Observing Instructions
XCOV27 May 2009

Target 1: WDJ1524-0030
RA: 15 24 03 (2000)
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 (?)

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 (4 letter code), and upload your data (raw images) there.

Night Report and Log:

Each night when you finish observing please fill out the night report online. You can find a link from the XCOV27 web page, or at http://darc.physics.udel.edu/xcov-db/runs/addfieldpage.php
Fill out the night report for each star you observed each night. The date should indicate the UTC date at the beginning of the run. Please leave any short comments that will help headquarters identify and reduce your data. Filling out the log will hopefully expedite the reduction at headquarters. You must set your cookie to "wet.xcov27".

Provide a log with each night of data. Basic information about what stars you observed, the setup of the telescope and instrument, and the observing conditions will help us reduce the data correctly. Upload the log with your data.

Headquarters:

Headquarters will be staffed continuously starting about May 16 to May 31.

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: jlprov@gmail.com
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: (See naming convections at the end of the document.)

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, each 60s in length. The dark frames do not have to match the exposure times of your images.

FLATS:

Dome flats: If you choose to do dome flats, please take about 25 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: Take as many as possible in the time you have. Use a high elevation field away from the setting sun.

Target Observations

Exposure time

a. An exposure time between 5 and 20 seconds, depending on th size of your telescope, will be appropriate.
b. Choose an exposure time such that the resulting image does not approach the saturation level of your CCD.
c. Be sure the total cycle time be significantly shorter than the shortest period. In this case keep the cycle times less than 50 seconds.

CCD binning

a. If appropriate, bin your CCD to decrease readout time.
b. Be sure that the star images still falls on several pixels.

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: Where possible, choose a 10 second integration time.
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 FORMAT:

We are set up to receive actual images from each site during the run. For CCD observers, we must send us the raw frames, along with your calibration frames.
PMT data should be sent in a format readable by XQED. 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:

Keeping organized is important at headquarters. To help with this we ask that you name your runs according to your observatory, UTC date of the run and star. At Mt. Cuba, for example, we will use the following format: "mcao20090515wd1524-0001.fits". The first 4 letters indicate the observatory, next is the year, month, and day, followed by target name. If possible, please name your calibration files according to type and the date taken. For example, mcao20090515bias-*.fits would indicate a bias frame from Mt. Cuba.

Try to use the 4 letter code for your observatory. They are listed on the night report web page.
For example:
kpno = Kitt Peak 2.1m
miro = Mt. Abu
ctio = Cerro Tololo
saao = South Africa
mcdo = McDonald
noac = Beijing XingLong Observatory
boao = Bohyunsan Optical Astronomy Observatory
ters = Terksol 0.6m
teub = Tuebingen, Germany
mtjo = Mt. John

FITS File Headers

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
EXPTIME = your exposure time
OBJECT – Object name.
UTC – Time at beginning of observation.
DATE – Date at beginning of observation.

Check Readout Time: PLEASE do this on the first night!!

On the first night check that your camera is reading out the time at the beginning of the exposure, as we expect it to. To do this, take a 3 minute dark. As you hit 'go', write down the time you expect to be written to the header. Check this time against the time actually written to the header. Errors of about a second are tolerated as it is tricky for the observer to get hit 'go' on the exact right time, but if you find out that your camera is actually writing a time significantly different than the beginning of the exposure, we need to know this.