AUSTRALIA TELESCOPE COMPACT ARRAY
Automatic turret rotation[1]

SUMMARY

- **From August 1993 the receiver turrets in Compact Array antennas will be rotated automatically.**
- **The current turret positions are displayed on the CAMON /arr page.**
- **While rotating the turrets, CAOBS automatically suspends the attenuator and sampler reference level adjustments.**
- **We recommend that you assign different 'environment flags' (envflg in SCHED) to scans at different frequencies.**
- **The elapsed time from the end of a scan at one frequency and the first collection of data from a new turret position is about five integration cycles. This time increases to about 12 cycles if different environment flags are not assigned.**
- **Please refer any questions or difficulties to Derek McKay.**

Explanation

At present the Compact Array antennas operate at frequencies in four bands — 20 *cm*, 13 *cm*, 6 *cm* and 3 *cm*. The receivers for these bands are arranged in two packages (20/13 *cm* and 6/3 *cm*) which are mounted on a rotating stage, the *turret*. Until August 1993 the rotation of the turret was controlled by a set of buttons in the control building and the correct positioning was the responsibility of the telescope user. The turrets in each antenna are now interfaced to the Antenna Control Computers (ACC) and are controlled by the observing task CAOBS.

Turret positions are monitored by the ACCs and displayed on the `/arr` page of CAMON. The four possible positions are displayed as `20/13 cm`, `6/3 cm`, `blank(2)` and `blank(1)`. The `blank` positions should not be selected as they contain no receivers. While the turret is rotating, its position will be reported as `off-axis`. If a turret appears off-axis for more than about 20 seconds there may be a fault and you should consult observatory staff.

The observing task CAOBS suspends the automatic attenuater and sampler level adjustments while the turrets are off-axis. When the rotation is complete CAOBS will resume the adjustments. It is likely that the attenuator and sampler reference values from the previous scan (and frequency) will be inappropriate for the new scan. CAOBS and the ACCs will adjust the values but this may take about ten integration cycles. Less observing time is lost if a different environment flag is used for each frequency. Set the environment flag for each scan in SCHED using the `envflg` parameter. Legal values are 0 – 3. If environment flags are used properly only three cycles will be lost in addition to the two cycle pause at the end of every scan. The use of environment flags is described in the *Compact Array Observers' Guide*.

D McConnell
20 August 1993

[1] LaTeX file `turret.tex`