Turns the pointing corrections for Aberration OFF/ON.

# ACCESS sssssss

Sets the security level for keyboard access to PC-TCS (password = sssssss for desired level of access.)

# ASTEROID nnnn

Processes the orbit for the Asteroid catalog number "nnnn" and puts the coordinates into the NEXT position registers of PC-TCS. In addition, the rate of motion of the asteroid is automatically computed and implemented so that if tracking is active PC-TCS will immediately begin tracking at the asteroid's rate of motion. This command should be followed by a MOVENEXT command to move the telescope to the asteroid's position on the sky.

# AUTODOME OFF/ON

Turns TCS automatic dome motion control OFF/ON

# **BIASDEC** ± nnnn.nnn

Sets the declination axis "bias rate" in nnnn.nnn arcseconds per second. The rate will not become active unless a BIASON command is given or a previous non-zero rate is already active.

# **BIAS OFF/ON**

Turns any active bias rates OFF/ON.

# **BIASRA** ± nnnn.nnn

Sets the declination axis "bias rate" in nnnn.nnn arcseconds per second. The rate will not become active unless a BIASON command is given or a previous non-zero rate is already active.

# CAMERA ON/OFF

Triggers Apogee Instruments CCD shutter (Requires Optional focus control interface hardware).

#### CANCEL

Stops a slew in progress with full ramp down.

# **CDBIAS OFF/ON**

Turns the correction for cosine declination in the bias rate OFF/ON.

# **CDDRIFT OFF/ON**

Turns the correction for cosine declination in the paddle drift rate OFF/ON.

# **CDGUIDE OFF/ON**

Turns the correction for cosine declination in the paddle guide rate OFF/ON.

# **CDWOB OFF/ON**

Turns the correction for cosine declination in the wobble vector OFF/ON.

# CLEARDIFF

Resets the difference fields on the PC-TCS Runtime display to zero.

# CLIRESUME (remote only)

Restarts the command file currently suspended by WAITREM command.

# COMET nnnnn

Processes the orbit for the comet catalog number "nnnn" and puts the coordinates into the NEXT position registers of PC-TCS. In addition, the rate of motion of the comet is automatically computed and implemented so that if tracking is active PC-TCS will immediately begin tracking at the asteroid's rate of motion. This command should be followed by a MOVENEXT command to move the telescope to the comet's position on the sky.

# COMFILELOAD filename (remote only)

Loads the script file "filename" into PC-TCS memory for processing. Processing of script commands begins after the COMFILEON command. (filename should not contain the ".TCS" extension.)

# **COMFILE OFF/ON (remote only)**

If "OFF" - suspends processing of the script file previously loaded with the COMFILELOAD command and activated by the COMFILE ON command

# DECLAREINIT

Synchronizes the telescope by forcing the current position to become the same as the commanded position.

# DECLAREREF

Copies the current position into the Reference registers of PC-TCS.

# DECLARESTOW

Changes the Stow position of the Telescope to be the current position of the telescope.

# DISEPOCH nnnn.nnn

Changes the display epoch to be "nnnn.nnn" where "nnnn.nnn" is the date epressed as a decimal year. A value of 0.0 will force the display epoch to be equal to the current date.

# DOME OPEN/CLOSE

Opens or closes the dome.

### DOMEINIT

Declares the current position of the dome to be the stow position. This position is used by the STOWDOME command.

# **DRIFTDEC** ± nnnn.nnn

Set the paddle declination Drift rate to be nnnn.nnn arc seconds per second. A negative value has the effect of reversing the sense of the buttons.

# DRIFTRA ± nnnn.nnn

Set the paddle Right Ascension Drift rate to be nnnn.nnn arc seconds per second. A negative value has the effect of reversing the sense of the buttons.

#### ELAZ ee.ee ± aaa.aa

Moves to the Elevation and Azimuth specifed by ee.ee and  $\pm$  aaa.aa degrees respectively.

#### EPOCH nnnn.nnn

Changes the input coordinate epoch to be "nnnn.nnn" where "nnnn.nnn" is the date epressed as a decimal year. A value of 0.0 will force the input epoch to be equal to the current date. The input

# **FILEPERM** filename

Sets the source input mode to PCF catalog mode using the PCF file specified by "filename." ("filename" should not contain the ".PCF" extension.)

# FILEUSER filename

Sets the source input mode to USER catalog mode using the USER file specified by "filename." ("filename" should not contain the ".CAT" extension.)

# **FLEX OFF/ON**

Turns the correction for flexure OFF/ON when processing new input coordinates.

# FLEXRATE OFF/ON

Turns the correction rates for flexure OFF/ON.

# **FOCUS ± nnnn (remote only)**

Moves the focus motor "nnnn" steps.

# **GUIDEDEC** ± nnnn.nnn

Set the paddle Declination Guide rate to be nnnn.nnn arc seconds per second. A negative value has the effect of reversing the sense of the buttons.

# **GUIDERA** ± nnnn.nnn

Set the paddle Right Ascension Guide rate to be nnnn.nnn arc seconds per second. A negative value

has the effect of reversing the sense of the buttons.

