The Complementary Nature of Databases and Catalog Browsers

SIMBAD Astronomical Database

CDS · Simbad · VizieR · Aladin · Catalogues · Nomenclature · Biblio · StarPages · AstroWeb

Queries
by identifier
by coordinates
by reference code
by list (file)
by criteria
by mail
Simbad mirror at CfA

Documentation
Presentation
Main functionalities
Release history
User's guide
Nomenclature Dictionary

Information
Registration
Acknowledgment
Release:
3.3 - June 2001

Content
The SIMBAD astronomical database provides basic data, cross-identifications and bibliography for astronomical objects outside the solar system.
SIMBAD can be queried by object name, coordinates, other criteria (filters), and lists of objects.
Links to some other on-line services are also provided.

Statistics
Simbad contains today *(23-Jun-2003)* **:**
3,109,944 objects
8,313,238 identifiers
139,187 bibliographical references
4,102,047 citations of objects in papers

SIMBAD June 2003
3.1 million objects
(>70% stars ?)

Acknowledgement

If the Simbad database was helpful for your research work, the following acknowledgment would be appreciated:

This research has made use of the SIMBAD database, operated at CDS, Strasbourg, France

VERY BROAD COVERAGE OF LITERATURE
(incl. russian and minor journals)

DO WE NEED THIS ? → YES...

PKS 2225-308 VLA 5 GHz Abell 3880

Fosbury 1980, ESO Messenger 12, 21

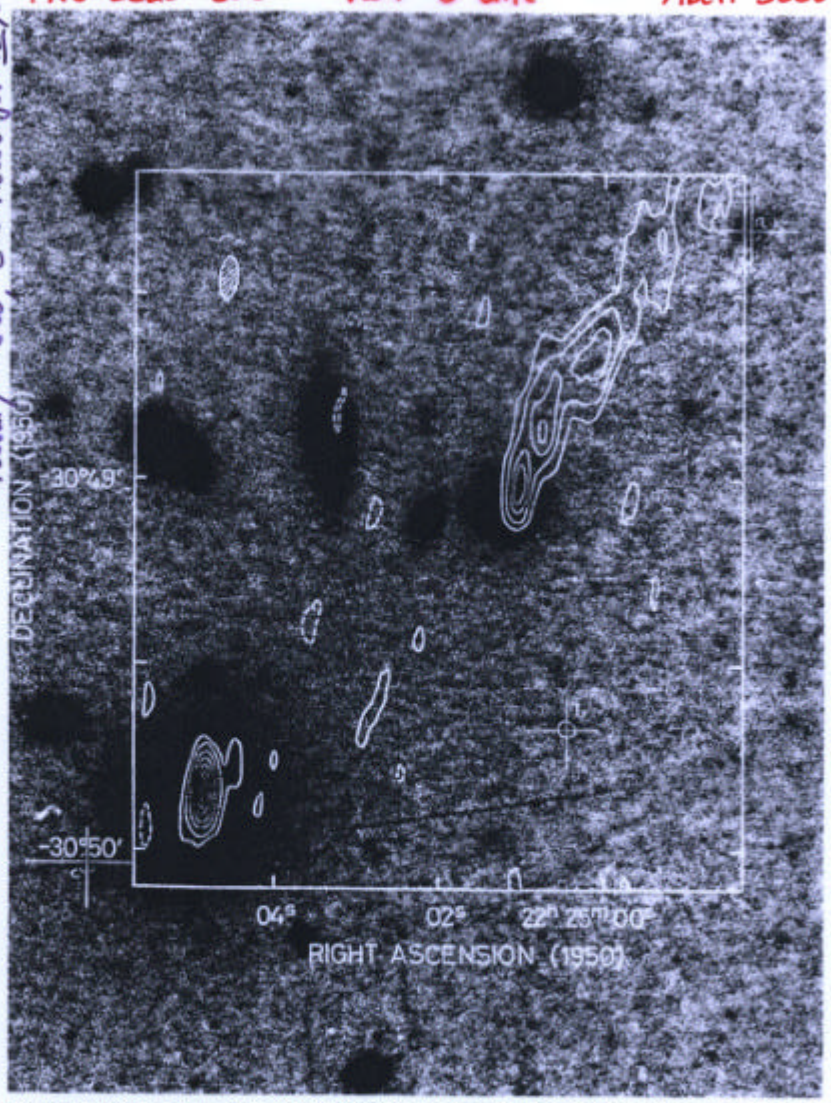


Fig. 1: A 5 GHz VLA map of the southern radio source PKS 2225 – 308 overlaid on a Schmidt photograph of a cluster of galaxies. The VLA shows the radio source to be double but not in the classical sense. Each of the two sources is associated with a different galaxy, one being a point and one a head-tail source.

