



AHELP for CIAO 3.4

precess

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Synopsis

Interactive astronomical coordinate conversion program that provides precession of equatorial coordinates and conversion between equatorial, ecliptic, galactic, and supergalactic coordinates

Description

PRECESS can be run over the WWW using a browser, such as Netscape, or run locally using the command-line interface (CLI). The CLI version will accept a text file with a list of coordinates as input.

PRECESS is part of the Proposal toolkit. The toolkit is distributed with CIAO.

For details about available coordinate and time systems, please see the prop-time and prop-coords ahelp documents.

AVAILABLE COORDINATE SYSTEMS

The available coordinate systems are: Equatorial or Ecliptic with Besselian Epoch (default is B1950, or specify as 'BXXXX'), Equatorial or Ecliptic with Julian Epoch (default is J2000, or specify as 'JXXXX'), or Galactic. The CLI also version supports conversions using supergalactic coordinates. PRECESS can be used to identify the Constellation for a given input position.

RUNNING PRECESS OVER THE WWW

PRECESS can be accessed via the URL

<http://cxc.harvard.edu/toolkit/precess.jsp>

General help information is available by clicking the 'HELP' button.

RUNNING PRECESS FROM THE COMMAND-LINE

The syntax for processing a file of coordinates is:

```
prop_precess commands:infile:outfile
```

See the EXAMPLES section for more information.

To run PRECESS in the interactive CLI mode, type 'prop_precess' at the Unix prompt. This enters an interactive command mode for setting program parameters. The command level prompt is Precess[Setup]>:. Within the command level, type '?' or 'help' to see a list of the available commands, and type 'list' or 'l' to display the current program settings.

INPUT COMMANDS

The most usual command sequence is 'from', 'to', and 'convert', which can be abbreviated as 'f', 't', and 'c', respectively. 'from' and 'to' define the Input and Output coordinate systems. The default conversion is from B1950 to J2000. Type '?' or 'help' for a list of the available coordinate systems.

The 'convert' command enters the processing level. Within the processing level, enter the Input coordinates in the appropriate format, either both coordinates on the same line separated by spaces or a comma, or the x-coordinate on one line and the y-coordinate on the next. The default format for RA and DEC is hh mm ss.ss and dd mm ss.ss. The default format for the other coordinate systems is decimal degrees.

OTHER COMMANDS

You can change the format of the Input coordinate system with the commands 'f \DEG' for decimal degrees and 'f \HMS' for hh mm ss.ss. You can change the format of the Output coordinate system with the commands 't \DEG' and 't \HMS'.

The 'p' command sets the output display mode: use 'p0' for terse, 'p1' for normal, or 'p2' for verbose display. The default output display mode is p1.

To leave the processing level and return to the command level, type 'q' or 'quit'. Type 'q' or 'quit' at the command level to exit the program.

Example 1

Precess equatorial coordinates from 1950 to 1986.

```

unix prompt> prop_precess

----- Precess -----
You are now in setup mode. Type "c" to enter conversion mode,
"?" to list setup mode commands, or "q" to quit the program. The
default conversion is from B1950 to J2000.
Precess[Setup]>: f B1950 t B1986
Precess[Setup]>: c

Precess[Conversion mode] Enter coords separated by spaces or
comma (q to quit)
Example: 15 05 19.71 -00 23 12.2
Enter "q" to return to setup mode

RA (B1950): 16 26 36.7 37 27 54.3

-----
RA,Dec B1950.0    16 26 36.70    +37 27 54.30
RA,Dec B1986.0    16 27 53.51    +37 23 10.23
-----

```

Example 2

Convert galactic coordinates to J2000 equatorial coordinates. Use the syntax 'f G t J' to set up the conversion.

```
Precess[Setup]>: f G t J; c

Precess[Conversion mode]
Enter coords in degrees (q to quit)
Example: 293.14 -20.14
Enter "q" to return to setup mode

L: 97.74 -60.18

-----
Galactic l,b      97.740000   -60.180000
RA,Dec J2000.0   00 02 33.43  +00 16 44.19
-----
```

Example 3

Convert from B1987 decimal degrees to J2000 decimal degrees. Set the printing mode for terse program display.

```
Precess[Setup]>: f B1987/DEG
Precess[Setup]>: t J2000/DEG
Precess[Setup]>: list

From: RA,Dec B1987.0   Format: Degrees
To  : RA,Dec J2000.0   Format: Degrees

Precess[Setup]>: p
Precess[Setup]>: c

Precess[Conversion mode]
Enter coords in degrees (q to quit)
Enter "q" to return to setup mode

RA (B1987): 182.663 14.175

182.828930   14.102684
```

Example 4

Convert a file of coordinates, s.cat, using the syntax 'prop_precess commands:infile:outfile'.

The file s.cat contains the following.

```
00 01 12.3 -00 02 23.4
02 59 59.9 23 12 22.1
02 23 0 11 23 12
23 48 48.23 -2 11 14.123
```

Convert from B1950 to galactic coordinates, and store the results in the file pr_s.cat.

```
unix prompt> prop_precess f B1950 t G: s.cat: pr_s.cat
Opened input file s.cat
Opened output file pr_s.cat
unix prompt>
```

The output file, `pr_s.cat`, contains the following.

RA (B1950)	Dec (B1950)	L	B
00 01 12.30	-00 02 23.40	98.274959	-60.330944
02 59 59.90	+23 12 22.10	158.171584	-30.327495
02 23 00.00	+11 23 12.00	156.570708	-45.015506
23 48 48.23	-02 11 14.12	90.686763	-60.96294

See Also

proposaltools

[colden](#), [dates](#), [obsvis](#), [pimms](#), [prop-coords](#), [prop-time](#), [prop-tools](#)

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URL:
<http://cxc.harvard.edu/ciao3.4/precess.html>
Last modified: October 2006