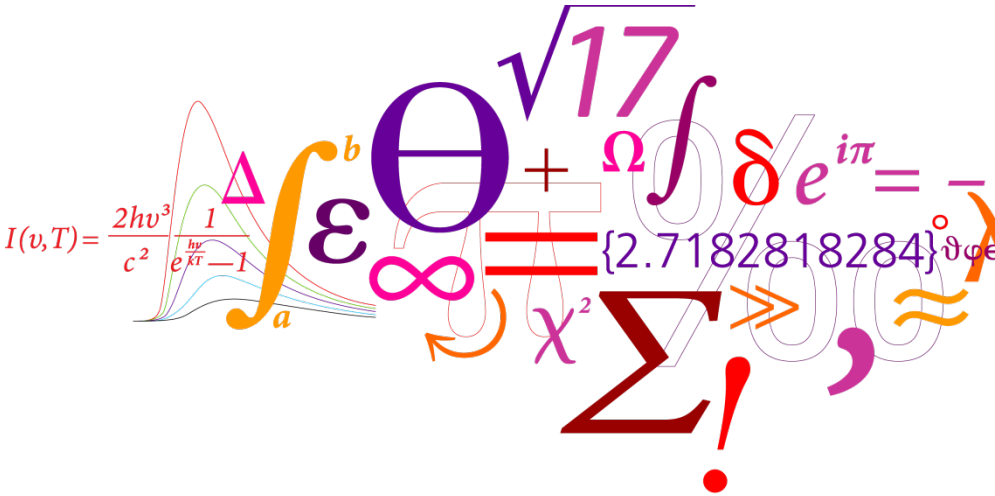
JEM-X Gain Calibration

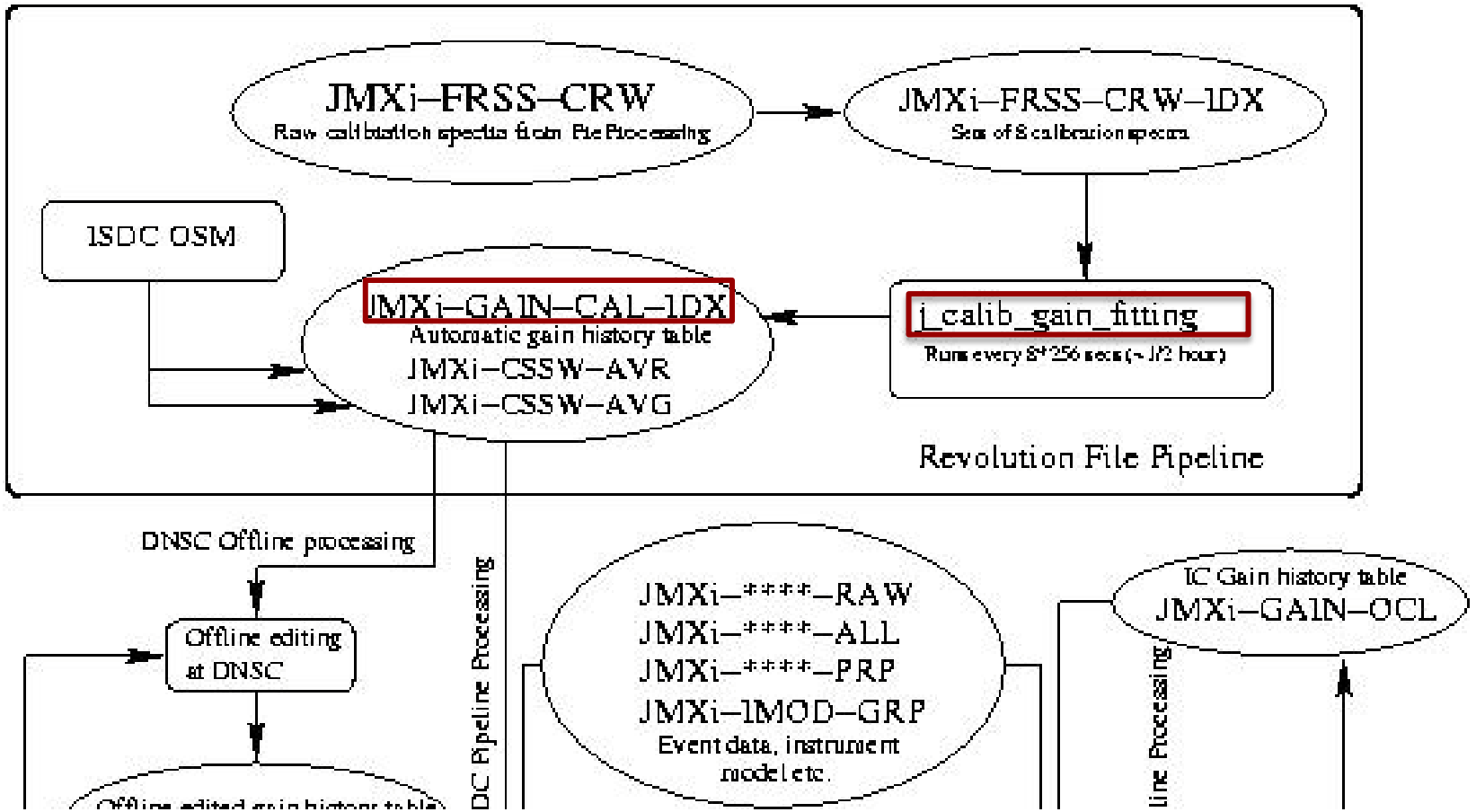
Xe line analysis and IC tables

Carol Anne Oxborrow

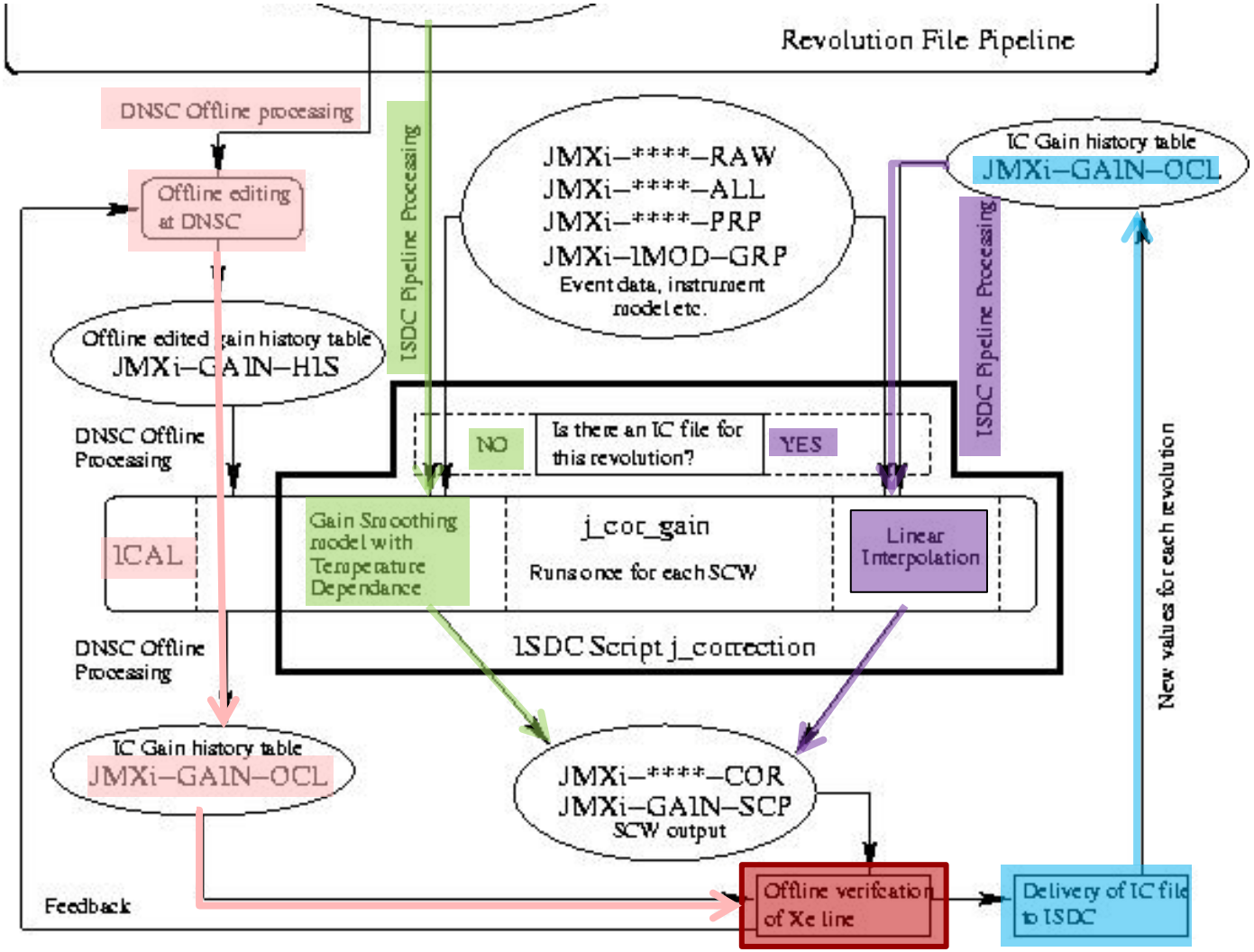