Jones & McAdam
1992, ApJs

MOST
843 MHz

suggest 1 optical counterpart for an apparent radio double source

⇒ actually two distinct sources (1 point + 1 head-tail) published 12 years before, but not in abstr. service

NED homepage

NASA/IPAC EXTRAGALACTIC DATABASE

- 1.6 million 2MASS Extended Sources in NED NEW
- All-Sky Flux Constraints with Tutorial
- News - Contents and Capabilities
- Frames

OBJECTS	DATA	LITERATURE	TOOLS
By Name	Photometry & SEDs	References	Coordinate & Extinction Calculator
Near Name	Images & Maps	Author Name	Velocity Calculator
Near Position	Redshifts	Text Search	FTP
Advanced All-Sky NEW	Positions	Knowledgebase LEVEL 5	Glossary & Lexicon
IAU Format	Notes	Abstracts	Batch Jobs
By Refcode	Catalogs	Thesis Abstracts	Skyplot

Interface last updated: 07 May 2003	Database last updated: 19 Jun 2003
* 10.6 million names	* 318 thousand redshifts
* 7.4 million objects	* 773 thousand images, maps and external links
* 2.2 million references to 53,500 papers	* 57 thousand notes
* 20.3 million photometric measurements	* 31 thousand abstracts

If your research benefits from the use of NED, we would appreciate the following acknowledgement in your paper: *This research has made use of the NASA/IPAC Extragalactic Database (NED) which is operated by the Jet Propulsion Laboratory, California Institute of Technology, under contract with the National Aeronautics and Space Administration.*

NASA ipac JPL ssds

NED, June 2003:

- $7.4\ 10^6$ objects
- 318 000 redshifts

⇒ WHAT's not in NED, does not exist ?
e.g. which journals are covered ?
NED: "only major professional journals"; data from other sources are "welcome"
→ russian journals generally not included

leda.univ-lyon1.fr/ 21-Jun-2003

DEDICATED TO "NEARBY UNIVERSE" (z<0.2, no quasars...)

many more parameters per object than NED or SIMBAD

CRA Lyon

HyperLeda

Database for physics of galaxies

Mirror: CRAL Observatoire de Lyon

3 million objects
~1 million "likely" galaxies

Introduction

Select in HyperLeda and other databases

- Search by name
- Search near a position or name
- Define a sample
- SQL search

Spectrophotometry

- Compute Evolutive Template Spectra with PEGASE

HyperLeda catalogues

• Central velocity dispersion	doc	statistics	data	
• Maximum velocity of rotation of the stars	doc	statistics	data	
• Line strength indice Mg2	doc	statistics	data	
• Aperture photometry	doc	statistics	data	
• Integrated photometry	doc	statistics	data	
• Spatially resolved kinematics	doc	statistics	data	
• 1&2-D kinematical data	doc	statistics	data	
• FITS archive	doc	statistics	data	
• Heliocentric cz	doc	statistics	data	216 000 redshifts
• Morphology	doc	statistics	data	
• Size	doc	statistics	data	
• Maximum velocity of rotation of the gas	doc	statistics	data	
• Magnitudes	doc	statistics	data	2,816,000 magnitudes

DOES NED KNOW ABOUT THE "OLD" GB surveys?
@ 1400 MHz

1972 Aca .... 22 .. 227 Maslowski — 1086 sources → 0 NED objects
1978 Aca .... 28 .. 367 Machalski — 2022 sources → 0 NED objects
1987 Aca .... 37 .. 163 Rys + — 676 sources → 2 NED objects

difficulty: 11' beam → many blends; BUT: variability check!

NASA/IPAC EXTRAGALACTIC DATABASE

Searching NED for object(s) in publication "1987AcA.....37..163R"

"REFCODE SEARCH"

2 objects found in NED. Skyplot(first 100)

of 676

Object list is sorted on RA or Longitude

No.	Object Name (* => Essential Note)	EquJ2000.0 RA	DEC	Type	Velocity/Redshift km/s	z	Q
1	[HB89] 1928+738	19h27m48.5s	+73d58m02s	QSO	>30000	0.302100	
2	3C 427.1	21h04m06.4s	+76d33m12s	G	>30000	0.572000	

Detailed information for each object

Object No. 1

Object Names	Type	Object Names	Type
[HB89] 1928+738	QSO	GB6 J1927+7357	RadioS
4C +73.18	RadioS	ICRF J192748.4+735801	RadioS
87GB 192847.4+735146	RadioS	IERS B1928+738	RadioS
87GB[BWE91] 1928+7351	RadioS	JVAS J1927+7358	RadioS
[WB92] 1928+7351	RadioS	1RXS J192748.0+735757	XrayS
NVSS J192748+735802	RadioS	1WGA J1927.8+7358	XrayS
VSOP J1927+7358	RadioS	1H 1922+746	XrayS
8C 1928+738	RadioS	1ES 1928+738	XrayS
S5 1928+73	RadioS	[KWP81] 1928+73	RadioS
[VCV2001] J192748.6+735802	QSO		

A more systematic check of the coverage of NED

Refcode Search in NED for biggest radio catalogues in HA collection,
but neither at CDS nor in CATS

26 refs : 12 (mostly) in NED (photometry included ?)

