The XMM-Newton Pipeline
20 years of mission processed in 5.5 days

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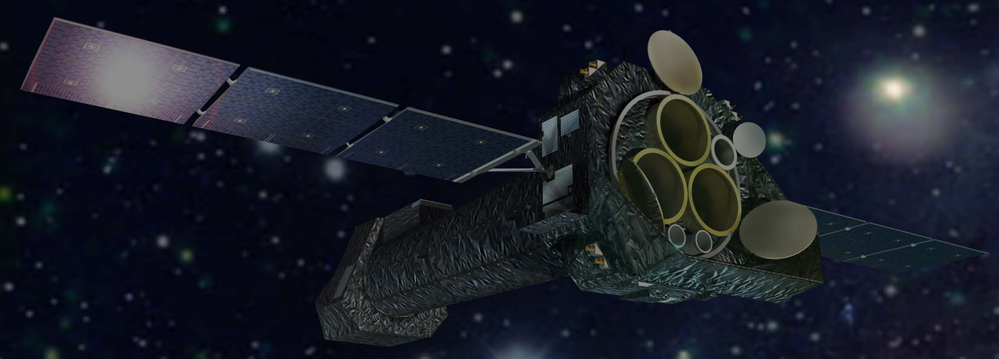
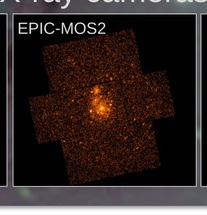
20 years of mission

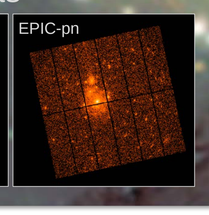
14.000+
Pointing observations processed

60.000+
X-ray science exposures
(+ 100.000 simultaneous Optical/UV exposures)

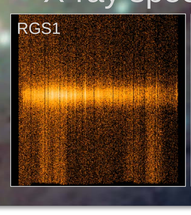


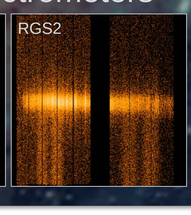
X-ray cameras



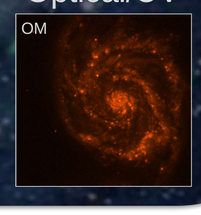


X-ray spectrometers





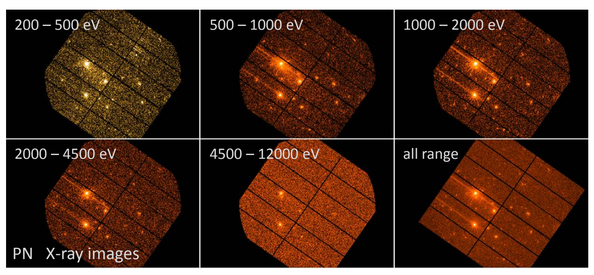
Optical/UV



After 20 years of mission the XMM-Newton space observatory has already successfully completed more than 14.000 pointing observations. Those observations are performed by 3 X-ray telescopes and 1 Optical/UV telescope, all of them yielding simultaneous astronomical data over 6 different instruments: 3 X-ray cameras (European Photon Imaging Cameras, EPIC: MOS1, MOS2 and PN), 2 X-ray spectrometers (Reflection Grating Spectrometer: RGS1 and RGS2), and the Optical/UV instrument (Optical Monitor: OM). As a consequence more than 60.000 science X-ray exposures have been carried out satisfactorily, together with around 100.000 exposures from the different OM observing modes.

This huge number of science exposures has been processed by the XMM-Newton Pipeline Processing System in the Grid facility hosted at the European Space Astronomy Centre (ESAC). The number of high-quality calibrated science data products generated by the Pipeline has risen to more than 12.000.000 data files, including X-ray calibrated event lists, X-ray sky images in different energy bands, spectra and time series from individual source detections, and X-ray high resolution spectra and time series of the main target from RGS1/2. And optical/UV simultaneous counterparts.

X-ray Images



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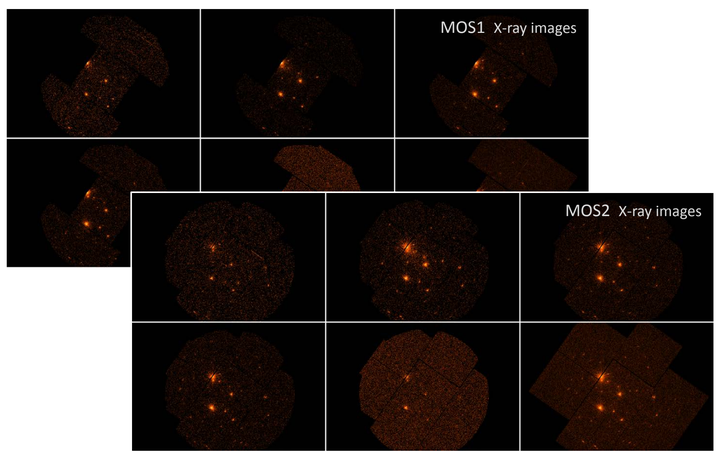
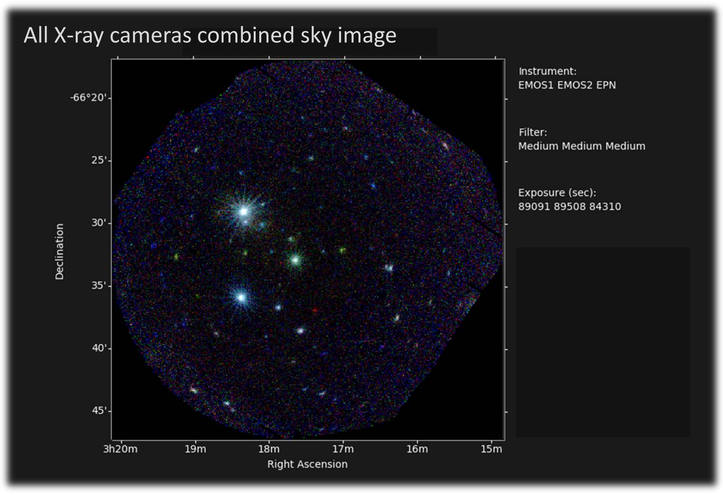
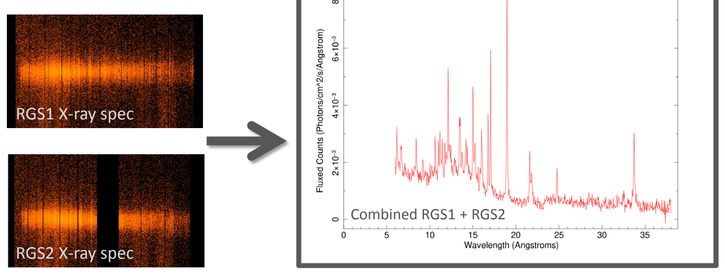


