

Observing Instructions

XCOV27 May 2009

Target 1: WD1524-0030
RA: 15 24 03
DEC: -00 30 22.9
Epoch: 2000
mag=16.1 (has close companion)

Target 2: WD1654+160
RA : 16 56 57.7 (2000)
DEC: +15 56 25 (2000)
Epoch: 2000
mag= 16.1

Target 3: EC20058-528
RA: 20 09 38 (2000)
DEC: -52 25 10(2000)
Epoch (2000)
mag= 15.6

Target 4: PG1115+158
RA: 11 18 22.9
DEC: +15 33 34 (2000)
mag=16.1 (?)

Headquarters:

Headquarters will be staffed continuously starting about May 15 to June 1. Information on the staff schedule can be found on the XCOV27 website. Please be sure to check your clock synchronization throughout the run, and let us know if there are any problems.

Data Upload:

Data may be uploaded directly to daedalus.physics.udel.edu. A user account has been set up for this purpose, and the password and user name will be distributed. **Please**

go to /data/incoming, cd into the directory for your site, make a new directory for your data, and upload your data (raw images) there. We will be receiving data from over 20 different telescopes, so please do not use a different directory. We don't want to miss any data in the rush.

Contact during run:

If any problems arise during the run, please contact any of the following:

Headquarters: 302-654-6407

Headquarters email: darcdelaware@gmail.com

Judi Provencal email: jlp@udel.edu.

Susan Thompson email: sthomp@udel.edu

Harry Shipman email: harrys@udel.edu

Time Check:

Please do a clock check each night before taking data and verify your time. Check your clock visually as often as possible during each observing run. You can check your time against the USNO Java Clock (www.time.gov/timezone.cgi?UTC/s/o/java). If your clock shows a drift during the night, include this information in your observing logs, and send email to one of the contact people so it can be accounted for in the data reduction.

Headquarters will also be available for time checks.

CCD Observers:

Normal Calibrations:

BIAS: Take approximately 10 bias frames (zero time exposures) at the beginning of each night, and again at the end of the night. We would like to look for drifts in bias during the night due to temperature variations.

DARKS: Take approximately 10 dark frames at the beginning of each night. The dark frames do not have to match the exposure times of your images. Longer dark frames can give a better idea of the dark count per second and can be scaled to the exposure time of your observations.

FLATS:

Dome flats: If you choose to do dome flats, please take about 50 flat field images per night. Choose an exposure time that fills your CCD to half its saturation level, but is long enough that shutter opening speed is negligible.

Sky Flats: If you take sky flats, take as many 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.

Target 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 our targets.
- c. For large 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.
- 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.

1. Integration time:

1. Where possible, choose a 10 second integration time.
2. 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.

2. Sky calibrations:
 1. Sky calibrations will depend on the PMT instrument.
 2. 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.
 3. Observers with 2 channel photometers should observe a comparison star with channel 2, and move the telescope occasionally to observe sky in all channels.
 1. Avoid strictly periodic sky measurements.
 2. Approximately 5 good sky points should be obtained. Long sky observations are not required.
 3. Record the aperture size being used, and make notes of any aperture changes during each night.
 4. 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.

Comparison Stars:

Suggested comparison stars are indicated on the finder charts. For WD1524, please try to avoid the very bright star that is nearby. The cross and pink arrow indicates WD1524, the black arrows are suggested comparison stars. Which stars will work best for each site is difficult to say because of the presence of the bright star, and the differences in field of view.

For WD1654, there is a plethora of possible comparison stars. If the nearby "bright" star does not saturate at your exposure time, it would be a good comparison, even though it is not marked with an arrow in the finder chart.

For PG1115, there is a lack of close comparison stars for telescopes with small fields of view. The nearby brightest star may saturate for some telescopes, especially if no filter is used. If it does not, than that star would be a good comparison. The cross and pink arrow indicate PG1115, the black arrows are suggested comparison stars.

For EC20058, the Simbad coordinates are not accurate, hence the Simbad location is offset in the finder chart.. The black arrow indicates EC20058, and the red arrows indicate suggested comparison stars.

Data:

Two modes of data transmission will be available. Data may be emailed, or uploaded to the WET computer (Daedalus). Daedalus is currently residing at the University. The IP address is 128.175.112.49. Other details will be distributed before the start of the run.

DATA FORMAT:

We are set up to receive actual images from each site during the run. For CCD observers, we would appreciate if you send us the raw frames, along with your calibration frames.

PMT data should be sent in a format readable by XQED. This is considered a last resort for CCD observations. Please consult wet.physics.iastate.edu/Tools/xqed/format.html for details of the XQED formats. Don't forget to include your log files, so we know about clouds.

Data File Naming Convention:

Data from various observatories moves between directories and computers quite a bit during a run. To help keep everything organized, we would like to suggest the following data file naming convention. At Mt. Cuba, for example, we will use the following format: "mcao20070902wd1524-*.fits". The first 4 letters indicate the observatory, next is the year, month, and day, followed by "wd1524" to denote the target. The asterisk will be replaced by numbers corresponding to each exposure.

Here are some observatory designations we used last run. We try to keep them all at 4 letters:

kpno = Kitt Peak

mabu = Mt. Abu

ctio = Cerro Tololo

sao = South Africa

mcdo = McDonald

bao = Beijing XingLong Observatory

boao = Bohyunsan Optical Astronomy Observatory

hawa = Hawaii 24 inch

tueb = Tuebingen, Germany

mtjo = Mt. John

If possible, please name your calibration files to indicate what type of calibration the file includes and the date taken. For example, biasmcao20071001-*.fits would indicate a bias frame from Mt. Cuba on 10/01/2007.

FITS File Format:

The iraf CCD data reduction pipeline requires a few keywords. We have simplified the procedure since the last run, and no longer require the RA, DEC, and EPOCH keywords. If at all possible, please make sure the following keywords are including in your fits headers:

OBSERVAT= observatory identification

RA --- Target RA

EXPTIME = your exposure time

OBJECT – Object name.