%NED	N_records	refcode	Description
100	4583	2002AJ....124..675	Condon, Cotton, Broderick: Radio Sources and Star
-	4075	2002MNRAS.330..241	Magliocchetti & Maddox: OptIDs of at 1-mJy FIRST sou
100	3399	2001PASP..113..362	Condon & Yin: Offset Pointing Calibrators
-	2090	2003AJ....125..465	Hopkins+ Phoenix Deep Survey: 1.4-GHz muJy catalog
-	1521	2003AJ....125.2299	Frail+ Catalog of radio afterglows: first 5 years
-	1194	1977A&AS...28..313	Pfleiderer: Radio Survey of Optically Bright
3.8	696	1980AJ.....85.1010	Adams+ A continuum radio survey of isolated galaxies
98.4	674	1988Ap&SS.141..303	Broten, MacLeod & Vallee: RMs of Extragal. Sources
-	612	1984BFEUU..35....1	Kato+ Statistics of Radio Spectra of Extragal. Sourc
99.	608	1998AJ....116..516	Ma+ International Celestial Ref.Frame as realized by
100	563	1993ApJS...88..383	Lu+ HI obs. and I-band CCD phot. of Virgo+antip. spi
89.2	546	1982AJ.....87..517	Morabito+ Arcsec Positions for mas VLBI nuclei
0.2	534	1990ApJS...72..761	Braun: 20cm VLA survey of continuum emission
-	480	1995ApJ...448..521	Zirbel & Baum; FRI/II dichotomy
100	470	2001A&A...368..431	Teraesranta+ Search for new flat-spectrum radio sour
100	415	2001ApJS..135..227	Becker+ The FIRST Bright Quasar Survey III. The Sout
-	412	1992A&A...260..355	Andersson+ 42P/43P survey of B5 molecular cloud
0.8	392	1984A&AS...56..245	Bystedt+ High resolution radio survey of M31 I (36W)
-	384	1997JAD.....3....2	Romero+ Rapid variability of southern extrag. radio
-	380	2003ApJS..145..213	Brown J.C.+ Rotation Measures of compact sources in
100	372	2000ApJ...533..611	Richards E.A.: Radio Emission from Distant Galaxies
-	365	1977AJ.....82..541	Kesteven+ 2.7 GHz Variability of extragal. sources I
100	364	1997ApJS..110..321	Braatz+ Survey for H2O Megamasers in AGN II.
89.3	363	1983AJ.....88..709	Hintzen, Ulvestand & Owen; 20cm VLA maps of QSOs
-	362	2003A&A...403..105	Feissel-Vernier: astrogeodetic VLBI sources
100	347	1991AJ....101..362	Condon+ UGC galaxies with 5-GHz > 25mJy

Why do NED & SIMBAD contain much less catalogs than are electronically available?

⇒ Databases vs. Catalogue Browsers

A) Databases (NED/SIMBAD/LEDA):

- every "new" source is checked if present/associable with one already in the database

→ lengthy, time-consuming, requires special knowledge

e.g. in radio: - compact radio sources in gal. plane
- angular resolution vs. posit. accuracy (HRC)

→ de facto revolution of how opt. IDs are done today: most are done within NED, not in articles

BUT: catalogs like APM/COSMOS/USNO not used by NE

BIG opt. ID papers (Mc Mahon + 2002) are exception

⇒ highly value-added service, but too incomplete due to lack of scientific manpower

⇒ WE ALSO NEED the much simpler, faster solution:

B) Catalogue Browsers

- Vizier (CDS)
  - ≥ 3800 catalogues searchable,
  - subselection (radio, opt, X-ray) possible
  - many out put formats
- CATS (SAO, Russia)
  - ~ 380 catalogs, mainly radio
  - many of them not at CDS
  - very limited manpower to cope with current publication rate

⇒ better search BOTH databases and catalog browsers

The Astronomical Journal, 124:1–25, 2002 November

opt. IDs for 70000 radio sources : FIRST-APM

OPTICAL COUNTERPARTS FOR 70,000 RADIO SOURCES: APM IDENTIFICATIONS FOR THE FIRST RADIO SURVEY

RICHARD G. MCMAHON
University of Cambridge, Institute of Astronomy, Madingley Road, Cambridge CB3 0HA, England; rgm@ast.cam.ac.uk

RICHARD L. WHITE
Space Telescope Science Institute, 3700 San Martin Drive, Baltimore, MD 21218; rlw@stsci.edu

DAVID J. HELFAND
Astronomy Department, Columbia University, New York, NY 10027; djh@astro.columbia.edu

AND

ROBERT H. BECKER
Physics Department, University of California, Davis, CA 95616; and IGPP/Lawrence Livermore National Laboratory; bob@igpp.ucllnl.org
Received 1999 August 26; accepted 2002 June 10

ABSTRACT

We describe a program to identify optical counterparts to radio sources from the VLA FIRST survey using the Cambridge APM scans of the POSS-I plates. We use radio observations covering 4150 deg^2 of the north Galactic cap to a 20 cm flux density threshold of 1.0 mJy; the 382,892 sources detected all have positional uncertainties of $<1''$ (radius of 90% confidence). Our description of the APM catalog, derived from the 148 POSS-I *O* and *E* plates covering this region, includes an assessment of its astrometric and photometric accuracy, a photometric recalibration using the Minnesota APS catalog, a discussion of the classification algorithm, and quantitative tests of the catalog's reliability and completeness. We go on to show how the use of FIRST sources as astrometric standards allows us to improve the absolute astrometry of the POSS plates by nearly an order of magnitude to $\sim 0\farcs15$ rms. Matching the radio and optical catalogs yields counterparts for over 70,000 radio sources; we include detailed discussions of the reliability and completeness of these identifications as a function of optical and radio morphology, optical magnitude and color, and radio flux density. An analysis of the problem of radio sources with complex morphologies (e.g., double-lobed radio galaxies) is included. We conclude with a brief discussion of the source classes represented among the radio sources with identified counterparts.

Subject headings: catalogs — galaxies: general — quasars: general — radio continuum: general — surveys

On-line material: machine-readable table

1. INTRODUCTION

The optical identification of the first discrete extraterrestrial radio source occurred as a result of a telephone call from J. S. Hey to the Royal Greenwich Observatory on the afternoon of 1942 February 28. Recognizing that the source of extensive jamming of British radar over the previous two days appeared to follow the Sun, Hey was delighted to learn that an unusually large sunspot had just transited the solar disk; despite its skeptical reception by his superiors, Hey's identification proved correct (Hey 1973).

