attmove

August 15, 2005

Abstract

Create Attitude History File simulating tracking of a moving target

1 Instruments/Modes

This task operates on the Attitude History File so all Instrument/Modes are applicable.

2 Use

pipeline processing	no
interactive analysis	yes

3 Description

attmove is a utility task for use in the aid of analysis of moving targets (planets, comets etc).

In contrast to **movecalc**, **attmove** creates a new Attitude History derived from an existing AHF, using a second input table which defines the track of the object as a function of time.

attmove uses selects an arbitrary reference pointing (currently calculated from the object track) and recalculates the attitude of the spacecraft (the VIEWRA and VIEWDECL entries in the AHF) according to the following formula:

$V^t = V_{ref} + (V^t_{ahf} - V^t_{obj})$

Where V^t is the output attitude, V_{ref} is the reference attitude, V^t_{ahf} is the spacecraft attitude in the source AHF at time t and V^t_{ahf} is the coordinates of the target object at time t, corrected for Geocentric parallax.

4 Parameters

This section documents the parameters recognized by this task (if any).

Parameter	Mand	Type	Default	Constraints

input	yes	table	none	

Name of input Attitude History File

output	yes	table	none	

Name of output Attitude History File

track	yes	table	none	

Name of input Ephmeris File

minstable	no	real	30.0	

Minimum duration of stable pointing to decimate

granularity	no	real	30.0	

Duration of decimated stable pointing bins

withrefatt	no	boolean	no	none

User-defined reference attitude

refra	no	real	-999	

Right ascension of the user-defined reference attitude [decimal degrees]

refdec	no	real	-999	

Declination of the user-defined reference attitude [decimal degrees]

5 Errors

This section documents warnings and errors generated by this task (if any). Note that warnings and errors can also be generated in the SAS infrastructure libraries, in which case they would not be documented here. Refer to the index of all errors and warnings available in the HTML version of the SAS documentation.

invalidArgs *(error)*
granularity must be smaller than stable periods

6 Input Files

1. Input AHF file
2. Data set defining the position of the moving object as a function of time with the following minimal column structure:

column name	meaning	type	units
MJD	modified Julian Day number	real64	d
RA	apparent geocentric Right Ascension	real32	deg
DEC	apparent geocentric Declination	real32	deg
DELTA	distance to center of earth	real32	AU

7 Output Files

1. Output AHF file

8 Algorithm

9 Comments

References