# JUPITER

Computes the current positon of the planet Jupiter and stores the coordinates in the NEXT position registers of PC-TCS. The command also immediately invokes the tracking rate corrections for this planet. A MOVENEXT command is required to move to this computed position.

# KILL

Disables the PC-TCS drive system. This command acts like an "Emergency Stop" command and should be used only in the most severe of circumstances.

# LIMITENABLE (remote only)

Enables limit detection and processing in PC-TCS.

# LIMITOVERRIDE (remote only)

Disables PC-TCS limit detection and processing.

# LUNARRATEON

Invokes the lunar rate corrections in RA and DEC.

# MANUAL

Sets the Source Mode of PC-TCS to Manual - (keyboard like) where RA and DECs must be individually specified rather than retrieved from a file. This mode command must be given before a NEXTRA and NEXTDEC command can be executed.

#### MARS

Computes the current positon of the planet Mercury and stores the coordinates in the NEXT position registers of PC-TCS. The command also immediately invokes the tracking rate corrections for this planet. A MOVENEXT command is required to move to this computed position.

# MERCURY

Computes the current positon of the planet Mercury and stores the coordinates in the NEXT position registers of PC-TCS. The command also immediately invokes the tracking rate corrections for this planet. A MOVENEXT command is required to move to this computed position.

# MIRROR OPEN/CLOSE

Opens or closes the mirror covers.

# MOON

Computes the current positon of the Moon and stores the coordinates in the NEXT position registers of PC-TCS. The command also immediately invokes the tracking rate corrections for this object. A MOVENEXT command is required to move to this computed position.

# MOVB1

Moves to the current positon plus the value of the Wobble Vector.

#### MOVB2

Moves to the current positon minus the value of the Wobble Vector.

# MOVDOME aaa.aa

Moves Dome to the azimuth aaa.aa.

#### MOVNEXT

Moves to the position stored in the NEXT Registers of PC-TCS.

#### MOVOFF

Moves to the current position plus the value of the Offset Vector.

#### MOVREF

Moves to the positon specified in the Reference Register of PC-TCS.

# MOVSTOW

Moves to the current Stow position of the telescope. This Command also disables tracking.

#### NEPTUNE

Computes the current positon of the planet Neptune and stores the coordinates in the NEXT position registers of PC-TCS. The command also immediately invokes the tracking rate corrections for this planet. A MOVENEXT command is required to move to this computed position.

# **NEXTDEC ± ddmmss.s**

Sets the Next Declination Register in PC-TCS to the value "ddmmss.s" where dd = degrees, mm= minutes, and ss.s= seconds. The MANUAL command should be executed before this command is given.

#### NEXTOBJECT

Automatically increments the object file pointer when using the FILEPERM, or FILEUSER modes to the next object in the catalog.

https://lavinia.as.arizona.edu/~tscopewiki/

# **NEXTRA** ± hhmmss.s

Sets the Next Right Ascension Register in PC-TCS to the value "hhmmss.s" where hh = hours, mm= minutes, and ss.s= seconds. The MANUAL command should be executed before this command is given.

# NOP

A "No Operation" Command - does nothing. Used as a place holder in script files and to test communications in Remote operations.

# **NUTAT OFF/ON**

Turns the pointing corrections for nutation OFF./ON.

# **OBJECT** nnnnn

Retrieves and processes the coordinates in record number "nnnnn" in the catalog file selected using the FILEPERM or the FILEUSER modes. The processed coordinates are then stored in the NEXT registers of PC-TCS. A MOVENEXT command will then move the telescope to these coordinates.

# **OBJECTRATEOFF**

Disables (turns off) the object rates automatically invoked when an asteroid, comet, sun, moon, or planet position is computed.

# **OFFDEC** ± ddmmss.s

Sets the Declination component of the Offset Vector to "ddmmss.ss" where dd= degrees, mm= minutes, and ss.ss= seconds.

# **OFFRA** ± hhmmss.s

Sets the Right Ascension component of the Offset Vector to "hhmmss.ss" where hh= hours, mm= minutes, and ss.ss= seconds.

## **ORBIT filename**

Reads an processes the orbital information in the "Quick Orbit" file in the file name "filename." The computed position is stored in the NEXT registers of PC-TCS for later MOVENEXT command. The rate corrections for the motion of the object is also immediately invoked. (Filename should NOT contain the ".QOR" extension).

# PARA OFF/ON

Turns the pointing corrections for parallax OFF/ON.

# PLUTO

Computes the current positon of the planet Pluto and stores the coordinates in the NEXT position registers of PC-TCS. The command also immediately invokes the tracking rate corrections for this planet. A MOVENEXT command is required to move to this computed position.

# PREC OFF/ON

Turns the pointing corrections for precession OFF/ON.

# **PROPER OFF/ON**

Turns the pointing corrections for proper motion OFF/ON.