DTU Space
National Space Institute

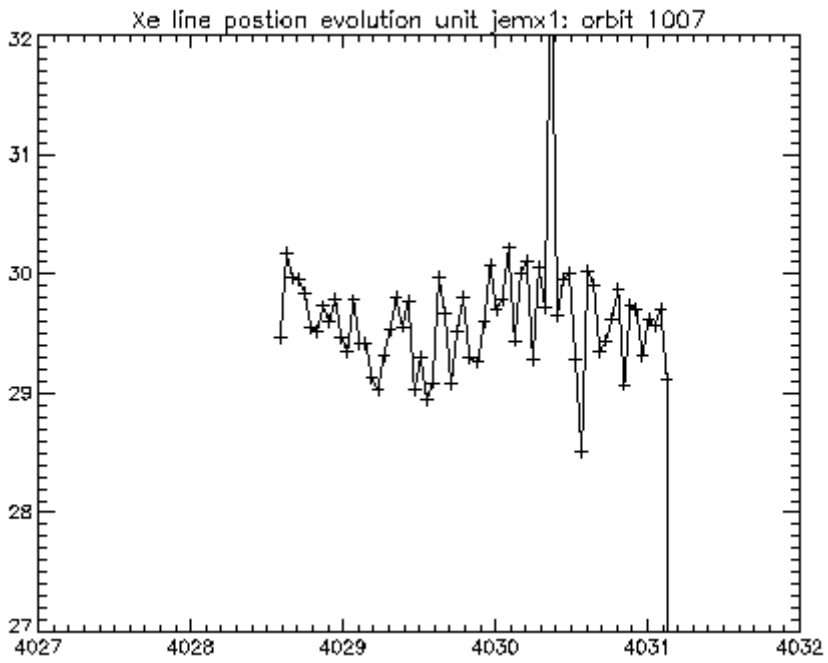
ISDC Gain History Table

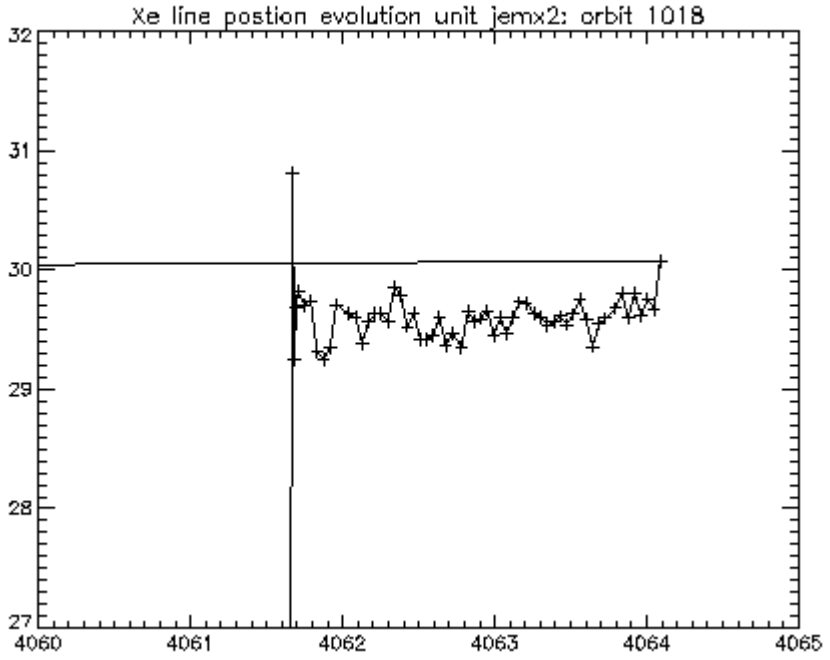


Gain Correction

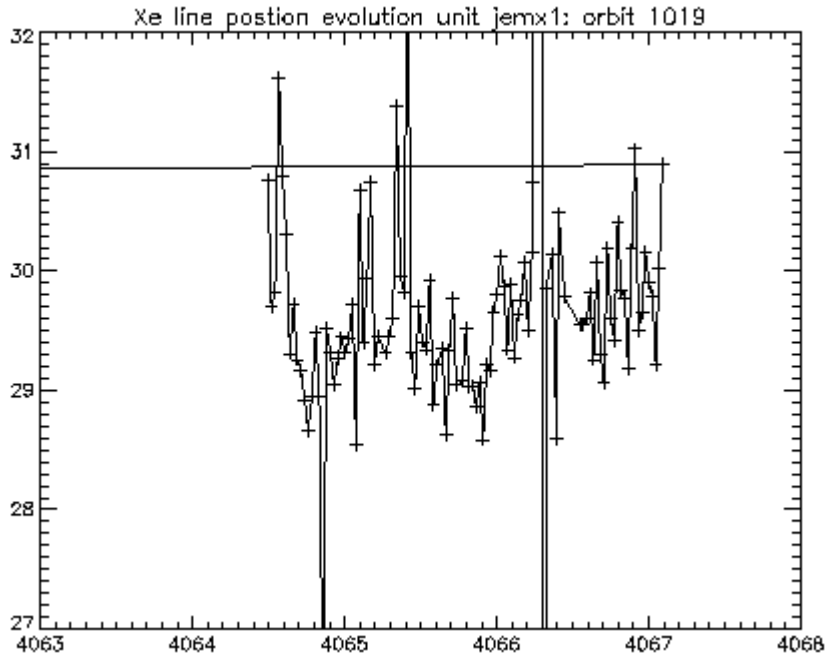