In the ensuing decade, progress in the detection of new extrasolar radio emitters far outstripped the ability of astronomers to associate them with optical counterparts. The first breakthrough came in 1949 when Bolton, Stanley, & Slee (1949) identified the Crab Nebula, M87, and NGC 5128 (Cen A) with three of the brightest radio sources in the sky, although they concluded that the bizarre morphology of the latter generally favored a Galactic interpretation for radio emitters since "the probability of [such] an unusual object in our own Galaxy seems greater than a large accumulation of such objects at a great distance." The following year, Ryle, Smith, & Elsmore (1950) concurred in this conclusion despite finding 0/146 bright ($V < 4.0$) stars, 0/21 novae, 0/38 planetary nebulae, 0/29 diffuse Galactic nebulae, and 4/5 of the brightest galaxies coincident with entries in their 50 source radio catalog. It was not until the classic papers of Baade & Minkowski (1954a, 1954b), which among other things pronounced Cygnus A "an extragalactic affair," that the era of extragalactic radio source identification can be said to have begun.

The largest radio catalogs in existence prior to 1995 contained, in total, approximately 100,000 distinct entries. In striking contrast to the earliest speculations, fewer than 20 of these relatively bright radio sources are identified as stars. Indeed, fewer than 1000 stellar radio detections have been made despite decades of sensitive, targeted searches (Hjellming 1988 and references therein; Wendker 1995), and <5% of all cataloged radio sources are Galactic objects. A search of the NED database, however, suggests that the fraction of identified *extragalactic* radio emitters today is little better than it was in 1950, when seven out of 67 known radio sources had identified counterparts (Baade & Minkowski 1954b). The problem now is the same as it was 50 years ago: the angular resolution of large-area radio surveys is generally too poor (several arcmin) to allow for the unambiguous

Example of 2 NED-objects that should be 1

NASA/IPAC EXTRAGALACTIC DATABASE

Help | Comment | NED Home

Searching NED within 0.3 arcmin of 10h35m05.27000s, +56d52m57.1000s

---

2 objects found in NED. **Skyplot(first 100)**

1 WGA (X-ray) + 87GB (radio) source, 11.5" apart

Object list is sorted on Distance to search center

WGA already list a QSO as ID

No.	Object Name (* => Essential Note)	EquJ2000.0 RA	DEC	Type	Velocity/Redshift km/s	z	Q
1	1WGA J1035.0+5652	10h35m04.8s	+56d52m57s	QSO	...	...	
2	*87GB 103154.7+570825	10h35m06.2s	+56d52m58s	QSO	>30000	0.577000	

Detailed information for each object

Object No. 1

WGACAT (ROSAT-PSPC) pos. err 13.7"
87 radio source pos. err. < 1.8"

Object Names	Type
1WGA J1035.0+5652	XrayS

Position Reference: 2000WGA...C...0000W

Reference	Frame	Longitude (degrees)	Latitude (degrees)	RA	DEC	Uncertaint Major
Equatorial	(B1950.0)	157.97134	57.14123	10h31m53.1s	+57d08m28s	1.37E+01
Equatorial	(J2000.0)	158.77000	56.88250	10h35m04.8s	+56d52m57s	1.37E+01

⇒ optical QSO matches both X-ray and radio sources

* A search in USNO-B yields only 1 object within 40" matching exactly the radio source position to within (1.4") *

THE FIRST BILLION-OBJECT CATALOGUE : USNO-B

THE ASTRONOMICAL JOURNAL, 125:984–993, 2003 February

THE USNO-B CATALOG

DAVID G. MONET, STEPHEN E. LEVINE, BLAISE CANZIAN, HAROLD D. ABLES,[1] ALAN R. BIRD,[1] CONARD C. DAHN, HARRY H. GUETTER,[1] HUGH C. HARRIS, ARNE A. HENDEN,[2] SANDY K. LEGGETT,[3] HAROLD F. LEVISON,[4] CHRISTIAN B. LUGINBUHL, JOAN MARTINI, ALICE K. B. MONET, JEFFREY A. MUNN, JEFFREY R. PIER, ALBERT R. RHODES, BETTY RIEPE, STEPHEN SELL, RONALD C. STONE, FREDERICK J. VRBA, RICHARD L. WALKER,[1] AND GART WESTERHOUT[1]
US Naval Observatory, Flagstaff Station, P.O. Box 1149, Flagstaff, AZ 86002

ROBERT J. BRUCATO AND I. NEILL REID[5]
Palomar Observatory, 105-24, California Institute of Technology, 1201 East California Boulevard, Pasadena, CA 91125

WILLIAM SCHOENING[1]
National Optical Astronomy Observatory, 950 North Cherry Avenue, Tucson, AZ 85719

M. HARTLEY
UK Schmidt Telescope, Anglo-Australian Observatory, Coonabarabran, NSW 2357, Australia

AND

M. A. READ AND S. B. TRITTON
Royal Observatory Edinburgh, Blackford Hill, Edinburgh EH9 3HJ, Scotland, UK
Received 2002 October 11; accepted 2002 October 31

ABSTRACT

USNO-B is an all-sky catalog that presents positions, proper motions, magnitudes in various optical passbands, and star/galaxy estimators for 1,042,618,261 objects derived from 3,643,201,733 separate observations. The data were obtained from scans of 7435 Schmidt plates taken for the various sky surveys during the last 50 years. USNO-B1.0 is believed to provide all-sky coverage, completeness down to $V = 21$, 0".2 astrometric accuracy at J2000, 0.3 mag photometric accuracy in up to five colors, and 85% accuracy for distinguishing stars from nonstellar objects. A brief discussion of various issues is given here, but the actual data are available from the US Naval Observatory Web site and others.

