

Pipeline Status

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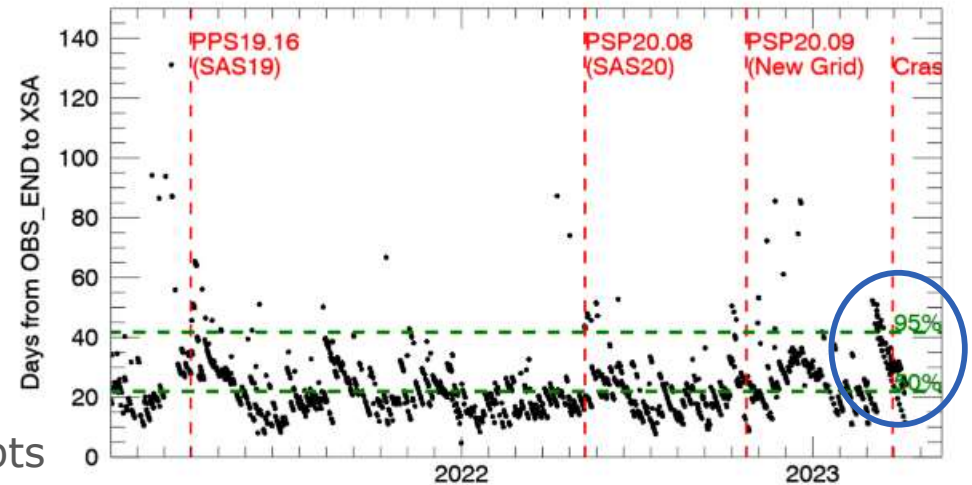
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Outline

- Daily production
- System evolution
- Remote screening of PPS products
- Future changes
- Summary

Daily production

- “smooth” but
 - Failing observations
 - errors in ODF generation
 - crash in SAS tasks or pipeline scripts
 - “wrong” products identified in manual screening
 - Fixing methods:
 - Raw telemetry reprocessing to generate new ODFs (logged in ODS system)
 - “Manual” edition of ODF constituents (logged in Qcheck system)
 - Ignore exposures in pipeline processing (logged in PPS system)
 - **Pipeline storage system crash on March 25, 2023**



Recovery from storage system crash

- Pipeline processing system unavailable on March 27
- Recovery from backup expected to take several weeks
- ODFs delivery to XSA resumed in April 03
- Setup a new processing system in parallel to recovery activities
 - New machine as a clone of main administration node
 - Re-installation/compilation of all SW pieces (from dockerized building system)
 - Special dedicated restoration of some catalogues (USNO B-1, 2mass, SDSS-DR9)
 - Testing content and integrity of products generated in the new system
 - Screening resumed in April 18 (~100 obs pending)
- PPSs delivery to XSA resumed in April 20 (Science Data)

*Big thanks to screeners
for their extra effort*

Pipeline System evolution

- Latest releases
 - PPS20.08 (May 2022)
 - SAS20
 - Bug fix: Effective area files for PN Timing/Burst spectra corrected
 - Bug fix: Wrong OM source list in PINDEX PPS file
 - PPS20.09 (Oct 2022)
 - Migration to new a Grid infrastructure and upgrade of OS
 - PPS20.17 (Apr 2023)
 - Re-creation after storage system crash
- DevOps model
 - Dockerisation/containerization of pipeline modules and ancillary software
 - Reduce dependencies on hardware infrastructure and OS
 - Easier and faster deployment on any system permitting containers
 - CI/CD environment

Remote screening of PPS products

- Current system
 - Transfer complete PPS data-sets plus ad-hoc files for screening to remote hosts
 - Specific screening files created by different software applications
 - Screening software run locally in screeners systems, also involving different languages and applications (ds9, tcl, perl, java, idl...)
- Remote system
 - PPS and ancillary files available to screeners via web application
 - Direct access to full observations log browser
 - Creation of ancillary files has been refurbished into a number of python scripts
 - Screening software centralized and the same for all screeners
 - Interactive image visualization with JS9 (not so powerful as ds9)

Future changes

- Redistribution matrix for individual EPIC source spectra (already coded but not yet activated)
- Apply results from EPIC Filter Wheel Closed data analysis to background estimate for image creation and products for spectral analysis
- Astrometric rectification of EPIC images and events after cross-correlation of detected sources with external catalogues (under investigation)
- Sensitivity maps on flux units based on Cash statistics (already coded in SAS)
- Units of OFFAX column in EPIC source lists (for next bulk reprocessing)
- Alignment of pipeline processing of OM data with current “ad-hoc” processing for catalogue production (checked and almost in-line, see Simon R.)

Incorporate new products or algorithms demanded or suggested by UG/PS
(XMM2ATHENA)

Summary

- Smooth(~) daily operation
- New Development and Operations model
- Ease screening of PPS products
- New methods, algorithms, technologies...