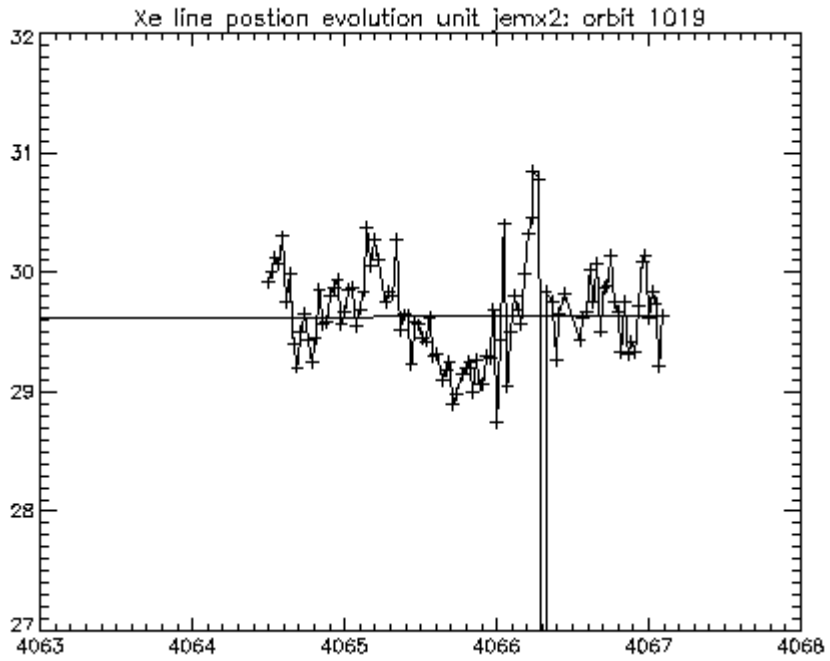
Xe line position: Good examples



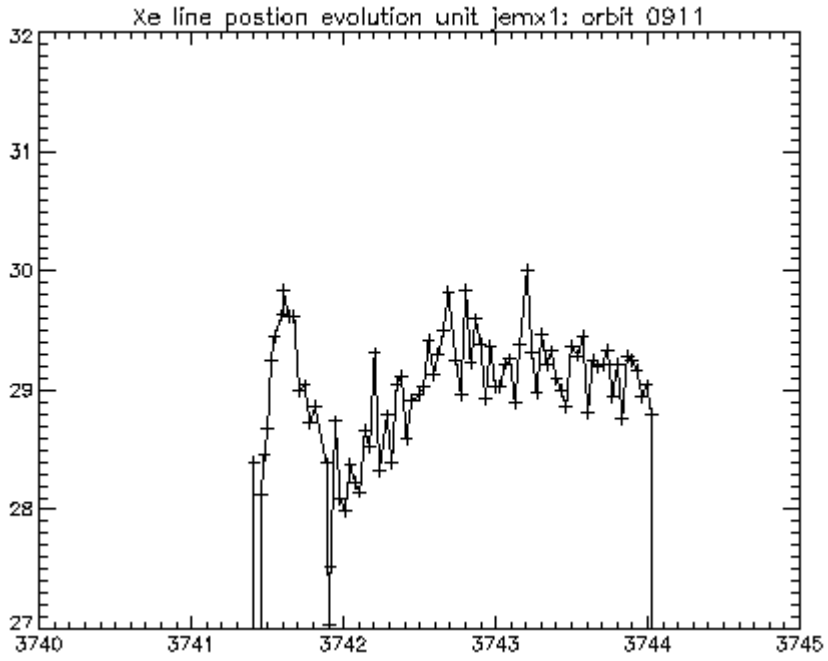


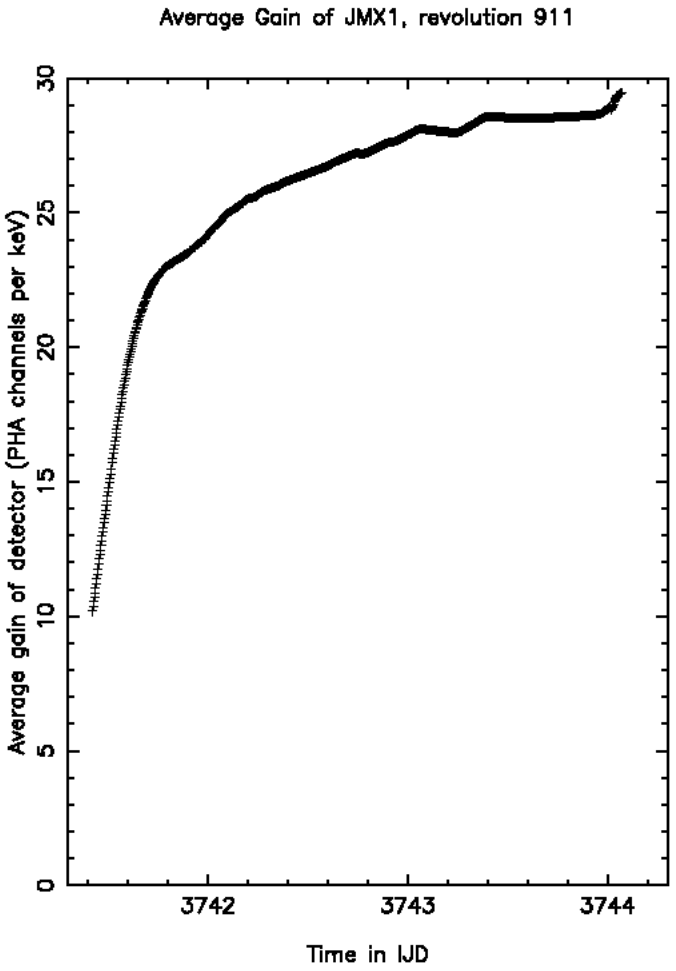
Xe line position: Not-so-good examples