Key words: astrometry — catalogs

THE CURRENTLY MOST COMPLETE CATALOG BROWSER

VizieR Service

CDS · Simbad · VizieR · Aladin · Catalogues · Nomenclature · Biblio · StarPages · AstroWeb

JavaScript is used, and should be enabled to get full functionality.

1XMM · USNO-B1.0 · NVSS · UCD *Unified Content Descriptor*

Browsing through Catalogues · Output Preferences FAQ · More about VizieR

Direct access to Catalogues from Name or Designation (tips and examples)

Clear Find Catalogue

Find catalogues or Data (tips and examples)

Find catalogues among 3835 available

Words matching author's name, word(s) from title, description, etc.

Select from **Wavelength**, **Mission**, and controlled **Astronomical** keywords: Find Catalogues

Radio	ANS	AGN
IR	ASCA	Abundances
optical	BeppoSAX	Ages
UV	CGRO	Associations
EUV	COBE	Atomic_Data
X-ray	Chandra	BL_Lac_objects
Gamma-ray	Copernicus	Binaries:cataclysmic

Use LISTs of Targets
Show **all** columns
Show column **UCDs**

Clear

Target Name (resolved by SIMBAD) or **Position**:

J2000

Position in Sexagesimal, or Decimal °

Target radius: 10 arcmin

Radius or Box size

Find Data around **Target**

Search by Position across 3545 tables

Output preferences (usage)

Maximum Entries per table: 50

Output layout: HTML Table

ALL columns Reset All

Compute r x,y **Position** Galactic J2000 B1950

Sort by

r and **x,y** are the distance to the Target; **Position** is in the same coordinate system as **Target**.

This *Bookmark Button* will help you for bookmarking: by clicking on this button, the current page, completed with your input, will be reloaded to be safely included into your bookmark or favorite list B

Browsing through Catalogues

Browsing modes *via: Designations · Acronyms · Favorites · Date · Images/Spectra*

http://cats.sao.ru CATS:
CURRENTLY BY FAR THE MOST COMPLETE RADIO SOURCE CATALOG BROWSER

CATS

База данных CATS – система поддержки астрофизических каталогов
CATS Database - Astrophysical CATalogs support System

RFBR project No 96-07-89075

Вера в систему есть суеверие
о. Павел Флоренский

~380 catalogs searchable (mainly radio)
- some only by ftp

- CATS list of catalogs (~120 kb)
  Search of catalogs with JavaScript Control panels:
  Ordered with Author's name | Ordered with directory name
- Table of the major radio catalogs NEW
- The CATS descriptions: [English], [Russian]
- Context search in the catalogs descriptions
- Search with ht://Dig at CATS-server
- Coordinate search of objects:
  [Select in area] and [Match from list]
- Search of objects by name in NED database
- Plotting radio spectra of the sources from:
  - RATAN (COLD) catalog, Dec0 = 5°+-0.5°
  - 230 Galactic SNRs
  - Flux(5GHz)>1Jy (Kuhr et al, 1979,1981);
  - PKSCAT90 catalog (Wright+, 1990);
  - Pulsars (Lorimer et al, 1995);
  - Galactic survey catalog (Kallas & Reich, 1980).
  - AGN monitiring (Kovalev + 1997).
  - PMN-sources monitiring (Mingaliev + 1999) with CATS-additions.
  - NCP-sources monitiring (Mingaliev + 2001) with CATS-additions.
  - VLA calibrators with CATS-additions.
  - CLASS sources (<0.3Jy) with CATS identifications (preliminary)
  - WMAP sources with CATS identifications NEW
  - 9C sources with CATS identifications (preliminary) NEW
- Plotting linear polarization of the sources from:
  - Tabara&Inoue, 1980
- Plotting of Kuhr's sources spectra (Java applets)
- 1200 radio maps and RATAN-scans, X-rays and optical images of the Galactic supernova remnants
- The clusters of galaxies database , NEW
  a mirror of the database of the Astronomical Institute of the St.-Petersburg University

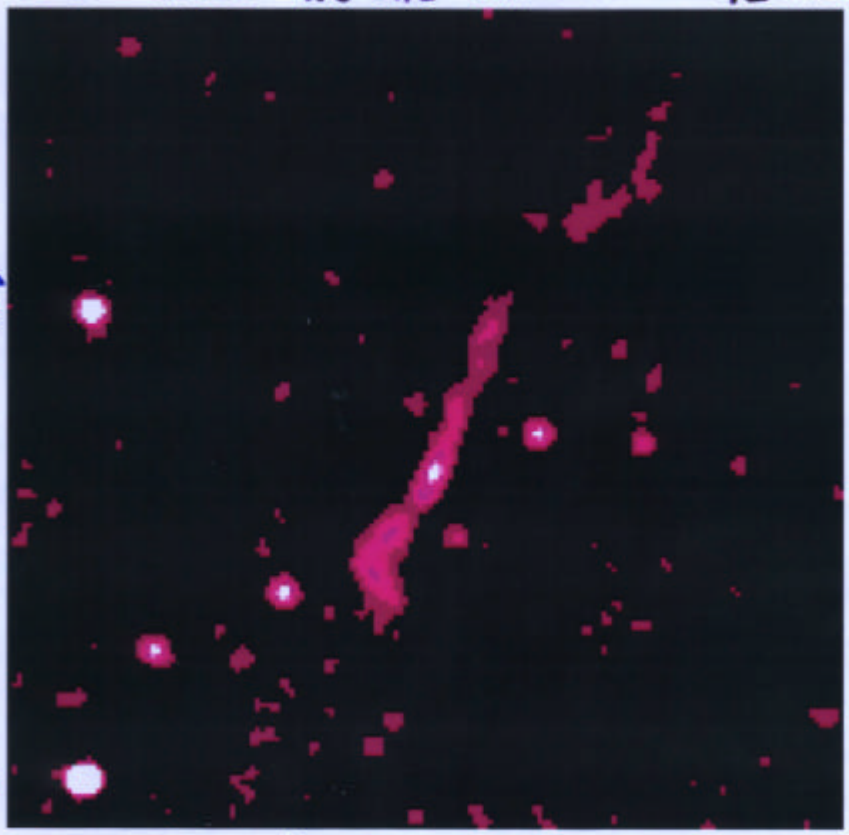
current usage
~10 / day
~3 hits from NRAO sites per day
(some downloads from CDS)

