AGN IN THE MULTIMISSION ARCHIVE AT STSCI

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ABSTRACT. We describe a new WWW interface that allows the cross-correlation of an Active Galactic Nuclei catalog with various archives (HST, IUE, EUVE) available at the Multimission Archive at the Space Telescope Science Institute. Details of the catalog and the interface are provided.

1. The Multimission Archive at the Space Telescope Science Institute

The Hubble Data Archive (HDA), located at the Space Telescope Science Institute (STScI), contains, as of July 1998, over 5 Terabytes of science and engineering data, for a total of approximately 150,000 science exposures. Based on the success of the HDA, and taking advantage of its existing archive infrastructure, the STScI archive has recently expanded by providing access to non-HST datasets. The Multimission Archive at the Space Telescope Science Institute (MAST) was thus created. This includes, at the time of writing, the International Ultraviolet Explorer (IUE) Final Archive, the Copernicus (OAO-3) Archive, the Extreme Ultraviolet Explorer (EUVE) Archive, the Ultraviolet Imaging Telescope (UIT) Archive, the Faint Images of the Radio Sky at Twenty-centimeters (FIRST) Archive, and the Digitized Sky Survey (DSS). STScI plans to incorporate additional ultraviolet and optical data sets into MAST in the future, including data from the Far Ultraviolet Spectroscopic Explorer (FUSE) currently scheduled for launch in early 1999. The MAST WWW interface is at \url{http://archive.stsci.edu/mast.html}.

2. AGN in MAST

As a first step towards taking advantage of various archives at one site and enhancing the potential of the single archives, we have started a project which allows the cross-correlation of astronomical catalogs with the archives available at the MAST. This interface, available on the Web at \url{http://archive.stsci.edu/search}, enables, as of April 1998, the cross-correlation of an AGN catalog with the HST, IUE, and EUVE archives.

The AGN catalog, heavily based on the Véron-Cetty & Véron (1996) [VV96] catalog, is discussed and used for astrophysical applications by Padovani et al. (1997) and Padovani (1998). The VV96 catalog includes 11,442 quasars and active galaxies, and gives optical magnitudes, redshift, and some radio information. To this Padovani et al.
have added: 1. the BL Lac catalog of Padovani & Giommi (1995), updated with BL Lacs discovered in 1996 (for a total of 265 sources); 2. the radio galaxies in the 1 Jy, S4, and S5 radio catalogs, mostly not included in VV96. The resulting database, which totals 12,021 AGN, was also cross-correlated with various radio catalogs providing 6 cm data, namely the PKS database, the PMN survey, the GB6 catalog, the 1 Jy, S4, and S5 radio catalogs. Individual radio fluxes for radio-quiet AGN not included in radio catalogs (radio fluxes < 1 – 30 mJy), taken from the literature, were also added. The V magnitudes in VV96 are actually mostly B or photographic magnitudes when no (B – V) value is available. Therefore, for objects without (B – V) colors, V magnitudes have been derived from the given values by subtracting (B – V) values typical of the class to which an object belongs to, unless the reference was to a paper which gave V magnitudes directly.

Great care has been taken in the classification of the sources. This is mostly based on the one given by VV96 with some important differences and additions. Namely, a distinction is made between radio-loud and radio-quiet quasars (based on the value of the two point radio-optical spectral index $\alpha_{\text{ro}}$, 0.19 being the dividing line [this corresponds to a (standard) dividing value of the ratio of radio flux to optical flux of 10]). Also, the “radio galaxy” class has been introduced and radio-loud Seyfert 1 and 2 have been included with the radio-loud quasars and radio galaxies respectively.

Using this interface, one can select AGN by class, redshift, magnitude, and 6 cm radio flux and cross-correlate them with the HST, IUE, and EUVE archives. Ranges of parameters can be provided (for example, one can select all AGN with $3 < z < 4$ and $V > 20$). For HST, one can select individual instruments, each with a different correlation radius. Multiple missions can also be selected, with the option to show only those AGN that cross-correlate with every selected mission (so one can look for AGN that have been observed with both HST and IUE, or for AGN observed with either HST or IUE). After the correlation is performed the user is presented with a list of matches and one can preview the images/spectra (at present only in the case of HST data), and retrieve the data. We are currently working on the addition of the FIRST catalog to the list of archives that can be cross-correlated with the AGN catalog.

A user supplied catalog can also be cross-correlated with any of the above archives. We are planning to expand this interface by including cluster, galaxy, and stellar catalogs. MAST is supported by NASA under a cooperative agreement between STScI and Goddard Space Flight Center.

References

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