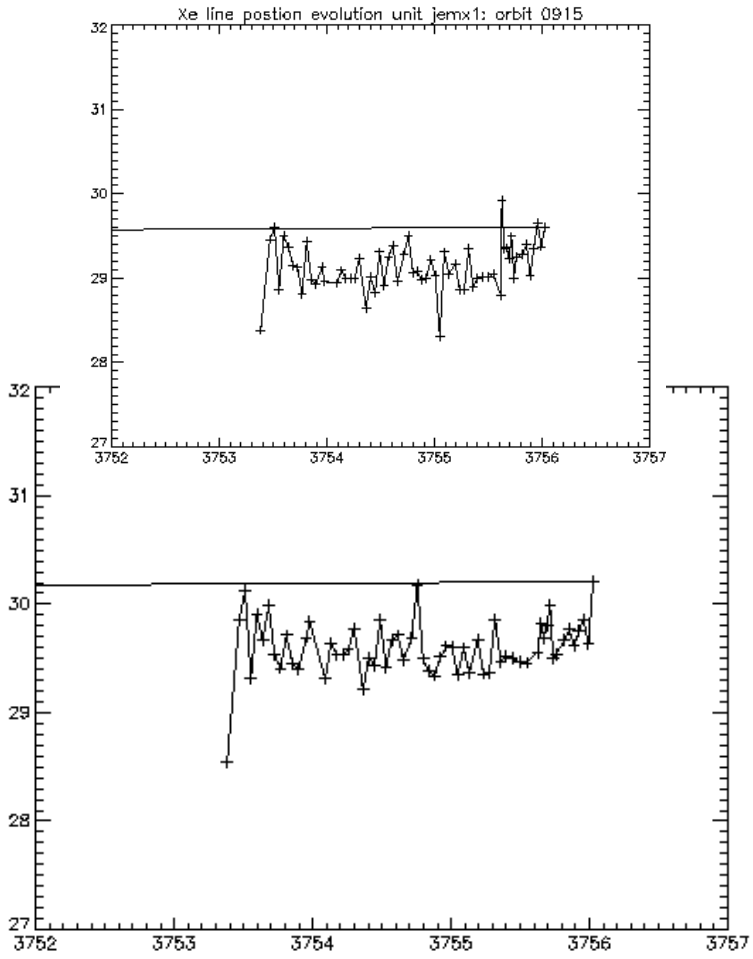


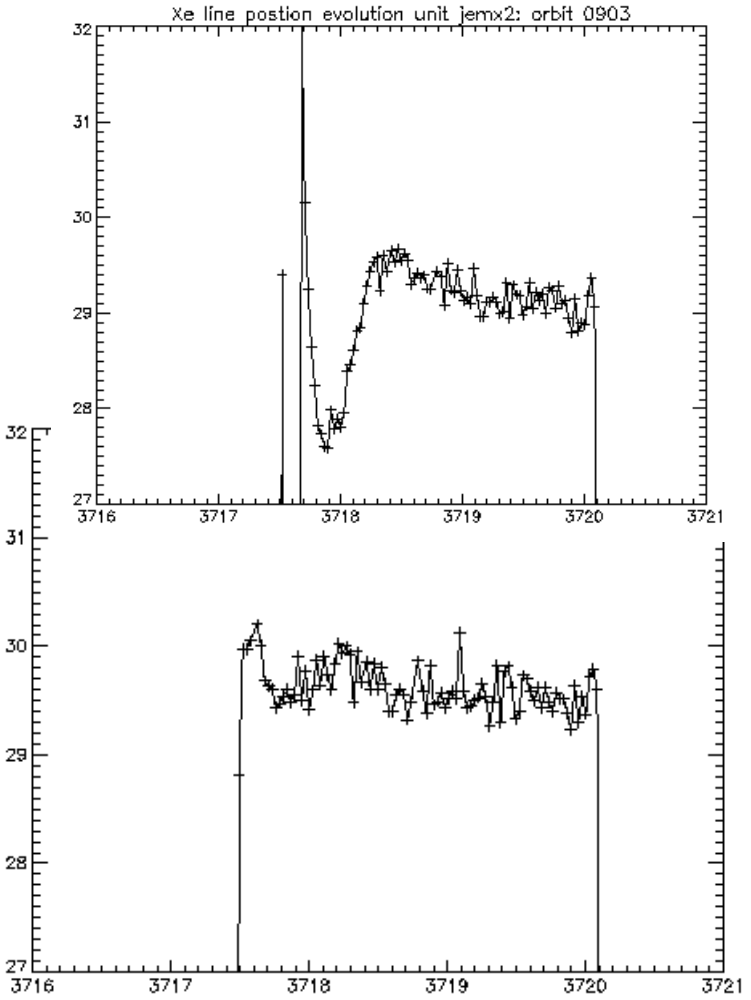
Non-linear Effect





IC tables vs. non-corrected GainHistory tables

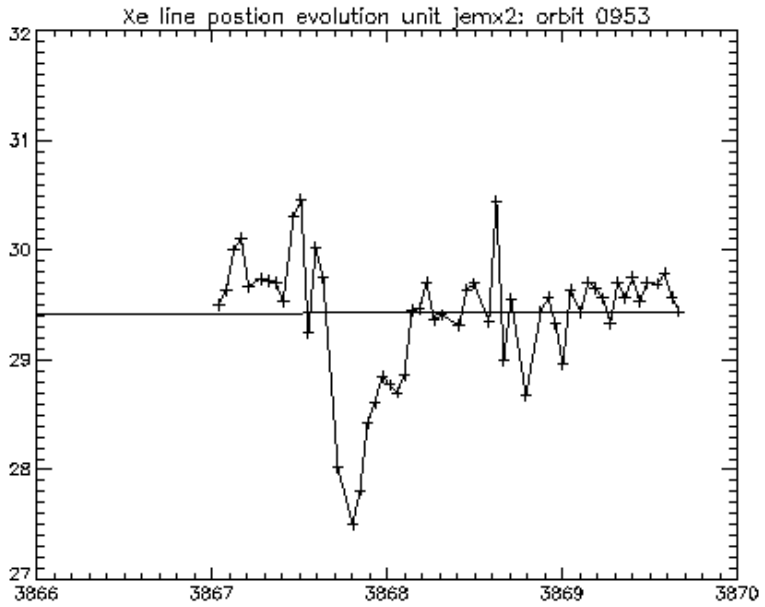