many special features

Field around $z = 0.045$
$\gtrsim 2$ Mpc ($H_0 = 50$) sized radio galaxy

What do NED and CATS know about the two background sources at the left edge of this map?

HB13 NVSS 1.5 GHz HPBW=45" 42'×42'



87GB
103154.7
+570825
(B 1950)

"COINS J1035+5628"
(J2000)

performing the search in CATS

http://cats.sao.ru

CATS Search

Please choose search method: "Select" or "Match" and

Catalogues: All | Radio (& Pulsars) | Infra Red | Objects | X-Ray | Selected

All	Radio	Infra Red
Selected	Objects	X-Ray

Up

Click here to use the match option

About CATS: in Russian **or** in English **&** View list of catalog descriptions

[Home] [FTP access to Database]

Ask to authors: *Chernenkov V.N.*, *Trushkin S.A.* or send mail to *Verkhodanov O.V.*

SPECIAL ASTROPHYSICAL OBSERVATORY RAS
N.Arkhyz, Zhelenchukskij rg., Karachaj-Cherkessian Republic, Russia 357147
t [7] 878-78-46267 ~ f [7] 878-78-44502

CATS search through 187 radio source catalogues

Catalogues: Radio (& Pulsars)

Select wanted catalogs for search by pressing buttons. Otherwise, all following catalogues are selected.

11CMALLSKY	CL_Owen82	HII_Gasvel	NSS100	RBSC-NVSS	STARS_RAD
11CMBONN	CL_Reynold	HII_Kuchar	NVSS	RC_BSAO	SUMSS
20CMNORTH	CL_Slee1	HII_Lockma	NVSS_cal	ROS86	Texas
21CMBONN	CL_Slee2	HII_Paladi	OH10	ROSAT_Brin	Texas_old
3CR	CL_Slee3	HII_Walsh	OH_survey	ROSAT_Laur	USS_Chambe
4C	CL_VLA2	HII_Wink	OOTY	RR_franc	USS_DeBreu
4MASS	CL_VLA4	IPS_102MHz	PDF	S4	USS_Rottge
5C	CL_WSRT	IPS_81MHz	PKS_80Hz	SMcA75	VIR
6C	COLD	IRAS_Condo	PKSCAT90	SNR_Green	VIR13
6CMBONN	COLD_Bucso	JVAS	PKS_flat	SNR_Kassia	VIR_ID
7C	CUL80_160	JVAS2	PKS_flat_0	SNR_Kovale	VLA404
7C9	DRAGNs	JVAS3	PKSGAL	SNR_search	VLA_CAL
7C0	DRAO	KR80_Trush	PMN	SNR_Trushk	VLA_GPS_Be
87GB	DSUR5	KUEHR	PMOM	SRC_81MHz	VLA_GPS_Ga
87GB_Minga	ELAISr	MASTER_RAD	PMN_Mingal	SRC_90GHz	VLA_GPS_He
8C	FIRST	MC_sur	PMNS_AT	SRC_966	VLA_GPS_Zo
9C	FIRST-APM	MDS	PMPSR	SRC_Alt	VLA_NEP
AGN_Condon	GALCEN	MG_VLA	PN_ESO	SRC_BKB77	VLBI_2cm
AGN_Kovale	GALS_BAO	MG-VLA	PN_NVSS	SRC_Ghosh	VLBI_sur
AGN_Steppe	GB1-3	MITG1-4	POL_Eich	SRC_Kiikov	VLBI_Taylo
ATESP	GB6	MIYUN	POL_Tabara	SRC_Mitche	WENSS
B3_2	GBI_mon	MRC	POL_Zukow	SRC_Niell	WISH
B3_3	GPA	MRC_1Jy	PSR_NVSS	SRC_Owen83	WMAP
B3_IDN	GPS_Dallac	NAIC	PULSAR90	SRC_SEST	WNGAL
B3_KMP	GPS_Fanti	NAIC_5GHz	PULSARS	SRC_Slee	WSRT
B3-VLA	GPS_Snelle	NCP_5GHz	QSO_FIRST	SRC_Sticke	WSRT_A2199
B8_WSRT	GPS_Stang	NCP_Mingal	QSO_Keller	SRC_Terasr	WSRTGP
BOLOGNA	GT_patrol	NEK_30MHz	QSO_pm	SRC_Ulvest	ZELEN_Amir
BR_GALS	H2O_masers	NEP	QSO_NVSS	SRC_UMRAO	ZELEN_Kon
CDS90	HI_DATA	NRO_10GHz	QSO_Quin	SRC_White	ZELEN_Lar
CL_Anderna	HI_GALS	NRO_RM	QSO_SDSS	SRC_Wills	Zenith
CLASS					

