Pointing Transfer Pipeline Thread (Wrapper script: w_pointinghistory.pl)

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Purpose: For a given DCE, transfer pointing history from boresight to specific FOV in instrument array, compute pointing and uncertainties, write as keywords to FITS image header, generate final product (using FPG), copy final product (and associated ancillary files) to sandbox, and register filenames in database. The main processing steps are as follows.

1. Initialization: Read environment variables, define filenames and parameters, get input PlscriptId (from preprocessed product), copy (BCD) FITS image to local proc. directory.

2. Read keywords from FITS header to determine mode, aperture ID. Construct pointing history namelist blockname for given instrument/mode.

3. For MIPS only: Query DB for scan-mirror parameters for use in "mirrorsynch" module below. Use predicts if not exist.

4. Construct instrument specific namelist array and copy to local processing directory by passing TFS.log file.

5. Get the specific FOV aperture name to reconstruct to by parsing a table which maps commanded/actual FOV to desired FOV. This aperture name is used by boresightTran below to select the specific Euler angles.

6. Get list of ancillary files, copy to local processing directory. Set up inputs for calibration transfer and execute.

7. Get snippet of pointing history for DCE SCLK range from archived BPHF. Use ptg-server client "getPH" if server is up and environment has USEPTGSERV=1, otherwise use direct DB query method: "getPH_online" module.

8. For MIPS only: execute "mirrorsynch" module which computes scan mirror-angle history synchronized to 2Hz boresight pointing samples. Append to PH file.

9. Execute "boresightTran". This creates tables of pointing history (transferred) in the specific FOV frame. For IRS, this is done for three FOVs: SLIT, actual/predict FOV and blue/red FOVs for peak-up imaging.

10. Execute "angleavge". The computes RA, Dec., Twist, uncerts, dispersions, CD matrix, other diagnostics and writes these to (raw) tranheaded and BCD FITS headers. IRS has three different sets of keywords computed.

11. Load SODB:Dces and SODB:QA_ptg_xfer tables with pointing information and uncertainties. Update FITS headers with ancillary information.

12. Query SODB for keywords required by FPG. Execute FPG on primary BCD product and optionally, on ancillary products.

13. Copy post-pointing-transferred and FPG'd products for DCE to sandbox, then register both primary BCD and ancilllary product filenames in SODB under new dpId.

14. Load records into SODB: CalProducts, replicate CalProducts and instrument specific QA tables from initial pre-processing thread with new dpId.