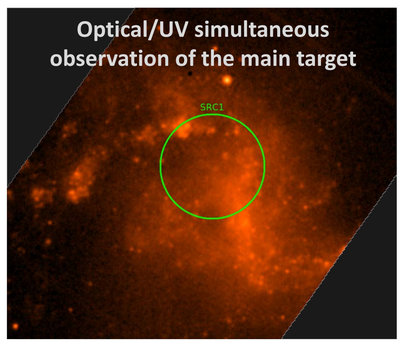


X-ray Spectra

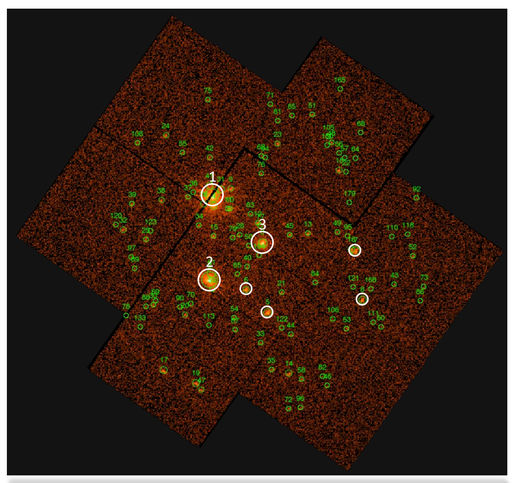


Optical/UV

Images, sources lists, spectra, time series, etc

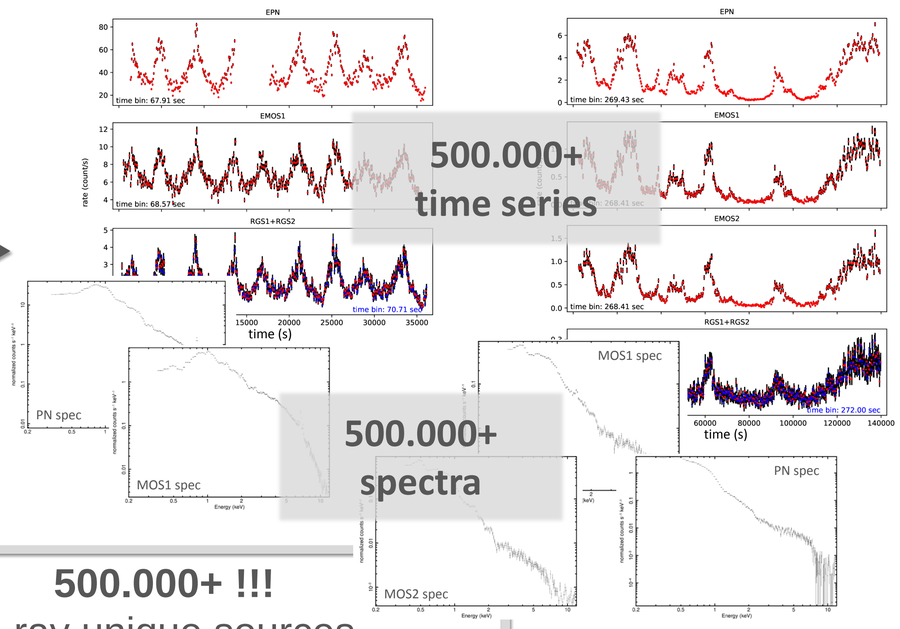


Source detection in X-ray images



~ 1.000.000 !!!
Detections from X-ray images

Source products for the brightest ones



500.000+ time series

500.000+ spectra

500.000+ !!!
X-ray unique sources

4XMM Catalogue

Next catalogue release 4XMM is expected by the end of 2019. As in previous releases, this one will establish a new record as the largest catalogue of X-ray sources produced to date.

12.000.000+ data products !!!

- **9.000.000 high-quality calibrated science data products**

+

- **3.000.000 supporting products (external catalogue cross-matches (tables, finding charts, images, etc), visualization products (plots, images, etc), adiation monitor data, spacecraft attitude, etc.)**

All processed in only:

Thanks to an important effort on the analysis of the individual Pipeline processing algorithms and a deep optimization of the computing resources

Right trade-off between the maximum number of simultaneous parallel running Pipeline jobs and the top workload supported by the computing nodes of the Grid with no loss of performance

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