Result of CATS search through 187 radio catalogues

```
#*************************************************************#
# If you used results from CATS queries in your papers, we'd  #
# be grateful to know where your paper will appear, and for   #
# adding to your paper the following reference:               #
#-------------------------------------------------------------#
# The authors made use of the database CATS (Verkhodanov      #
# et al., 1997) of the Special Astrophysical Observatory.     #
#                                                             #
#   Verkhodanov O.V., Trushkin S.A., Andernach H.,            #
#      Chernenkov V.N. 1997. The CATS database to operate     #
#      with astrophysical catalogs. In "Astronomical Data     #
#      Analysis Software and Systems VI".                     #
#      Editors: Gareth Hunt and H. E. Payne                   #
#      ASP Conference Series, Vol. 125, P.322-325.            #
#*************************************************************#
# TASK: selection
#    default input  epoch: J2000.0
#    default output epoch: J2000.0
#    RA limits:    10:34:50.160 10:35:20.040
#    Dec limits:   56:49:59.880 56:55:00.120
#    GLon limits: 0 360
#    GLat limits: -90 90
#    Flux limits: 0 1000000Jy
#-------------------------------------------------------------------------------------------------------------------
# cat      name                RA           eRA      Dec          eDec      freq      Flux(Jy)      eFl equi.
#-------------------------------------------------------------------------------------------------------------------
6CIII J103506.7+565256 10 35 06.677       n    56 52 56.54       n       151         0.980          n J
7C5    B1031+5708       10 35 06.7        n    56 53 03          n       151         1.075          n J
7C5    B1031+5708       10 35 06.1        n    56 52 59          n       151         1.169          n J
MIYUN MY1031+571        10 35 06.6        1    56 53 19.2     10.1       232         0.63p       0.05 J
WENSS WNB1031.9+5708    10 35 05.988      n    56 52 58.3        n       325         0.766     0.0038 J
TXSo   TXS_B1031+571    10 35 06.267   0.089   56 52 58.18    0.43      365         0.809      0.045 J
TXS    TXS_B1031+571    10 35 06.251   0.089   56 52 57.92    0.43      365         0.939      0.052 J
B3.3   J1035+5652       10 35 03.74       n    56 52 59          n       408           0.6        .01 J
WB92   B1031+5708       10 35 06.477      n    56 52 51.55       n      1400         0.273          n J
NVSS   J103505+565257   10 35 05.969   0.055   56 52 57.43    0.56      1400        0.3329       .0005 J
FcAPM J103506.0+565257 10 35 06.033      n    56 52 57.81       n      1400        0.4008          n J
FIRST  J103506.0+565257 10 35 06.033      n    56 52 57.81       n      1400        0.4008  2.68e-04 J
FIRST  J103503.1+565215 10 35 03.118      n    56 52 15.56       n      1400  7.5000e-04  2.82e-04 J
GB6    J1035+5652       10 35 06          0.7  56 52 57          7      4850         0.205      0.018 J
87GB   J1035+5652       10 35 06.378      1.1  56 52 53.55      11      4850         0.236      0.023 J
CLASS  J1035+5652       10 35 06.022      n    56 52 57.96       n      8400        0.1323          n J
#-------------------------------------------------------------------------------------------------------------------
#The catalogue identifications listed are related to the following references:
#-------------------------------------------------------------
# 6CIII    : 1990MNRAS.246..256Hales+ The 6C III;
# 7C5      : 1998MNRAS.298..637Pooley  The 7C Survey of Radio Sources at 151 MHz;
# 87GB     : 1991ApJS...75.1011Gregory&Condon The 87GB Cat. of Radio Src at 4.85 GHz;
# B3.3     : 1999UNPUB.........Altieri+ The B3.3 source catalogue at 408MHz ftp://terra.ira.bo.c
# CLASS    : 1998..............Browne+ The Cosmic Lens All Sky Survey;
# FIRST    : 1997ApJ...475..479White+ FIRST survey catalogue at 1.4GHz  united catalog north/sou
# FcAPM    : 2002ApJS..143....1McMahon+  Optical Counterparts for 70,000 Radio Sources: APM Iden
# GB6      : 1996ApJS..103..427Gregory+ The GB6 catalog;;
# MIYUN    : 1997AAS...121...59Zhang+ The Miyun 232 MHz Survey II: The Main List;
# NVSS     : 1998AJ....115.1693Condon+ 1996: NVSS survey catalog (updated! - v.40, Jul-02);
# TXS      : 1996AJ....111.1945Douglas+ 365 MHz Survey Covering (-35<DEC<+60 deg);
# TXSo     : 1980UTPA...17....1Douglas+ 365 MHz Survey Covering;
# WB92     : 1992ApJS...79..331White & Becker A new catalog of 30,239 1.4 GHz srcs;
# WENSS    : 1997A&AS..124..259Rengelink+ The Westerbork Northern Sky Survey (WENSS). ...around
```

← request to acknowledge (Jun 2003: 15 citations) [no formal article describing CATS]

