

Observing Instructions

May 2006

Target: GD358

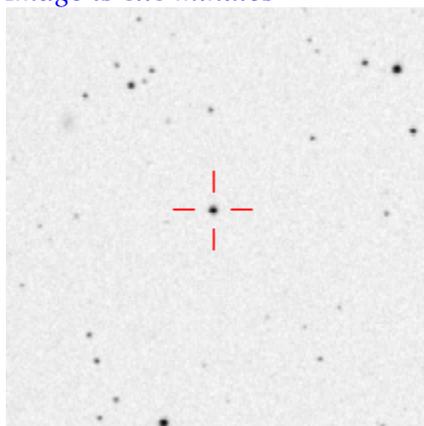
Coordinates:

RA₂₀₀₀: 16:47:18

DEC₂₀₀₀: +32:28:25

For larger finder chart, see www.physics.udel.edu/~jlp/darc/darc.html

Image is 6x6 minutes



Headquarters:

Headquarters will be held at Mt. Cuba Observatory in Greenville DE, in association with the University of Delaware and the Delaware Asteroseismic Research Center. HQ will contact each site for clock checks and run updates. HQ contact information:

Email can be sent to: jlp@udel.edu

Incoming phone calls should be directed to (302) 654-6407

Headquarters Staff:

Mike Montgomery	May 20-28
Antonio Kanaan	May 19-28
Harry Shipman	May 18-May 27
Andrzej Baran	May 18 - June 1
Judi Provencal	May 18 – June 1
Harry Shipman	May 18 – June 1
Don Winget	To be determined

Contact during the run:

Please email phone contact info/numbers/times to jl@udel.edu. We would like to directly contact as many sites as possible during the run.

Time Check:

Please do a clock time check each night before taking data and verify your time with HQ at the beginning of the run, and as often during the run as possible. HQ will have an accurate clock available for phone clock checks. You can also check your time against the USNO [Java Clock](#). If your clock shows drift during the night, report the number of seconds to HQ so it can be accounted for in the data reduction. If your clock runs fast, that is a "positive" drift, and a slow clock is a "negative" drift.

Web Page:

Currently located at www.physics.udel.edu/~jl/darc/darc.html

CCD Observers:

Shutter effect and linearity test

Our goal is to acquire photometry at the mmag level. To attain this precision, it is important that no artifacts, such as slow shutter speed or chip nonlinearity, enter data reduction.

To check for these effects, we ask you to obtain images during the day of a constant light source at least once during your run. The light source could either be the dome flat field lights, or you can take images of the dome during a perfectly clear day with the sun high in the sky, with the dome shutter slightly opened and pointed to the opposite of where the telescope points. Choose the intensity of the illumination to reach saturation of your chip with approximately 30-second integrations.

Once you have set up your light source, run at least four sequences (the more, the better) of integrations with exposure times between 1 second and your saturation time in steps of 1 second, "randomly" chosen, e.g. 4 - 16 - 7 - 23 - 3 - 29 - ... seconds. Store these frames together with corresponding bias and dark exposures with clearly recognizable file names and provide them with the science measurements.

“Normal” Calibrations:

BIAS: Take approximately 10 bias frames (zero time exposures) at the beginning of each night.

DARKS: Take approximately 10 dark frames at the beginning of each night. The dark frames time can be longer than the exposure time of your data images. Longer dark

frames actually give a better idea of the dark count per second, and can be scaled to the exposure time of your observations.

DOME FLATS: Take ~50 flat fields every night. Choose an exposure time that fills your CCD to half its saturation level but is long enough that shutter speed is negligible.

SKYFLATS: If you choose to take twilight flats, take as many as flats as possible in the time you have. Use a high elevation field away from the setting sun. Sky flats are preferable because the light follows the same optical path as starlight.

Data Observations:

1. **Exposure time:**
 - a. For large telescopes, choose an exposure time such that the resulting image does not approach the saturation level of your CCD.
 - b. It is important that the total cycle time be significantly shorter than the pulsation periods of GD358
 - c. Bear in mind that one goal is to obtain a light curve of very high signal to noise for Mike Montgomery's light curve analysis.
 - d. For smaller telescopes, we prefer either 5 or 10 second integrations.
2. **CCD binning:**
 - a. If appropriate, bin your CCD to decrease readout time.
 - b. Be sure that the star images still fill an adequate number of summed pixels, and there is sufficient area for sky measurements.
 - c. Again, it is necessary that the complete cycle time (exposure + readout) be significantly less than the pulsation period of the object.
3. **Filters:**
 - a. Where possible, please use the new S8612 filters (or BG40) filter with your CCD.
 - b. If neither is available, please use no filter at all. In this case, we will require your CCD's quantum efficiency versus wavelength.

PMT Observers:

PMT observations should follow earlier WET precedence.

4. **Integration time:**
 - a. Where possible, choose a 10 second integration time.
 - b. For larger telescopes, bear in mind that one goal is to obtain a light curve of very high signal to noise for Mike Montgomery's light curve analysis.
5. **Sky calibrations:**
 - a. Sky calibrations will depend on the PMT instrument.
 - b. Observers with 3 channel photometers should observe sky in all three channels at the beginning and end of each night. This will allow for cross calibration of the three channels.

- c. Observers with 2 channel photometers should observe a comparison star with channel 2, and move the telescope occasionally to observe sky in all channels.
 - d. Avoid strictly periodic sky measurements.
 - e. Approximately 5 good sky points should be obtained. Long sky observations are not required.
6. Record the aperture size being used, and make notes of any aperture changes during each night.
 7. Try to use the same comparison star each night. Record the x and y offsets in your log so we can determine which star you used, if needed.

Data:

Two modes of data transmission will be available. Data may be emailed, or uploaded to the WET computer (Prometheus). Prometheus is currently residing at the University, but will move to Mt. Cuba Observatory before the run. Details, such as the final IP address, are still being worked out and will be made available before the run.

DATA FORMAT:

We are not set up to receive actual images from each site during the run. For CCD observers, we would appreciate if you could do the basic reductions (overscan, bias, dark count, flat field corrections) yourself and send us the raw and reduced science frames after the run, along with an explanation of your reduction procedure.

Data can be sent in two formats during the run:

1. output from the iraf “phot” task (for CCD observations only). If you choose this option, please include 3 or more apertures centered on your best estimate of the best aperture. In addition, choose 3-5 comparison stars. Please use the same comparison stars each night. Also include a log file that contains the following information (this list may change between now and the run):
 - a. Observer
 - b. Target
 - c. Number of comparison stars
 - d. Filter information
 - e. Observatory
 - f. Telescope
 - g. Date of the observations
 - h. Photometer
2. XQED format: This option is for both CCD and PMT observations. Please consult [/wet.physics.iastate.edu/Tools/xqed/format.html](http://wet.physics.iastate.edu/Tools/xqed/format.html) for details of the XQED format. Don't forget to include your log files, so we know when the clouds come☺