# **RADECGUIDE S.ss S.ss**

Guide command to move (not a rate) the telescope in RA and Dec. The first argument is RA and the second is Dec. The units are in arc-seconds.

https://lavinia.as.arizona.edu/~tscopewiki/

# RASTER rr.r dd.d RR DD tt.t key

Invokes the Raster Scan utility with Right Ascension step size of rr.r arcseconds, declination step size of dd.d arcseconds, for RR step in Right Ascension, DD steps in Declination, with a dwell time of tt.t seconds. The "key" parameter is used to decide the input which the Raster Scan will terminate. Zero (0) will perform the full raster scan with no interruption capability, one (1) will terminate the scan if the TTL S1 input is high, two (2) will terminate the scan if the TTL S2 input is high, three (3) will terminate the scan if the TTL S3 input is high, four (4) will terminate the scan if the TTL S4 input is high, five (5) will terminate the scan if a keyboard character input is detected.

# **RECALLPOS** nn

Recalls the saved position (see SAVEPOS command) and copies the coordinates to the NEXT registers of PC-TCS. The telescope can be moved to this position using the MOVENEXT command.

# **REFRAC OFF/ON**

Turns the pointing corrections for refraction OFF/ON.

# **REFRRATE OFF/ON**

Turns the rate corrections for refraction OFF/ON.

# **REMOTECHK OFF/ON (not TheSky)**

Turns serial checksumming OFF/ON.

# SATURN

Computes the current positon of the planet Saturn and stores the coordinates in the NEXT position registers of PC-TCS. The command also immediately invokes the tracking rate corrections for this planet. A MOVENEXT command is required to move to this computed position.

### SAVEPOS nnn

Saves the current position to the Save register number "nnn". Use the RECALLPOS command to retrieve the value.

# SETDATE mm/dd/yyyy (remote only)

Sets the UT date of PC-TCS to "mm/dd/yyyy" where mm= month, dd= day, yyyy= year.

# **SETTIME** hhmmss.ss (remote only)

Sets the PC-TCS system UT time to "hhmmss.ss" where hh= hours, mm= minutes, ss.ss= seconds.

# SLEW OFF/ON (deadman slew systems only)

Turns OFF/ON the slew capability of PC-TCS (speed limited to @ 1/5 degree per second).

# SOLARRATEON

Invokes the solar rate corrections in RA and DEC.

# SPIRAL ss.s LL tt.t key

Invokes the Spiral Scan utility with Right Ascension and Declination step size of ss.s arcseconds, for LL loops, with a dwell time of tt.t seconds. The "key" parameter is used to decide the input which the Raster Scan will terminate. Zero (0) will perform the full raster scan with no interruption capability, one (1) will terminate the scan if the TTL S1 input is high, two (2) will terminate the scan if the TTL S2 input is high, three (3) will terminate the scan if the TTL S3 input is high, four (4) will terminate the scan if the TTL S4 input is high, five (5) will terminate the scan if a keyboard character input is detected.

# **STEPDEC nnnnnn (remote only)**

Moves the telescope in declination "nnnnnn" steps (or encoder counts). This command provides

guiding capabilities for smart peripherals.

# STEPRA nnnnnn (remote only)

Moves the telescope in right ascension "nnnnn" steps (or encoder counts). This command provides guiding capabilities for smart peripherals.

# STOWDOME

Moves the dome to the Stow position as specified in the PFEDIT program. Note: the stow position is the position the dome is at when TCS is started or the position the dome is at when the Declare-Dome Stow menu item is activated or the DOMEINIT command is given.

# SUN

Computes the current positon of the Sun and stores the coordinates in the NEXT position registers of PC-TCS. The command also immediately invokes the tracking rate corrections for this object. A MOVENEXT command is required to move to this computed position.

# TRACK OFF/ON

Turns OFF/ON sidereal tracking and correction rates.

# **UNABER OFF/ON**

Turns OFF/ON the deconvolution for Aberration on the RA and DEC display

# **UNFLEX OFF/ON**

Turns OFF/ON the deconvolution for Flexure on the RA and DEC display

### UNKILL

Enables PC-TCS drive capabilities. (Used after a previous KILL command).

#### **UNREFR OFF/ON**

Turns OFF/ON the deconvolution for Refraction on the RA and DEC display

#### URANUS

Computes the current positon of the planet Uranus and stores the coordinates in the NEXT position registers of PC-TCS. The command also immediately invokes the tracking rate corrections for this planet. A MOVENEXT command is required to move to this computed position.

#### VENUS

Computes the current positon of the planet Venus and stores the coordinates in the NEXT position registers of PC-TCS. The command also immediately invokes the tracking rate corrections for this planet. A MOVENEXT command is required to move to this computed position.

## **WOBDEC ± ddmmss.s**

Sets the Declination component of the Wobble Vector to "ddmmss.ss" where dd= degrees, mm= minutes, and ss.ss= seconds.

#### **REMWOB OFF/ON**

Turns OFF/ON the hardware remote wobble capability of PC-TCS.

# WOBRA ± hhmmss.s

Sets the Right Ascension component of the Wobble Vector to "hhmmss.ss" where hh= hours, mm= minutes, and ss.ss= seconds.

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