JKT CCD OBSERVING:
A Quick Reference Card

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Afternoon Activities

- Refill cryostat with liquid nitrogen (usually every ~ 12 hrs).
  Check filters required and contact SA.
- **COMPUTERS.**
  Check response from TCS3210 (will give "UI>" prompt).
  Check response from ICS3220 (will give "*" prompt).
  (Computers usually left up since installation of UPS, but in case of difficulty consult instructions above computer consoles).
- **LOGIN.**
  *SI XYZ,n,n (write initials on board and dates resident)
  *ADAM (and answer prompts: f/15; A&G+CCD; GECn or EEV7; run #)
  To abort an ADAM command, press BREAK, type SEND CON:, couple of crs.
- **FILTERS.**
  If filter wheel is to be changed:
  Adam>QWHEEL to choose an existing wheel; or
  Adam>WHEEL to enter details of new wheel.
  Adam>ZEROSET to initialise filter wheel position. (see III.8)
  N.B. May also need to use EDITTABLE to get sensible A-G filter values. (III.7)

Twilight/Evening Activities

- **TELESCOPE.**
  Check observing floor.
  Power on.
  Oil Pump RUN. (Cancel alarm if necessary - LHS of alarm panel)
  Press RESET.
  Open dome shutters. (Hold button in)
  Open mirror covers. (Check not stuck)
- **ZEROSET AND POINTING CALIBRATIONS.**
  In ENG mode with dome lights on.
  Speed knobs set to green marks.
  Drive telescope $\geq 3°$ from ZP in HA and Dec.
  UI>ZEROSET (and hit return to begin)
  Drive through zenith until arrow key lights go out.

Turn off dome lights.
Switch to COMP mode (turn key).
Press GUIDE to energise handset.
Go to a bright star (5-6 mag).
Turn TV on, wait 10s (until delay light goes out), turn knob to left (until it clicks) then *slowly* right.
Adam>TV (to put flat in)
UI>SNAFU
Move star to chip centre.
Press ACK button.

- **TAPE.**
  Mount latest D tape, and record in log book in computer room.
  Adam>DATA (and answer questions; name is JKTD____)
  (Maximum of 60 full size CCD frames per tape)

- **PURGE.**
  To clear out disk space, use Adam PURGE command. Not like VMS PURGE, it deletes files completely!
  To delete protected files, use REPROTECT Rnnn/WKEY=0,189 then DEL Rnnn.

- **ENTER SOURCES / CREATE CATALOGUE.**
  UI>SOU name R_ _ _ D _ _ _ EQ B1950
  etc.
  UI>SAVE MY.CAT
  UI>INPUT MY.CAT (on subsequent nights)
  UI>N name
  UI>GO (to move to star NAME)

- **FLAT FIELDS.**
  Go to blank sky regions. (IN BLANK at UI)
  Aim for $\leq$30,000 counts/pixel. (Use GLA)
  Evening order: U B V R I .
  Reverse order for morning flats.

- **BIAS FRAMES.**
  Faster to use Adam NOPACKETS – but after do NOPACKETS=0
  Adam>RUN 0 "BIAS" ($\sim$5-10 times, when dark)
  Check value with STATS mode of PHOT. If different from default value, enter with BIAS command.

- **FOCUS.**
  Go to focus star (e.g. 9-10 mag standard).
  Position star to left side of chip.
  Use GLA to check exposure time ($\geq$5s).
  Adam>FOCUS 5 15 W (does 5x15s; default FOCINC=0.1) produces image:

$f_{-0.2}$	$f_{-0.1}$	$f_{0.0}$	$f_{+0.1}$	$f_{+0.2}$
$\bullet$	$\bullet$	$\bullet$	$\bullet$	$\bullet$
1	2	3	4	5

  Use PHOT or STARFIT to measure profiles.
  Adam>SETFOC f (best value), or
  Adam>FOCINC 0.05 and repeat focus run (only necessary if seeing very good).
  Typical change with T is -0.05/degC.
  Typical value is 39.5 mm. Start from previous night's value, or use chart in CCD User Guide and current tube T.
  (Once set, the focus tracks the tube T changes automatically. If there are problems with this, select Manual Focus control.)