← prompt of input/output parms

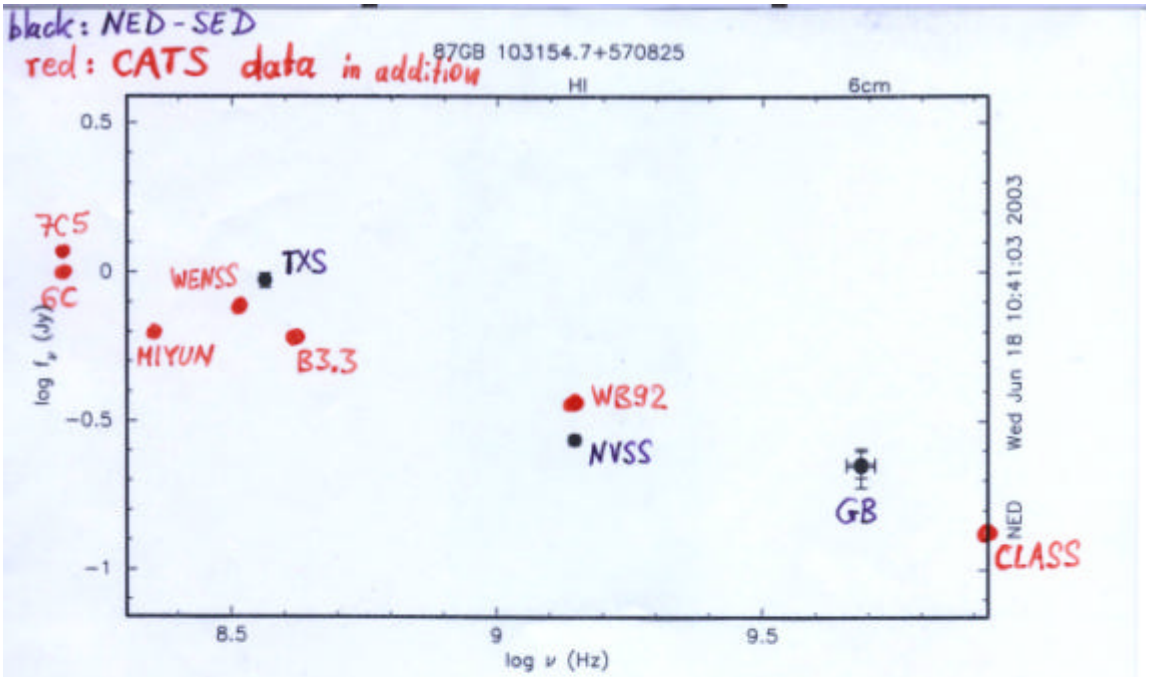
table in "homogenized" format for "insiders": "native" format available

Sort

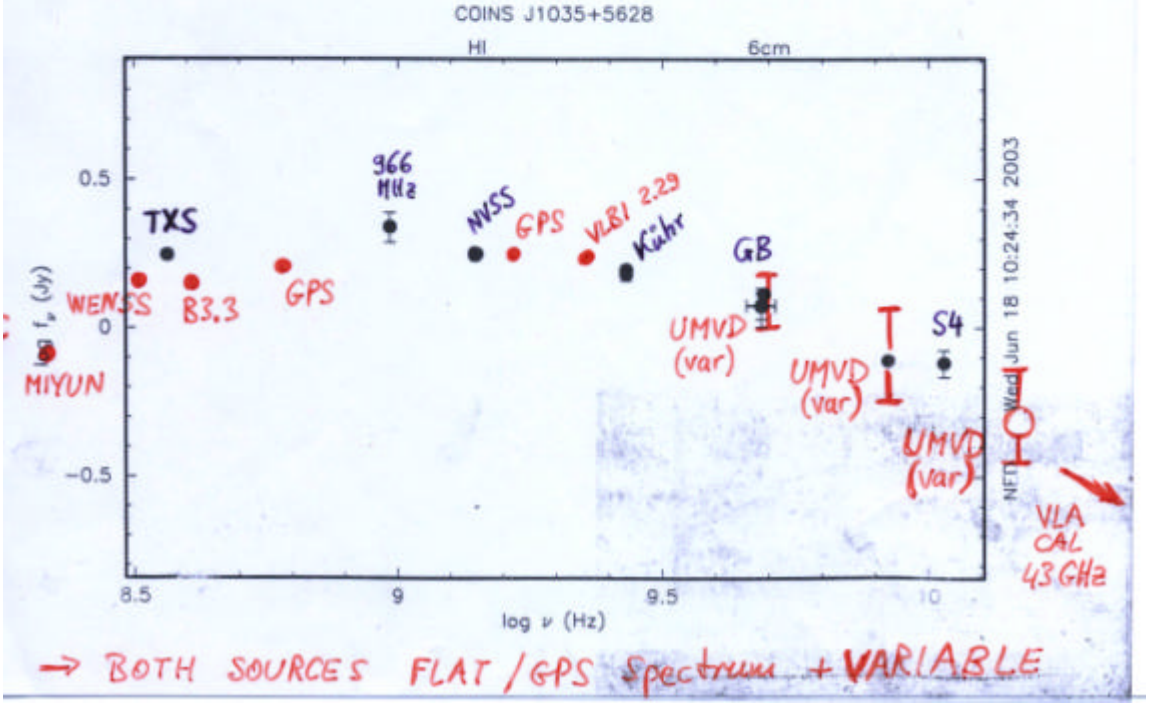
References

black: NED - SED

red: CATS data in addition



WIDENING THE HORIZON : NED + CATS



→ BOTH SOURCES FLAT / GPS Spectrum + VARIABLE