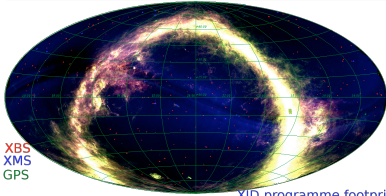


# The XID Results Database of the XMM-Newton Survey Science Center

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The Survey Science Centre (SSC) of the XMM-Newton satellite has carried out several large optical campaigns aiming at the spectroscopic identification of samples of about thousand of X-ray sources at various X-ray flux levels and towards different Galactic directions. In addition, the SSC has obtained multi-colour wide-field imaging for hundreds of XMM-Newton fields. Building learning samples for the statistical identification of all 2XMM sources was one of the main drivers for undertaking these observing campaigns. However, as testified by published works, these collections of data also constitute a very valuable resource which can be used for addressing a wide range of astrophysical issues. We describe the content and architecture of the XID results database recently opened by the SSC and containing a first instalment of these data. The interface provides easy selection and browsing through catalogues and access to all optical images and spectral data associated to any given X-ray source as well as to all relevant XMM-Newton data. The database was created using the database generator Saada and, together with the XCat-DB already deployed at the Observatoire de Strasbourg, provides another example of the flexibility, ease of use and scalability offered by Saada.



The XID results database harbours the scientific outcome of the X-ray follow-up & Identification programme (XID) carried out by the Survey Science Centre of the XMM-Newton satellite. The XID project is designed to ensure that the potential of the XMM-Newton serendipitous survey can be exploited by the community in the context of a wide range of scientific programmes.

One of the principal objectives of the programme is to obtain well-defined completely identified groups of X-ray sources using dedicated optical and infrared spectroscopic observations. These identified samples can be used to characterise the overall XMM-Newton source population sufficiently well that the basic X-ray and optical parameters can be used to assign a statistical identification for a large fraction of all the sources in the XMM-Newton serendipitous source catalogue.

The XID programme started in mid-2000. Most of the programme is now complete. The XID results database collects together the main results from the XID programme in a uniform way, providing access to the individual source identifications and the key optical and X-ray data for each object.

Its main elements are a number of complementary sub-programmes designed to cover a wide range of limiting X-ray fluxes and Galactic latitudes. Currently the database contains 3 key XID programme subsamples, the XBS (XID bright flux sample), the XMS (XID medium flux sample) and the GPS (Galactic source sample), all of which have been published or are in press.

- XBS: *Caccianiga et al. 2008, A&A 477, 735 (400 sources, 238 spectra)*
- XMS: *Barcons et al. 2007, A&A 476, 1191 (319 sources, 280 spectra)*
- GPS: *Motch et al. 2010, A&A in press (43 sources, 27 spectra)*

Optical identifications from other sub-programmes will enter the XID results database at the time of their main publication:

- XWAS: *XMM-2dF Wide Angle Survey, Tedds et al. 2006, ESA-SP 604, 843*
- SXDS: *Subaru/XMM-Newton Deep Survey, Ueda et al. 2008, ApJS, 179, 124*
- GPS: *Galactic Plane Survey Extended, Motch 2006, ESA-SP 604, 383*

The XID programme is also supported by a substantial imaging programme, needed for the selection of the spectroscopic targets, but which is also an important resource in its own right given the large sky area and hence X-ray source sample it covers. Imaging data will be made available in the forthcoming months.

XID Programme

## Database Content

Identified X-ray sources come with optical spectra, finding charts, parameters (position, magnitude, redshift) and combined multi detection X-ray quantities available from the 2XMM catalogue.

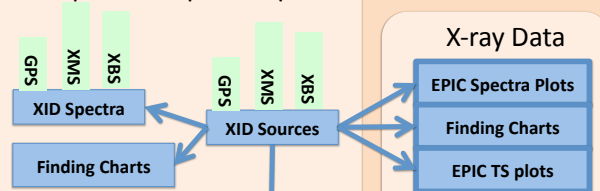
Links to X-ray data files: Image thumbnails, EPIC spectra and EPIC time series taken from the 2XMM dataset. These flat images add useful qualitative data to Web pages (e.g. spectral shapes)

Links to the XCat-DB provide a direct access to the XMM-Newton data products (EPIC, RGS, Cross-matches) related to the X-ray source.

## XID Results Database

<http://xcatdb.u-strasbg.fr/xidresult>

### Spectroscopic Sample



## Identifications with the XCat-DB

The current release of the XCat-DB proposes possible identifications for the 262,902 XMM-Newton serendipitous sources contained in the 2XMM DR3.

These identifications are based on cross-correlations with archival catalogues mostly done at pipeline processing time. For a number of large catalogues (GSC2.2, USNO A-2, USNO B-1, 2MASS and SDSS DR7), a specific likelihood ratio algorithm (Pineau et al. 2009, ASP Conf. Ser., 411, 259) was designed to compute the identification probability of the X-ray source with the corresponding optical or infra-red entry.

The database also provides a source classification in terms of stellar or extragalactic nature. The method is based on a Kernel Density Classification and relies on three different parameter spaces.

In addition, the database offers full access to all 2XMM-DR3 associated data (images, spectra and time series) and allows for complex queries.

XID Programme

## Data Selection - Data Browsing

Constraints on positions

Constraints on optical parameters

Constraints on X-ray parameters

### Data Output

- ZIP ball containing all data products related to the XID source selection.
- VOTable or FITS files
- Display in Aladin