- **OBSERVING.**
  UI>N TARGET
  UI>GO
  Adam>TV (and position object)
  Adam>FILTER X
  Adam>RUN t "name"
  Adam>MULTRUN n t "name" (for n exposures of t secs each)
  Adam>RUNSTAT (for elapsed time)
  Adam>PAUSE (to pause exposure, e.g. for cloud)
  Adam>CONTINUE (to restart a paused exposure)
  Adam>ABORT (to abandon observation)
  Adam>STOP (to force read-out at that time)
  Adam>TIME (to change exposure time)
  (If RA button sticks, switch to INC and type
  UI>HA/I 0 so that increment is zero. Then move stars by either stopping telescope or with REV button.)
  To trail a star across chip (for time resolved work) use
  UI>TRAIL or DIFF (N.B. RA differential rate must be in secs/sec, so remember to divide by cosδ).
  Adam>DRIFT (to use drift scan table)

- **DATA ANALYSIS.**
  Adam>DISP [Rn] (default is current frame)
  Adam>PHOT or STARFIT. Lexidata buttons are :

Exit	Mode	Down	Reset	Up	BLUE

  The BLUE button is used to mark the cursor position.
  To redisplay image with different scaling use DIPARM. (e.g. to display with full 16-bit range use DIP 2 0 65535)

- **AUTOGUIDING.**
  Power on Autoguider.

  Adam>FINDSTAR (or see GDXY below) and answer questions.
  If no bright star visible, go to NEXT field.
  Move bright star to reference point.
  >ACCEPT.

  OR login to Vaxcluster and use Guide Star Server (instructions in back of CCD User Guide), then use GDXY (see below).

  Push FIELD button, wait for star to appear.
  Push ACQ button, wait for "OK to guide" message on autoguider monitor.
  Push GUIDE button, wait for star to appear in circle.
  Push green LOOP ENABLE button (below right user i/f console).
  Start exposure (RUN n `"name"`).
  N.B. A-G seeing measure is in units of 0.5 arcsecs.
  If star lost for some reason (e.g. cloud, as indicated by RT value varying and being $\ll$1), then push LOOP DISABLE immediately and wait, or re-acquire.
  When finished, push LOOP DISABLE and WAIT buttons.
  If A-G "freezes", LOOP DISABLE, power A-G off and on, and then re-acquire.

  Normal acquisition is
  UI>AC/PR which moves the probes to find star chosen. This is the default when system is turned on.
  If guide star co-ordinates are already known, use Adam>GDXY, then go to target position, and use

UI>AC/TE (probes are fixed, and telescope moved).

- **LOGBOOKS.**
  JKT Direct Imaging Log (xerox at end of run).
  Automatic logging occurs for each RUN made. The logs are processed regularly and kept in a file in the control room, from which copies can be made, but please replace originals.
  Operations Log Book (e.g when liquid nitrogen filled, dome opened, faults, etc.)
  At end of night fill in Nightly Report Form.

- **HUMIDITY AND WIND.**
  If >50% humidity in dome, turn on dry N_2 to first notch. Turn OFF at end of night.
  If >90% outside, close down and wait until <80%, or conditions stabilise.
  Wind speed limit for JKT is 50 km/h (steady, not gusts). If concerned, check with INT T.O.

- **COPYING DATA.**
  Fill in Tape Copy Request Form and place in tray with D tape for D.O. to collect. C tape will appear in INT Visitors' pigeon hole.
  D.I.Y.:
  Adam>FITSINIT (JKTD___) for first time use
  Adam>FITSOUT (e.g. R1-R60)
  Please complete a Tape Copy Request Form even if copying data yourself!

- **Problems.**
  You won't have any problems you can't solve yourself, but just in case, go F-7-9 on intercom, hold down SIMP, ask for your support astronomer first, if not available then for the duty tech (usually before 11.00pm).
  Report **ALL** faults in the Defect Database, held on LPVS3, username FAULT.

Morning Activities.

- **CLOSEDOWN.**
  TV and A-G power OFF.
  Push ZP button.
  Close mirror covers. (Check for sticking)
  Close dome shutters.
  Telescope POWER OFF and cancel the oil alarm.
  Adam>SHUTDOWN
  *SO
  Refill liquid nitrogen in CCD cryostat.
  Turn off dry N_2 (if on).
  Turn off lights.
  Put the cat out.
  Go to bed.