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QDPHOT: An IRAF Task for Quick & Dirty Photometry

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Abstract. I presented a new fast CCD stellar photometry task for IRAF called QDPHOT (Quick & Dirty PHOTometry) which is designed to quickly produce good CCD stellar photometry for applications where speed matters and every second is important. QDPHOT currently detects and photometers stars present in two aligned CCD images with stellar full-width-at-half-maximum values of 2–3 pixels. QDPHOT typically takes just a few seconds to analyze a single CCD of two aligned WFPC2 observations in two filters [e.g. 2–3 seconds on a 200 MHz Sun Ultra1 workstation]. QDPHOT is suitable for producing on-the-fly instrumental color-magnitude diagrams at the telescope console in the few seconds between CCD readouts. QDPHOT is also an excellent data mining tool for finding high-quality stellar observations amongst GB of archived data. As an example of using QDPHOT as a data mining tool, I presented many instrumental color-magnitude diagrams of globular clusters in the Milky Way and nearby galaxies which are based on archival WFPC2 observations obtained from the *Hubble Space Telescope* data archive. Typical reduction times for these WFPC2 observations was about 8–12 seconds per cluster CMD (all 4 WFPC2 CCDs). QDPHOT is currently packaged as part of the IRAF QDTOOLS package which is available at the following website:

`http://www.noao.edu/staff/mighell/qdtools/`

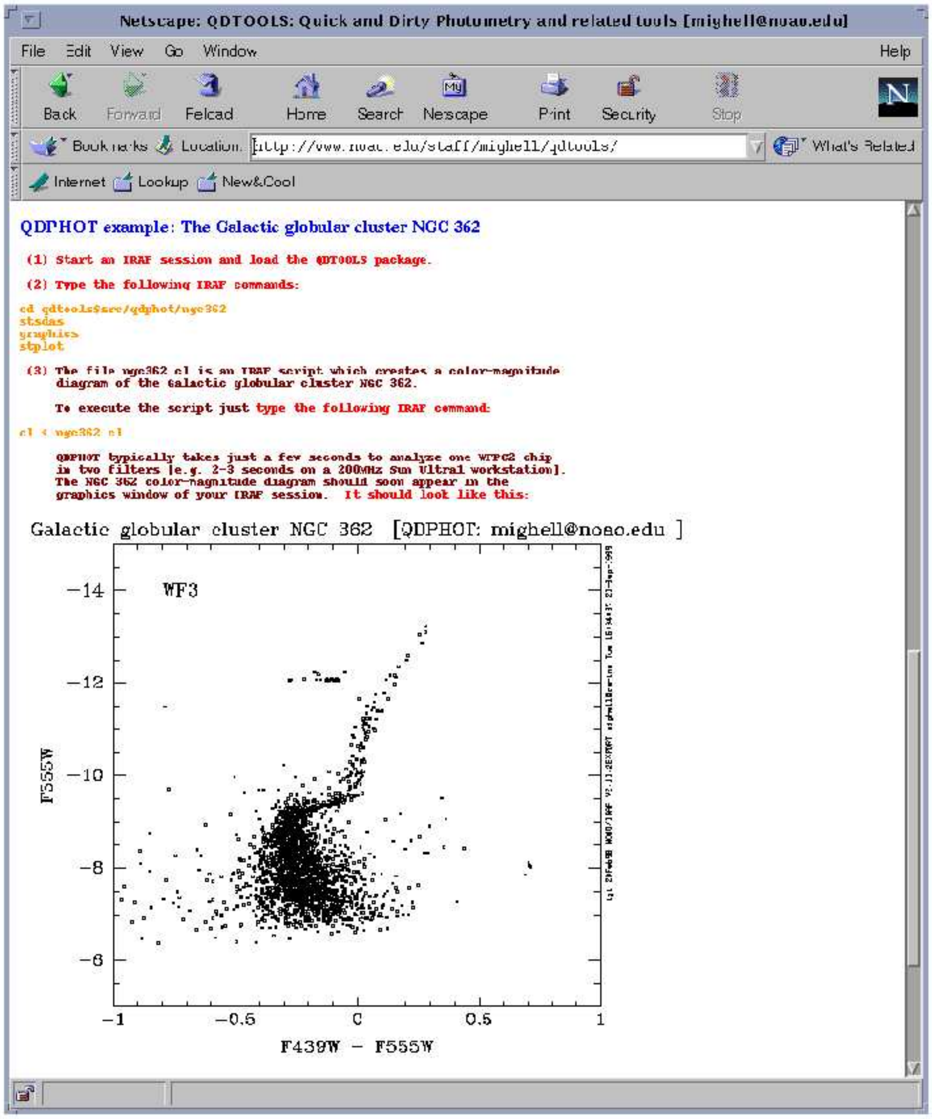

Figure 1. A QDPHOT example.

```
{# IRAF/QDTOOLS/QDPHOT script: ngc362.cl
#
# Analyze HST WFPC2 observation (WF3) of the
# Galactic globular cluster NGC 362
#
# usage:
#
# cl> cl < ngc362.cl
#

!echo ""
date
!echo ""

!\mv *.mag /tmp >& /dev/null
qdphot ngc362_f439w_wf3.fits[60:790,60:790] 14.0 200. 42000. \
ngc362_f555w_wf3.fits[60:790,60:790] 14.0 f439w.mag f555w.mag

!echo ""
date
!echo ""
!echo "Color-Magnitude Diagram ==============================="

!echo " "
!echo "The following packages must be previously loaded:"
!echo "  stsdas"
!echo "  graphics"
!echo "  stplot   <-- igi belongs to this package"
!echo " "
gflush
igi device="stdgraph" < ngc362.igi
gflush
igi device="stdplot" < ngc362.igi
gflush
!echo "plot should now be printing on the stdplot device\!"

}
#
```

Figure 2. The QDPHOT script `ngc362.cl` used in Figure 1.

```
erase
physical 0 8 0 8
location 0.15 0.95 0.15 0.95
data f439w.mag
xcol 5
data f555w.mag
ycol 5
xeval x-y
limits -1 1 -5 -15
expand 1.2
xlabel F439W - F555W
ylabel F555W
title "Galactic globular cluster NGC 362  [QDPHOT: mighell@noao.edu ]"
box
expand 0.2
ptype 4 0
points
relocate -0.8 -14
expand 1.2
label WF3
expand 1.001
id
```

Figure 3. The IGI script `ngc362.igi` used in Figure 2.