX - DRA_MIN) * (DDEC_MAX - DDEC_MIN)
date
date -var d1 -seconds
aveextract ra dec 2MASS_J 2MASS_H 2MASS_K glon glat where $SELECT
echo "found" rail "objects"
date -var d2 -seconds
echo " run time = " ($d2-$d1) "seconds"

# plot results
astat v_2MASS_J
zplot ra dec v_2MASS_J IMAX IMIN
zplot ra dec v_2MASS_J IMAX IMIN < red
zplot ra dec v_2MASS_J IMAX IMIN < blue -gt 7

# print results to file and sort by RA
write -f "%10.6f%10.6f %7.3f %7.3f %7.3f %12.6f %10.6f" tmp.dat ra dec v_2MASS_J v_2MASS_H v_2MASS_K glon glat
exec sort -nk 1,1 tmp.dat > $OUTFILE

echo ""
if [ $? -eq 0 ]
  echo "FINISHED"
else
  echo "write results to outfile = "$OUTFILE
fi
```

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- Test exercises & description being done by M. Cushing, M. Liu, & E. Magnier @ IfA
  - Attempt to do end-to-end science.

- Ran some simple GSC+2MASS queries to search for low-mass stars and brown dwarfs.
  - Query ~4000 sq.degs in ~10 min

- Plans to upload instructions to IPP wiki.

- SDSS upload pending.

- Limited functionality: some push back to get more features implemented.