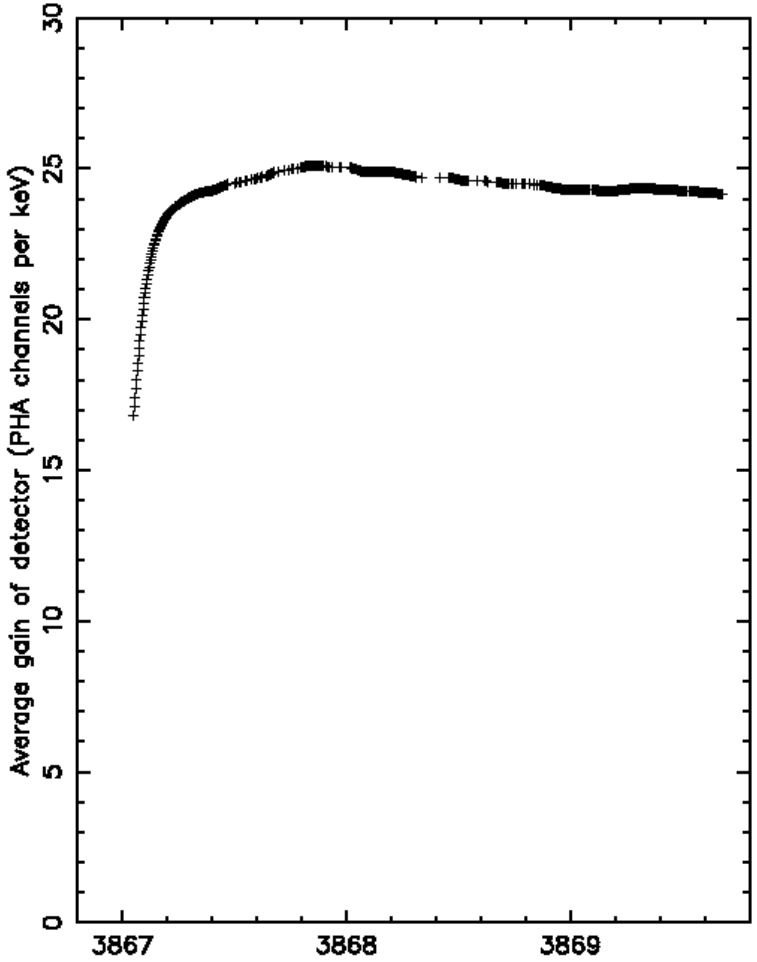


Bad Things Made Good with IC Tables

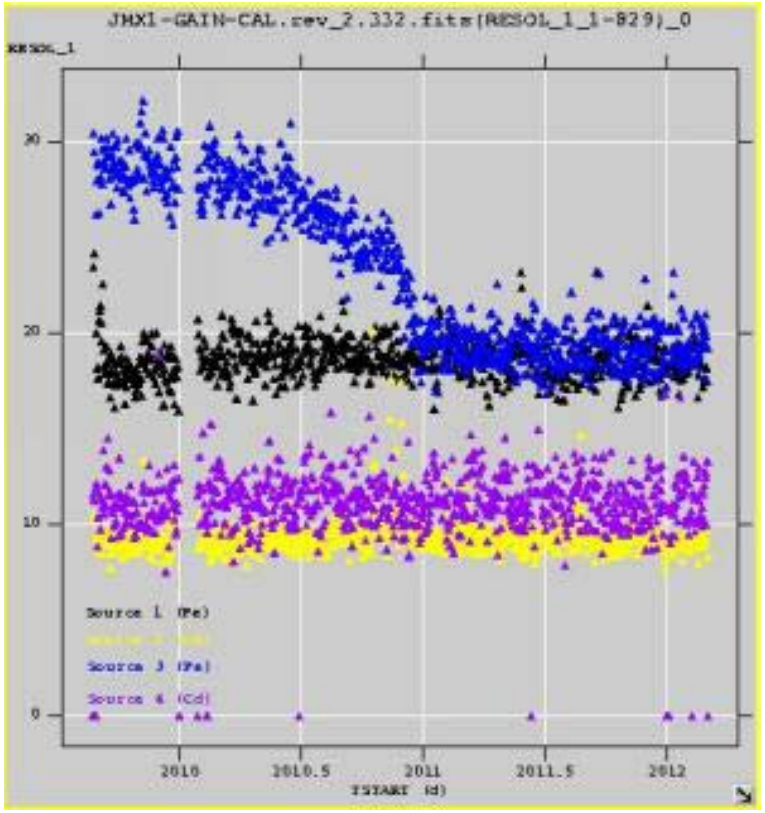
- Poor gain smoothing in j_cor_gain
  - very rare with v8.03
