bstools

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Abstract

Collection of tools to support boresight misalignment calibration

1 Instruments/Modes

Instrument	Mode
EMOS1/EMOS2	n/a
EPN	n/a
RGS	n/a
OM	n/a

2 Use

pipeline processing	no
interactive analysis	no
CCF maintenance	yes

3 Description

The **bstools** package contains a small set of programs to support boresight misalignment calibration activities. The following tools are available:

3.1 strbs: Star Tracker BoreSight calculation

- SYNOPSIS

```
strbs instrument=<instr> ra=<ra> dec=<dec> apos=<apos> odffixout=true|false
      bstoolsout=true|false
```

- DESCRIPTION
  Given the prime instrument `instr` and its viewing direction in terms of Right Ascension and Declination of the boresight + astronomical position angle `strbs` computes the viewing

direction of the star tracker and associated position angle - result is written to `stdout` in verbose form (default) or as an **odffix** command line if `odffixout`=true or as an `insbs` command line if `bstoolsout`=true.

The Right Ascension/Declination of the instrument boresight can be entered in either of the forms

```
23h59m48.12s / 45o38'14.55"
```

or decimal degrees:

```
123.23445 / 45.238474
```

Position angles have to be entered in decimal degrees.

- REFERENCE
  See task **epicbscalgen** and **cal** documentation for definition of boresight related coordinate frames.

3.2 insbs: INStrument BoreSight calculation

- SYNOPSIS

```
insbs instrument=<instr> ra=<ra> dec=<dec> apos=<apos> bstoolsout=true|false
```

- DESCRIPTION
  Given the viewing direction of the star tracker in terms of Right Ascension and Declination of the boresight + astronomical position angle `insbs` computes the viewing direction of the instrument specified via the `instrument` parameter - result is written to `stdout` in verbose form (default) or as a `strbs` (see Sect. 3.1) command line if `bstoolsout`=true.

  The Right Ascension/Declination of the star tracker boresight can be entered in either of the forms

```
23h59m48.12s / 45o38'14.55"
```

  or decimal degrees:

```
123.23445 / 45.238474
```

  Position angles have to be entered in decimal degrees.

- REFERENCE
  See task **epicbscalgen** and **cal** documentation for definition of boresight related coordinate frames.

3.3 srcinfov: compute position of SouRCe in Field Of View

- SYNOPSIS

```
srcinfov strra=<ra> strdec=<dec> apos=<apos> withsrccoord=true|false
         srcra=<ra> srcdec=<dec>
```

- DESCRIPTION
  `srcinfov` computes for each instrument the position of a given celestial source in the field of view (in TELCOORD coordinates). Input is the satellite attitude in terms of Right Ascension/Declination of the star tracker viewing direction and astronomical position angle [deg]. The boolean parameter `withsrccoord` determines whether the J2000 equatorial coordinates of the celestial source are explicitly provided through the parameters `srcra` and `srcdec` or taken as the star tracker viewing direction. Right Ascension/Declination of the star tracker boresight and the celestial source can be entered in either of the forms

  ```
  23h59m48.12s / 45o38'14.55"
  ```

  or decimal degrees:

  ```
  123.23445 / 45.238474
  ```

- REFERENCE
  See task **epicbscalgen** and **cal** documentation for definition of boresight related coordinate frames.

3.4 opticsxy: compute optical axis/focal plane intersection point

- SYNOPSIS

  ```
  opticsxy
  ```

- DESCRIPTION
  `opticsxy` computes for each instrument the intersection point of the optical axis of the respective telescope and the focal plane. The result in given in CHIPCOORD coordinates of the CCD containing the intersection point. The numbers can be used as CCD MiscData attributes `OPTICS_X`/`OPTICS_Y` (+`OPTICS_CCD`).

- REFERENCE
  See task **epicbscalgen** and **cal** documentation for definition of boresight related coordinate frames.

4 Comments

none.

5 Future developments

add more tools

References