Daily checks - INGRID at CASS with ImpB

1) Check INGRID SDSU power is on. INGRID EPICS crate and amp power is on.
2) Check cryostat pressure. Must be below 1E-4 millibar,
3) Ensure that fibers are connected from INGRID Cass port to host Crater.
4) Bring up the TCS in _DRAMA_ mode.
5) Bring up the Implementation B observing system as per previous check list.
6) Use 'detstat' to look at temperature telemetry. Detector < 75K, Casting < 72K, Shield < 140 K.
7) Datum filter wheels (2) + Pupil stop + focus by typing 'datum all' in the command window. Confirm that all mechanisms show 'initialised' status.
8) Set filters to blank by typing 'filter blank' in the command window.
9) Set focus to nominal position by typing 'focus –50' in command window. Confirm all mechanism show green status.
10) Confirm the command link to TCS works. Type: 'user page' in the command window and confirm that the TCS info display changes the information it is displaying on the X-Terminal (should also see the command echoed at TCS USER prompt).
11) Set up an IRAF session on DR host pointing to selected INGRID data dir.
12) Use command 'run 1 1' command to take a bias image. Confirm run completes with no errors or warnings.
13) Use IRAF command 'disp rnnnnnn[*,*,1] 1' to display preintegration read. Use imexam to read mean level. Should be between 11000 – 14000 ADU.
14) Use IRAF command 'imarith rnnnnnn[*,*,2] - rnnnnnn[*,*,1] q1' to produce subtarcted image. Display resultant image (q1) and check rms noise is below 10ADU rms.
15) Check that INGRID closed cycle cooling is not 'clunking' or vibrating excessively.
16) Fill cryostat.

Daily checks - INGRID at NAOMI and UltraDas

1) Check INGRID SDSU power is on. INGRID EPICS crate and amp power is on.
2) Check cryostat pressure. Must be below 1E-4 millibar,
3) Ensure that fibers are connected from INGRID GHRIL port to host Crater.
4) Bring up the UDas observing system as per current check list.
5) Wait for UDas temperature display to stabilise, check that the detector temperature is < 75K. Check that set point temperature for detector is 0 Kelvin.
6) Datum filter wheels (2) + Pupil stop + focus.
7) Setup an IRAF session on DR host pointing to selected INGRID data dir.
8) Move Pupil stop to blank position.
9) Use command 'bias' command to take bias.
10) Use IRAF command 'disp rnnnnnn[1] 1' to display preintegration read. Use imexam to read mean level. Should be between 11000 – 14000 ADU.
11) Use IRAF command 'imarith rnnnnnn[2] - rnnnnnn[1] q1' to produce subtracted image. Display resultant image (q1) and check rms noise is below 10 ADU rms.
12) Check that INGRID closed cycle cooling is not 'clunking' or vibrating excessively.
13) Fill cryostat.

INGRID Operations - Without closed cycle cooler at NAOMI.

When used with NAOMI, INGRID's closed cycle cooler is shut down during the night to reduce table vibrations. This reduces the autonomy of the LN2

coolant to approx. 6 hours. Therefore:
1) Leave the closed cycle cooler ON until ready to start calibrations with
2) NAOMI.
3) After shutting down the closed cycle cooler, fill the LN2 tank to
4) maximum. Note the time in the night operations log book.
5) Refill the LN2 tank each four hours during the night.
6) Never forget to switch on the closed cycle cooler and refill the
7) LN2 tank after observations have ceased for the night.
8) During daytime operations, refill the dewar during normal daily checks.

INGRID Operations - With closed cycle cooler at CASS.

At Cass the closed cycle cooler vibrations do not affect image quality.
Therefore the autonomy is longer. However, in this configuration the
cryostat (and hence the LN2 tank) are inverted. This only allows the LN2
tank to be filled to 50%. The coolant autonomy in this configuration is
about 8 hours. The LN2 tank should be filled on the normal cryostat refill
cycle i.e. before observations start, after observations finish, and at
daily checks.

High temperature recovery.

If INGRID temperatures are found to be excessively high, chances are that
the LN2 coolant has evaporated completely. Follow the following procedure
to attempt recovery.

1) If detector above 180 K, abandon any attempts and call for help.
2) Check cryostat pressure, if below 4E-3 then continue, else abandon effort and call for help.
3) Confirm that the Detector Demand Temperature shows "servo disabled". In the ImpB system this can be confirmed with the 'detstat' command. In UltraDas, the gui detector interface displays the set temperature directly.
4) Fill the LN2 reservoir, switch on the closed cycle cooler if not already running. This may be a long process to try and get LN2 into a 'hot' tank. Persistence pays off.
5) Monitor cryostat pressure. It should drop as temperature drops.
6) Array will not produce anything sensible until temperature is below 130K.
7) In all cases contact the INGRID instrument specialist.

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