



MULTIPLE MIRROR TELESCOPE OBSERVATORY

Smithsonian Astrophysical Observatory and Steward Observatory, University of Arizona

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Subject: Simplified Precession Routine for the Mount Computer.

The general precession routine of the mount computer has been modified to simplify operator entry of the various parameters required. The most conspicuous change is the removal of "tomorrow's Besselian Day Numbers". The current Besselian Day Numbers ("today's") are used throughout, with no interpolation. The difference in coordinates is not significant - in fact, the interpolation previously provided had never been used.

Also included is the provision for including the precessed Apparent Place coordinates in a catalog.

This precession routine is in addition to a general precession routine available on the Instrument Computer. Coordinates precessed on the instrument computer can be transmitted via the data link to the mount computer and written to a catalog in preparation for an observing run. Though this routine is not as accurate as the routine on the mount computer, it is adequate for visible stars and does not require the entry of Besselian Day Numbers. See the I-Ret User's Manual for operating instructions. There is also a special precession routine on the mount computer that precesses 1950 coordinates to the current epoch.

Operating instructions for the modified mount computer general precession routine are attached. It is intended that these instructions will become one part of a revised Mount Control Program Documentation, which will be designed to be updated periodically.

GENERAL PRECESSION ROUTINE OF THE MOUNT COMPUTER

1. Overview

The mount control program incorporates a routine to perform precession from one epoch to another. The routine is accessed via a "menu" which leads the operator through the entry of the required parameters by means of a series of questions. The operator is able to:

1. Precess coordinates from one mean Epoch to another mean Epoch for epochs between 1900.0 and 2000.0. Proper motion can be included if desired.
2. Precess coordinates from a mean Epoch at the mid-point of a year to any date within that year, to obtain apparent place of the object and topocentric position, which is apparent place corrected for diurnal aberration. Topocentric position is what you need to actually point the telescope at the object.

2. Operational Procedure

To precess a set of coordinates from some mean epoch to apparent and topocentric coordinates for the current date, type:

ad-precess (which means "menu-driven precession")

Note that if you wish to obtain apparent place for some other date, you have to set it before calling the precession routine, type (say)

27 jan 1977 ad epoch to set the date to 1/27/77.

The precession routine will output the following text, shown in bold type, and will wait for you to respond with the appropriate parameters when asked for them.

PRECESS FROM ONE MEAN EPOCH TO ANOTHER MEAN EPOCH.

The following steps are for the mean coordinates of the starting epoch.

Enter right ascension of object to the nearest
0.01 second of time: (xx:xx:xx.xx) -----

Enter the RA, in exactly the format specified.

Enter declination of object to the nearest
0.1 second of arc: (yy:yy:yy.y) -----

Enter starting epoch to the nearest tenth
of a year: (zzzz.z) -----