- Heavily grey-filtered gain history tables
  - Zeros produced by j_calib_gain_fitting
  - Happens with strong sources especially SCO X-1 and Crab
- Generally low Xe level
  - due to high gain and temperature dependence
  - Due to microstrip plate aging
  - Continues to increase with age
- Non-linear gain effect
  - Due to varying temperature/gain relationship
  - Continues to increase with age
- Unusual events
  - Seen only a few times during mission
  - Plate charging

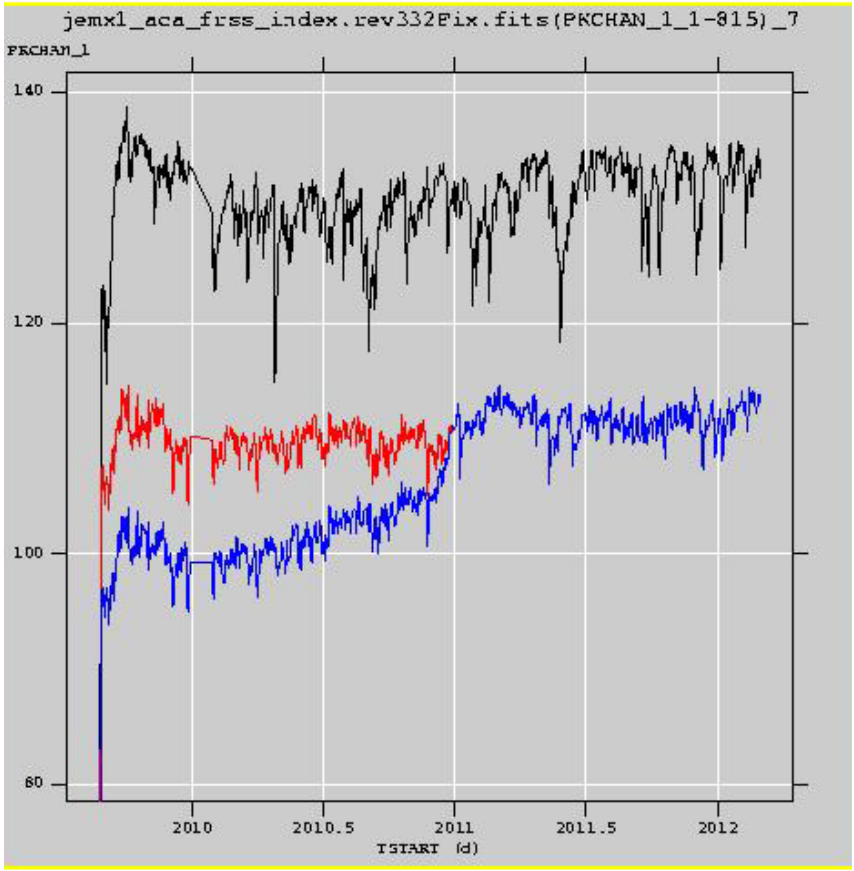
Rare Events: Revolution 953, JEM-X2





Rare Events: JEM-X1 Revolution 332





Calibration Sources