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## Analysis Using CTI-corrected Products

### Calibration products needed:

- CTI-corrected FEFs:
  - ⇒ best plan is to release all ACIS-I FEFs in the fall 2002
  - ⇒ prototype I3 FEF exists and undergoing refinement and testing

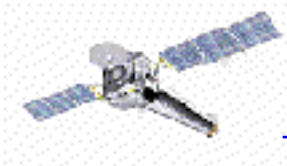
### *Needed in parallel:*

- gain maps:      ⇒ easily derived from ECDs
- OSIP files:      ⇒ for grating extraction (mostly ACIS-S, few ACIS-I):  
                                 requires changes in osip-generation paradigm
- QEU maps:      ⇒ needed because of grade changes
  - ⇒ affect derivation of ARFs, expmaps, etc.
  - ⇒ effect in the 3-10% range but still being investigated
  - ⇒ process for making them is non-trivial
- Only PHA CTI-corrected FEFs are being produced. RMFs in PI space will be created "on the fly" by MKRMF.



## CIAO software and documentation upgrades

- ACIS\_PROCESS\_EVENTS including CTI correction code:
  - ⇒ basic coding is completed
  - ⇒ additional coding is needed for final details (flags in header for corrections, record of CTI correction version, etc.)
  - ⇒ testing needed for non-standard modes
- SHERPA libraries:
  - ⇒ new error function and complementary error function already added (used by mkrmf)
  - ⇒ need to build a new development branch (away from all other CIAO 3 changes)
  - ⇒ pileup model fix desirable in any patch (not yet coded)
  - ⇒ testing and porting to all platform
- MKRMF:
  - ⇒ dynamic binning ('PI-on-the-fly') would give a better product, and save much calibration effort (needs to be coded; C prototype exists from J.Davis)



- CALDB access:
  - ⇒ need to include two different kinds of calibration products (CTI and non CTI-correct products)
  
- impact on documentation:
  - ⇒ threads are affected: size of effect depends on choices of how many FEFs, if QEU is updated, if SDP is changed, if CALDB s/w is updated. Rough estimate indicate changes needed to a minimum of 15 threads/scripts with at least 2 new ones to write
  - ⇒ need for another decision tree ("if data is CTI corrected then ....else) in most of the threads
  - ⇒ possibility is to update only few crucial threads needed for CTI-correct data and post "work in progress" on other
  - ⇒ change in approach until SDP is changed: "data from pipeline are not the best they could be"
  - ⇒ work to update documentation for CTI-related items will delay documentation work for CIAO 3.0



## Standard Data Processing (SDP)

- Before CTI-correction can enter SDP additional items are required:
  - ⇒ better traceability of corrections (for archive and consistency between levels)
  - ⇒ MTA may need original PHAs to track changes
  - ⇒ need additional testing

### Final note:

CTI calibration is for -120 C only, timed event only, faint or very faint. NOT for graded mode, interleaved mode, CC-mode or readout times other than 3.2s.